2024

Failure, remediation and the disruption of professional identity formation in undergraduate medical students (at two UK medical schools)

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UNIVERSITY OF PLYMOUTH

Failure, remediation and the disruption of professional identity formation in undergraduate medical students (at two UK medical schools)

by

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A thesis submitted to the University of Plymouth
in partial fulfilment for the degree of

DOCTOR OF PHILOSOPHY

Peninsula Medical School

April 2024

Acknowledgements:

Director of Studies: Dr Tristan Price
2nd Supervisor: Prof. Debby Cotton

Prof. Julian Archer was Director of Studies before leaving the University in 2018. Prof. Cotton was Director of Studies before leaving the University in 2019. Dr Sam Regan de Bere was a supervisor from 2016 to 2019. Dr Roberto Kulpa was a supervisor from 2017 to 2020. I would like to thank them all for their help and support over the last seven years.

Undertaking a PhD whilst also working as a clinician during the pandemic has not been an easy task. I would like to pay particular thanks to Tristan and Debby for their unwavering support and belief that I can, ultimately, achieve a doctorate.

I would like to acknowledge and thank the participants of this research for their time in completing questionnaire responses and interviews, in addition to the staff at Exeter and Plymouth Universities who were instrumental in coordinating student involvement. Thank you also to Rebecca Pitt and Sebastian Stevens for your assistance in sense checking coding and systematic review protocols.

To my parents, thank you for the support, belief and many opportunities you have given me. To friends, thank you and you'll be delighted that it will soon be over.

And finally, to my brother, Thomas, who died at the start of my PhD journey. This is for you and in recognition that you showed us that anyone can achieve anything if they put their mind to it.

Author's Declaration

At no time during the registration for the degree of Doctor of Philosophy has the author been registered for any other University award without prior agreement of the Doctoral College Quality Sub-Committee.

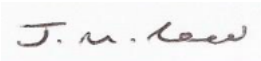
Work submitted for this research degree at the University of Plymouth has not formed part of any other degree either at the University of Plymouth or another establishment.

This study was financed with the aid of an internal PhD studentship from the University of Plymouth.

Presentation of parts of this work have taken place at the following events:

2019	Funded visit to the Chang Gung Medical Centre in Taiwan, supported by the Association for the Study of Medical Education
2020	Presentation at the Annual Academic Meeting of the Academy of Medical Educators
2023	Presentation at Medicine 2023, the annual conference of the Royal College of Physicians of London

Word count of main body of thesis: 68,532



14/04/2024

Abstract:

James Read: Failure, remediation and the disruption of professional identity formation in undergraduate medical students (at two UK medical schools):

The aim of this thesis is to understand how the narratives medical students create around their professional identities are impacted upon by academic failure and subsequent remediation at two UK medical schools. Whilst much has been written regarding pedagogically underpinned approaches to remediation, little has been published regarding how these interventions impact on the ways that students perceive themselves as future doctors, and the implications this has on their future studies. This thesis asks how failure and subsequent remediation impacts on professional identity formation, explores the different identities that students narrate they hold and considers how these findings can be used to inform a conceptual framework of remediation that supports professional identity formation. Through questionnaires, semi-structured interviews and a narrative approach to analysis, the experiences of participants are explored through the way they tell their stories, and how these stories provide an insight into their complex, evolving and intersectional identities. This thesis demonstrates that medical students narrate complex identities which are significantly impacted by failure and remediation, that the hidden curriculum of assessment and professional communities of practice are key to the ways that students hold these identities. The thesis also demonstrates that greater awareness and understanding of the agency of individual students is needed to ensure that those designing remediation interventions do so with professional identity formation in mind. Finally, this work makes recommendations regarding how remediation interventions can be constructed to support positive identity formation in the future, including a new focus on the longer-term implications of failure and remediation of the next generation of doctors, and the need to recognise that medical students are a heterogenous group, with a wide variety of lived experience. Support and remediation must therefore embrace, celebrate and respond to this, including a renewed focus on mental health and psychological wellbeing.

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Chapter One: Introduction:

PhD title:

Failure, remediation and the disruption of professional identity formation in undergraduate medical students (at two UK medical schools)

Overarching aim:

To explore how experiencing failure and undergoing subsequent remediation impacts on medical students' evolving professional identities through an exploration of their narrative identities.

Key research questions:

1. What do we know about professional identity formation in medical students and the factors that influence this process?
2. How do students narrate their experiences of failure and remediation as part of their developing professional identities?
3. What does new understanding contributed to by this thesis mean for the future design and delivery of remediation interventions for medical students?

Background:

This thesis presents a novel approach to exploring evolving professional identities in medical students and how these are impacted by failure and remediation, through an exploration of the narrative identities students create and develop when reflecting on their experiences. At a time when reported rates of student mental health concerns have never been higher (1), this research is both important and timely to understand how we better meet the needs of our learners and the future patients they will treat when qualified as doctors.

In recent years, pressures across the health service in the United Kingdom (UK) have been at levels not previously seen. Compounded by global economic uncertainty, the COVID-19 pandemic and changing expectations of both patients and doctors, recent publications have suggested that satisfaction with healthcare in the UK is now the lowest in living memory (2). Alongside this, the medical profession has been under increasing scrutiny, driven by rising patient expectations and a reduced tolerance for unexpected and negative outcomes associated with healthcare (3, 4). These issues have been compounded by high profile cases of medical malpractice and criminal activity, such as that of convicted serial killer Harold Shipman (3), disgraced breast surgeon Ian Paterson (5) and medical student Lavinia Wood, who was controversially spared jail after stabbing her boyfriend (6). These cases have also occurred alongside increasing scrutiny of the General Medical Council (GMC) as the professional regulator of doctors and medical education, with concerns raised regarding the appropriateness of current fitness to practise processes and outcomes (7) and in particular, criticism related to apparent differences in the types of sanctions imposed related to protected characteristics (in particular ethnicity).

Whilst medical students are not doctors, and to that end they are not individually professionally regulated in the UK, the GMC oversees both the education of medical students (through accreditation of University degrees) and professional regulation of doctors (8). To be awarded a medical degree in the UK, the GMC must be satisfied that the University (or other Higher Education Institution) has provided an appropriate level of education. The GMC maintains the list of those organisations which can award UK Primary Medical Qualifications (PMQs). Students who graduate from approved UK medical schools are entitled to be (provisionally) entered onto the medical register, and therefore the regulator has clear expectations that medical schools have rigorous processes to ensure the students they graduate are fit to practise (9). The GMC also produces guidance specifically for medical students regarding their behaviours, for example *‘Achieving good medical practice: guidance for medical students”(10).* Such guidance ensures that students are aware of the expectations placed on them throughout their medical studies and are held to account against these standards by their medical schools.

Providing assurance of medical student knowledge, behaviour and professionalism is usually achieved through regular medical school delivered assessments; with those students who do not meet the prescribed standard receiving non-passing outcomes (11). This may impact upon the progression of students through medical school, or require their withdrawal from the medical programme entirely. In view of the time, money and personal energy that has been invested in (and by) students, most organisations provide 'remediation' as a means of assisting those who have not met the required standard to improve their performance (12). With the introduction across 2024 and 2025 of the UK Medical Licensing Assessment (MLA) students wishing to enter practice will also need to sit a national examination for the first time, further raising the stakes of medical assessment and the requirements for associated remediation, (13) as in many schools this provides an additional, externally standard-set assessment required to obtain entry onto the medical register (14).

However, despite the widespread use of remediation, the literature on which these interventions is based is sparse, with little evidence of a sustained improvement in performance following remediation, and even less literature examining how undergoing remediation impacts on the way in which individual students perceive themselves and their role as future doctors (15). Given the importance of developing positive professional identities in producing practitioners who provide the best care for patients (16), this represents a significant gap in the literature that this PhD aims to fill.

Remediation is a topic of particular interest in relation to professional identity formation because medical students are usually high achievers (17) and many enter medical school with this a key component of the way they perceive themselves (18). In general, they have performed well in their previous studies (usually in secondary school education for UK based students (19)) and many will have had little, if any, previous experience of failure. Once at medical school, with a group of similarly high performing individuals, the bar is 'reset' and as a result some students who were previously at the top of their class find themselves towards the bottom (20). Norm-referencing, where students are in effect ranked against their peers, is common within medical education and therefore this change in assessment to a cohort-based performance metric is often made extremely visible (21). This can have a significant impact on students and

their sense of self, through the creation of an 'identity crisis' (22). This may be exaggerated through previous lack of experience as many have not developed methods of coping with actual or perceived underperformance and failure, and at a time when students have a nebulous (perhaps even only theoretical) professional identity, this may be highly disruptive to their development as doctors of the future (23).

However, despite this impact and the significant resource invested, current remediation approaches rarely consider the development of professional identities as part of the remediation intervention (18). There is therefore a significant gap in the literature around how remediation impacts on professional identity, and whether there is a way that remediation approaches can be tailored to support this process (15).

Remediation:

Remediation is now a widely employed intervention in medical schools across the UK, and indeed globally (12, 15, 22, 24). Whilst approaches differ, the primary aim is to support those who are not meeting a required standard and provide some form of intervention to improve their performance (12, 15, 25). In medical education, these standards usually apply to medical knowledge, clinical skills, and behaviours related to clinical and professional practice (12, 26, 27). Virtually all approaches to remediation of medical students considered in the published literature take place as a result of assessment failure.

For medical students, the process of remediation (and re-assessment) is often high-stakes because students who are performing below an acceptable level may present a risk to patients and the public, either now or in the future (28). Therefore, the threshold for taking action is low, and in some cases may involve medical students being removed from their degree programme, leaving them unable to undertake their chosen career (29). Most medical schools will not allow students who have withdrawn from a previous medical programme to apply to study at another UK higher education institution (HEI)(30). This approach is driven not only by the legal responsibilities placed on medical schools by the GMC, but also because the public rightly expect to

be treated by those who are fit to practise, shaping the way that medical education is regulated (31).

Whilst there are implications for patients in allowing doctors to practise who are unfit to do so, there are also implications for the individuals when real or perceived deficiencies in their knowledge, skills or behaviours are identified (31). A report commissioned by the GMC identified that qualified medical professionals who undergo fitness to practise proceedings are at high risk of mental health difficulties and attempts at (including completed) suicide (32). Medical students also report higher levels of mental ill-health and suicidal ideation than the background student population (33).

This topic remains especially prevalent in HEIs across the devolved nations, including a recent report and call to action from Welsh Government (34) although Wales is not alone in the devolved nations in focussing on this area. The international context too is important to consider, however it should be noted that this PhD examines remediation in UK medical education and the implications for postgraduate practice within the UK health system. Whilst international comparisons are of interest, and some relevance to this thesis, the vastly different healthcare systems across the world are too vast to consider within this piece of work. An area for future development remains the consideration of international students at UK Universities and if they experiences differ, although this is outside the scope of this PhD.

The psychological and physical health implications of identifying poor performance have, therefore, focussed attention more closely on ensuring appropriate support of those undergoing investigation and remediation. Medical students have also been found to be distrustful of the process of remediation and some have refused to engage at all, placing medical schools in a difficult position (24). Through an in-depth review of the personal impacts on remediation, this PhD will make recommendations to improve trust and understanding by students regarding the remediation process.

Identity:

Medical students, much like other healthcare and veterinary medicine students, are usually considered to be different to their peers registered on other courses at University in published educational literature due to the vocational nature of their courses and early contact with patients and service users (35, 36). On the one hand, these students are generally young adults who have left home for the first time with evolving personal identities, which develop rapidly as they live outside the family environment (17, 37). On the other, they are exposed to patient and service user contact as early as the first week, leading them to confront upsetting and complex issues that challenge even well-established medical professionals. They are expected to form identities as professionals very rapidly, whilst at the same time their sense of self is poorly evolved (23). Understanding how organisations support students through this process is therefore vital.

Failure acts as one of many disruptors to identity in those who have usually been highly performing (38, 39). Having well-formed professional identities is important as it has previously been associated with a number of positive outcomes, including:

- Better team working (40)
- Improved patient care (4, 16)
- Improved resilience and decreased risk of burnout (41)
- Higher levels of patient reported satisfaction, especially related to improved compassion for patients (42)

Research has also suggested that developing a more formed professional identity reduces the risk of episodes of ‘professional failure’ in the future (28). A term used to encompass both knowledge and skills-based deficiencies.

Forming a professional identity as a medical student is a complex and multi-faceted process which depends on the individual and their current and previous experiences (43, 44, 45). However, there are some key phenomena which appear vital in the formation and development of professional identities. These include:

- Socialisation with other medical students and doctors (at all levels of seniority) (44)
- Role-modelling (both positive and negative) including from the wider multi-disciplinary team (4, 44, 46)
- The hidden curriculum (16, 44)

Whilst failure and remediation will be discussed throughout this thesis (usually presented by students as negative experiences) it is also important to note that identity crises such as those that both challenge and undermine core elements of 'self' also appear to be vital in professional identity formation (47). This can include life events that undermine a previously accepted norm, such as consistent academic success. Failure and remediation are likely such events, and may therefore be important in the development of identities in medical students. The importance of well-constructed and delivered remediation may promote healthy identity development and may serve to help form new personal and professional identities. This thesis will, through exploring student experiences, consider in the conclusions if there are approaches to failure and remediation that may best serve these more 'positive' outcomes for professional identity that are associated with improved patient care and individual wellbeing.

For students to gain the most from their studies and from experiences of failure, the underlying issue(s) leading to less than satisfactory outcomes need to be addressed. A previous remediation literature review, undertaken as part of my Masters in Clinical Education (48), identified that the causes of failure are complex, multi-faceted and in medical students rarely due to a lack of academic ability. Instead, the following were more commonly identified as part of the issue:

- external life stressors (including personal and family difficulties)
- undiagnosed disabilities (particularly dyslexia)
- inappropriate approaches to study (for example, those that do not align to retention or application of knowledge)
- a lack of motivation to study medicine, often linked to family expectations (e.g. medical parents who expect their child to also pursue this career)

Within this thesis, the approaches to remediation discussed will usually involve interaction between students and members of academic staff. These directed approaches involve the requirement to reach shared understanding of any possible difficulties and the agreement of a plan to address these. Part of the challenge of remediation is the identification of these underlying issues, not just by the student, but also by the staff delivering any remediation intervention. If the remediation is unsuccessful, or the experience is otherwise negative for the student (such as a shared understanding not being reached) it may be expected that the student's identity is disrupted further through additional episodes of failure. The opposite would be predicted to be true if the student has a more positive experience and passes the next assessment.

Positive experiences of remediation appear to foster a greater sense of belonging to the profession and as such these outcomes are closely linked to the concept of communities of practice, with previous literature suggesting a greater sense of belonging is associated with a more positive identity development (49). Communities of practice therefore form a core aspect of this thesis. As a team based profession, medical students are introduced into communities from an early stage, including a wide variety of medical and non-medical colleagues, some of whom may be identified by students as their role models (50). Founded on descriptions first characterised by Wenger (51) this thesis draws on communities of practice, role-modelling and the work undertaken by Vygotsky regarding the *Zone of Proximal Development (52).* Definitions of this, and other key concepts, are included in Chapter 3.

These key works were identified through a systematic review undertaken at the early stages of this project to identify core resources important for developing the research and understanding the results. Importantly, students are easily influenced regarding failure and remediation based on the responses of colleagues within the communities of practice that they seek to enter, promoting the role of the *hidden curriculum* (as coined by Philip Jackson in 1968 (53)) in the process of remediation.

Since embarking on this research, further literature has been published linked to the hidden curriculum and the role in medical education. Laurence and colleagues (54) in

2018 undertook a detailed scoping review of the literature in medical education, identifying 3,747 articles using the term. Their reflections were that the concept of the hidden curriculum is usually used in a negative way, but with differing conceptual models used (which can create confusion). They also proposed that future literature needed to focus less on the phenomenon, but more on what can be done to manage the complex curricula students are exposed to in medical education. For the purposes of this thesis, the hidden curriculum will be presented as the curriculum that students experience, rather than the formal curriculum which students are informed they *should* be experiencing. As such, differences in what is expected and what is experienced can be compared and implications of this understood.

This thesis will mostly consider the concept of the hidden curriculum in a negative sense. It is recognised that this may be different to other academic disciplines, but through the analysis of student narratives it was clear that, in general, students experienced the hidden curriculum as something that undermined their experiences and created confusion and conflict; rather than as something helpful that reinforced their experiences of the overtly delivered education they received.

Methodological Approach:

The overall methodological stance of this project touches on a number of key philosophies, including a constructivist understanding of professional identity formation. Constructionism is a way of understanding how knowledge is created, emphasising the role of the individual in actively developing their understanding of the world around them. Constructionism as a perspective holds that knowledge is not simply transmitted from an external source, but is actively created through a process of individual interpretation and meaning-making (55). This philosophical perspective has significant implications for education theory and practice, as it emphasises the importance of student-centred and experiential learning and that the role of education (including medical education) is to facilitate learning rather than being a transmitter of knowledge. In the context of this thesis, it means that students create their understandings of their identities and of those around them through their experiences

as the doctors of the future, and that the impact of the hidden curriculum can impact significantly, in addition to the formal teaching and learning of their medical degrees.

This thesis is also underpinned by an understanding of professional identity as being an intersection between multiple different identities (56) (broadly personal, professional and organisational). I acknowledge too that as the researcher, I will have had an impact on both the results obtained and the way in which they are analysed in view of the professional role as a doctor that they hold, especially as my role as a medical doctor and member of faculty impacted on both the ways that students interacted with me and the lens through which I have interpreted their stories. This is further discussed in relation to the concept of 'insider research' in Chapter 6.

In exploring with students their experiences, it became apparent throughout this research that the ways that students tell their stories is vital to how they construct and explain their developing professional identities. In the interviews undertaken with participants, the narratives that they created regarding their experiences were key to them creating meaning as to their professional identities, and explaining this to the researcher. As a result, a narrative approach (57) to understanding the data has been used, allowing students to tell their stories and using these narratives as a window to identify and explore their identities in more detail, especially in relation to the impact of failure and remediation.

Context:

Data has been obtained from two UK medical schools who have a shared history. Plymouth University Peninsula School of Medicine (PMS) and the University of Exeter Medical School (UEMS) were founded as one organisation called the 'Peninsula College of Medicine and Dentistry' (PCMD) (58). This organisation placed medical students across the five acute National Health Service (NHS) Trusts in the southwest of England, with key hubs at both Exeter and Plymouth Universities. Whilst the two organisations no longer share resources, the curricular approach (and model of remediation) remains similar, and as such the opportunity to invite students to

participate from both medical schools allows for a larger pool of students to be eligible to take part.

Exeter and Plymouth medical schools both have a well-developed programme of remediation which has developed since PCMD first opened to students in 2002. Thus, they provide a strong context for studying this issue. Medical students who do not meet the required standard in a variety of assessments are invited to take part in remediation. This does not always indicate that a student has failed, more that they are not meeting the standard that is expected of them, a subtle but vitally important distinction for this PhD project.

Grade	Description
Excellent	A grade awarded to the top part of the cohort. Reserved for the top 5% in norm-referenced assessments.
Satisfactory	A passing grade. Awarded to those ranked between the top 5% and bottom 25% of the cohort.
Borderline	A failing grade, usually for those between the bottom 25% and bottom 5%.
Unsatisfactory	A failing grade, usually for those in the bottom 5% of the year.

Table 1: Grade descriptors and boundaries.

This early approach to remediation also complements an approach to assessment focussed on regular, low-stakes assessment with rapid remediation intervention. In practice, this means that students receive regular assessments for which they have multiple attempts to resit, with dedicated remediation interventions between each sitting.

Students may be invited to one of three broad stages of remediation:

Stage of Remediation	Process:
One: First experience of failure, or failure of low-stakes assessment[1]	Informal meeting with allocated academic tutor to discuss progress, identify barriers to learning and ensure appropriate reasonable adjustments have been made where required.
Two: Subsequent episodes of failure, or failure of high-stakes assessment[2]	Formal meeting with dedicated 'remediation team' made up of clinical and academic staff specifically trained to deliver remediation interventions. Includes completion of approaches to learning questionnaires, discussion of barriers to learning and (where appropriate) involvement of occupational health or educational psychology teams.
Three: Ongoing poor performance, or serious lapses impacting patient safety	Formal meeting with senior medical school staff. This may result in further sanctions, or the initiation of fitness to practise proceedings.

Table 2: Stages of remediation at Plymouth and Exeter medical schools

Methods:[3]

The PhD uses mixed methods and can be divided into two stages. Stage one was an online questionnaire, distributed by email, which invited students from across all five years of the undergraduate medical courses at Plymouth and Exeter Medical Schools who have experienced remediation to participate. The information collected included demographic information, a previously validated professional identity scale (59) used to inform discussions in subsequent interviews, and free text responses to questions

[1] Low stakes assessment is generally understood to mean those that do not immediately impact on progression within the course, and where multiple re-sits are allowed.
[2] High stakes assessments are those which impact directly on progression or continuation on the course.
[3] The link to the online questionnaire can be found at the following link:
https://plymouth.onlinesurveys.ac.uk/medical-students-remediation-and-professional-identity

around experiences of, and thoughts regarding, remediation. Free text responses were analysed using a thematic approach in order to inform the interview design. 35 responses were obtained from approximately 200 eligible individuals. The questionnaire allowed for both attributable and anonymous contributions to the research to be obtained, and a wider sample than interviews alone would have permitted. The questionnaire also formed an important aspect of recruitment to the interviews with students.

Stage two involved interviews with selected students adopting a semi-structured, narrative approach, and encouraging students to tell stories relating to their experiences of failure and remediation. Interviews were transcribed by me as the researcher before undergoing a novel approach to coding of key narratives relating to identity. These narratives were reviewed against the concepts of coherence and content as posed by Baerger, as a means of exploring identity formation through stories told (60).

The table presented below will address how the different methods employed aimed to answer each of the research questions posed.

Research Question:	Methods used to answer:
What do we know about professional identity formation in medical students and the factors that influence this process?	• Systematic review of the literature • New contributions to knowledge from the questionnaires and interviews with medical students
How do students narrate their experiences of failure and remediation as part of their developing professional identities?	• Questionnaire, encouraging students to explore their experiences of failure and remediation. • Interviews with students about their experiences. • Subsequent analysis of these stories.
What does new understanding contributed to by this thesis mean for the future design and delivery of remediation interventions for medical students?	• Narrative approach to analysis of student experiences. • Insights gained from the systematic review of the literature.

Table 3: Summary of research questions and methods.

Structure of the thesis:

The following chapters of this thesis will initially present the current literature relating to assessment in medical education, how remediation is understood and implemented and the current approaches to understanding professional identity formation in medical students.

Chapter two seeks to understand how medical education assessment and associated failure is implanted within the UK, and how remediation as a concept is used in different settings. Chapter three reviews the current understanding of professional identity formation and how this has informed the design of the research, before chapter four presents the results of a systematic review of the current professional identity literature in medical students. This systematic review also clearly identifies key gaps within our current understanding that this thesis seeks to address.

Following the systematic review, chapters five and six present a novel approach to researching professional identity formation in medical students, before results are presented in chapter seven and eight. Chapter nine subsequently discusses the outputs of this thesis in detail, before the final chapter concludes to what extent the research questions have been answered and the key findings against each.

Chapter Two: Failure and Remediation:

Introduction:

To situate this thesis in the current medical education literature, it is important to explain why failure and remediation is so important for medical students and the organisations involved in their training. The topics of failure and remediation are frequently discussed across the continuum of undergraduate (pre-qualification) and postgraduate (post-qualification) medical education, however, there remains a significant lack of high-quality research for such interventions; a finding echoed in a previous published review of the literature (15). A subsequent, more substantial, systematic review four years later came to the same conclusions with little new literature available (12). Since 2013 no further systematic reviews of the literature have been undertaken, with new research generally small-scale and single institution focussed. COVID-19 also saw an increase in publications related to remote interventions to improve practise, but again on a small scale (61). Any additional papers have also been predominantly linked to one-off interventions and using quantitative and often statistically-based analyses (62). However, despite the limited evidence-base, remediation is a widely employed intervention at significant cost for organisations training students.

Higher Education Context:

Whilst there is a significant lack of high-quality literature in medical education, more is written in the broader higher education (HE) environment in the UK. Complicated by the term *remediation* being outdated (63) in many other areas of education practice, parallels can be drawn with current education practises undertaking similar interventions but using different names.

Across HE in the UK, concerns relating to student fee income requires a careful balance between student retention and maintaining high education standards (64), particularly in the outcomes-based regulatory requirements from organisation such as

the *Office for Students* and through metrics such as the Teaching Excellence Framework.

Remediation (or equivalent) can be a means by which students are supported to continue their studies (and continue paying their fees) through directed academic support to address deficiencies. As such, in many higher education contexts, these approaches are more similar to examination coaching than the medical education approach of remediation where longer-term improvements in practise are attempted. These approaches include a wide range of interventions, including involvement of learning specialists, educational psychologists and longitudinal placements in the hope of leading to a sustained improvement in practise (65).

Crucially, in medical and broader healthcare education, considerations relating to patient safety have to be prioritised above any other concerns regarding student fee income, retention and league tables. Instead, moral, ethical and regulatory considerations require that decisions are linked to safety. It is perhaps this reason that sets remediation in medicine and other healthcare disciplines apart from the wider UK HE context.

Medical Education Context:

As part of this thesis, a review of the current literature has been undertaken. This process was complicated by the sparsity of information. It should therefore be noted that some of the references in this chapter make only relatively short references to remediation, and literature from undergraduate and postgraduate arenas (including policies and grey literature) has been included to widen the perspectives on remediation.

A further challenge has been the significant variety of interpretations of the term ‘remediation’ although previous systematic reviews have helped to highlight some of the core literature of relevance to this research (12).

Chapter four presents the results of a systematic review examining professional identity formation in medical students. This review forms a key part of the output of this PhD, and whilst the literature review presented in this chapter was performed using the expertise gained through systematic reviews, the intention is not to replicate a further systematic review in this chapter. Instead, given the sparsity of information, the approaches to systematic searching were intended to maximise identification of appropriate literature to expand my knowledge and inform the design and delivery of this research.

In general, reviewed papers were limited to the past twenty years to tie in with the first publication of *Tomorrow's Doctors* (66). *Tomorrow's Doctors* is a document produced and maintained by the GMC and was instrumental in wide-ranging changes to the delivery of UK medical education and marked a significant milestone in patient and learner-centred medical education.

This PhD has been undertaken over a seven-year period, compounded by the COVID-19 pandemic which resulted in my return for a prolonged period to the delivery of healthcare full-time as a Geriatrician working in Plymouth. New literature has emerged over this period; however, the fundamental lack of high-quality information remains. Indeed, the majority of the literature discovered related to small-scale studies which referred to remediation programmes and addressed deficiencies related to single examinations / assessments. Most interventions were therefore designed to remediate exam deficiency, with the aim of passing either retests or the next sitting of an assessment. This included everything from 1:1 exam coaching, through to repetition of entire modules and clinical placements. In general, however, included papers were predominantly related to deficiencies in clinical skills or knowledge, with relatively little written regarding deficiencies in professionalism.

There was a notable lack of information relating to remediation around broader study difficulties, although some of the more recent literature began to recognise that undiagnosed conditions, such as dyslexia, may play much more of a role than previously realised (62).

How prevalent is remediation in medical education?

Medical students are often selected from those who have performed well in their previous educational institutions and excelled in exams. Despite this, a significant proportion of students struggle at some point during their medical school careers with studies suggesting that this may involve as many as 10-15% of students (67). This is in the context of a medical school dropout rate of 11.1% in one UK based study (68). These rates are slightly higher than those figures confidentially obtained from Plymouth and Exeter medical schools as part of this study (approximately 4%) (69).

Whilst the impact of COVID-19 has significantly impacted recent data relating to programme continuation, the latest figures published by the Higher Education Statistics Agency (HESA) suggest that drop-out rates in 2019/20 (the latest data to have been validated and published) are 5.3% for UK Universities as a whole, across all programmes (70). Therefore, dropout from medical schools are approximately twice the UK level, but lower at the two Universities studied in this thesis.

It is difficult to know why there was such a different rate within the two organisations studied and the number of potentially compounding factors is large. It may be that recruitment processes into the two medical schools in this research are such that students with a greater drive are selected, or that those with a greater sense of internal resilience are successful. It may also be that remediation interventions are more successful and more supportive in Plymouth and Exeter. However, it is not possible to draw these conclusions with any certainty.

My current role is now as the Dean of Medical Education at Cardiff University School of Medicine. It has been an interesting process reflecting on how the types of students who are recruited into different medical schools may have a significant impact on the experience, progression and success of different groups of students. Unfortunately, my move to a new role at a late stage in my PhD has prohibited inclusion of Cardiff as an additional site to consider experiences of remediation, however, this does open exciting opportunities for future research collaboration.

Whilst the UK context for this study is clearly important, where studies involving medical education were included, papers were obtained from institutions across the globe, suggesting a high prevalence of remediation in medical schools for a range of assessment types. The assessment types discovered in this process which included remediation were:

- Summative clinical skills examinations; including Objective Structured Clinical Skills Examinations (OSCEs)
- Summative medical knowledge examinations, including extended answer and multiple-choice examinations
- Summative subjective performance reviews at the end of clinical placements made by a variety of assessors
- Formative assessments in many different forms, including electronic assessments

Unsurprisingly, the vast majority of published literature referred to summative assessments where performance impacted on progression and graduation, rather than formative assessments which were deemed to be developmental, with students expected to identify deficiencies themselves before undertaking summative assessments in the same area. Pedagogically, it could be argued that remediation is just as important in formative and summative assessments if the desired approach is to improve student performance and therefore patient experience and safety. The lack of literature relating to formative assessment therefore emphasises the focus on progression and remaining on the course as key drivers for a more summative focussed approach to remediation.

What does the literature say about why students fail?

The literature included a wide variety of reasons as to why it was considered that students had failed assessments. These included:

- issues with time management (71)
- inability to use self-directed learning (12)
- inadequate academic knowledge (15)
- poor exam technique (72)
- difficulties with critical thinking (12)
- underlying learning 'barriers' (such as dyslexia) (65)

Noticeably, in virtually all cases the study design was such that the cause of failure was attributed to students, rather than a reflection on the course design, delivery and assessment methodology. Where course design was considered, it was more in the context that students were not suited to that School and that consideration of transfer to another provider should be considered, not a reflective discussion regarding the merits or otherwise of the pedagogic approaches to curriculum used within individual courses. This is clearly a significant gap in the literature, and as this thesis will argue, one that needs to be urgently addressed to understand how approaches to failure and remediation must be embedded in the initial design and delivery of medical education courses.

Interestingly, in all but three of the included research papers, the causes of failure were assigned by faculty rather than students, whereby tutors would make assumptions regarding why students had failed, rather than asking students themselves. Winston's 2010 paper (31) was one of few studies which utilised a student narrative to understand why students required remediation, through focus groups of students who had undergone remediation in some form. Given the discomfort that students have expressed during their interviews as part of this thesis regarding speaking to their peers about failure and remediation it could be argued that this approach may not have yielded the same responses as to if students were spoken to individually. In addition, such an approach may also have led to a number of students not feeling able to participate because of the perceived social consequences of admitting to academic failure.

Other papers, including by Artino (73) and Boscardin (20) discussed the impact of external stressors on students and how this can impact on academic performance and

included some student views in drawing conclusions. However, there was a clear lack of the student voice within published research and noticeably, again, a lack of discussion relating to the impacts of learning cultures and environments on student performance.

What are the different approaches to remediation?

Internationally, differences in remediation were seen to be significant. The majority of studies considered remediation to be a faculty led and initiated process, often compulsory and related to specific deficiencies in performance (usually knowledge). In other studies (especially those describing new assessment models relating to performance) the use of the term remediation is much looser and could be as little as verbal feedback to students at the end of their assessment, from which they are expected to self-direct their own remediation to address their deficiencies (72).

Remediation Type	Examples
Group-based	• Seminars • Lectures / Plenaries • Simulation Workshops • Peer-led Learning
Individual	• 1:1 tuition sessions • Extended clerkship • Meetings with remediation teams
Electronic	• Pre-recorded online resources • Online formative assessments

Table 4: Examples of remediation interventions from a review of the current literature.

When is remediation undertaken?

The approaches to remediation differed in timing, with the majority of remediation performed reactively i.e., once a student had failed an assessment. However, increasingly some small-scale studies suggested that better outcomes for students were experienced when remediation was more proactive and occurred before exam failure (67). In this instance, students who were noted to be either close to failing, or

whose performance is deteriorating, experience intervention before the point of failure. Given the types of studies included, there was an absence of evidence as to both the medium and long term successes of such interventions.

Whilst there are clearly advantages to earlier intervention, some of the literature expressed concerns about the difficulty of selecting the right students when a more proactive approach is used, especially as this has resource implications. In particular not all students on a downward trend will ultimately fail, and by widening the access to remediation, it may have a negative impact on those who need it the most by stretching a finite resource too thinly. Concerns were also expressed that students may choose to 'game' the system (20) to receive what they consider an advantage in assessments by accessing remediation early to gain a competitive advantage over their student colleagues.

Is there any evidence remediation works?

Nearly all of the studies regarding specific interventions suggested a positive impact, although usually with short follow-up periods which did not examine sustained improvements in performance. It is difficult to ascertain if this is a true representation of remediation or a reporting bias, where studies without any improvement were not submitted for peer-review or publication.

Where positive impact was seen, the majority of interventions focussed on deficiencies in specific exams / assessments and the lasting impact on performance was uncertain due to short follow-up periods. Studies often considered that subsequent improvement in exam scores was a successful outcome, but failed to consider the longer term implications of the remediation programme and how they can relate this to ongoing clinical practice and care of patients (27). Consideration of professional identity impacts was noticeably absent across all studies.

Where longer term academic impact was studied, those students who were considered by faculty to be more self-aware appeared to perform better, although there are significant limitations to the way in which faculty considered these student

attributes (74). Self-awareness, for example, being attributed by members of staff and their perceptions of interactions with students, introducing a significant scope for possible bias.

Whilst the majority of studies considered academic performance as the primary outcome of intervention, one paper did review the impact remediation programmes can have on the diagnosis and support of those with mental health problems which may be impacting on their work (25). These wider positive outcomes of remediation are rarely considered within the literature, but are important outcomes of my research which will be discussed in detail later in the thesis.

Is there any evidence remediation does not work?

Perhaps, predictably, the evidence for remediation is strongly weighted in favour of remediation being successful. Whilst this could be interpreted to be due to the success of all remediation programmes, it is likely that the literature is skewed in favour of positive outcomes, rather than those which have seen no improvement despite the investment of significant time and resources within a faculty.

The longer term evidence for the success of remediation is sparse, and studies which have examined longitudinal performance of students who undergo remediation have shown only a very transient improvement (28). One study, for example, openly acknowledges that remediation is limited by the blanket approach and a lack of targeted interventions to benefit individual students (75).

Detailed consideration of the lack of evidence for long-term improvement has not been included here, but may be related to the short, examination-based interventions that many of the studies described that did not seek to address the underlying reasons for academic failure. This emphasises the need for approaches to remediation (both in design and delivery) to be more holistic and consider the impacts on longer term development and professional identity formation.

What are student perceptions of remediation?

The most common reference to what students thought about remediation was that it had improved student confidence (76). One of the key issues with this literature search relates to the limited information present regarding what medical students actually thought about remediation. One of the few key papers in this area was published in Medical Education in 2010 (31). This paper considered a 'mandatory remedial programme' for students who were required to repeat their first semester at University. The paper suggested that students need to be challenged about their learning approaches and that students preferred working in groups, with skilled and trained facilitators with a blend of different modes of education delivery. Such information pertaining to what students think about remediation is useful, but may be flawed, given the reliance on focus groups for such information. As noted above, it is perhaps only those students who feel comfortable in attending such groups who would report that they consider this a useful approach to remediation, excluding those who do not feel such approaches are beneficial. Interestingly the paper emphasised that we should not underestimate the role of the emotional support that students are offered as part of remediation approaches. Many also valued the mandatory nature of the sessions which ensured initial engagement for students.

Other papers touched on the stress and anxiety that going through remediation can cause for students. As high achieving individuals the impact of failure on an individual can be significant and educators are encouraged not to forget the significant impact this can have on students and those around them (65).

Some of the papers which were obtained through the literature search did not focus on remediation directly and instead were focussed on personal reflection. One paper suggested that most students are likely to be performing their own remediation without the need for a formal programme (77) and that this could be adequate. One paper examined what students felt about their remediation, with many expressing a preference for small group-based learning with experienced teachers. Teacher experience was a key theme (31) with more experienced teachers felt to provide more tailored approaches to remediation.

Does it matter who undertakes remediation with students?

Little is discussed about the importance of who performs the remediation process in the included literature. One study mentioned the importance of credible feedback on performance, and of including suggestions for improvement. Whether this study counts as true remediation can be debated as most interventions involving remediation require a more active approach than the presentation of written feedback, but students expressed a strong preference for feedback from those who they know and who have been trained in the process, rather than those with whom they have had little contact. The paper does not discuss in depth the reasons for this, but it may be that high performing students struggle with negative feedback and therefore find it easier when difficult news is delivered by those with whom they have already developed a relationship of trust (78).

Another paper examined the importance of defining the role of the teacher in remediation through interviews and surveys of both those undergoing and those who deliver remediation. The paper suggested that students prefer a more holistic approach which caters for the emotional needs of the student. The paper also suggests that whilst flexibility within the delivery of remediation is important that in general providers of remediation should employ five key roles: facilitator, mentor, disciplinarian, diagnostician and role model. The paper makes recommendations that remediation is about encouraging students to identify their own deficiencies through utilising these roles in various different amounts based on the individual student (31).

One study emphasises that many staff are uncertain about the efficacy of remediation and this may influence their performance as remediators (12).

Conclusion:

There remains a notable absence of high-quality literature relating to remediation and considerations of the impact on student professional identity formation were notably absent. To further categorise this apparent gap within the current published literature, Chapter Four presents the results of a systematic review relating to professional identity formation, highlighting key gaps within our knowledge and understanding that this research aims to fill. Prior to this systematic review, the overlap between remediation and professional identity will be explored to help further situate this research within the current education context and provide important background for the interpretation of the systematic review.

Chapter Three: Professional Identity Formation:

During the early stages of this PhD, it became apparent that identity, and professional identity formation, are core concepts, however, competing perspectives can result in different approaches, varying methods of study and a wide variety of methodological approaches (41). To aid with interpretation of the methods used and the results obtained, this chapter will define my understanding of the concept of identity (in the context of medical students developing as professionals) and explain the importance of this area to understanding student experiences of failure and remediation.

Whilst different qualitative approaches have been utilised previously, this thesis is grounded in a social constructivist approach to understanding identity; broadly acknowledging that identity is based on interactions with others and an understanding of how an individual relates to society. This influences the approach taken to understanding and interpreting identity literature.

When defining identity there are many different, and increasing complex, explanations. However, the Collins English Dictionary (79) defines identity as the following:

"Your identity is who you are"

On the surface, this is clearly obvious, however, when considering this phrase in greater depth, it becomes apparent that identity is anything other than simple. For example;

- How does a person understand themselves?
- How do they perceive that other people see them?
- Are people born with a set identity that never changes, or does it develop throughout life?

Richard Jenkins in the book 'Social Identity' comments that the notion of identity applies to everything and all beings (80), noting that:

"The Oxford English Dictionary offers a Latin root – *identitas,* from *idem-,* the same – and two basic meanings:

- The sameness of objects, as in A1 is identical to A2 but not to B1; and
- The consistency or continuity over time that is the basis for establishing and grasping the definiteness and distinctiveness of something" (p.4)

Jenkins therefore proposes that identity is rooted in comparisons of similarity and difference. It is an active process, and as Jenkins also comments, "the verb to identify is a necessary accompaniment to identity. There is something active about identity that cannot be ignored: it isn't just there, it's not a thing, it must always be established" (p4)

Jenkins explains that identity is important as part of the ability to:

- classify things or persons
- associate with, or attach to, something or someone else (e.g. friends, sports teams, ideologies)

The second of these implies that reflexivity is important, because it relies on an ability to think about identity, both your own and those of others, and to understand how these are similar or different. The relational element of identity is important for developing professionals, because in becoming medical students, individuals are entering a community of practice, within which they undertake these comparisons of who they are in relation to the groups they are working with. This is often referred to as social constructionism. In the context of medical students, failure and remediation can play a key role in creating barriers to association due to the perception that failure is not tolerated by those within the profession.

Communities of practice are referenced throughout this thesis and are understood in the way initially proposed by Etienne Wenger in 1991 (81). In this book, Wenger presents communities of practice as having three key components:

1. Domain (a common desire for shared knowledge)
2. Community (interactions that encourage sharing of ideas)
3. Practice (the focus around which a community shares and develops)

The term community of practice is generally understood to describe a group of people who share a common interest or sphere of knowledge, and engage in joint activities and interactions to learn from one another and develop their expertise. In the context of this thesis the community of practice consists of medical practice and the development of medical students into this community in particular. As medical students develop in their learning and thinking they enter more and more into this community before being accepted as a full member of the community as they complete their training. Therefore, community of practice is directly linked with professional identity formation.

Social constructionism:

Social constructionism is a theory that knowledge is constructed through interactions with others (82). The phrase was coined by Berger and Luckman in their work *The Social Construction of Reality (83).* One of the key elements of their argument being that over time, people and groups interact as part of a social system. As a result, concepts and knowledge of the actions of others develop, and these are argued to become integrated and adopted into the ways that individuals respond to each other. As these roles become available to other members of society to enter in to, individuals reciprocate the actions they see and so are considered to become *institutionalised.* Knowledge of these groups is constructed by society and these interactions, and hence the named coined for this process.

The medical profession is a good example of social constructionism. Those in the general population view the medical profession as a social system. Students entering into this profession will adopt the approaches to interaction that they view, and will eventually become institutionalised into the medical profession. However, failure and remediation can disrupt this process if students perceive that these processes are contradictory to the group they are being socialised into.

Barth further developed the concept of social constructionism, incorporating role-modelling as an important component of the adoption of a professional identity (84). This thesis will draw throughout on the importance of role-modelling and is something that students refer to regularly throughout their interactions with the researcher.

One individual, multiple identities:

Professional identities are only part of the way that an individual may perceive themselves with self-concept, or self-identity, the sum of a person's knowledge and understanding about their self (85).

Previous research has presented that there are several different types of identity that make up the idea of self-concept:

- Cultural identity
- Professional identity
- Ethnic identity
- National identity
- Religious identity
- Gender identity
- Disability identity

However, the formation of these different identities is argued to be dependant again on the process of social constructionism (86) that is, that there is a reliance on social interaction and consensus as part of their development. The observance of others and interacting with them is, however, only part of the process of a person developing their own identity. This process also requires active participation by the participant through a process known as symbolic interactionalism.

Symbolic interactionism:

William James, Charles Horton Cooley and George Herbert Mead were the founders of what we now call 'symbolic interactionism' through their discussions around the development of the human self (87). However, the term 'symbolic interactionism' was actually coined by Blumer through the interpretation of Mead's work (88) some time later.

Symbolic interactionists subscribe to the concept that sympathy and empathy with others create a bridge between society and self (89). Having this sense of both self and others helps to allow individuals to reach their potential in a social world, and the associated rewards that this confers (for example, financial gain). Medical students may be especially aligned with the concept of symbolic interactionalism due to high reported levels of empathy as part of medical training (90) and due to high levels of intrinsic motivation to succeed in a social world (91).

Mead considers that individuals move through several stages on this journey of identity development:

- Imitation
- Playing the roles of others
- Acquiring a sense of others to play games
- Acquiring a greater sense of community: the generalised others

In considering the role of medical students, the above four steps are apparent within the curricula of both Plymouth and Exeter medical schools.

Stage of Development	Relevance
Imitation	Students are introduced to being doctors through classroom-based activities such as problem-based or case-based learning. In these sessions they are encouraged to imitate the role of the doctor.
Playing the roles of others	Students take part in simulated clinical encounters with actors and professional patients in clinical skills areas.
Acquiring a sense of others to play games	Students undertake clinical placements with junior and senior doctors, starting to undertake the role in a protected and low risk way.
Acquiring a greater sense of community	Students spend more time with doctors. They work and play together, with access to the doctors' mess and social events.

Table 5: Mead's stages of identity development as applied to Plymouth and Exeter medical students.

As such, through both the overt and hidden curriculum, students are socialised into the role of doctors through the curricula approaches taken at the two medical schools.

The zone of proximal development:

It is important within this consideration of the development of medical students to consider Vygotsky and the 'zone of proximal development' (52). There are three main concepts which are embedded within current approaches to medical education in both Exeter and Plymouth medical schools:

1. Development always precedes learning (e.g. constructionism)
2. Learning and development cannot be separated, but always occur simultaneously (behaviourism) i.e. learning is development
3. Leaning and development are separate but interactive processes i.e. one process always prepares for the other process, or vice-versa

According to Vygotsky, through the influence of another more 'capable' person, the learner is able to learn skills or aspects of a skill that go beyond their actual developmental or maturation level. This directly maps onto the approach of increasing clinical exposure that students experience as part of their education journeys. Medical students and their experiences therefore closely align with a social constructivist approach to identity formation. However, the process is rarely linear, and whilst there is much written regarding the general increase in identity with time, little has been explored regarding what happens to identities when the experiences of students do not promote a greater sense of belonging.

Failure and remediation are one element that can disrupt the ways that students feel associated with apparently high performing groups with low tolerance of adverse outcomes. This PhD therefore fills an important gap in our knowledge relating to how failure and remediation and impact on professional identity formation, and what we can do in order to support students through a potentially difficult process.

Legitimate peripheral participation:

Legitimate peripheral participation (LPP) underpins much of the approach and understanding obtained from this thesis. Within the curricula of Plymouth and Exeter medical schools rests the understanding that medicine is, fundamentally, an apprenticeship and one that requires patient safety to be prioritised at all times.

Legitimate peripheral participation was coined by Lave and Wenger in 1991 (81) and describes how new and inexperienced individuals gain knowledge and skills and eventually become core members of a community of practice or collaborative project. Within medical education, this is especially important as students are aiming to achieve entry into the community of practice through their undergraduate and subsequent postgraduate training. Members of a community of practice develop identities and expertise through social interaction, observation, imitation, and collaboration with others in the community. As individuals participate in the activities, they move from the periphery to the core of the community; gradually becoming more deeply engaged and integrated into its practices and social relationships. In medical

school, the move from periphery to centre follows steps including observation and shadowing of medical examinations, interactions and procedures in addition to assisting with clinical activities. With time this further develops into active collaboration regarding patient care decisions and ultimate advancement to increasing independent practice with more distant supervision.

Through *legitimate peripheral participation,* students will also occupy learning 'zones' as defined by Vygotsky (52), a concept with which there is significant overlap. As defined, the inner zone represents what learners can complete unaided, with the outer zone what a learner cannot complete even with support and supervision. The zone between is the so called 'zone of proximal development' where learners can be supported to achieve with appropriate scaffolding, facilitating an expansion of innermost zone with time and a shrinking of the outermost as learners gain experience and knowledge. This concept is especially relevant for apprenticeship style courses such as medicine where learners are dependent on established healthcare professionals to aid their learning and development.

To achieve this both medical schools in this study encourage students to undertake tasks involved in patient care in a progressive manner, initially undertaking minor tasks of limited responsibility. If successfully completed, the tasks that are undertaken will subsequently become more complex, with a greater risk to patients if error occurs. Conversely, where failure occurs, in particular where there is a link directly or indirectly made to patient care and safety, students discuss feeling excluded and removed from the community of practice. Discussed in more detail through the results and discussion chapter, such an understanding of the functioning of medical teams is core to the work within this thesis.

Like many professional healthcare courses, medical students are socialised into the world in which they will work from an early stage. This is especially true in both the Plymouth and Exeter curricula, where early exposure to the clinical environment, clinical colleagues, and patients is a core element of the course. Indeed, placements in healthcare settings for students happen within the very first week of their degree. These interactions on placements with others are important, but may be overwhelming

for students who have committed to becoming ‘a doctor’ but who may have little idea as to what this actually is, or how such an identity can be attained (23). This is heightened for those students who have based their views of what a doctor is on representations through popular media, rather than the reality of working within the NHS. In the context of currently reported extreme NHS pressures and contradictions between what students are taught in simulated clinical practice and the realities of experience in an NHS operating in crisis mode, this is exaggerated further (92).

Students within these placements are likely to rapidly associate with some members of staff and identify role models. Role modelling is an important element of socialisation, especially in relation to those who they aspire to be like and the social groups that they become aware of in the healthcare setting. These experiences encourage individuals to understand what their chosen profession means, and how those who are part of this group may think, behave and interact. However, whilst there may be formal aspects of the curriculum that encourage certain behaviours and ways of being, the hidden curriculum also plays an important role and can undermine some of these more aspirational outcomes that medical schools promote.

The hidden curriculum:

Reading undertaken through this thesis has demonstrated that understanding and interpretation of the hidden curriculum is varied, and use of the word can be confusing and at times contradictory. As referenced by Cotton et al. (93) the concept was initially explored by Philip Jackson in “Life in Classrooms” due to the disconnect between what he felt pupils were taught and what they actually learn (53). Cotton suggests this “may be made up of the societal, institutional or lecturers’ values that are transmitted unconsciously to students”. Much research has been undertaken in secondary education, with more recent attention also turning to higher education.

In 1978 Willis (94) undertook an ethnographic study exploring the ways in which the organisation of secondary schooling contributed to the preparation for those from ‘working-class’ backgrounds to work predominantly in factory settings. The same may also be true in relation to those from traditionally higher socioeconomic classes who

are expected by their educators and the wider public to pursue professional jobs, such as medicine The hidden curriculum may therefore be associated with an exacerbation of inequity through students from certain backgrounds (for example, those with medical parents) more able to read and navigate what is not overt, and as such gain an advantage over their peers from other backgrounds.

Linked to the issues of the hidden curriculum is the public perception of doctors and the social capital attributable to this role. Social capital as a concept is understood in this thesis as defined by Pierre Bourdieu in 1986 (95). In this work he distinguishes between three forms of capital (economic, cultural and social). Social capital is presented as advantageous to possess and an important aspect of obtaining advantage in complex social organisations. Lack of social capital is conversely presented as exaggerating inequality and therefore seen as negative for individual outcomes. Social capital understood in this way describes the connections people have with others, their access to social relationships, networks and resources. For medical students, social capital impacts on the ways in which they are able to access learning opportunities and support, something which is especially important for gaining experience and competence. Social capital is, however, unevenly distributed between individuals, exacerbated by socioeconomic factors and the presence or absence of medical professionals within friends and family. Social capital is important for medical schools because those students with higher social capital will find it easier to navigate their hierarchical structures but may be less prepared for failure as their expectations of success are likely to be more embedded.

In general, medical professionals are portrayed as having high social capital, undertaking and understanding complex interventions and perceived as academic high-achievers (96). Failure is rarely accepted as an outcome, with recent drives to improve patient safety and rising expectations of patients and the public leading those who do fail to feel marginalised with their professional status under threat. Failure and remediation therefore create tensions in the ways that students create narratives about their identities, especially if their identities are founded on the idea of high achievement and that failure represents a significant risk to patient safety and completion of their

degree. The desire to be part of the 'in' group (usually that which is high achieving) can mean that those who are not achieving academically at the same level as their peers can feel outside the socialised group; impacting on their sense of identity and having repercussions for their psychological health and wellbeing. This overlaps too with the hidden curriculum, with students who possess higher social capital more able to read and navigate the hidden curriculum of the school. Hidden curriculum in this context can be understood to reinforce the dominant cultural norms and values.

In view of the high assessment burden at most medical schools (usually explained through the need to show that those who graduate are fit to practise) those students who are not keeping up with their peers are generally discovered through some form of failure (97). Narratives of patient safety and the unacceptability of those who fail to meet standards being allowed to treat patients are well developed by medical schools, the regulator and the media, all of which mean that the impact of assessment failure, and the remediation that is usually offered, can be significant. However, at the same time, students are also encouraged to embrace the notion that nobody is perfect, mistakes happen and that it is more important to be honest and learn from error than worry about failure occurring. These conflicting narratives appear to have an impact on students and generate confusion.

Compounding these conflicting messages is the competitive nature that medical students in previous studies have described is part of the culture of medical studies. At both Plymouth and Exeter medical schools, the use of norm referenced assessment methods means that students feel directly in competition with each other. In the context of student experience for this research, norm-referencing means that students are ranked against each other in some summative assessments and therefore aware of their position in relation to exam performance of their peers. Indeed, the better that a student's peers perform, the higher their mark needs to be to pass an assessment, therefore increasing the competition within an already driven and competitive group where failure is poorly tolerated.

Intersectionality:

Monrouxe has previously proposed that individuals are able to hold multiple identities at the same time (56). This concept of intersectionality is not new to medical education, and has been widely used for many years (98). In recent years, intersectionality has been especially prevalent in discourses regarding race and associated disadvantage and inequality (99). The use of intersectionality in this thesis is used as a means of understanding that individuals hold different identities and that these interact differently at different times. It is acknowledged that there are important discourses relating to oppression and that the term 'intersectionality' has taken on new meanings, however, these are not explored within this work.

Monrouxe proposes that in the context of medical education, intersectionality matters because of the interaction between three areas:

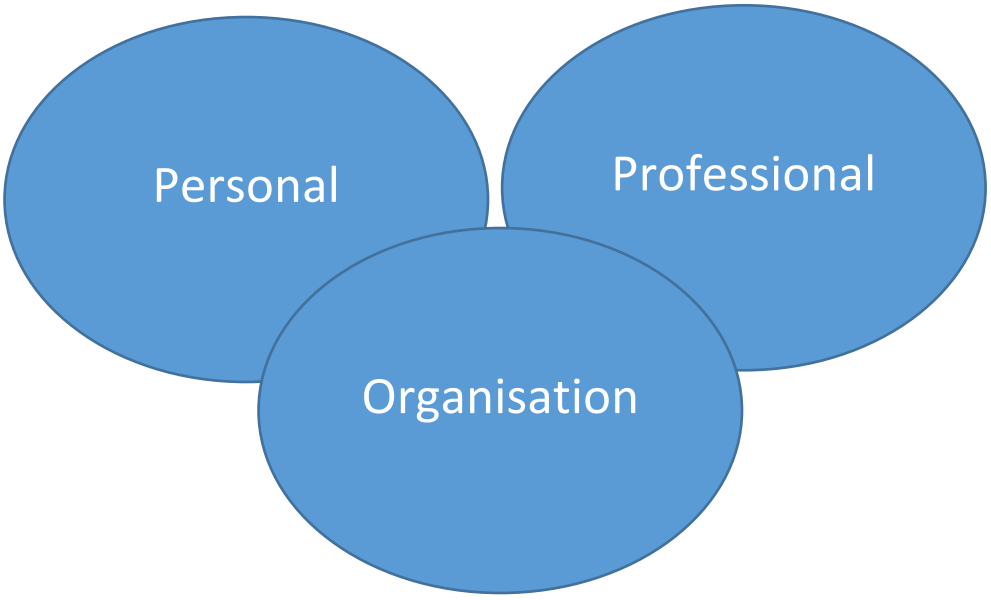


Figure 1: Adapted from: Monrouxe LV. Identity, identification and medical education: Why should we care? *Med Educ.* 44(1);40-9 2010.

These aspects are important because they indicate that students do not learn at medical school in a vacuum. Instead, there are complex interplays of different environments, social networks and identities that impact on a sense of self. Throughout this research, intersectionality features in the way that students discuss their identity, the narratives they create of their life stories and how these are impacted

upon by failure and remediation as they seek to enter the communities of practice of doctors.

It should be noted that the term *intersectionality* outside the sphere of medical education pedagogy is often referred to in the context of inequality and disadvantage, especially for those in minority groups. For example, much has been written in recent years regarding intersectionality and feminism (100) and critical race theory (101). When used in this thesis, the term intersectionality is used much more as a descriptive term where there is a sense that identities overlap or interact, rather than suggestions of systematic disadvantage against students.

It should also be noted that differences in experiences relating to protected characteristics have not been included in this study, but that is not to say that these are not vitally important areas of future research.

Narrative approaches and the relevance to this research:

A significant difficulty within identity research has been how the different identities held by individuals can be understood. Few individuals will directly address the identities they hold, as many students are not aware of the concept of intersectionality, identity, and how this process occurs during their medical students (102). Indeed, many of the students will not consider that they possess a professional identity as a medical student at all. However, most individuals will tell stories as to who they are and how they got there. As such, this thesis will seek to use personal narratives as a way of understanding the different identities held by individuals. This is a novel approach for medical education, but one that has been used successfully in other areas, especially in psychology (103). Importantly, where attempts have been made to utilise this approach in the past in medical education, no studies have focussed on the context of failure and remediation.

Narrative identities are based on a theory of the same name and proposes that individuals form their identities through integrating their life experiences into a personalised story. This story evolves and develops as people have new interactions

and experiences and is a way of constructing meaning regarding past, perceived present and imagined future. Narratives can therefore be used as a proxy by which we can understand identities, how these identities interact and the impact of key life events (such as failure and remediation) on the ways that medical students develop an identity and sense of self. This approach has been previously utilised with success in the teacher-training field (104) and is explored in much greater depth in the methodology chapter of this work.

Outside the sphere of 'professional failure' Dunlop et al have successfully utilised an approach involving participant ratings of identity and semi-structured interviews to explore narrative identity (105). Utilising a two-step approach (first allowing individuals to use scales to explore their narratives around identity and then speaking to researchers) Dunlop and colleagues were able to apply coding frameworks and assessments of coherence within interviews to develop a greater understanding of individual identity. This presentation of an approach has not, however, to date been used in either the context of failure or with the population of medical students.

Narrative approaches when considering failure and remediation:

Whilst previous work in this area related to medical education is limited, narrative approaches are highly appropriate for investigating issues such as failure and remediation, because there is a key event that shapes the story telling and narrative. This section will consider the work of Weinberger and colleagues in the use of identity narratives to explore how individuals integrate into their professional roles. Reflections on their work emphasise that this process can be much more focussed where a key 'event' occurs (such as failure and remediation) that shapes the stories of individuals.

Narratives are one of the fundamental ways human beings organise their understanding of the world and their place in it. The stories that people tell each other, and to themselves, shape the meaning that is ascribed to their own lives and the communities within which they operate (be that personal or professional). As Golden comments "the shaping of identity is intimately tied to the storylines that a particular society makes available and desirable to its members" (57).

My understanding of how narratives are tied to identity is explored in the diagrams below:

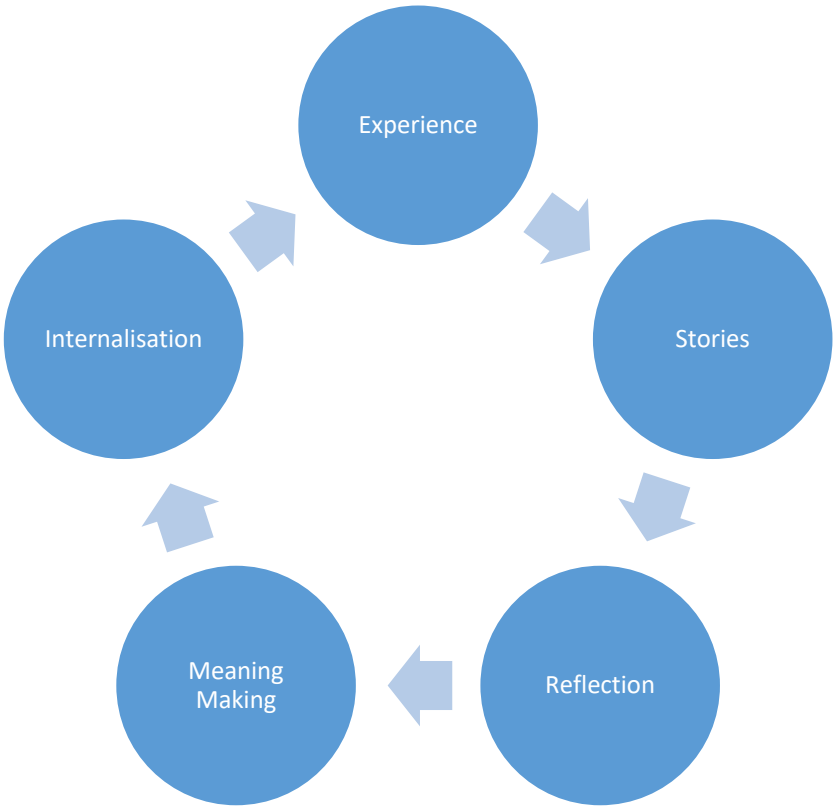


Figure 2: A representation of the process of narrative formation.

In the diagram above, stories and narratives are a core component of meaning making and internalisation of experience that impact on the way that medical students think and feel about being future doctors. This is presented as a cycle, as the experiences that students have will continue to evolve and develop their understanding of self throughout not just their undergraduate studies, but also as postgraduate trainees and practitioners in medicine.

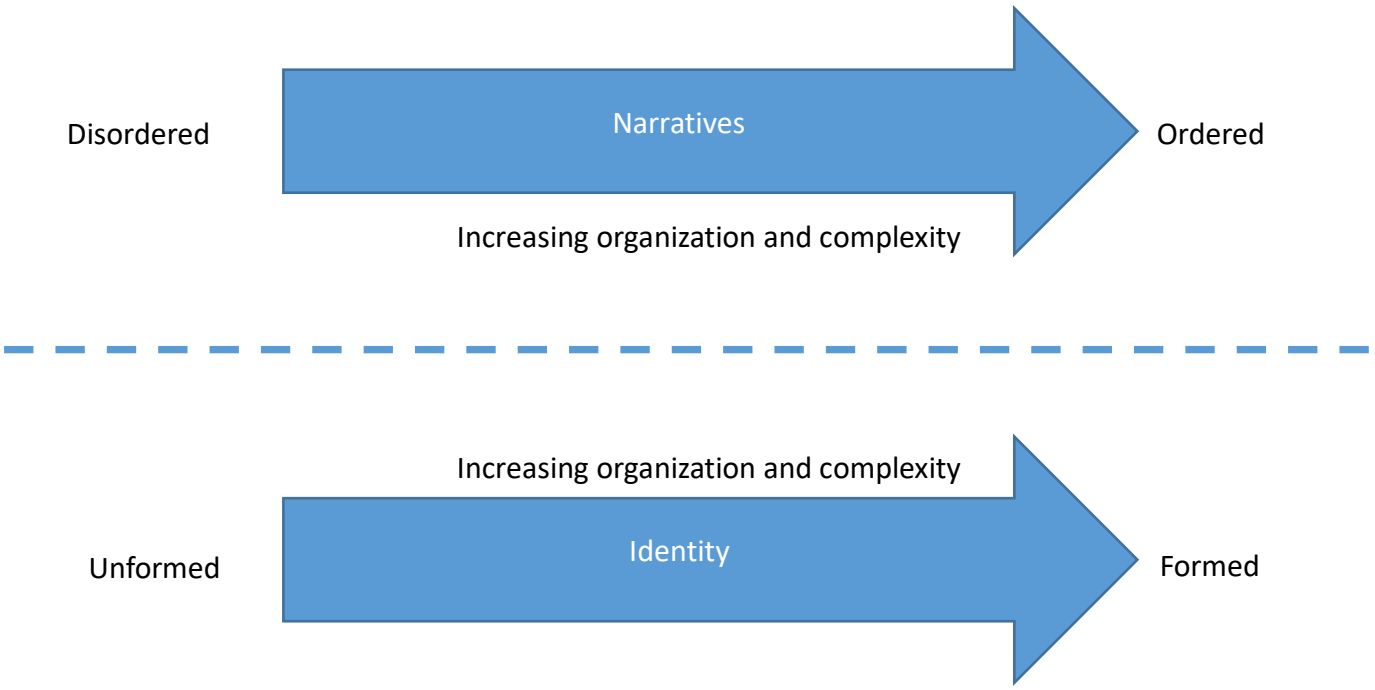


Figure 3: Creating and refining narratives.

In the diagram above, the relation between narratives and identity is made explicit. In reality, we cannot measure something when students are not aware of it. In the questionnaires, students are asked to rate themselves against a theoretical outcome of feeling like a newly qualified doctor, yet none of those students have held that identity and therefore can only imagine what that feels like. This is a major difficulty in asking students about their identity as a doctor, when it is an identity that they cannot possibly hold. However, what students can do is tell their stories as medical students about their role. This provides insight into their experiences and sense of self, thereby acting as a surrogate for identity. Given that identity is intersectional, the different narratives / stories that students share gives an insight into the different identities they hold and how these intersect as part of their professional identity. Using failure and remediation as the catalyst for the story allows their narratives to be used as a way of understanding their evolving profession identity in this context.

Such an approach is also supported through the nature of the data from interviews that has been obtained. Throughout the interviews, participants begin their story by providing background, before introducing failure and remediation as the key ‘event’ in their story. Their narratives then seek resolution of the disruption caused before

settling into a new reality. In effect, order becomes chaos before their developing identity seeks to create new order into their affected lives. Thus, the same format of most stories is formed.

Whilst the utilisation of narratives to explore identity in this research is novel, it should be noted that within the wider field of developmental psychology, such approaches have been embraced for many years. Many of the foundations of narrative identity are linked to childhood research in how we generate the view of ourselves (and hence our perceived identity). For example, children whose parents share more detailed personal narratives tend to help develop children who themselves present more complex but formed narratives themselves as children (106). Role-modelling is therefore far from unique within the medical world.

In addition to the work of Singer, Erikson's stages of psychosocial development are also important, and represent a further overlap between child and educational psychology. Erikson's stages of psychosocial development are predominantly related to adolescent identity development as individuals become adults. In medical education, medical students are transitioning from student to qualified practitioner, much like those moving from childhood to independent adults. Whilst care should always be taken in drawing direct comparisons from one form of research (for example, considering age or life transition) to another, the profile of the participants within this research is predominantly of young adults who are transitioning from their adolescent to adult phases. Considering such research is therefore of particular importance given that the personal and social identities that are held by students are also within a state of development.

Of particular note within his work, Erikson discusses that adolescents rely on 'co-constructed reminiscing', in which care givers and adults use discussion, comparison and analysis of inner motivation to guide reflection about past events and create narratives that explain situations and behaviour. The apprenticeship models of most medical curricula support and reinforce such an approach to development, including legitimate peripheral participation.

The link between narrative identities and professional identities:

Narrative identities focus on participants telling autobiographical stories, with researchers first using a broad coding framework to identify these narratives, before undertaking exploration of the coherence of the narratives to gain a deeper understanding of individual experiences. This approach leads to the formation of narrative identities for each participant.

The link between narrative identities and professional identities has not been explored in detail in the field of medical education, no published literature exists exploring this within medical students and the context of failure. However, links between narratives and identities have been increasingly accepted as appropriate means to understand life-events and transitions, such as those studied in this thesis. Ibarra and colleagues in 2017 explored how narrative identities could be used to understand professional identities as part of role transition as individuals in management roles transitioned to new jobs (107). Utilising an initial coding framework, followed by analysis of coherence within narratives, such an approach has helped to inform my understanding that narratives identities that are formed by participants when they tell stories are important windows into the professional identities they are developing.

Conclusion:

This chapter has considered the underlying literature relating to professional identity, with particular reference to the context of medical education and learning to become a doctor as a medical student. To further explore this important area, the thesis will now present the results of a systematic review of the literature relating to professional identity formation and the implications for this work.

Chapter Four: A systematic review of the literature:

What do we know about professional identity formation in medical students and the different factors that influence it?

A systematic review of the literature utilising a narrative synthesis approach.

At an early stage of my PhD, I was fortunate enough to attend a residential course to understand how to approach systematic reviews. Given the absence of recent, high quality, systematic reviews of the literature relating to professional identity in medical students, this review is an important contribution to knowledge of this thesis that has also been used to inform subsequent research design and interpretation of results. The focus of this thesis has changed with time, and as such when this initial review was undertaken, consideration was also provided to the professional identity formation of junior doctors given the sparse literature available relating to medical students. It should therefore be noted that the search terms include junior doctors to aid with review of the broadest possible literature to aid with understanding of the systematic review research question.

Executive Summary:

Objective: Professional identity formation (PIF) has gained increasing attention since medical educators have switched their focus from professional practice towards understanding how medical students and doctors integrate their professional roles into their identities. This has been driven through publications from organisations such as the Carnegie Foundation, which have emphasised the importance of professional identity formation, and by high profile cases of professional misconduct. This includes the Harold Shipman case; researchers have sought to understand how such cases have occurred and if professional identities play a role in such events. This review aims to understand what we already know about PIF and the factors that influence it.

Method: Initially completed in 2017 before being updated in 2023, the electronic databases EBSCO, OVID, British Education Index, ERIC, CINAHL, PsychINFO,

PubMed and the Cochrane database were searched for peer-reviewed publications that aimed to examine what impacts on the professional identity formation of medical students and doctors across the medical education continuum. The primary reviewer (JR) selected, quality appraised and extracted relevant data, including key outcomes of studies examining professional identity formation. This process was quality checked by two independent researchers (RB and SS, who were other PhD students within the University of Plymouth).

Results: 52 papers were discovered through initial searches, with an additional two papers identified through reference searching, a total of 54 papers. A large proportion of the papers were opinion pieces and non-systematic literature reviews. Primary research was usually small-scale and single institution based. Themes were developed in the form of key questions that the literature had attempted to answer, and then dealt with in turn. The major themes emerging from the literature were:

1. What is professional identity?
2. How does professional identity differ from personal identity?
3. What is the difference between professional identity and professionalism?
4. What approaches do medical students and doctors use to develop a professional identity?
5. What impacts do different professional identities have on patients and colleagues?
6. What disrupts professional identities and how do individuals respond?
7. What role do patients, the public and society play in the development of professional identities of doctors and medical students?

Conclusion: The amount of published literature examining PIF across the continuum of medical education has increased dramatically in recent years. Key concepts such as socialisation, the zone of proximal development and learning environments (including role-modelling and the hidden curriculum) remain key. However, medical students and doctors are working in an increasingly complex healthcare environment in which the burden of chronic disease, patient involvement in their healthcare and diminishing resources play a key role. In order to support learners, there needs to be

greater understanding of how education interventions promote appropriate PIF and how we can identify and support those who are struggling.

Introduction:

Professional identity formation is a complex and evolving concept, even when confined to one group of professionals. This is further complicated by divergent approaches to education research and different understandings of professional identity. Combined with a recent explosion of research, which has typically been small scale and single institution based, this has called into question the transferability of results and raised questions about what we really know about professional identity formation.

To date, there has been no published systematic review of the literature relating to professional identity formation in medical students and doctors across the continuum of practice. This review uses a narrative synthesis approach to draw conclusions about what we currently know about professional identity formation (PIF) in medical students and doctors and identify key gaps that require further research as part of this broader PhD project.

Background:

The literature relating to professional identity construction and formation was limited until around 2010. Much of the literature until this point had consisted of conceptual models that related back to the psychology and sociology advances of the 1950s onwards, frequently citing the work of Goffman, Vygotsky and others.

However, empirical research was significantly limited, with a lack of challenge to accepted approaches and limited appreciation of how the concepts discussed in academic papers could be put into practice. Furthermore, the literature failed to appreciate the rate of change in both healthcare and medical education and the cultural shift within medical education, whereby patients are partners in their care and their experiences of healthcare matter just as much as the healthcare outcomes that are achieved.

In 2010 the United States based Carnegie Foundation published a new document on medical education entitled “Educating Physicians: A call for reform of medical schools and residency programs”(108) focussing on medical education in the USA. The paper included four main recommendations for change:

1. Integrated education
2. A focus on the professional identity formation of doctors
3. Standardization and individualism
4. Inquiry, innovation and improvement

The recommended focus on PIF led to a significant increase in the literature around professional identity, updating key concepts and encouraging new empirical research examining how existing and new interventions encouraged professional identity formation across the continuum of healthcare. However, despite this increase in the published literature and an acknowledgement of the changes that have occurred in medical education there has been no subsequent systematic review of the findings of these new studies and the new approaches to PIF that have been proposed.

This chapter aims to identify and address this gap, whilst also developing key themes for exploration as part of this PhD and allow for the development of questionnaire and an interview protocol grounded in the literature and current approaches to PIF. The focus of this chapter also emphasises the renewed focus on professional identity formation as being one of the fundamental tasks of medical education and medical educators (109).

As Beijaard and colleagues state, identity is an individual trying to answer the question “who am I at this moment” (110). However, without understanding the current literature we cannot possibly hope to be able to answer this question.

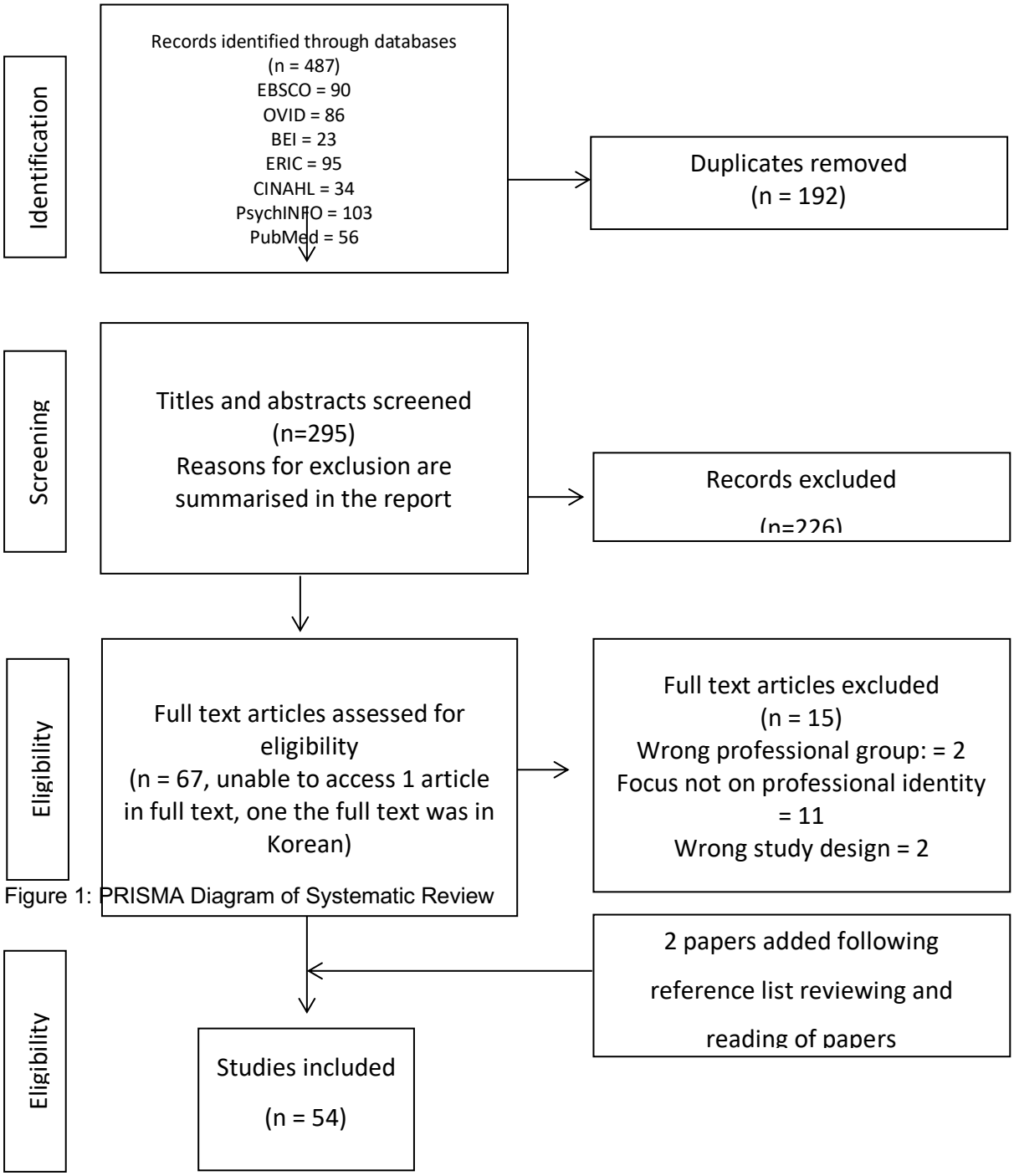


Figure 1: PRISMA Diagram of Systematic Review

Figure 4: PRISMA Diagram for systematic review.

Search Strategy:

Details of the search strategy can be found in Table 1 and further explained in the appended review protocol. Searches were carried out in EBSCO, OVID, British Education Index, ERIC, CINAHL, PsychINFO, PubMed and the Cochrane database. Numbers of papers found in each database are contained in the PRISMA diagram. Papers included have been from the last 30 years to recognise the significant impact of changes to medical education regulation that were implemented by the GMC.

Setting: "Medical education" OR "hospital" OR "medical school" OR "primary care" OR "secondary care" OR "general practice" OR "university" AND **Perspective**: "medical student" OR "learner" OR "doctor" OR "resident" OR "attending" OR "teacher" OR "educator" OR "administrator" OR "professional" OR "trainee" OR "consultant" OR "registrar" OR "senior house officer" or "house officer" OR "foundation doctor" OR "physician" OR "surgeon" OR "patient" AND **Intervention**: "identity construction" OR "identity formation" OR "identity development" OR "identity disruption" OR "identity change" AND **Evaluation**: "change" OR "develop*" OR "impact" OR "reflect" OR "learn" OR "construct*" OR "form*"

Table 6: Search terms used in the databases.

Search terms were kept deliberately broad in order to capture the maximum amount of literature with a subsequent screening process involving multiple reviewers to ensure the rigour of decisions regarding inclusion and exclusion of papers. JR (the PhD student) undertook the searches, screened abstracts and then full texts and then extracted the data. Abstract screening and full text screening were independently quality checked by two other PhD students (RB and SS) to ensure accuracy and appropriate inclusion and exclusion of texts.

The types of literature:

What became apparent during this review was that a significant amount of the literature consisted of opinion pieces by medical educators with an interest in the area of professional identity formation. Of the 54 papers included, 21 were either opinion pieces, non-systematic literature reviews or attempts to create conceptual frameworks of professional identity formation. Many of these referred to the same underlying publications.

31 papers were primary research, all of which were either qualitative or mixed methods. Of these 31 papers, 16 were based in the USA or Canada with a smaller number in Europe or Australasia. These papers were all small scale studies and with the exception of three papers (111, 112, 113), were based at single institutions, with questions therefore raised about the transferability of results to other organisations.

A complete data extraction table can be found in Appendix Two, along with a review of the strengths and weaknesses of the papers and further categorisation of the location and types of studies. It should be noted that the review protocol included only peer reviewed publications.

CASP Checklist:

The CASP checklist can help to review the quality of the literature being studied. In view of the small-scale nature of many of these studies, the CASP checklist provides

some information about the quality of the data and the reliability of the results, and is useful for any subsequent publication of this review. Scores ranged from two to ten out of a maximum of ten points. Papers were not excluded based on their CASP scores as all contribute new knowledge to an evolving area of medical education research. The mean score was eight out of ten.

The literature available is limited and this emphasises the importance of undertaking new, high-quality research to answer some of the key questions still remaining around PIF.

Systematic review results:

As part of the narrative approach to the synthesis of the literature, papers were coded using NVIVO software to develop key themes and sub-themes. There were five rounds of coding using a thematic iterative approach before the final seven key themes were established.

The published guide to performing a narrative synthesis states that it is important to present a hypothesis at the beginning of a review (114). Whilst this is achievable when reviewing, for example, new drug therapies, it is much harder to create a hypothesis for a broad concept. It could therefore be argued that this review is a hybrid between a narrative synthesis and a thematic review of the literature.

During the process of coding the literature it became apparent that there were several key questions that previous papers had posed, and some of which had tried to answer. Many of these arose from the struggle authors had experienced in understanding PIF in their institutions and how PIF integrates with a predominantly competency based model of medical education, where specific activities are assessed (defined as entrusted professional activities) (115).

The key themes that developed from the literature, with the associated questions that were either posed or answered were:

1. A broad definition of professional identity, the history of professional identity research and the reasons for a recent increase in interest in professional identity formation. **(Summarised as: What is professional identity?)**
2. The difference between the development of personal identity and professional identity (and the tensions that can arise during this process). **(Summarised as: How does a personal identity differ from a professional identity?)**
3. The tension between professionalism and professional identity in the literature (both in terms of definition and approach) **(Summarised as: What is the difference between a professional identity and professionalism?)**
4. The different methods by which medical students and doctors develop a professional identity **(Summarised as: What approaches do medical students and doctors use to develop a professional identity?)**
5. What impact these identities have on clinical practice, patients and colleagues **(Summarised as: What impact do different professional identities have on patients and colleagues?)**
6. The disruptions that can occur to professional identity and the different ways this is handled by individuals **(Summarised as: What disrupts professional identities and how do different individuals respond?)**
7. The increasing role that patients, the public, the media and wider society play in professional identity formation **(Summarised as: What role do patients, the public and society play in the development of professional identities of doctors and medical students?)**

This chapter will now seek to address each of these key questions in turn, presenting the appropriate literature reviewed as part of this process.

Theme One: What is professional identity?

Whilst the terms professional and professionalism have been referred to and explored in the medical education literature for some time, it is only in recent years that medical educators have looked beyond these terms and started to refer to the stage beyond this; the idea of professional identity. Much like professionalism, definitions relating to professional identity differ and there are subtleties that relate to the way that professional identity is referred to in the medical education literature that are not

present in research regarding other professions, such as teachers, the military and the clergy (41).

Some researchers (predominantly in the social sciences literature) have suggested that professional identity is not a true identity, but instead is an overlap of three related areas. Holden et al. propose that professional identity marks the overlap between "professionalism, psychosocial identity development, and formation", but also argue that professional identity formation is a real and complex issue in medical education with significant differences compared to other professions due to the patient centred and patient safety issues at stake (116).

The reasons for these differences are likely multi-factorial, including more than those areas presented above, but as Monrouxe suggests it is likely that contextual nature of healthcare in which the individual, their circumstances and diagnostic uncertainty must be combined with evidence based practice means that forming an identity is a highly problematic process (117). This is even before developing a further identity within one specific field of medicine begins (113).

One of the most encompassing and user-friendly definitions of professional identity formation comes from Goldie who published on professional identity formation and the important role that medical educators play in 2012. In this paper he states that professional identity is (86):

"a way of being and relating in professional contexts"

Goldie goes on to explain the complexities of developing such an identity:

"Identity is multiple, dynamic, relational, situated, embedded in relations of power, yet negotiable"

It is perhaps unsurprising that such a complex and dynamic concept like professional identity has previously been under-researched due to the difficulties in defining and measuring PIF. Many researchers appear to have struggled to take account of the fact that professional identity can change on a day to day basis and that students and

doctors may present a different identity depending on factors such as their familiarity with the situation and external stressors (118).

Whilst the attention on PIF has grown, it is important to remember that the process itself is not new. Physicians have been developing identities separate to those of their patients for as long as the concept of a physician has existed, but the recognition that professional identity formation is important and can be fostered is a relatively new idea, and one that until recently has received little attention by educators (45). Cruess et al argue that the first real consideration of PIF as an important educational process occurred in a publication by Merton in 1957. This stated that the aim of medical education should be to:

"shape the novice into the effective practitioner of medicine, to give him the best available knowledge and skills, and to provide him with a professional identity so that he comes to think, act and feel like a physician" (119)

Cruess goes on to explain that it is important to remember that we are not creating a new educational phenomenon, but understanding what is already happening so that we can assist students in developing an appropriate identity that meets the needs and expectations of the society that they serve.

Since the 1960s it has been increasingly recognised that people are not born with a set identity and that when they do develop an identity this changes and adapts throughout life (17) (71). Erikson previously noted that adolescence is a key time for identity formation, however, more recent explorations of identity formation by Kroger have cited nineteen to twenty-one years old as a key point in developing personal, social and sexual identities (111). This period is a key time for those who teach medical students (especially in predominantly undergraduate entry to medical education, like in the United Kingdom) as this is also the point at which we encourage our students to develop their professional identities. We must be mindful that our students may not be well equipped to deal with the formation of these competing and overlapping identities.

Overall, there was consensus in the medical education literature that professional identity is different in medical students and doctors compared to other professions. Most researchers in this area viewed professional identity as is discrete and separate from the other identities that these practitioners possess. This identity though is fluid, changeable and situation specific.

Theme Two: How does a personal identity differ from a professional identity?

The literature tells us that there are multiple different types of identity that one person can possess (44, 86, 120, 121, 122, 123) and these include:

- Personal identity
- Social identity
- Professional identity
- Family identity
- And many more

Even within these identities, individuals may possess more than one form. The literature most frequently considered personal and professional identities as being key to the development of medical students and doctors. The impact of one on the other is significant and a key consideration for medical educators as medical students at the start of their careers will have little in the way of professional identity and are still developing a personal identity.

Personal Identity:

Personal identities are complex and multi-faceted, hence they cannot be easily summarised. They are what makes a person who they are, their likes and dislikes, sense of humour, gender, sexuality etc. One publication sought to define four key areas of a personal identity (124):

- Physical
- Social, including relationships

- Psychological
- Memory

Our understanding of identity formation relies on the idea proposed by Marcia in 1966 that there are four key stages to identity development that individuals travel through: diffusion, moratorium, foreclosure and achievement. This process is not linear and individuals may move forwards and backwards depending on their experiences and those around them (125). Personal identities, much like professional identities, are situation specific and evolve with time. However it is argued that they lack key components that define professional identities; such as altruism, empathy, hierarchy and professionalism (86).

Niemi extended the idea of stages of identity development utilising the Marcia framework but applied to medical students (126). They proposed, through the review of reflective logs and undertaking identity interviews with students, that medical students can broadly be categorised into the following stages of professional identity formation:

1. Diffuse identity status
2. Vague fantasies and tentative ideas
3. Active exploration of specific alternatives
4. Achieved professional identity

These stages are further explored in the methodology chapter and align with research previously carried out into the stages of professional identity formation when using individual narratives to explore experiences.

Professional Identity:

At the point of entry to medical school, students have virtually no professional identity, other than that which they might have seen from work experience, social contacts who are medical professionals and the portrayal of doctors in the media and on television, leading to different concepts of what a doctor is amongst new students (44).

Cruess at al. utilise Kegan's framework of identity development as a means of explaining the emergence of professional identity, arguing that professional identity formation exists at stages two, three and four of the six stage model (44).
Kegan's framework includes the following stages:

- Stage Zero: Incorporation
- Stage One: Impulsion
- Stage Two: Imperial
- Stage Three: Interpersonal
- Stage Four: Institutional
- Stage Five: Inter-individual

Cruess et al argue that at the stage of life that medical students are, the early and final stages are not relevant, implicitly linking personal identity to professional identity. Understanding these conceptual stages of professional identity formation can help us to understand how medical students think react, and consider how we can support their transition from one stage to the next:

Stage	Personal Characteristics
2: Imperial	An individual who is able to take into account the needs of others, but whose own needs and interests predominate.
3: Interpersonal	An individual who is able to simultaneously see different points of view and adjust these so that self-interest does not predominate. An individual who cares about how they are perceived by others.
4: Institutional	An individual who can define their self independently of others. Someone who has internal standards that govern their relationships.

Table 7: Adapted from Kegan's "The evolving Self: Problem and Process in Human Development (127)

Stage two relates to the early medical student who copies the actions of others, but does not necessarily understand them. Stage three relates to the evolving professional who understands why they act in the way that they do, but is guided by role-modelling and particularly susceptible to the hidden curriculum (discussed later in this chapter). Stage four is a more established professional who has integrated the values of their profession into their identity. From this, we can interpret that initially students have a personal identity and no real professional identity. This progresses into separate

personal and professional identities before the two identities become intertwined and may be indistinguishable from each other. This has important implications for the way that we teach, assess and support doctors and medical students.

Theme Three: What is the difference between a professional identity and professionalism?

Throughout this review I have struggled with the notion that sometimes the terms 'professional identity' and 'professionalism' are used interchangeably, whilst some argue that professional identity is different to the profession of medicine (37).

Insights from a previous literature review carried out by the American Board of Internal Medicine are helpful in partially resolving this issue. The authors argue that there are several key traits that make someone a professional (128):

- Having skills desirable to all but possessed by few
- Skills and knowledge that benefit others
- Altruism (whether real or perceived)
- Regulation, standards of practice and consequences for when these are not met
- Social standing

The American Board of Internal Medicine review referenced above also identified the following key attributes of a 'professionalism' (128):

1. Altruism
2. Accountability
3. Excellence
4. Duty
5. Service
6. Honour
7. Integrity and respect for others

In addition to possessing these qualities, the review also identified attributes that they felt it was equally important were not present:

1. Abuse of power
2. Arrogance
3. Greed
4. Misrepresentation
5. Impairment
6. Lack of conscientiousness
7. Conflict of interest (e.g. payments by drug companies or gifts that are inappropriate in value etc.)

Much of the literature discusses the so-called 'social contract' between the medical profession and their patients that makes it clear that the standards of professionalism listed above are upheld at all times, and that there are consequences for when these standards of professionalism are not met (129). This idea of regulation was felt to be an important part of professionalism, in order to assure the public and patients of the quality of care that they should receive.

The changing expectations of society, combined with the increasing diversity of students entering medical school and their different experiences has led to a drive to make the expectations of professional practice more explicit (129). This has been driven further by high profile failures of professional practice, including (but not limited to) Shipman and issues surrounding the discrediting of research relating to the MMR vaccine from Andrew Wakefield (130).

Complicating the inclusion of professionalism within medical education are what David Irby has identified as three separate frameworks for developing professionalism: (131)

- Virtue based (the oldest approach which focuses on the development of moral character and reasoning plus a caring and compassionate approach)
- Behaviour based (which emphasises milestones, competencies and the measurement of observable milestones e.g. those which are advocated in the list above)

- Identity formation (which has a focus on identity development and socialisation into the community of practice i.e. individuals are encouraged to integrate into their identity a set of values and approaches that resonate with the physician community and these individuals strive to be the best they can be)

The use of professional identity in the definition of a model of professionalism further blurs the distinction between these two concepts. In summary from the literature, it appears that professional identity is who you are, professionalism is what you do. We can measure professionalism but we struggle to measure professional identity other than by surrogate measures of professional practice. This includes the approach fundamental to this thesis, the use of personal narratives to understand professional identity formation as a surrogate marker.

Theme Four: What approaches do medical students and doctors use to develop a professional identity?

Professional identity formation in many respects differs little from forming other types of identity. The individual observes and develops ideas associated with the 'in' group and identifies how these are different to the 'out' group, emphasising these differences through socialisation and reducing the differences between themselves and the 'in' group by the way they think, act and behave. The same is true in professional identity formation and the way that medical students transition into doctors and set themselves apart from patients and other professional groups.(40)

Medical students hold an interesting role within this group as they hold a much weaker professional identity and therefore identify more with the broader healthcare group, rather than the physician group (132). This is often complicated by a mismatch between how students perceive their identities compared to how patients view them. A study by Vagan in which students and patients were asked about their experiences of communication skills teaching found that students perceived their identities very differently to patients, creating tension and undermining the professional identity formation that clinical teachers had intended (132).

The literature presented multiple different arguments about the approaches that individuals use in developing their identity. In summary the following approaches and influences on identity formation were suggested:

- Underlying Demographics
- Admissions to Medical School
- Socialisation
- Patient Contact (and the stage that this occurs)
- Learning Environment and Communities of Practice
- The Hidden Curriculum
- Reflexivity
- Story telling

Broadly, the literature outlines the non-linearity of identity formation and notes that medical students and doctors progress through stages of identity formation. Complicating this is the fact that the language used depends on the theoretical framework applied. In general, publications referred to a social constructivist approach that drew on literature by Erikson, Goffman and Vygotsky (17, 44, 86, 133, 134). Individuals were presented as progressing through increasingly organised concepts of identity, from a diffuse, unformed collection of ideas through to a defined and resilient professional identity that can resist questioning from patients, peers and the public (17, 37, 109, 120, 135). Most explorations of identity formation arrived at these conclusions through the analysis of student discourse, either written or verbal. Other publications relied on an ethnographic and sociological lens (136) and accepted that identities develop and change over time and are constructed, modified and deconstructed with different experiences (137) (23).

Underlying Demographics:

Gender was the most frequently considered demographic attribute that impacted on PIF (133, 138, 139). Papers argued that female students constructed their professional identities in a different way to their male colleagues and that this related to societal influences, differences in emotional maturity and increased degrees of empathy in

female students compared to males. This was felt to be compounded by a male dominated profession at more senior levels, which no longer reflected admissions into medical school. This placed female students at a disadvantage and some cases were presented which highlighted a gender hierarchy and sexism in the workplace. These negative experiences impacted upon the way that female students formed and developed their identities, both as doctors but also within the specialities in which they chose to practice.

Admissions to medical school:

Implicitly linked to demographic features are admissions to medical school. Medical school admissions still rely on an understanding of the role of the doctor and access to work experience to demonstrate 'commitment to the profession'. This advantages those from social backgrounds that include doctors, and therefore favours those from higher socioeconomic classes, which usually contain doctors and University educated professionals (despite initiatives to widen access to medicine and Universities).

The different exposure that students have to the medical profession before they become medical students directly implicates the admissions process in the way that individuals develop their identities. Professional identities are likely starting to form before people even enter medical school. This process is, however, accelerated greatly once students enter medical school and therefore the admissions process to medical schools plays an important role in both selecting who will develop a professional identity as a doctor and how this process first starts (43). Once part of medical school culture, students are exposed to a divergent approach to PIF. On one hand diversity is promoted, as it is through admissions processes, but on the other students are encouraged to conform with convention and the role modelled behaviours that they observe (17). Students are required to navigate this confusing idea that on the one hand what makes them individual is to be encouraged, whilst on the other they must conform to the values of the profession to which they are entering, which can have a steep hierarchy, where doing as you are told is encouraged.

Socialisation:

By far the most common theme within the professional identity literature is the concept of socialisation and that professional identity does not occur in isolation. This provides key links to role-modelling and the hidden curriculum. The origins of role modelling draw on Vygotsky and his work regarding the "zone of proximal development" referring to the learning contexts that foster development (140). Goldie presents his modified version of how socialisation in medical students and doctors in the following diagram (86):

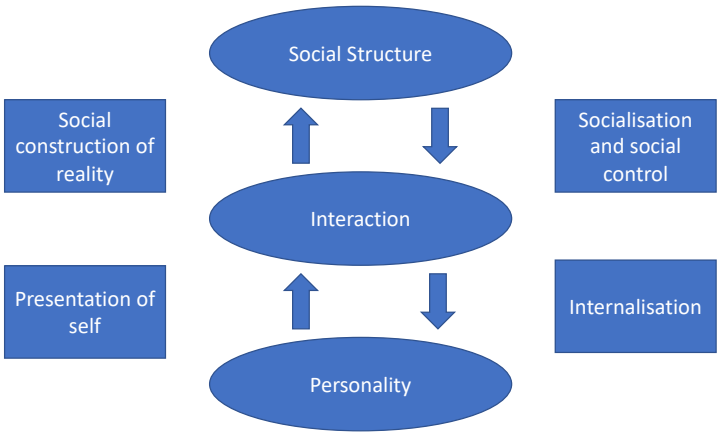


Figure 5: Interactions between self and social structure as part of identity formation. Adjusted from House 1977 (141)

This diagram emphasises the importance that both social structure and the interactions that an individual has with this structure have on developing an identity and a personality. This process is fluid, and depends on internal and external factors. This links closely with two other areas considered later in this chapter: the hidden curriculum / role-modelling and learning environment.

Patient Contact:

The increased understanding of the role of socialisation in the development of identity has encouraged medical schools to promote earlier patient contact to ensure that

doctors develop a patient centred professional identity, something now expected by patients and the public (4). There are, however, difficulties with this and the increase in attention given to patient contact at an early stage means that this aspect of socialisation can make identity formation more difficult. This is because students do not know who they are supposed to be and patients do not know who they are trying to be (132). This may lead to tension and difficulties in identity development if such problems are not tackled and supported.

The social and political drives to increase patient-centred care have focussed the emphasis on patient contact in identity development, but there remain significant unanswered questions regarding the disconnect between what students and junior doctors think their identities are and how patients perceive their identity.

Role-modelling and observation of the care others deliver (the hidden curriculum):

Linked implicitly to socialisation is the concept of role-modelling (43, 44, 86). As previously discussed, medicine involves copying and imitating the behaviours of others during the process of becoming a doctor. Often, individuals copy behaviours before they understand why they are doing them, and professional identity develops. On one hand, role-modelling is a vital part of developing an identity and cannot occur without it. However, there is also much written about the dissonance between what medical students and junior doctors are taught about their professional identities and what they actually observe, emphasising the important role that medical educators can play in reconciling these differences and promoting appropriate professional identities (41). Publications are divided about the positive and negative roles of the hidden curriculum. It appears that professional identity cannot be formed without it, but that the behaviours and identities developed because of it are not always those that educational institutions would want to promote.

A number of the papers consider the role that inter-professional education can play in the development of professional identities, referencing the stages of identity formation suggested by Keegan. In these papers the authors argue that developing a professional identity relies not just on discovering who people are, but also what they are not and that by learning with other professions this can assist in this process (40).

Learning environment and communities of practice:

Increasingly the literature has been examining the importance of the learning environment on professional identity formation. This overlaps with socialisation because learning environments that promote professional identity formation often make space (both figuratively and literally) for contact to be made with those who can help shape the professional identities of doctors and medical students e.g. other students / doctors, those who are further up the medical hierarchy, patients, the public and allied health professionals (46, 135, 142).

Within these learning environments are communities of practice which students enter, often with little understanding of what they represent, developing behaviours that initially copy those of established doctors before finally understanding why those behaviours exist. The concept of communities of practice in the formation of professional identities in doctors and medical students arises from the socio-cultural theory of education as part of 'situated learning'. Wenger in 1998 (51) explained that hospitals are an example of communities of practice that promote and develop professional identities. Significant opportunities to study PIF and encourage appropriate identity formation exist within these settings, however, access for medical educators is often complex and difficult.

Reflective practice:

It has already been established that reflective capacity is an essential competency for clinical reasoning, appropriate communication with colleagues and patients and to be perceived as being 'professional' (143). To be reflective requires the advanced skill of metacognition and emotional awareness and empathy to allow students and doctors to understand complex social interactions; which are made even more complicated by the high levels of emotion associated with contact with doctors. Brown Medical School was an early adopter of the use of reflection to investigate PIF. In a paper published in 2005 the authors describe a key outcome of the work as promoting an appropriate professional identity through the ability to share stories and provide feedback on the approaches taken by students (144)

A step further than this is to consider how this reflective practice can be turned into mindfulness. A 2015 study published in Academic Medicine advocated for a more structured form of reflection, including mindfulness to ensure that students and faculty were aware of the role that reflection can play in identity formation and that they are supported to undertake this (145)

Tensions:

Tension in PIF was highlighted in one of the publications due to the divergent aims of the promotion of both individualism and of standardisation when developing professionalism, meaning that students became confused (17). The ways in which students overcome this disconnect varies and depends on the experiences that are afforded to them as part of their educational experiences. However, ultimately the lack of a tried and tested conceptual framework by which we can develop pedagogies in professional identity formation limits how well this question was answered by the literature (71)

Theme Five: What impacts do different professional identities have on patients and colleagues?

The increasing attention which authors of papers paid to outcomes and experience over time was very clear, with an increasing emphasis placed on patient outcomes rather than professional and learner outcomes alone.

The context of healthcare is also important, and the literature noted that an increase in chronic disease is having an impact on the care that doctors deliver through more complex treatment discussions and decisions. One paper argued that this was directly affecting the PIF of doctors by encouraging thinking and practice to adapt and change (146). Papers also discussed the impact that PIF has on future workforce planning needs of the medical profession (122, 135). Many countries are currently facing a workforce crisis, with the rise in healthcare demand associated with an ageing population unmet by a slower increase in the number of doctors. In the UK, recent

disputes regarding junior doctor contracts have further compounded recruitment and retention rates, exacerbating this workforce problem.

Broader impacts on patients:

Papers suggested a variety of positive outcomes associated with a more developed professional identity including:

- Better team working (40)
- Greater preparedness for life-long learning
- Improved patient care (4) (16)
- Increased resilience (41)
- Greater compassion for patients (42)

However, inappropriate PIF was reported to be detrimental to patients and the care that they receive. The analysis of some recent dialogues of students who have been involved with caring for patients places these patients in an interesting category as interpreted by Warmington (109). This paper considered that students think of patients as "adversaries who would thwart students' learning needs if they were fully informed and given options" (p149) which differs to the interpretation of the relationships that students had with their doctor colleagues who "are characterised as being students' champions and allies" (p150). They further suggest that this implies that the relationship between healthcare professionals and patients is somewhat of a competition and that this has a significant impact on the way that students construct their relational identities with patients.

Broader impacts on colleagues:

Foster et al. considered the impact that different professional identities of senior doctors have on more junior colleagues (142). Through discussions with a group of established doctors they sought to understand how their experiences as junior doctors shaped their future professional practice. Senior doctors divided those they had worked with into two categories; those they saw as positive role models and those in which they saw behaviours that they would not wish to demonstrate themselves ('the heroic and the villainous'). Through these interviews the authors established that

different professional identities of senior colleagues can impact on the future careers of doctors by impacting their own developing professional identities.

A further paper considered the US morning report (a daily teaching event in which junior doctors present cases to encourage learning and are questioned by their peers and more senior colleagues) (120). The paper argued that role-modelling behaviours can have both a positive and negative impact on colleagues and that the impact of this should not be underestimated.

Theme Six: What disrupts professional identities and how do individuals respond?

Role-modelling is accepted as having a significant influence on the way that medical students and doctors develop their professional identities. Through a process of observation, those at the start of their careers understand what is expected of both the care they deliver and also the identities that are required to deliver this. However, there can be a dissonance between what is talked about in the classroom and what is observed, creating a tension and leading to unintended outcomes of professional identity formation such as cynicism, black humour and other undesirable qualities in healthcare practitioners. Those with established identities as professionals may also find it harder to develop new identities, further complicating this process in mature students (147).

Failure:

The literature points on many occasions to the high standards that doctors and medical students place upon themselves, driven by organisations that train and regulate them and the standards by which they practice. This is generally accepted as necessary to safeguard patients. Failure disrupts this idea that the care delivered is high quality and harm free and impacts on the associated identity of the individual involved. Interventions such as remediation can help to address the knowledge and skills issues that have often led to failure, but generally do not address the issues relating to PIF that may have caused failure in the first place, or the impact that failure can have on professional identity (131).

Interestingly, failure and remediation may actually help to develop identities. Some of the literature suggests that moving between stages of identity occurs abruptly and is not a gradual change. This is because these changes are reported to occur as a result of a 'crisis' which causes the individual to question their identity in view of the new experience and hence they re-evaluate who they think they are. Such events include failure and subsequent remediation (86).

The ethic of caring:

One of the many interesting concepts that emerged through the review of the literature was the idea of an 'ethic of caring' (42). This served as a framework for researchers to understand the narratives that students produced and explained how their role as medical students and doctors was strongly influenced by their experiences with patients and the impact that they had on their care. At times this was challenged by the hidden curriculum, where concepts such as black humour and arrogance were role-modelled, in conflict with the caring ethic that had been promoted by medical educators. This conflict created stress in the participants, which evolved as they developed their identities. Some participants resolved this conflict positively by creating identities that incorporated their own values, however others were focussed on the concerns that individuals had about how others perceived them, shifting attention away from patient care and compassion towards a more self-centred identity where patients featured much less. With time, some participants were able to move away from this identity into one that focussed on more holistic patient care as they became more comfortable in who they were.

Theme Seven: What role do patients, the public and society play in the development of professional identities of doctors and medical students?

The previously discussed role of socialisation in the development of identity emphasises that forming an identity is contextual and influenced by society. Patients and the public therefore have a significant role in the development of professional identities in doctors and medical students through their interactions with the profession

and the way that they communicate their expectations. Whilst usually through direct contact with the medical profession, the media (both factual and dramatized) also plays a key role.

Overlaps with other professions also affect the way that medical students and doctors form their professional identities.

The military:

Much like the analogy of a doctor being like a pilot when considering human factors in preserving patient safety, researchers have looked across the literature from different professions including the military when considering how we might frame the formation of professional identities in doctors and medical students.(148)

Whilst drawing parallels within the literature can be a useful starting point to explain phenomena and guide future research, there are significant issues with such an approach. First, the role of the professional in these two areas is markedly different. The military aim to produce a group of people who will follow orders, even if this is to their own detriment. Doctors, however, are encouraged to advocate on behalf of their patients, which at times might mean pushing back against convention and guidelines if they feel that this will help their patients. Autonomy of thought is usually encouraged, rather than repressed, although at more junior stages the requirements to conform mirror those in the military much more closely.

Social media and an online professional identity:

Advances in the use of electronic media, especially social media, have meant that individuals increasingly have an electronic identity. Medical education establishments have often been slow to appreciate this, primarily because social media was typically initially embraced by those more junior doctors and medical students before coming to the attention of those involved in the decision-making processes of regulation and curriculum content. Therefore, there has been a rapid expansion in social media use

by doctors and medical students with little guidance or oversight from those seeking to encourage appropriate professional identities and professionalism (149).

This is problematic on a number of levels. Firstly, people often have a very different online identity to that which they have in person. This means that even those with strong professional identities may not project this into their online persona, doing and saying things that they would not do in 'real life'. Secondly, the increasing reach and accessibility of the internet means that any perceived lapses in professional behaviour are much more visible and can be shared and projected much further than those that happen in person. These also often occur with no ability to control where information is shared and who has access to it, making the impact on the individuals involved potentially much greater.

Gaps in the literature:

Whilst the amount of literature that has been published about PIF has increased significantly over the past few years, there remain significant gaps in what we know about identity formation. This is exacerbated by a lack of primary research regarding PIF and a dependence on opinion pieces and the adaptation of broad psychology and sociology principles to explain professional identity development.

In particular the following was noted during the course of this review:

- Many papers discuss the pre-clinical and clinical split – we have moved away from this in many institutions with an integrated curriculum.
- Many studies use sociological concepts developed in the 1960s – society has changed dramatically, especially with the introduction of the internet and social media. This, combined with rapid educational changes associated with the COVID-19 pandemic mean that the relevance of such perspectives should be questioned and new perspectives sought.
- There remains a significant issue about the transferability of findings between organisations and individuals, because PIF is so person and institution specific.

- In the context of this PhD, there is very little written about failure, remediation and how this impacts on PIF, including the opportunities for positive identity development and educational reform.

Strengths and weaknesses of this review:

As previously discussed, to date there has been no published review of the PIF literature across the continuum of medical education. Therefore, this paper adds new knowledge by ensuring the inclusion of a breadth and depth of literature on which to base conclusions searched for in a systematic and rigorous way with a clear method of data extraction.

However, whilst the systematic nature of this review allows for conclusions to be drawn, much of the included literature is small scale, single institution with a large reliance of opinion pieces and non-systematic reviews of the literature. The CASP scores for much of this literature are therefore low, and as a result the results must be interpreted with this in mind.

Conclusions:

This chapter has considered many questions which have been posed by the literature, but some areas remain unclear and significant further research is required. Whilst the body of literature is expanding, much of this still relates to psychology and sociology concepts that can be hard to translate into practice. Those studies which have performed and presented primary research are often institution specific with outcomes with limited generalisability. Many studies also include a small number of students and so the validity of these outcomes is questionable.

A key outcome for educators is to remind them of the impact that role-modelling and the hidden curriculum has on their students. For educators, this means not only encouraging behaviours which are appropriate but discouraging those behaviours which are felt to be inappropriate utilising reflective practice and student narratives to aid in this process.

The next steps:

From this systematic review it has been possible to identify some existing frameworks of PIF that may be useful in terms of developing questions to explore identity (71). Holden et al have presented the key domains and sub-domains that they feel are most important when investigating professional identity formation:

Domain:	**Sub-domains:**
Attitudes	Humanism
	Cultural competence
	Service orientation
Personal Characteristics	Leadership
	Interest and curiosity
	Resilience and adaptability
	Capacity for improvement
	Discernment
Duties and responsibilities	Confidentiality
	Appropriate disclosure
	Honouring commitments
Habit	Self-directed learning
	Critical thinking
	Self-care
	Empathic Labor
	Reflection
	Self-awareness
Relationships	Collegiality
	Appropriate boundaries
	Effective relationships
	Effective communication
	Patient-centred advocacy
	Selection of role models
Perception and recognition	Biostructure and function
	Observational skills
	Cultural sensitivity
	Discernment
	Emotional intelligence

	Ethics competence
	Narrative competence

Table 8: Adapted from Holden et al (Professional Identity Formation: Creating a Longitudinal Framework Through Time).

These themes referenced above have been important in the design and development of both the questionnaire and interview questions which are presented in Chapter Five. Particular note should be made of the concept of narrative competence, which underpins much of the interviews undertaken with students involved in this study. Introduced in greater detail in subsequent chapters, the ability to review the coherence and competence of student narratives provides a more in-depth insight into student experiences and how the different stories they tell may support or undermine their developing professional identities. This allows recommendations to be made as part of this research regarding how the design of assessment and remediation processes can be used to support outcomes associated with higher levels of patient and student satisfaction.

Chapter Five: Data Collection

This chapter will consider the approaches taken to collecting data, before Chapter Six discusses how this data has been analysed. This separation aims to help guide the reader through a novel approach in a more accessible manner and to highlight some of the key findings in a clear way that emphasises the possible implications for future remediation practises.

Introduction and context to the study:

As referenced in Chapter Three, this PhD is grounded in a constructivist approach and understanding of identity, drawing on the work of social constructionism and symbolic interactionism, with the underpinning assumption that identity is created through interactions with others, and socialisation into groups (85).

My research perspective is also grounded in an understanding that identity as a concept can be understood through stories and narratives, because this is how medical students make sense of their experiences and the world around them. The concepts of storytelling and reflective practice were referenced in the systematic review (Chapter Four) and it is these areas that will be explored and utilised within this thesis. Narrative approaches have gained increasing attention in recent years, with literature using similar approaches being published (150) demonstrating the appropriateness of such methodology to answer the research questions. However, there remain no publications at this time using such a mixed methods approach linked to remediation in medical education.

Ethical review:

In view of the potential vulnerability of students discussing experiences they have found traumatic, a detailed ethical proposal was prepared. Student wellbeing has rightly been in the spotlight in recent years with extremely upsetting events such as student suicides generating significant media interest. A core element of this ethical

proposal was to ensure students felt supported and safe to share their experiences and that my duty of care as a researcher was carried out to the best of my ability.

This duty of care was further emphasised by my role as a member of academic staff within the University of Plymouth and I recognised at an early stage that this too posed possible additional burdens on medical students participating because both they and I may have struggled to separate my role as a member of staff from my role as a PhD researcher.

To ensure that students were well supported, signposting to services was provided before, during and after involvement in the study. The student support and remediation teams within both Schools were also kept updated regarding the study and permission obtained from students to share any concerns with the remediation team should this be necessary to ensure appropriate ongoing support (this did not become needed at any time). Interviews also took place entirely on University premises, within normal working hours, to ensure immediate access to support should this have been required. Contact details for the supervisory team were also provided to students should they have any concerns.

Ethical review was carried out by the ethics committee of the Faculty of Health and Human Sciences at the University of Plymouth in keeping with their standard processes for PhD projects. This included the approval for the use of a £50 Amazon Voucher incentive, the winner of which was drawn out of a hat from those who wished to participate at the end of data collection due to concerns that students may not immediately wish to participate in interviews during their busy studies. The funding for this was kindly provided by the University of Plymouth education research group CAMERA (Collaboration for the Advancement of Medical Education Research and Assessment).

Following approval through the University of Plymouth ethics committee, the University of Exeter Medical School ethics committee approved the project through Chair's action. Copies of these approvals, the initial application, and emails confirming Chair's action are contained in the appendices at the end of this thesis.

Patient, student and public involvement:

Given the importance of the topic for future medical education practice and delivery of care to patients and the wider public, opinions were requested from stakeholders at an early stage of the project design. This included student representatives from courses at both Universities (predominantly through student-staff liaison committees) and members of the University of Plymouth patient and public engagement group. Feedback was provided on the semi-structured interview protocol, with key changes made to the type of support provided and further changes in language regarding failure in some of the questions to minimise possible participant discomfort.

Following completion of this PhD, it is planned that engagement events with staff and students at both Universities will be held to share and disseminate the findings in addition to proposed publications regarding the future of remediation.

Data collection:

Participants were recruited to the study by email, with emails (reviewed by the ethics committees at both the University of Exeter and the University of Plymouth) sent from faculty offices to all medical students at both institutions. Emails were deliberately not sent from my University email account in keeping with ethical approval and to ensure that all data protection processes were followed throughout.

Those students who were interested in participating were invited to complete a questionnaire, hosted by the 'online surveys' platform (formerly known as Bristol Online Surveys'. The questionnaire included the opportunity to provide contact details to take part in a follow-up interview, although this was optional, and anonymous completion was possible. Providing an anonymous option was an important aspect of this project as failure and remediation remain sensitive topics, and given my role as a member of staff, students may have felt unable to discuss their experiences openly and honestly with me in-person. The option to provide anonymous feedback therefore ensured that as many students as possible felt able to contribute to the study, although

I recognise that some students would still have perceived barriers to participation which have been difficult to further mitigate for.

Participants who indicated that they wished to take part in the interviews were contacted by email and invited to either an in-person or telephone interview (the decision left to the student to decide). It should be noted that at the time of completing interviews, Plymouth University did not have an institutional subscription to platforms such as Zoom, hence telephone interviews rather than online were undertaken.

Interviews were recorded using a University approved device, and transcribed by the researcher and kept securely using an encrypted University laptop. The recorder was kept on site an in a locked draw. Consent forms were signed and stored in a locked filing cabinet in the CAMERA team office. Access to the secure areas was restricted to the researcher and Director of Studies only.

Interviews were conducted with a semi-structured interview protocol as a guide, but to aid with participants telling their stories and creating their narratives, interviews were as free flowing as possible with limited intervention from me as the researcher. This was designed to minimise interruption to the flow of participants. To ensure that students were as much at ease as possible, interviews took place on University premises, but at a date and time of their choosing. Participants were also offered the opportunity to bring someone else with them, although nobody took up this opportunity.

Questionnaires:

At the start of the data collection period, participants were invited to complete online questionnaires that sought to explore their experiences of failure and subsequent remediation. These questionnaires were designed to provide contextual data from a wider group of students than could be involved in the interviews, in order to understand the experiences of students who had experienced failure and remediation and how this had impacted their identity development.

The questionnaires offered an opportunity to recruit students, and to help guide the semi-structured interviews they took part in to help explore their experiences in more detail. In the following chapter, some of the data is presented graphically to illustrate areas where students felt more or less like doctors. For example, areas that directly involve the care of patients highlighted that students, in this aspect, identified less as doctors. In other areas, such as an ability to reflect on their experiences, students scored higher. This information is important, because it demonstrates that the doctor identity in itself is heterogenous, and there is value in exploring the different facets of a doctor identity as part of this PhD.

Although the questionnaires played a less central role in the study than was originally anticipated, they do shed interesting light on medical students' positioning in relation to their identity as a student or as a doctor. A continuum of response options allowed them to explore in different situations whether they felt more like a first day medical student or a newly qualified doctor. This proved insightful, as patterns could be observed across the sample such as a greater sense of professional identity when interacting with those outside the professional group (for example patients) than within the group (for example other doctors).

Students also completed some brief free-text boxes. Broad coding of this information informed the design of the semi-structured interview protocol and directed further investigation of the transcripts once interviews had been completed. These free-text responses are included with participant verbal quotes later in this thesis where appropriate.

In addition to questions relating to demographics and personal experiences of remediation, students completed a validated professional identity scale. Permission to use this scale was obtained from the original study authors, who very kindly also supplied anonymised validation data and assistance in interpretation.

Nine questions were contained within the questionnaire, all on a six-point scale. Students were asked to indicate on this scale how they considered they would respond in a variety of different situations, using the range as follows:

- 1 = First day medical student
- 6 = Newly qualified doctor

Descriptions of scores between these values were not provided, with students expected to view the scores in between as a continuum. This was the same approach as used within the initial study when the questionnaire was developed.

Sample:

35 responses to questionnaires were received. Of these, 25 students were registered at Plymouth University, whilst ten were registered at the University of Exeter Medical School. Whilst approaches to students to participate were mirrored across both institutions, it may be that my association with Plymouth University as a member of staff meant that more students were willing to participate in a study being undertaken by a known individual.

Year of Study	**Number of Responses**
1	0
2	2
3	13
4	5
5	15

Table 9: Year of study on the five-year undergraduate programme and number of questionnaire responses per year. All students were registered on the BMBS awarding programmes. Neither Exeter or Plymouth Universities offer graduate or accelerated degree programmes for medicine.

It should be noted that no students were in the first year of the study, and this may represent difficulties in contacting this cohort of students when they had just started at medical school; or the very small numbers who had accessed any form of remediation in view of the limited experience of assessment they had at the stage recruitment occurred. The same communication and recruitment methods were used across all years of study.

24 students identified as female and 11 were male. No students identified as transgender, non-binary or intersex. As noted above, no participants chose to classify their gender as another descriptor.

In all, 13 interview transcripts have been included in this analysis:

Participant	Length of Interview (mins)
1	33:50
2	28:09
3	23:30
4	22:34
5	23:15
6	23:18
7	35:28
8	30:47
9	33:40
10	30:34
11	38:04
12	33:23
13	41:46

Table 10: Participant number and duration of interview recording.

The characteristics of the participants is as follows:

Participant Number	Year of Study	Gender	Other Characteristics
1	Two	Male	22 years old
2	Three	Male	International Student
3	Three	Female	22 years old Both parents doctors
4	Five	Female	25 years old
5	Two	Female	21 years old
6	Three	Male	Did not choose to declare other information
7	Four	Female	Did not choose to declare other information
8	Three	Female	Did not choose to declare other information
9	Five	Male	Did not choose to declare other information
10	Three	Female	21 years old Both parents GPs
11	Three	Male	Did not choose to declare other information
12	Four	Male	23 years old
13	Three	Female	21 years old International Student

Table 11: Characteristics of interview participants.

As referenced above, interviews ranged in length from 22 to 41 minutes. Interviews were performed using a semi-structured interview protocol, but with a focus on students telling their stories with limited interruption from the researcher. Questions were modified at times according to the responses that students had provided within their questionnaires, for example, regarding specific role models or events that they felt had been important as part of their experiences of failure and remediation.

Whilst the majority of interviews were carried out in person, with travel to a University location of the participants choice, two of the interviews were conducted by telephone at the request of the students.

Given the possibility that students would discuss sensitive and upsetting topics, students were informed that they were able to stop the interview at any time. Information regarding support services (both internal and external to the University) was also provided. No episodes of contacting this support were made known to the researcher, however, given the confidential nature of these services it is possible that some students chose to use these.

All transcripts were transcribed by the researcher into Microsoft Word manually before, being imported into NVivo (151) for review and coding. A selection of the codes were reviewed by a member of the supervisory team at the time to ensure that an additional view was obtained.

Data-collection and mixed methods research:

Data collection for this research has predominantly included qualitative information obtained through written responses to questionnaires and transcription of interviews. However, some of the data obtained is quantitative, and relates to information such as demographics and objective exam scores.

Data Type	**Examples**
Quantitative	• Demographics such as age • Exam scores • Identity scale
Qualitative	• Written responses to questionnaire • Interview transcripts

Table 12: Examples of quantitative and qualitative information in this thesis.

The use of mixed-methods research is not new in either medical education (152) nor in exploring identity formation in the context of higher education (153). Schifferdecker

in her publication in *Medical Education* referenced above makes the following statement of particular relevance to this study and the complex, inter-relational phenomenon being considered:

> "The benefits of a mixed methods approach are particularly evident when studying new questions or complex initiatives and interaction, which is often the case in medical education research" (p638)

The process for data collection was appropriately iterative, and as the interviews developed, a greater understanding of the experiences of students was gained. Interviews were also informed by the questionnaires completed by students prior to their discussions with me as the researcher, allowing exploration of key issues within interviews that enhanced the information received.

Chapter Six will now consider the approach taken to data analysis, drawing on the earlier literature presented regarding approaches to understanding professional and narrative identities, before Chapter Seven presents the results of this analysis.

Chapter Six: Data Analysis

Introduction:

Earlier, this thesis touched on the idea of social constructionism, as written about by Berger and Luckman (83). The authors argue that society is a subjective reality, informed by language, in which individuals are socialised. Based on their work, my understanding of society and socialisation is that language is a method of understanding how students are forming their identities, and the sense they are making of the world around them, plus the groups with which they interact.

Given the importance of language in forming and understanding identities, it was initially envisaged that a critical discourse approach would be undertaken for this PhD. Discursive approaches to understanding identity have been used widely in the past (154) and are accepted by some as an appropriate way to analyse complex concepts such as identity and draw on not just what is said, but the use of metaphor, contradictions and the relation of what is said to concepts such as power. After multiple attempts at such an analysis, it became apparent that this approach neither resulted in answers to the research question posed nor aligned with my way of thinking and understanding the interviews with students.

However, what was apparent were the strong story telling narratives that existed in the interviews with students. Participants told their journeys as students, the key impact of failure and remediation and how this affected their perception of themselves as medical students and future doctors. Such stories were well formed, drew on social and cultural references from their lives and gave significant insight into how this had shaped their evolving identities. Following experimentation with the use of these stories as a way of understanding identities, it is this approach that has yielded important information which helps answer the research questions.

Narrative identity approaches:

As introduced in Chapter Three, narrative identity is a core social science concept that proposes individuals form their identities by integrating their life experiences into an internalised story of themselves; an identity that evolves and changes as their experiences do. McAdams (103) and Kurzwelly (155) propose that these narratives assist an individual to develop their sense of 'purpose' in life. This concept of 'purpose' is one that has been previously considered in literature relating to qualified doctor and physician identity, with a sense of purpose core to areas such as job satisfaction, resilience and career sustainability (156). However, little is written regarding the importance of identity formation through personal narratives in the field of undergraduate / pre-qualification medicine.

When including literature relating to other health and care professions (for example, nursing, paramedicine, physician associates), there remains limited exploration of the role of personal narratives in the formation of professional identities of healthcare students, especially in the context of academic failure and the remediation they subsequently undergo. Whilst research pertaining to medical and healthcare students is limited, literature in the teacher training field (in particular at primary and secondary education level) has explored the role of narrative-based research in understanding the ways in which teachers form their professional identities (157) and concluded that such an approach was a useful and appropriate way of understanding how professional identities can be formed through story-telling, and understanding individual life journeys and the sense of 'purpose' referred to above.

Although literature relating to personal narratives in medical students is sparse, published research does exist that considers the reflections of medical educators and University faculty relating to narrative approaches around how they perceive their students are developing professional identities. Keshmiri et al interviewed multiple faculty members involved in the teaching and assessment of students across the disciplines of medicine, nursing, midwifery and physiotherapy (158). However, the narratives of the students themselves is clearly missing. As a result, the outcomes of the research focus far more on observed professional behaviours rather than

professional identity, although the lessons from their approach to coding interviews (they produced 405 unique codes, creating significant difficulty in drawing conclusions) is of relevance to this research, promoting an approach with an earlier reduction in codes where possible. Review of Keshmiri's work also emphasises that identity is, of course, an entirely personal phenomenon and that the reflections of others cannot be used to understand how an individual views their identity.

Hatem et al. (150) utilised reflective essays from students to understand how their narratives provided an insight into the professional identity formation, utilising a thematic analysis to highlight core elements of these narratives that should be a focus of further research. Whilst this provides a useful starting point, the use of essays prevents a dialogue being formed with the researcher, and also creates a sense of being assessed as part of the process, perhaps limiting the extent to which students will share their experiences.

In other previous work in this area, Haruta explored how postgraduate trainees in Japan developed their identities as family medicine physicians (159). However, this too linked to qualified doctors and participants who were already in established professional roles at the start and conclusion of the study. In addition, the research did not specifically consider identities in the context of perceived failure, leaving a significant gap in the literature. One that this thesis aims to address.

Haruta's work on socialisation as part of the development of identity is, however, of significant value to this work from a conceptual viewpoint. The diagram below in particular presents a novel approach to understanding the continuum of professional identity formation that students and doctors may experience.

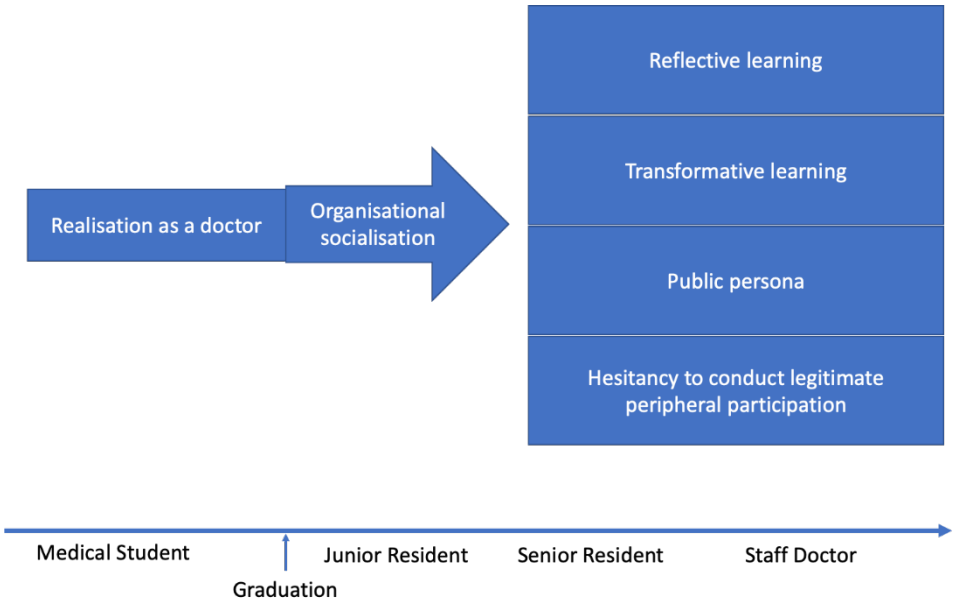


Figure 8: Adapted from Haruta (2020)

(In the diagram above, junior residents are similar in experience to those in Foundation and Core training, Senior Residents in Higher Specialist Training and Staff Doctors commensurate with Consultants.)

The diagram above is a visual representation of the journey that Haruta considers doctors take through their medical careers from medical student, to established senior clinician. The questionnaires and interviews undertaken for this thesis focus in particular on the 'realisation as a doctor' heading above; when students learn what the role involves, and integrate ways of thinking, acting and being into their identities. It is important, however, to view this thesis as part of an ongoing continuum of identity formation to help situate the outcomes in the broader medical education context.

In subsequent stages of developing identities as doctors, Haruta presents the concept of organisational socialisation. Whilst Haruta presents this work as linear; I would argue that socialisation and realisation happen in parallel and at different times for different individuals. Indeed, the problem of presenting a complex construct in a two-dimensional format is that it ignores the multiple feedback loops that are likely to exist, and that all elements of identity formation as presented above will have some relevance to students during their undergraduate studies.

Performing the analyses:

To provide a rigorous and systematic approach to analysis, narratives of life experience (such as failure and remediation) are often viewed by the presence and extent to which they contain various structural and thematic content components, as proposed by Baerger (60). Consideration of these elements in relation to narratives provides a more in-depth and robust approach to the study that thematic coding alone would provide.

In this context, the 'structure' of a narrative focusses particularly on coherence, of which there are four types:

- Temporal coherence (the telling of events in a clear and chronological way)
- Causal coherence (drawing clear cause and effect relationships, and how this impacts on a sense of self)
- Thematic coherence (the narrator reflecting on their story, the meaning and memories created)
- Cultural coherence (the context within which the narrative occurs)

The more coherent the narrative, the more formed the narrative can be argued to be (60). This is important, because narratives are used within this research as a window into the ways in which students perceive their identity. Therefore, a more coherent narrative helps to provide a greater insight into the formation and / or disruption of professional identities and allows for comparisons to be made within stories told by participants and between their experiences and those of others.

Coherence also aids with an understanding of the stability of developing identities, and how resilient these narratives are to various challenges. As failure and remediation are proposed events that impact on sense of self it is anticipated that students will present with less coherent narratives where the impact of failure and remediation has been more disruptive. This matters because understanding where remediation has generated the most disruption is also an important insight into approaches that can be

developed in future which better support identity formation as future doctors. In particular, avoiding or adapting remediation that has generated disruption for students that has undermined their narration and sense of self.

Following on from consideration of the coherence of narratives is consideration of the content. Thematic content is usually analysed by identification of key themes of personal narratives and there are eight steps which are considered as part of this coding:

- Redemption (moving from a 'bad' to a 'good' state)
- Contamination (moving from a 'good' state to a 'bad' state)
- Agency (the degree to which the narrator feels that are autonomous)
- Communion (the sense of belonging, or otherwise, that exists)
- Exploratory narrative processing (the degree to which the narrator engages in self-exploration and reflective practise)
- Coherent positive resolution (the extent to which the issues in the narrative resolve)
- Meaning making (the extent to which meaning emerges in the narrative)
- Performance (life stories that emerge outside the initial experience described)

As noted before, whilst there is limited use of this approach within medical education, successful use of this methodology has been demonstrated in the field of teacher education and development of newly qualified teachers. Whilst there are clearly differences between the professional roles of teachers and doctors, similarities do exist in the apprenticeship style of training, the move towards greater autonomy and public expectations of a professional and trusted role.

In one of these teacher-focussed studies, Weinberger (157) adopted a broad coding approach to categorise stories told by teachers relating to professional identity formation. The overview of this study is presented in pictural format below:

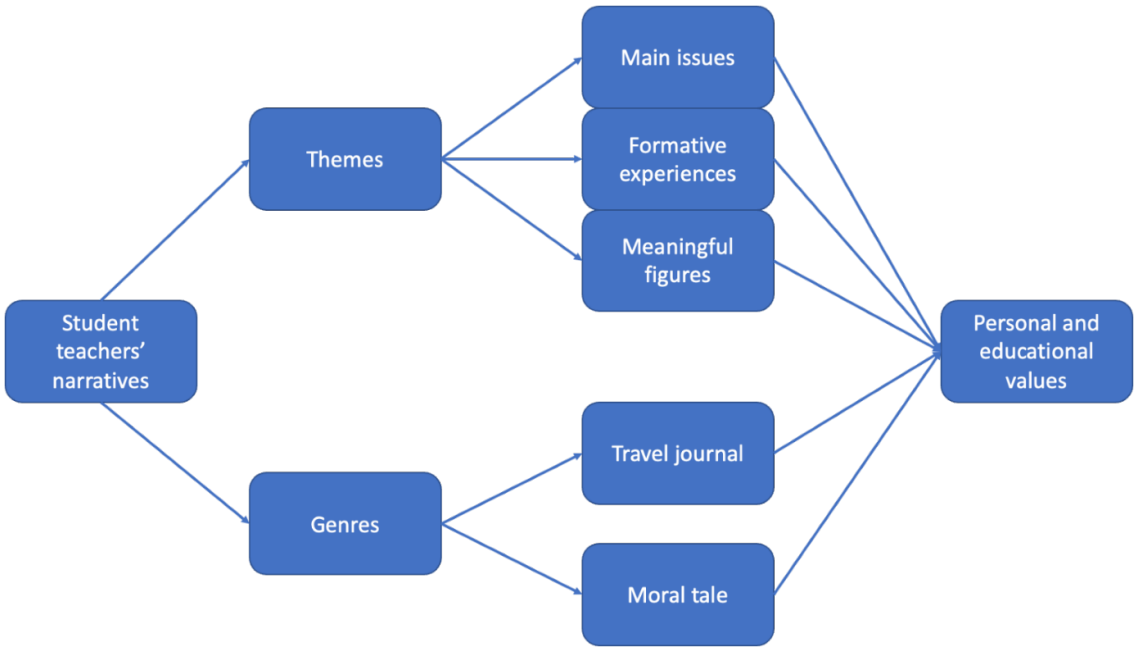


Figure 9: Adapted from Weinberger 2012.

In the study, the authors explored with early career teachers their experiences of joining the profession, and key events that had impacted on their sense of 'becoming' part of the profession. Weinberger first identified themes from the narratives told by participants, before further exploring these themes for key or main issues, formative experiences that informed their reaction to situations, and meaningful figures (including role-models).

In parallel, genres of storytelling were also identified, in particular the use of journals and verbal moral tales. The output was an individualised set of personal and educational values for each participant, which could then be compared across the study. The narratives were used in this study as a window into the formation of different identities, including professional identities in participants. Such an approach has significant advantages in terms of an accessible method of identifying themes, applying meaning to these themes, and then drawing them together into a coherent summary that helps to understand an individual's experiences and identity.

However, whilst this is an accessible method by which to explore identity, the lens through which my research is being undertaken is very much focussed on the context of remediation, and the experiences of students in their professional journeys. As such

the application of the above method is a useful starting point, but will not necessarily answer the research questions. The data included as part of my study is also different, in that questionnaires and interviews are the core information obtained from students, rather than longitudinal reflective journals (although this is an interesting area for future research).

However, the presentation of the findings of each participant, does have advantages in terms of accessibility for readers of the research, as demonstrated below:

Narrative of Category	**The genre**	**The main issues**	**Formative experiences**	**Meaningful figures**	**Personal and educational values**
Danielle	Travel journal	Conscious process of enquiry of people & cultures, introspection	Encounter with multicultural society & significant others	Three English teachers & a social worker	• Accepting difference • Equity & respect in relation to her students • Accuracy & consistency in the education process • Creativity in teaching
Noy	Moral tale	Tracing own national & cultural origins and examination of own professional choice	Memories of childhood experiences & her missions abroad as an official Israeli representative	Elementary school literature teacher	• Social involvement& responsibility • Curiosity & openness to the unknown • High self-efficacy • Caring attitude and dedication to her students • Experimental approach in teaching literature

Figure 10: Adapted from Weinberger 2012

The use of a broad, tabulated, approach to representing key issues allowed the authors to make easier comparisons across participants and hence will be adapted for my research as a starting point by which narratives can be categorised and understood prior to further analysis.

Analysing the interviews in this study:

Whilst presented as a linear process for the benefit of those reading this thesis, the process of analysis has necessarily and appropriately involved an iterative (and sometimes circular!) process whereby the analysis has changed and adapted with time, and as I have understood the interviews and the analysis in more detail. What is presented below is therefore a simplified version of events.

In summary, the approach to analysis has the following three core steps:

1. Initial coding of the transcripts highlighting narratives linked to failure, remediation, roles and identities. Undertaken in multiple steps to arrive at a unified coding matrix.

2. Each participant's narratives are reviewed against structure and coherence to further understanding (i.e. stable or turbulent narratives and the degree to which failure and remediation have been perceived as a challenge).

3. Narratives, their structure and coherence are reviewed across all participants to generate an overall conceptual framework regarding professional identity formation and how failure and remediation impact.

Step One:

Step one of this process required several rounds of coding to arrive at a coding framework. In particular because in reading the transcripts there was evidence of both self-defined and researcher-defined narratives:

1. Explicit narratives relating to roles that students have adopted (for example, roles that they reference directly in their explanations of their experiences)

2. Implicit narratives relating to roles that have been identified by the researcher

Whilst predominantly an iterative process, the lens through which this coding took place was informed by the systematic review to help focus on the most relevant areas of student discussion as highlighted by the previous literature.

For each participant, a table similar to below was produced:

	Identity explored in narrative	Type of experience	Conflicting identities / narratives	Previous experiences referred to	Resolution of identity / narrative
Participant One	e.g. doctor, patient, child, victim, hero	e.g. positive, negative, neutral	e.g. personal, professional, family	e.g. previous courses, childhood	e.g. full, partial, none

Figure 11: Adapted approach from Weinberger

Presenting each identity narrative in a tabulated form allowed for easier comparison across interviews, which aided with the development of the coding framework. Questionnaires were not coded as they had already been used to influence the interviews with participants.

The initial coding of transcripts produced a large number of disparate codes, in large part due to the inductive approach used. 66 codes in total were produced during the first, broad coding exercise. The full list of codes is presented as Appendix One. This very broad approach created an initial starting point upon which to develop a more in-depth coding framework.

Following the initial coding round, the codes were reviewed, duplicates (or codes with significant overlap) combined and a further round of coding using the revised coding framework was undertaken across all transcripts. The results of this are presented within Appendix Two. Whilst the number of codes reduced overall, the second stage of coding introduced some new codes (presented below) which have a key impact on the experiences that students reported. Although the coding was undertaken by me

as the researcher independently, two PhD student colleagues also reviewed the codes.

The two key additional narratives identified from the second round of coding were:

1. Perspectives of the hidden curriculum (associated with narratives of remediation experience)
2. Stories of perceived unfairness

For the third round of coding, the focus was further refinement of the coding to generate a framework that could be applied across all transcripts. This iterative, but literature informed approach, generated the following narratives identified from the transcripts, with the associated attributes:

Narrative:	**Associated Attributes:**
Doctor / Care Giver	How students felt in relation to the community of practice of medical working. Their role in relation to, and defined by, colleagues and patients.
Patient / Care Receiver	Their own experiences of being a patient, and how this related to their experiences as a medical student. At times, their lack of patient experience discussed as a barrier to understanding and empathising with the patient perspective.
High Achiever	History of academic success, often in the absence of any academic failure (or any academic failure with consequences for progression / future performance). Associated identity founded on lack of failure and being 'good at everything'.
Family	Family expectations regarding success, lack of familial experience of failure. Expectations around medicine as a career (and associated family pressures to undertake such a role).
Hero	Doctors and medical students portrayed as protagonists in a narrative regarding 'defeating' illness or sickness. At times, portrayed as overcoming perceived unfair assessment results and associate failure.
Victim	Often in the context of failure and remediation. That assessments were unfair, remediation was unwarranted (or unhelpful) and that students lacked control over the next steps in their academic journey.
Identity Dissonance	Where identities clashed (usually regarding high achiever identities juxtaposed against those identities associated with academic failure).

Table 13: Further coding development.

This was further condensed into the following by further review of overlap and with reference to the systematic review undertaken:

Identity Narrative:	**Core Attributes:**
Doctor	Community of practice / belonging (positive and negative) High achiever history Honesty / integrity Overt curriculum Hidden curriculum Psychological safety (or lack of) Autonomy / responsibility Reflexivity
Patient	Paternalistic experiences / lack of autonomy Psychological safety (or lack of) Recipient of information / process Individual health needs Impact of formative experiences on processing experiences
Hero	Achievement Overcoming adversity Positive outcome despite perceived unfairness of assessments
Victim	Unfairness / disparity Not achieving potential Not overcoming adversity Lack of autonomy / agency
Family and Society	Expectations of family members regarding performance Societal expectations of the role of doctors, and dissatisfaction with negative outcomes Media narratives

Table 13: Final coding framework.

A simplified example of how this was applied to individual participants is presented below. The full tables can be found at the end of the results chapter.

	Identity explored in narrative	**Type of experience**	**Conflicting identities**	**Previous experiences referred to**	**Resolution of identity**
Participant One	Doctor	Positive	Hero	Never failed before Doctor role-models	Passed next assessment
	Patient	Mixed	Doctor	History of mental health difficulties Exacerbation of mental health due to failure	Awareness that patient experiences will contribute to improved empathy as a doctor
	Hero	Positive	Patient	Overcoming perceived adversity of mental health difficulties to allow for continue study	Ability to continue studying on the course and achieving 'good' results in assessments where previous difficulties had arisen
	Victim	Negative	Doctor	Dissatisfied that mental health difficulties were not addressed by clinical members of the team	Increased empathy and awareness in own practice – to become a better doctor
	Family and Society	Neutral	None	Not explicitly explored	Some discussion that family were aware and supportive, but not a dominant narrative in this interview

Table 15: Example of completed template.

Step Two: applying analysis of structure and coherence:

Following the application of the unified coding matrix to all participant transcripts the next stage was to understand these narratives in more detail, applying assessments of structure and coherence and explained earlier in this chapter. To aid with this, further tables were produced for each participant to help structure this process.

Category	Examples from transcripts	Author narrative
Redemption		
Contamination		
Agency		
Communion		
Exploratory narrative processing		
Coherent positive resolution		
Meaning making		
Performance		

Table 15: Development of coding framework.

Step Three:

Once each participant's narratives were considered as above, data from all participants was reviewed together to inform the development of the conceptual framework which is presented in the final chapter of this thesis and seeks to present how failure and remediation impact on students and their narratives regarding professional identity formation. Three cross-cutting themes (agency, community of practice, and the hidden curriculum) were identified through this process.

Worked example:

To aid with understanding of this novel approach, a worked example is presented below to aid the reader with an explanation as to how this approach has been applied.

Participant One:

Participant One was a male medical student aged 22 at the time of data collection who reported significant difficulties with their personal mental health during their early years

at medical school. I met them when they had entered the third year of the course and at this stage they had repeated one year, and interrupted another due to ongoing mental health diagnoses which they took time away from the course to address.

The student was a direct school leaver, and reflected throughout the interview that they had always been at the top of their class prior to coming to medical school, when they suddenly found themselves as a "failing student" (a term used by the student) who required significant help and support. This, combined with difficulty in forming a friendship group within the cohort, led to significant mental health difficulties with anxiety, depression and the need to seek input from community mental health services. I was extremely grateful to the student at their openness and honesty regarding this complex and personal topics throughout the study.

The student reflected that their initial contact with the remediation team felt punitive, that it felt like they were being "told off", and that by being "forced" to go through the remediation process they were in some way being "punished". As their experience with the team progressed, they explained that their marks improved, and retrospectively they recognised that the process was helpful, although they remained critical that the attention provided to their mental health was not given greater focus at the start of their contact with the team, especially as they felt that they were presenting with several signs indicative of an impending mental health crisis.

"I'm giving that kind of clue, I would have expected him [remediation lead] to have done something about it"

As with all participants, the coding matrix was applied following review of all transcripts and each of these key narratives will now be explored in turn.

Doctor narrative:

This student made a number of interesting references to their development as a doctor. In particular their reference:

"I think lots of people think of themselves as medical students, not as future doctors"

This quote provides insight that the student recognises that they are on the journey to becoming a medical practitioner, but also that they feel that their insight into this is greater than that of their peers. By creating a distinction with others within their cohort, they seek to present themselves as someone with a greater perspective not just into their current identity, but also the one that they wish in the near future to hold. As explained above, this student had struggled to integrate within their own cohort (especially with regarding to developing a friendship group) and as a result, this barrier that the student creates in terms of their understanding of their future identity compared to the rest of their cohort is indicative of the struggles that they were experiencing.

Within their narrative, the student is keen to express their views regarding future medical practice, the importance of role models and the importance of keeping the end goal in sight. This is a well-formed narrative, demonstrating that whilst failure and remediation has influenced their identity, the process (and the associated time where their studies were interrupted for ill health) allowed them to reflect on their experiences to form a greater awareness and understanding of the identity they have, and the one they wish to hold.

Patient narrative:

The participant discusses their own mental health background, the impact on their academic progress, and how their academic failure impacted on their own health and wellbeing. There is evidence of empathy towards patients through their experiences, and the wish they discuss to support patients in the future using their own experiences to guide them.

The student, in particular, references that the remediation team were predominantly composed of doctors, and they reflect that when they first were involved in the remediation process they were really struggling with their mental health. Within the interview, they demonstrated behaviours that they felt were abnormal and indicative

of a mental health crisis, for example, the student demonstrated to me how they had spread themselves out on the table, head down, arms across their head, during the remediation session. Behaviour that they explain was entirely out with social normality during the session, but that this was not even referenced by the individual undertaking the remediation.

Hero narrative:

There is a strong feeling of redemption within the narrative from the student, and their reference to their peers as being somewhat behind them in developing their professional identity is an important distinction in that the student presents themselves as being more advanced or developed compared to their peers. This is partly credited to the work that they undertook with the remediation team, but also strongly credited to the experience that the student had to reflect whilst away from the course.

The student is clearly proud of the work they have undertaken to improve their mental health, and reflects that this experience will also allow them to empathise more closely with their future patients.

Family narrative:

The student reflects that this was their first time living away from the family home, and that this was a significant shift in their living and support arrangements:

"My problem was because I had suddenly shifted from London to here"

Whilst the student had attempted to create time for to create a new social support network locally, their early experience of failure, combined with their increasing mental health difficulties, they report made integration very difficult:

"With the medical students, it's hard to expose weakness to people"

Victim narrative:

The student discusses the impact of the culture of the medical school, that there is a sense of being unfair and a lack of justice. However, importantly, this narrative does resolve throughout the interview, with remediation viewed much more positively towards the end of the transcript.

Following on from the application of the coding framework, contributions from student one were reviewed for structure and coherence to understand this key themes in more detail:

Category	**Examples from transcripts**	**Author narrative**
Redemption	"I found remediation a really good process" "I passed my next AMK"	Moving from bad (failure) to good (passing) clear throughout the narrative from the participant
Contamination	"My perception of that culture is that it is a super competitive one, that's made unnecessarily competitive by focussing on the wrong things" "Remediation - I wasn't going to dare tell people"	Despite positive performance on subsequent tests, describes the culture within the School as being unhelpful, and not promoting learning in the best interests of patients, but the best interests of the individual.
Agency	"I was generally very anxious at that point" "I felt awful [about my mental health]"	Significant discussion regarding mental health background, and impact of remediation. Overall picture of a competitive culture that did not promote good mental health / psychological wellbeing.
Communion	"At the start of first year I definitely felt like I fitted in with people" "Then I felt there was a period where I didn't really fit in" "I didn't feel I was working as much as everyone else"	Describes throughout the narrative how failure created a social barrier. Reluctant to discuss this or confide in peers. Increasingly socially isolated with an impact on mental health.

Exploratory narrative processing	"I think lots of people think of themselves as medical students, not as future doctors"	Very interesting discussion as to how the culture of the School promotes behaviours in medical students that do not align with those attributes that are seen as being a doctor (e.g. putting patient first, selflessness)
Coherent positive resolution	"I found remediation a really good process"	
Meaning making	"I think the issue is the ethos of the medical school doesn't always match with how it's being taught" "Because it's this negative marking system. And it's meant to be reflective of how real life works. But it's not"	Further discussion regarding the impact of culture on students and how this influences perceptions of failure and remediation (see also quote above regarding not wishing to disclose failure and remediation to peers due to concerns about how would be perceived in very competitive culture).
Performance	"I suppose there was a bit of complexity going into the mental health side of things"	

Table 17: Completed table to demonstrate the application of coherence to narratives.

Finally, once the above had been performed for all students, conclusions are drawn regarding overall impacts within participants of their experiences of failure and remediation and it is these that will be explored in the next chapters.

Limitations of this methodology:

As with any research project, there remain limitations and whilst there are many advantages of the methodology that has been chosen, there are challenges too.

In terms of analysis, the use of student narratives as a proxy for identity can only give us a partial insight into the process that students are going through. Narratives in themselves are not identities but they do provide us with an idea as to how students are creating their identities and the impact and disruption that failure and remediation can cause.

Narrative approaches also subscribe to the concept that the sense of self is ever changing. The use of questionnaires and interviews therefore provides a snapshot of the way the student perceives themselves and their experiences at that point in time, and with the benefit of hindsight. As such, the information presented in this thesis relates to how students now understand remediation, not what they may have experienced at the time the intervention happened.

Reliability, Validity and Generalisability in Insider Research:

As a member of the medical profession, previous medical student in Plymouth, and (at the time of data collection) a member of faculty within the University of Plymouth my own research positionality is important to consider. Insider research in the context of medical education has been discussed previously in *The Clinical Teacher (160).* In this article the author considers that, whilst there are clear benefits to the additional understanding of context being an 'insider' can bring, there are also disadvantages. In particular, hierarchies that exist within organisations can impact on what and how people contribute to research and there is a danger that being an insider can lead to a lack of openness to ideas that may challenge perspectives and experiences. Individuals may also feel pressure to conform or support current approaches so as not to risk jeopardising relationships and career progression.

As a former student and member of staff this is an important consideration as to the way research is undertaken and the potential conflicts that exist. For this study, the discussion of complex and sensitive matters relating to student progression have high-stakes implications for the design and delivery of the medical curriculum and associated assessments. As such, through the study design and analysis of the data, care has to be taken to consider different perspectives and the researcher needs to make attempts to highlight different views. I feel I have achieved this through the design and delivery of this study and the inclusion of a rigorous systematic review. Findings are also robustly linked to research data and as such defensible should there be reluctance to accept these by organisations involved.

Throughout this study my experience as a medical educator has grown and I have moved to different organisations. These experiences have provided me with some externality through which I have been able to reflect on the study design, data collection and data analysis. Conversations and challenge from colleagues from within and outside the medical school have also provided an additional ability to reflect on my role as an insider. The design of the study also sought to empower students to provide their honest views.

Ultimately, given my experience within UK medical education I believe the study has strong internal validity because I know the context well and have access to students with whom I can develop rapport more easily as a member of that community. As such, as an insider, I have access to richer data and greater cultural awareness and sensitivity as a result. This provides a unique insight into the impact of remediation on professional identity formation that others without this background would not be able to achieve and therefore contributes significantly to what this study contributes to knowledge in this area which has not previously been discussed.

These reflections in turn generate considerations as to the transferability and validity of this study. Transferability in qualitative research is an aspect of generalisability which has been embraced within this thesis. Transferability is a narrower term that looks primarily at generalisation to other similar contexts. Many medical schools have similar structures with the same key outcome of graduating doctors. As such, the findings of this research should be applicable to other UK medical schools. As someone with 'insider' status I have been able to draw out many of the contextual factors within UK medical education. This affords an ability to apply this research to other medical schools through theoretically informed insights. Therefore, allowing future studies to build on these theories relating to the impact of remediation on professional identity formation. The approach to regulation through the *General Medical Council* with the use of a standardised set of graduate outcomes (13) also emphasises that transferability within this context can be shown.

Validity in the context of predominantly qualitative research should be noted to be different to some of the understanding commonly associated with quantitative

methodology. In this review, validity is understood to refer to the appropriateness of the tools and processes used to understand the data provided and if the choice of methodology chosen is appropriate for the question asked. Through this thesis, and the systematic review, I have demonstrated that the approach taken to understand student experiences in relation to their identity are appropriate and as such supported validity within this study. As discussed, this thesis draws in particular on a narrative approach to understanding student experiences and therefore draws on a more interpretivist approach. This gives rise to the following ontological and epistemological assumptions within this study:

Ontological assumption: reality is internally experienced and constructed socially through the interactions individuals have with each other and the systems within which they operate. In this case, medical students experience and construct their reality through the interactions they have with each other, health professionals and medical schools.

Epistemological assumption: knowledge is understood in the subjective meanings that individuals place on their social interactions and the context within which they happen. In this case, medical students understand the world through the groups they socialise with and those they feel part of or excluded from. The narratives that students create provide a window into these experiences and hence their use in this research project.

This has been an extremely interesting (and at times challenging) process for me. In particular, because my role as a previous medical student in Exeter and Plymouth, member of staff when undertaking the research and current leadership role means that my interpretation of information has naturally influenced the entirety of the research. My thoughts and reflections on the research have also changed and adapted as I have transitioned to a new leadership role at a Welsh University. As a doctor, I function within an empirical world where there is a drive to find an answer, solve a problem and deliver a treatment. There is a sense of a ‘right’ or ‘wrong’ diagnosis and treatment plan. However, as a researcher examining identity I have transitioned into a role as an interpretivist. Holding these dual roles and dual perspectives has therefore been complex and confusing (and at times frustrating!)

When I was a medical student in Exeter and Plymouth I did not fail any summative assessments, indeed I was fortunate enough to receive a distinction in my degree due to sustained high academic performance. My first experience of academic failure therefore came as a postgraduate medical trainee when I sat my clinical examinations to join the Royal College of Physicians. These clinical assessments take the format of multiple stations where you are assessed interacting with patients and making diagnoses based on your observations. On my first attempt, I missed a key clinical sign and therefore failed the assessment, an experience I had no previous reference point to refer to and had developed no coping mechanisms with which to mitigate. The experience was, in many respects, similar to episodes of loss and grief I have otherwise experienced. Moving through stages of anger to acceptance was both troubling and strengthening, but also helped to grow my interest and understanding in failure and remediation and how we support students through the process.

Throughout the interviews and in any contact with students, I aimed to both recognise my role within the School, but also to adapt the way I presented myself to students in order to minimise the possible impacts on the ways students interacted with me. This included some basic, but important, considerations around language and where interviews took place. In any communication with students I always used my first name, and ensured that email signatures only referred to my role as a PhD student. I also dressed casually for any in-person interactions with students and ensured that these took place in student-facing (but confidential) spaces. This often meant teaching rooms rather than invitations to meet in my office or those of other members of staff. Being able to refer to my own history as a medical student within Exeter and Plymouth was also helpful, although I acknowledge that there is a possible complication that my own experiences may have impacted on the ways in which I askes questions or interpreted results. In my view, this insight can also be considered to be a strength and my in-depth knowledge of the processes of assessment, failure and remediation as a student and member of staff give me a unique insight (and ability to empathise with students).

At the beginning of the process, I really struggled with the idea that this somehow made the research less 'valid' than if someone external came in without those specific biases. However, with time, I have come to appreciate that this background helps to make this research and the outcomes unique, and adds something new and exciting to the understanding we have relating to students, their experiences of failure and remediation and how their narratives can be used to explore their identity.

Conclusion:

This chapter presents a novel, evidence-based approach to understanding the identities discussed by students within their narratives, presents a consistent approach to coding these identities and the approach undertaken to explore these identities within and across narratives to generate an overall conceptual framework.

Chapter Seven: Results from Questionnaires:

This chapter introduces the results of the questionnaires and some limited high-level reflections on the interview data. The chapters following this will subsequently consider the core concepts identified from analysis, before drawing conclusions that seek to answer the three research questions and the impact on future education practice within the UK and beyond.

Participant characteristics:

Data obtained for this PhD included 35 (10 male and 25 female) electronic questionnaires and 13 interviews (6 male and 7 female). Whilst options to self-describe gender were offered, no participants identified as other genders.

All participants completed an online questionnaire and consent form prior to participation, with questionnaire responses used to inform and guide the interview where appropriate. Consent forms were completed and retained in keeping with University of Plymouth regulations and ethics approval.

Fifteen participants indicated they would be willing to undertake interviews, and 13 of these students subsequently consented to and took part in interviews following email follow-up. The other two participants did not respond to an invitation to undertake an interview, and in keeping with research ethics approval were not contacted again.

All participants as part of the study were provided with the opportunity to review their interview transcripts and withdraw their data prior to the point at which data analysis started. One participant requested a copy of their transcript (and was content to continue their involvement in the research). No participants requested to withdraw from the study at any stage.

Questionnaire Data:

As part of the development of the validated questionnaire, Crossley et al. undertook a cross-sectional study involving 496 medical students based in the UK and predominately registered at the University of Sheffield. Through several rounds of development the authors created a nine item questionnaire with three broad areas:

- Interpersonal tasks
- Generic attributes
- Profession-specific elements

It was found through their process of validation that students with greater experience of health or social care roles, and those that were at a later stage of their degree, scored more highly (i.e. had a greater sense of professional identity) within the questionnaire.

Responses received to questionnaires in my study mirror those found in the initial validation of the professional identity scale when designed at the University of Sheffield (161) and whilst the number of participants involved was much smaller than those invited in the initial validation study, similar patterns showing previous experience of healthcare work being associated with more positive responses to questions was observed. Those students who gave clear reference to a medical role-model also appeared to score higher (although significant caution should be taken in relation to this interpretation given the small numbers involved).

Whilst caution should be taken in the interpretation of numeric values, those students who gave reference to a specific medical role-model, or those with previous healthcare employment, scored on average two points higher in relation to the questions about how they felt working with other healthcare professionals, working with patients and in dealing with emergency situations.

Whilst those with healthcare experience scored higher, much like in the initial study, patterns also became apparent that the greater the complexity or clinical importance of the task (for example, assessing a very unwell patient) the less students felt like

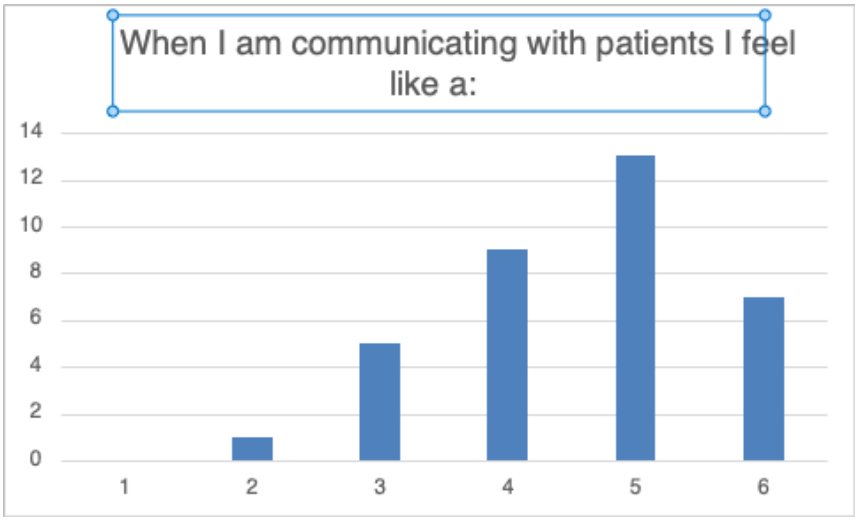
doctors. Individual responses were useful to help develop and guide conversations in interviews as to why students felt this. It is perhaps unsurprising that the more senior the medical student, the more confident they reported feeling as clinical complexity of acuity increased. These early findings were of particular importance given that all years of the BMBS programme at both Exeter and Plymouth Universities access the same programme of remediation, with little adjustment made relating to their year of study and level of clinical experience.

The responses received to each of the questionnaire items is now presented below, with a brief interpretation presented alongside.

Question One: When I am working with other health and social care professionals I feel like :

Students have mixed views regarding how they perceive themselves working with other students, however, in general they feel less like doctors when working with other professionals, perhaps because they feel that these individuals have experience working with their qualified colleagues and are therefore more likely to be able to spot the difference in their knowledge, skills and behaviours.

Question Two: When I am communicating with patients I feel like:

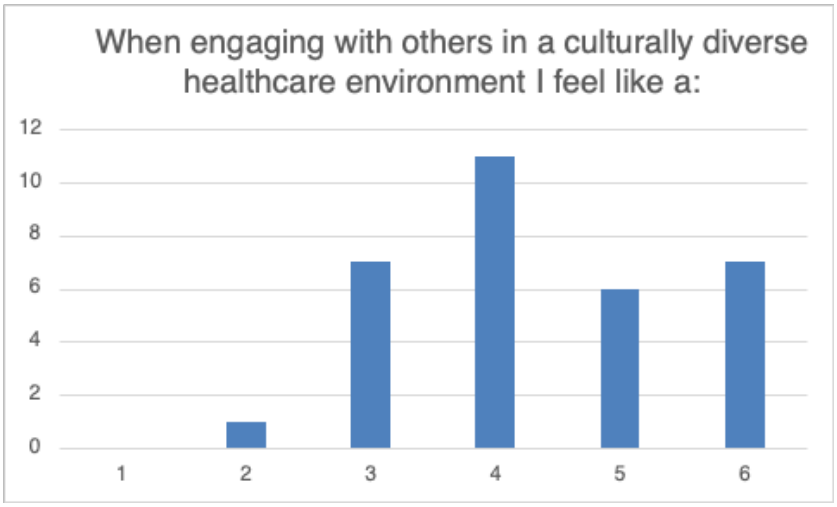


Students have a greater sense of doctor identity when speaking with patients. Perhaps in contrast to when working with other healthcare professionals, they interpret that patients are less likely to have the experience to distinguish them from qualified practitioners.

Question Three: When assessing patients I feel like a:

The response to this question was much more mixed, and perhaps represents the variety of clinical experience held by students involved in the project. It is difficult to draw any real conclusions from this wide spread of data.

Question Four: When engaging with others in a culturally diverse healthcare environment I feel like a:

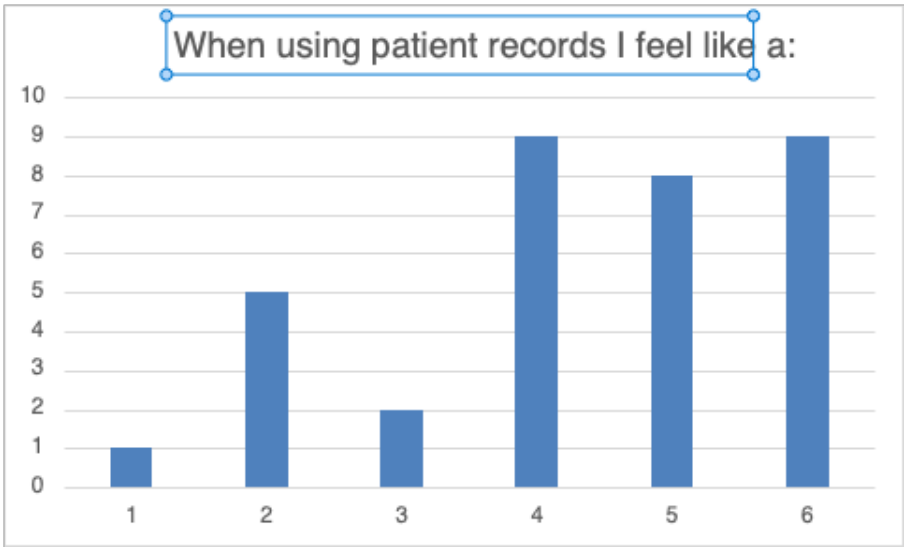


As above, there remains a wide spread in the data and it is difficult to draw and real conclusions.

Question Five: When considering ethical and moral issues I feel like a:

Students felt more prepared in this area than many of the others considered as part of the questionnaire. The emphasis places on ethical and moral issues from an early stage within the Plymouth and Exeter curricula may be an important reason for this.

Question Six: When using patient records I feel like a:



Students scored this area much higher than others. Perhaps reflecting that entries into records are a two-dimensional representation that can be prepared and edited so as to make the student appear more experience and competent than they area.

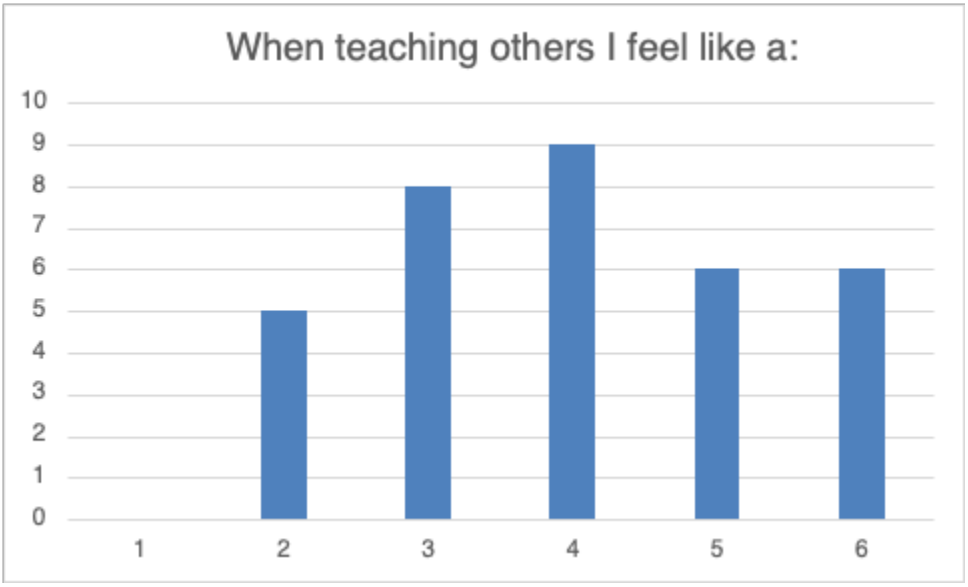
Question Seven: When I find myself in an emergency involving a patient I feel like a:

Students scored this area especially low. This is likely because managing a patient emergency competently requires knowledge, experience and an ability to recall information and processes rapidly without the luxury of time to look things up. It is therefore unsurprising that students felt least like qualified doctors in this area.

Question Eight: When reflecting on my practice (experiences) to identify my learning needs I feel like a:

The significant focus given to reflection in the Plymouth and Exeter curricula likely explains the high scores in this area. Students are also regularly assessed on an ability to reflect both verbally and in written form, with feedback provided on performance.

Question Nine: When teaching others I feel like a:



A mixed response, perhaps towards the lower end and likely to reflect that teaching others requires a baseline knowledge and understanding that students perceive they may not possess.

The responses to the identity scale were therefore extremely important in highlighting areas for further exploration within interviews. This included those relating to working with others (including communities of practice) and how they perceived themselves in relation to the patients they came into contact with.

Whilst the questionnaire was validated with UK medical students, importantly, the development of the scale by the initial authors does not directly reference failure, nor does it consider the many extra-curricular events that impact on students and the ways that they form identities. However, the scores from students involved in failure and remediation were important to this study for three reasons:

4. The identity scale encouraged students to consider their own evolving professional identity to guide their responses to the wider questionnaire and semi-structured interviews.
5. It provided an opportunity within the interviews to explore with students why some areas of their practice and associated identity were more formed than others.
6. It provides useful information regarding how students who have experienced failure show some areas of similarity (for example, those areas that involve interaction with other professionals, and managing emergency situations score lower, and this can be helpfully used to help shape supportive interventions).

The identity scale was, however, only part of the questionnaire and the free-text boxes that students were able to provide responses to were a vital element of understanding student experiences and shaping the interviews.

Exploring the qualitative elements of the questionnaires in more detail:

During initial analysis of the questionnaire responses, it became clear that failure impacted significantly on students who took part in the study. Feelings of inadequacy were common:

"The process mostly highlighted how inadequate I was"
299511-299503-26131703 (Female 3rd Year student)

"I felt inadequate to be a medical student"
299511-299503-26131569

This also impacted more broadly on the way students viewed themselves and their feelings of self- worth:

"It has affected my self-esteem in a negative way"
299511-299503-26131703

Remediation was seen as a process that was being done to students, rather than something performed in partnership, with passive language used:

"I had to be remediated again"
"They made me meet with them again"
299511-299503-26131569

However, sometimes these feelings did change with time. One participant commented that whilst the initial experience was a negative one, it did help to prepare them for the realities of medical practice:

"Initially made me feel that I wasn't good enough for the course or to be a doctor. However has since made me realise that failing is inevitable and being able to understand why and how to improve on that is key"
299511-299503-26107545

Another key theme was that of role modelling. As the systematic review recognised this as a core element of remediation outcomes, a specific question was included, to which 12 of the 18 individuals who felt that they had a role model mentioned doctors. Some of whom were within the medical school (7) and the others were family members (5).

This initial information from a range of students was extremely helpful in refining the interview questions and helping to understand the responses provided. The ability to link questionnaire responses to those being interviewed also allowed for questions to be adapted and areas explored in more detail within the limited interview time available.

To aid with informing semi-structured interviews, the questionnaire responses were also coded using a lens of the narratives used and how this related to possible identities discussed. This information is presented graphically below, including the key themes identified, and how some of these interacted in the questionnaire responses:

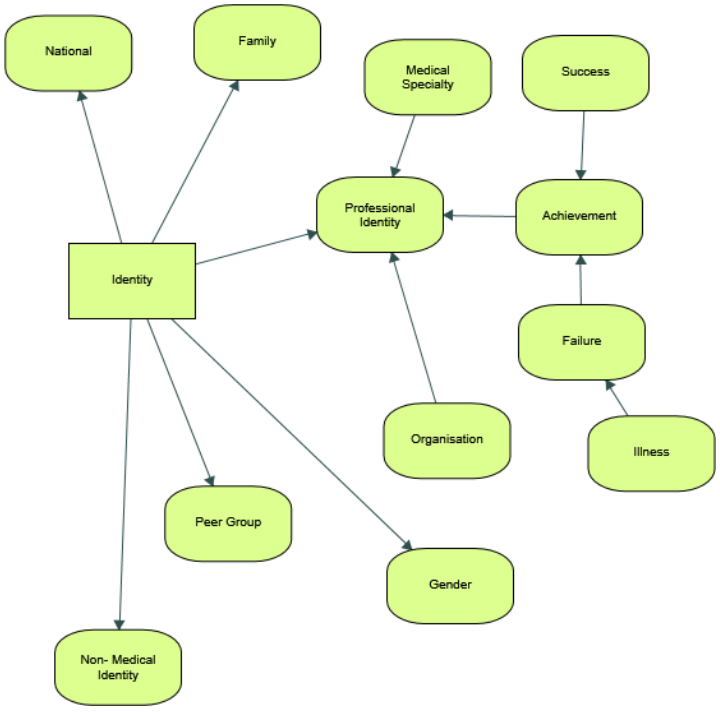


Figure 12: A graphic representation of the identity node in NVivo from the questionnaires

From the relatively short responses, it is not possible to directly link the narratives created with specific identities. However, the responses do provide an early insight into the key elements that students discussed when discussing their experiences and how they felt about the process of becoming a doctor what they were going through.

Students also identified a number of issues which they perceived impacted on the reasons for their failure. Broadly, these can be divided into personal and organisational issues and then further separated into those that were perceived as being within the control of students and those that they felt they had limited or no control over:

Attribution	
Personal	
Within control	• Study time • Study skills • Peer support • Attending sessions
Outside control	• Physical health • Mental health and wellbeing • Financial • Parental and family expectations • Housing arrangements • Peer support • Caring responsibilities
Organisational	
Within control	• Travel arrangements for international students
Outside control	• Cancelled sessions • 'Unfair' assessments • Assessor variability

Table 18: A representation of key themes observed within questionnaire responses.

These themes are highlighted in particular, because the types of identity referred to were also apparent throughout interviews; as was the concept of agency (or lack of) which had a significant bearing on the ways that students interpreted and explained their experiences.

Further reflections on early data obtained:

Before presenting data from the interviews in more detail, it is also important to consider some of my own reflections on the data that arose from my experiences of undertaking the interviews and at the point at which I transcribed the interviews. Whilst perhaps a less 'scientific' approach than the coding framework produced, these reflections do contribute some additional insight into the ways that students responded to the project and their underlying feelings about their experiences.

It is reasonable to say that the overwhelming view of assessments was negative, perhaps unsurprisingly given that only students who had received a failing grade were invited to take part in both remediation and in this research project. Attitudes to remediation were, however, more nuanced and whilst usually stories were told with a negative narrative around remediation, it is difficult to separate this from assessment failure.

Attitude to remediation	**Examples**
Positive	Participant 5: "Purely because they [remediation staff] know you better and they just seem a bit more friendly about it" Participant 1: "It was just very casual and it was actually, it didn't feel like a punishment, which is what I expected it to be"
Negative	Participant 1: "That was the nasty thing of remediation for me. Is having to go through it I felt like a failure" Participant 4: "To be honest, I don't really think it [remediation] helped me to progress the second time either, so I'm not the biggest fan of some aspects of remediation" Participant 4: "You never meet anyone who says that they messed up [and had remediation] at medical school and then got a really good job or did really well" Participant 3: "So it [remediation] felt a lot more pressure and it felt like I didn't really know that much medical knowledge. I think that it knocked my confidence a lot really" Participant 6: "I had another small remediation this year, which was another example of how much just a tick-box exercise it is"

	Participant 5: “Some of the questions in the meeting, I was a bit, how is this related to my studying… I was a bit like, how is this relevant”

Table 19: Examples of responses to remediation.

Many students viewed remediation with suspicion, but it was also clear that experiences varied significantly based on who undertook remediation with students. When the intervention was more informal, which a member of staff with whom they had developed a relationship (for example, their academic tutor) reflections were generally more positive than negative.

In some cases, the purpose and scope of remediation was not well explained, and this contributed to the ways in which students considered and responded to the intervention.

Positive and negative aspects of assessments:

Experience of assessment	**Examples**
Positive	Participant 3: “I would say it [assessment] impacted in the way that I feel a lot more confident with my medical knowledge now. I know I’ve actually recalled this, so either I should know this or I will know it somewhere in my brain”
Negative	Participant 5: “Oh yeah, in the AMK you just have to beat eight people” Participant 7: “I don’t like it [assessments] I think it sets a very competitive tone in the year, and not if a good way.” Participant 8: “ISCEs were a much more terrifying thing” Participant 11: “Yeah. And not getting any feedback, because I think medicine has become this culture of always getting feedback. We get feedback all the time, every day on placement. And then I think with the AMK you don’t get much feedback, you don’t get told”

Table 19: Examples of responses to assessment.

Many students were negative regarding their experiences of assessments. The disconnect between what students want to achieve, and the apparent barrier of assessment was particularly apparent. Students viewed assessment as competitive, as evidenced by the student who felt that the aim of the assessment was to beat other people. None of the students involved in the study made reference to the role of assessments in ensuring patient safety at any stage. As someone who was closely involved in the development and implementation of assessments within Plymouth University, this was an extremely interesting aspect of the study as faculty believed that the link between assessments, patient safety and the need to uphold high levels of professionalism were clear. It is therefore insightful that students did not mention this within their interviews at any stage, despite the apparent high profile that staff and organisations have placed on this as part of their learning.

Within the information presented, reference by students to the AMK (Applied Knowledge Test) will feature heavily. The AMK is founded on the concept of progress testing, a core element of medical education within UK practice and increasingly popular worldwide. In progress testing, all students within a cohort (and often across all years of the same programme) sit the same assessment. The idea being that as students progress through the course and increase their knowledge and understanding of medical practice that their scores will increase.

Whilst the concept is one that ensures that students understand the end-point of medical school is to achieve the competence of a newly qualified doctor, students at the start of the course can struggle with the extremely low scores they achieve and the disparity between the scores received in their academic careers prior to medical school. For those students who therefore fail assessments of knowledge and require remediation the combination of failure and an extremely low score (as perceived by students) can heighten the emotional response to failure and how they subsequently view and engage with remediation interventions.

Chapter Eight: Results from Interviews:

This chapter will present detailed outcomes from interviews with students. Whilst the number of interviews was smaller than the number of questionnaires completed, the ability to discuss in-depth with participants using the questionnaire responses as prompts has yielded a much more detailed conceptual framework by which to understand failure and remediation in medical students, through the lens of the narratives created.

When students tell their stories in the context of a professional experience, they discuss the following key areas, as established from the coding approach detailed in Chapter Six:

- How they feel as a developing doctor – the **doctor narrative**

- Perspectives as a patient / care receiver / recipient of a remediation intervention – the **patient narrative**

- Hero or protagonist (usually in the context of overcoming adversity, and failure) – the **hero narrative**

- Victim (where the assessment / failure / remediation was seen to be unjust). This can also be viewed from a lens that recognises a loss of autonomy – the **victim narrative**

- Family and Society (in relation to the expectations of significant external 'others') – the **family / social narrative**

These stories and perspectives are socially situated, in that the stories revolved around how participants relate to those who are around them, and how they consider they may be perceived by the professional group or social entity they are aiming to join.

After initial consideration of the narratives from participants in this study, considerations will be given to the application of structure and to each of these narratives, before these are brought together at the end of the chapter as a way of exploring implications for future assessment and remediation processes.

Doctor narrative:

Perhaps, predictably, given the course students are on, the doctor narrative encompasses a large proportion of the interviews conducted with students. This includes elements relating to being both a current medical student and a future doctor. The degree to which students considered themselves as future doctors was directly linked to their experiences of remediation and the success (or otherwise) of such interventions. Students who were in a process of ongoing remediation explained that their sense of being a doctor was significantly threatened:

"I still don't know if I am… going to pass the year and become one [a doctor]"
Participant Seven

From the coding framework developed initially, narratives relating to doctor identity includes the following contributors:

- Personal experiences of healthcare
- Communities of practice
- The hidden curriculum
- The formal curriculum

Personal experience:

Personal experience was an important aspect of the ways in which students created their narratives as future doctors. Some of the students involved in the interviews and questionnaires had experienced significant ill-health (both physical and mental health) and therefore had lived experience of being a patient. These experiences shaped their views of what it meant to be a doctor, and in particular the experiences they wished to emulate and those they did not. Some of the students within the study had long term

health conditions that will remain with them throughout their studies and working lives, and for these students the impact on their sense of professional identity will continue to be impacted through these health conditions.

For example, participant two refers to their own experiences as a patient, as someone who identifies as having a disability.

"I have lived with a disability… it's very strange to be a medic and talk about it. Because, you know, as a medical student you are dealing with other people's health"
(Participant Two)

Participant two also referenced that their experience of ill-health had influenced their personal narrative around becoming a doctor:

"You know I can't really look after other people if I can't look after myself first"

More broadly, students who participated within the study gave examples of their own treatment by doctors for a variety of physical and mental health conditions. These individuals were often spoken about as role-models, and their own experiences contrasted with the expectations that they had of the academic performance of those that had treated them, especially an absence of failure.

"It was probably my own doctor who made me want to… go to medical school"
(Participant Eleven)

"You just don't ever hear your own doctor talking about failing things"
(Participant Thirteen)

In some cases, these treating healthcare professionals became mentors (informally) for the students who were interested in following a similar career path.

"He [the treating doctor] was really down to earth, he was really on the ball, he had lots of experience in this (passing exams) and… whatever advice he would give me was really solid advice. And I could just kind of trust him"
(Participant One)

"I definitely wanted to be like him when I became a doctor"
(Participant Eleven)

Personal experiences were also linked to those participants who had close family members who were doctors. For some, this included parents or siblings, and these relationships had impacted on the ways that students perceived the role of a doctor and how they generated their narratives of becoming a clinician. Where their experience of failure and remediation were at odds with the expectations they had created through these relationships with doctors, there was a particular sense of the way in which failure undermined their sense of professional development.

Participant twelve had an older brother who was a junior doctor and had studied at a very different medical school to Exeter and Plymouth. The student described how this curriculum had been much more linked to pass and fail, with fewer assessments per year.

"I told him I had failed and he just seemed really disappointed… he didn't seem to understand how many assessments we do"

Participant three had a close family member who was a doctor, and reflects on the reportedly negative response they received when telling this individual their score in an assessment they failed:

"I got 28% in my exam, and they're like "you got 28%!" and telling them, that's quite difficult"
(Participant Three)

Whilst a score of 28% might seem low, in this particular assessment this was a passing score. In the medical knowledge tests that students sit within both Exeter and Plymouth, all years of the course sit the same assessment. As students progress through years of study it is therefore expected that their scores will improve as they come closer to the point of qualification. Passing scores are therefore generated through comparison to others within the same year of study as a way of standard setting.

Norm-referenced assessments, where low percentage marks may well be extremely high scores when compared to that of the broader cohort were extremely unpopular with students within the study. Many of the students reported significant stress and anxiety in relation to being compared to their peers, and the sense of competition and distrust this created. Students considered that it was difficult to improve their position if they struggled, and as such this created a sense of different tiers of medical student, with those who found the knowledge tests difficult to pass destined to five years of stressful study with their ability to take on the doctor role undermined. It is of particular interest that these comments were presented as in direct contradiction of the medical schools' published approached of collaborative working and an absence of academic competition. This will be explore in greater depth in considerations regarding the hidden curriculum below.

Community of practice:

Communities of practice were especially important in the ways that students felt a sense of belonging compared to the medical profession. Whilst students described through the interviews their community of practice within the School (often in a competitive way) they also reflected on the community of practice they observed and felt relative affinity to, especially whilst on clinical placement. In particular, it was noted that failure and poor outcomes were rarely, if at all, referred to:

"Just that you never meet anyone who says that they messed up at medical school, and then got a good job, or did really well, or did something amazing"

Participant Four

"When I spoke to juniors [junior doctors] about failing an exam they just went quiet and it was really awkward"
Participant Six

The community of practice was especially important when students felt they were part of a team. These team experiences were described as protective against the impacts of academic failure, and an awareness that the trajectory of their academic experience was likely to include ups and downs with a variety of performances in different assessments.

"One of the doctors [a previous graduate from Plymouth] mentioned that their exam scores would go up and down all the time and that made me feel better"
Participant Four

Students also referenced that being part of a medical community of practice was very different to other experiences, and that this contrast was both helpful in terms of socialisation into a new group, but also harmful in terms of the high levels of expectation and competition experienced:

"I didn't have a lot of non-medical friends, which is something that I really like and rely on because it's nice to just… the thing is they're always like 'you don't switch off, you don't switch off' and I'm like 'this is why I need to hang out with you guys more because I need to learn how to switch off"
Participant Eight

As such, community of practice was important in defining both students who were within the medical group, but also in contrasting to other groups, creating a greater sense of being a doctor by the differences that were created compared to other groups.

"We just, sort of… spent all our time with other medical students and got influenced by them"

Participant Seven

"I spent time in the first couple of years doing societies, but now I just spend all my time with other medical students"

Participant Five

It is likely that these experiences are compounded by the length of medical training being longer than most other undergraduate medical courses (five years rather than the traditional three) and therefore friends made on other courses moving on after three years, often to paid employment which may have been outside the geographical area of their previous study. As students entered the later years of the course their social group increasingly becomes only other medical students as other friends and social groups have moved away. With increasing time on clinical placement, and placements at some primary and secondary care sites remote to the University campus, the groups with which students socialised will shrink. However, for those students where assessment failure and remediation has created a barrier between their peers this can further exacerbate a loss of belonging to a social group.

Abilities to enter social groups are vital for the development of professional identities. Student experiences from this study therefore suggest that assessment failure and remediation can act as direct barriers to this aspect of professional identity formation with those involved in the creation of remediation interventions needing to understand the holistic implications to a much greater extent to support professional identity formation.

Hidden curriculum:

The community of practice overlapped significantly with the hidden curriculum, in part due to the impact of more senior trainees and established doctors within professional social groups. Students referred on a number of occasions to the comments and behaviours of established clinicians and how this impacted on student perceptions of themselves as developing doctors. Comments that referred to academic failure as being normal or accepted, whilst rare, were seen as protective regarding student

perspectives on their identity formation, whilst those that viewed assessment failure in a negative or unacceptable light were damaging. This was especially the case where failure was linked to adverse patient outcomes or impacts on patient safety.

"He told me that everyone… fails at things sometimes and the most important [thing] is how you improve and learn. That was really reassuring and I felt better"
Participant Thirteen

As discussed, Exeter and Plymouth medical schools have attempted to present failure as a normal part of progression through medical school, and as part of medical practice. Significant time and effort is spent both attempting to improve performance (through remediation) but also to encourage responsible actions when failure is experienced. This includes, for example, being open and honest and seeking to learn and improve for future events. Such responses to failure are required by the GMC but also through national legislation known as the *Duty of Candour (162)* which requires healthcare workers to be open and honest about mistakes and to do their best to put these right as soon as possible.

Resources I was able to review as part of this thesis include recorded examples of the introductory plenaries provided to students in their first week of study as medical students. One quote in particular stands out (163):

"You will take lots of tests and most of you will fail at least one of them, that's OK and it's about helping you direct your future learning"

However, whilst the Schools had attempted to provide this information to students, within the interviews there was a general recognition that remediation and failure are taboo topics, something not unique to this research (164), and that there is a reluctance for individuals to share their experiences and normalise that things do not always go to plan. For example:

"Just that you never meet anyone who says that they messed up at medical school and then got a really good job or did really well or did something amazing"

(Participant Four)

Not openly speaking about failure was discussed by students as being driven by the community of practice they were entering, in that doctors did not discuss where things had gone badly, instead focussing on their achievements.

"They [academic staff] say it's fine to fail, but it doesn't feel like it"
(Participant Eleven)

"We have a plenary in the first week that tells us it's OK to fail and then we get told we might get chucked out at the end of the year"
Participant One

Such a response is interesting from students considering the work that has been undertaken to ensure that learning is achieved from mistakes and errors. Key UK organisations such as the National Confidential Enquiry into Patient Outcome and Death (NCEPOD) have invested significant resource in ensuring that learning is achieved from mistakes and that they are more openly discussed (165). However, students appear to be learning that, in practice, individuals are not open and comfortable about sharing where things have individually not gone well.

Referenced earlier in this thesis is information about progress testing and the use of norm-referencing as part of standard setting for assessments. Students found the disparity between the apparent competence nature of medical education (i.e. ensuring that they were at a defined level of safety) and the comparison made to other students as part of their knowledge assessments difficult. In some cases, this encouraged a sense that assessment was a competition, rather than something to ensure appropriate learning and development.

Participant Five:

"Oh, yeah, in the AMK you just have to beat eight people"

Medical education curricula have increasingly moved towards a perspective of patient safety and the importance of team working within this. It was therefore both interesting and, on a personal level, disappointing that progress testing had led to a sense of competition and division within cohorts.

Whilst competition was how some students viewed the assessments, students also discussed that they were especially concerned about remediation due to an idea that 'failing' meant that they could not become doctors. Indeed, there was a taboo around remediation that persisted within the Schools. At times, this was perpetuated by the teams undertaking remediation, who the students looked up to.

Participant five, when referencing other students who they knew had gone through remediation commented:

"There's some people I've met who I really don't think should be doctors"

Participant four also commented on the fact that within the cohort, many people just wouldn't admit to failure and remediation because they were concerned of the longer term impact of being associated with such outcomes:

"Even with the AMKs now, you'll never really find out who did badly, because they don't want to discuss it"

"You can't tell anyone you're doing badly, you don't really want to work with people because… to work with people, you have to admit your uncertainties to them"

It is therefore suggested from these interviews that remediation can be a negative aspect of professional identity development because it focusses on what students consider they are weaker at, or are unable to do. This may link to underlying disability, gaps in knowledge and skills or be associated with difficulties relating to physical or mental health. These perceived barriers create a disconnect between the high performing identity narratives that students have created (and are reinforced through

communities of practice and social groups) and their actual performance. Leading them to call into question their developing doctor identities.

Participant eight refers to expectations they felt had been put on them by clinical colleagues, and that being upset was seen as being incompatible with medicine. Hence struggle here between emotional self and narrative of doctors in some specialties not getting upset:

"I was feeling like pretty low, like bad self esteem, it felt like my future career choices would be jeopardised if I continued to have this emotional problem"

The same student also directly refers to the differences that there are perceived to be between medical students and other students on University courses:

"I didn't have a lot of non-medical friends, which is something that I really like and rely on because it's nice to just… the thing is, they're always like 'You don't switch off, you don't switch off', I'm like 'this is why I need to hang out with you guys more because I need to learn how to switch off"

Formal curriculum:

The formal curriculum was often a contentious element when referring to developing doctor identities. Students struggled to translate their experiences of assessment with the role of a future doctor. In particular, assessments that were not directly translatable into the delivery of patient care were viewed negatively, and associated failure therefore seen as difficult to understand. This mis-match between understanding of the doctor role and the formal medical curriculum created conflict and confusion that was negatively reflected in the development of a doctor identity.

Interviews also suggest that it is not just the general experience of remediation that is important, but also which members of academic or clinical staff undertook the remediation with the student.

Participant Five:

"I preferred remediation sessions with my academic tutors, compared to the Level 2 ones. Purely because they know you better, and they just seem a bit more friendly about it"

Considerations of narrative structure:

Narratives relating to the doctor role have been presented above. The table below explores how consideration of the structure of these narratives allows for a greater understanding these narratives and how they link to professional identity formation.

Category	**Overall themes**
Redemption	- Selection bias likely at play, as all students subsequently passed assessments and hence were able to continue with the course. - Students reflected that their experiences had, in some cases, improved their potential as doctors by helping to understand development areas. - Others continued to feel that their experiences were inappropriate because they did not have faith in the assessment process being fair nor robust.
Contamination	- The assessment failure event was often the biggest contaminant within narratives. Students were concerned that such failure would impact on their ability to become doctors and therefore hold that professional identity. - Where students were particularly reflective about patient safety and the narrative provided around assessments, this had a particular negative impact on their evolving doctor identity.
Agency	- Students reflected that their doctor identity was one which would possess significant autonomy and agency. However, as students they had not experienced this directly. - Students often referred to a lack of control around assessment, and therefore that their agency regarding their doctor identities was significantly constrained.
Communion	- The doctor identity lent itself to a sense of belonging with other students and healthcare professionals learning together.

	- However, the reluctance to discuss failure and remediation often meant that there was a negative impact on the sense of belonging, to the extent that many students would not disclose this to their peers or clinical supervisors.
Exploratory narrative processing	- Reflective regarding the impact of assessment on being able to hold the identity of a doctor in the future. - A significant split, however, marked by those who perceived the assessment to be fair or otherwise.
Coherent positive resolution	- Generally positive, but again impacted upon by selection bias. - Some students remained significantly dissatisfied that they had not been fairly assessed, preventing them from resolving the impact on their doctor identity.
Meaning making	- Disconnect between the understanding that passing assessments is important for patient safety, but that this link in the type and format of assessment undertaken was not always clear.
Performance	- Extensive discussion in several of the interviews relating to an absence of previous academic failure, and therefore uncertainty as to how to respond in a positive and constructive way. - Recognition that doctors are often not perceived as experiencing failure, and as a result that the performance element is impacted upon.

What this tells us is that within the doctor narrative, contradictions in what students are being told and what they are experiencing has a significant impact. Therefore, the community of practice and hidden curriculum are especially important here.

Students have also focussed on the patient safety aspect of training to be a doctor, but rather than viewing assessment as part of a developmental approach to learning, they have incorporated a negative association between failure, patient safety and their ability to practise as a doctor as a very strong component of the narratives that they have created.

As such, this provides evidence that the doctor narrative is very disrupted by the impact of failure and remediation, suggesting that their identity as a future doctor too is also disrupted, without evidence of significant resolution in the way that they consider their future career.

Hero / protagonist narrative:

There were four key aspects of the hero / protagonist narrative:

- The impact of the formal vs. the hidden curricula within their studies
- Personal experiences of health, illness and with the medical profession
- An absence of previous academic failure
- The importance of academic success to them as individuals

Students referred within their stories to an identity as a protagonist or as a hero. They viewed their future professional role as one that did 'good' and was 'fighting' against disease (and also negative social determinants of health). Where students felt that assessments were unjust, they also referred to their experiences as a way of 'fighting' against the School or the system.

Participant two, in particular, referenced their own experiences of illness as a way of explaining how they felt the role of doctors was heroic:

"As someone who has a disability I really want to ensure that I can help others overcome the [type of] problems I had"

Participant twelve also referenced the importance of the doctor role in keeping people healthy, and the motivation this provided to improve:

"Doctors are so important, I really want to be one… I have used this [experience of remediation] to remind me why I am here and what I want to do"

Within this identity, there were four key areas discussed by the students in this research project.

Formal and hidden curricula:

Much like the doctor identity, the presence of the formal and hidden curriculum was an important discussion point. Students once again struggled with the differences between what they were informed was the role of assessments and how this contradicted their lived experiences. Students also highlighted that they could not always directly relate the assessments they experienced with the role of the doctor, exacerbating feelings of confusion relating to stated aims of assessment and their own personal experiences.

Competition was a key feature of lived experience that was downplayed by the medical schools. Students recalled that they were told that the aim of assessments was to demonstrate competence rather than perform better than others, but this was not how they perceived the assessment process to be.

"I think it sets a very competitive tone in the year, and not in a good way"
Participant Five

Further explaining: "The medical school tells us it's not a race [to be the best], but it feels like it!"

"And not getting feedback, because I think medicine has become this culture of always getting feedback. And then I think with the [Applied Medical Knowledge Test] you don't get much feedback, you don't get told"

Participant Eleven

The tension between the formal and hidden curriculum meant that students spoke about overcoming assessments, and that assessment failure was perceived as being unfair. They therefore felt that being required to undertake remediation was included in this unfairness and rebelled against this as a way of demonstrating their unhappiness about their experiences. For remediation to be successful, we know that there needs to be shared understanding of the aims and outcomes, but many students

narrated experiences of perceived unfairness that they wished to overcome. Therefore far from being collaborative, remediation had become a source of tension and conflict that impacted on the benefits that students achieved from additional support. Interventions therefore need to explore with students their interpretation of assessment methods and their perceptions of fairness to ensure that the positive aspects of identity formation around patient safety, life-long learning and addressing deficiencies positively influences their studies.

Personal experiences:

There was overlap between personal experiences in the hero narrative and that of the doctor narrative. Many students described the role of the doctor in a way over beating or defeating illness, and as such many of the considerations made regarding the doctor narrative are also relevant for this sense of heroic story telling. Students in particular described their role in an heroic sense in terms of their perceptions of the good they had performed, and also that which they considered they would achieve. This was often linked to their role in improving health outcomes, treating patients and the positive impacts on individuals, their families and society.

"I suppose it was like, yes, I did it, I passed, and if I can do this I can make people better too"

Participant One

Students recognised that their role as a doctor was important to the health of individuals and societies and presented this as a positive and noble endeavour. Failure and remediation were perceived as being barriers to their ability to treat people and improve public health, and as such their attempts to overturn negative assessment results was seen as part of this heroic narrative. Interestingly, whilst students recognised that there was an important role in assessment and remediation in protecting the public, the majority of students felt that there deficiencies in assessments rather than their performance, limiting learning and improvements in practise. Medical schools need to ensure that they explain to students how assessments and assessment outcomes link to future practise in order to promote

best engagement with remediation. This is especially true for assessments that are not directly linked to clinical skills, as participant seven explains:

"I get how [clinical] competencies matter, but should I really fail because I don't know about the Kreb's cycle?"

Absence of previous failure:

The vast majority of the students involved in this research commented that their experience of remediation was the first time that they had experienced any form of academic failure. Indeed, one student referenced that their previous 'failure' had been a personal one, with a score that was a passing grade, but below the mark that they had hoped for.

"I've not failed before, but probably a personal fail, because [at school] you needed to get As and A*s, so when you got a B or a C, that, to me, felt like a fail"
Participant Three

"It was the first big project I'd failed, I'd lost my clean sweep. I thought "well, there's the one black mark against my name"'
Participant Six

Students also referenced a lack of previous failure in relation to the role of a doctor as a whole and the role-models they had identified:

"Just that you never meet anyone who says that they messed up at medical school and then got a really good job or did really well, or did something amazing, which is what I would like to do"
Participant Four

Episodes of failure were highly disruptive to student narratives, in particular because there was a lack of previous experience for students to refer back to. The competitive nature of the course and the lack of consideration of this new experience in

remediation interventions meant that students described a sense of loss or even grief in some cases.

Seminal events such as academic failure may well be extremely important for the development of professional identities. Within the world of business, previous studies have indicated that for professionals who create a sense of self around their jobs, failure can be especially disruptive because individuals align so closely to academic success and achievement. Failure therefore undermines an individuals sense of who they are (166). However, with appropriate support and development, understanding and remediating failure can be part of the development of a healthier and more sustainable identity that recognises failure is inevitable and does not have to undermine achievements and identity. Remediation interventions should therefore make this a core component of their delivery to ensure appropriate support for students.

Academic successes:

Closely linked to the absence of previous academic failure, it is important to view this element in the knowledge that the students involved in this project were only those who had subsequently passed assessments following remediation. Those students with successive academic failure had been required to leave the course and therefore could not be contacted for this research study in keeping with the ethical protocol which can be viewed in the appendices.

Whilst there is explicit bias therefore in the outcomes experienced by students, their subsequent academic success was seen to justify their status as a hero, overcoming adversity and often their perception that the initial mark or score that had been awarded was therefore incorrect.

In some cases, students did recognise that their initial assessment performance was inadequate but viewed the progress they had made and the effort they had expended as heroic in terms of success in subsequent academic assessments.

Considerations of narrative structure:

Category	Overall themes
Redemption	- Often heavily in this area. Students discussed overcoming adversity / failure in order to achieve their aims. - At times, overcoming a biased or unfair system of assessment was the dominant narrative.
Contamination	- A lack of control and influence (see agency below) often a significant negative. - Some students discussed that they felt that individual members of staff had too great a control over their future without appropriate knowledge, experience or information.
Agency	- Students struggled significantly with the lack of control over assessments (when they sat them, type of assessment, marking criteria and outcomes) - A source of significant frustration, but when able to overcome (e.g. successful appeal or resubmission) then hero narrative very dominant.
Communion	- Lack of sense of community key here. - Students discussed that they often had to go it alone, and it was this that made them to protagonist within their narratives.
Exploratory narrative processing	- Often dominated by a feeling that they were fighting against the system. - A far less reflective narrative than many of the others that were apparent in their interviews.
Coherent positive resolution	- Very dominant here as only featured in cases where students had subsequently achieved a passing score.
Meaning making	- Disconnect between the understanding that passing assessments is important for patient safety, but that this link in the type and format of assessment undertaken was not always clear.
Performance	- Extensive discussion in several of the interviews relating to an absence of previous academic failure, and therefore uncertainty as to how to respond in a positive and constructive way. - This meant that students considered that the assessment must be wrong, not them. - As a result, when the result changed, they felt vindicated.

A key aspect of this narrative is the absence of previous failure and how this impacted on students when they received their first non-passing grade. The follow-up of a formal ‘process’ (remediation) appeared to increase the importance with which students

viewed this outcome and how this undermined their previous narratives around academic success, which they had used as a core element of the way they told stories about their journeys to become doctors.

Students who were able to use the hero narrative to their advantage were usually those who had reconciled that failure in the longer term had been a positive event, or those that had somehow overturned a result and demonstrated that the assessment process was somehow 'wrong'.

Patient narrative:

As referenced in relation to the doctor narrative, many of the students commented on their own experiences of illness (either as a patient, or a close social contact who had been one) and how this impacted on their experience of failure, when passing and associated patient safety were so explicit within the course. This was particularly complex for many of the students who understood the need to pass assessments to keep patients safe, whilst also being told that failure was a normal part of being a medical student. The associated areas were:

- Personal experiences
- Empathetic approaches to learning
- The impact of popular media on their sense of becoming a doctor
- Formal and hidden curricula

Personal experiences:

Students referred to their own experiences of healthcare, some of which (as per participant one) were linked to the impact of failure and remediation. Several of the students referred to their experiences of being a patient and how this impacted on how they wish to develop as doctors. There is significant overlap here with the quotes presented as part of the doctor identity above.

Where students have continuing healthcare conditions the impact of the patient narrative and their personal experiences may continue to have a significant impact on their developing professional identity as doctors. On the one hand, this provides an opportunity for greater empathy for patients and a more holistic and patient-centred approach to care. On the other, if academic failure is perceived to relate to long term health conditions it may be expected that students integrate a negative view of their own health into their academic performance, potentially disadvantaging students with underlying health conditions.

As the prevalence of students with health conditions rises, it will be important to ensure that remediation interventions consider both the direct and indirect implications of this on student learning. In particular, links between remediation teams, disability services and consideration of reasonable adjustments in a positive and proactive way will be vital to ensure that students are not disadvantaged as a result of additional education or healthcare needs.

Empathetic approaches to learning:

The curricula at both Plymouth and Exeter place a significant emphasis on the importance of empathy within all elements of education and training. Students recognised that such approaches were important to the patients they will care for, although felt at times that this contradicted the way that they were treated around their own experiences of academic failure and remediation.

"I really think that remediation should be looked at more positively. Um… you know, it's not a punishment"
Participant Two

And in referencing an academic member of staff when a student became upset in a remediation session they recalled the member of staff saying:

"I think you need to seriously consider if you have the emotional constitution to do a career [like medicine]"

The impact of popular media on their sense of becoming a doctor:

Some students within the study commented on their perception of medical practice having been grounded in popular representations of the medical role (for example, television shows). These glamorised versions of medical care were at odds with the experiences of students in the context of academic failure, and therefore caused dissonance between the expected role students wanted to occupy and that which they found themselves experiencing.

Students also felt that there was a lack of understanding within societal expectations that doctors and medical students can struggle too.

"I almost felt I couldn't talk about having a health condition. I didn't think… it was allowed as a doctor"
Participant Nine

Interaction between the formal and hidden curricula:

Within the patient identity narrative, students struggled at times to separate the formal curriculum (that not being 'OK' was normal, expected and supported) versus their experiences of when their personal health impacted on academic performance (that this was a safety issue and may prevent them from progressing further with their studies or achieving their medical degree).

One student within the questionnaires referenced that they almost felt as if the remediation team were "looking for a mental health diagnosis" that the student did not perceive to be present.

Other students felt that whilst the concept of supporting health needs was made clear within the School, the implications for the individual student were often less positive, with implications including the need to prolong study and the associated financial

implications associated with this. At times, this included direct intervention from occupational health teams:

"He referred me on and I eventually made the decision to defer"
Participant One

Other students perceived that whilst much attention was provided in what staff said about supporting health and wellbeing, the realities were that this remained overlooked, with a greater focus on academic performance and exam coaching, rather than addressing the underlying causes of failure.

"I wanted to mention that I feel, for me, really hindering my progress… it's not taken seriously… it's something that I feel is something that should be taken or looked at more often is my mental health"
Participant Two

Considerations of narrative structure:

Category	**Overall themes**
Redemption	- Some students recognised that their assessment outcomes and subsequent remediation provided support that allowed them greater insight into their needs. - Students who discussed their mental health struggles reflected that the process of remediation had often helped to identify and address these issues with a positive resolution.
Contamination	- Some students considered that the assessments and remediation had exacerbated their own underlying physical and mental health difficulties. - Others that these were not appropriately identified and supported through the process. - Therefore in some cases students considered that their patient identities and narratives had been adversely impacted upon by the process of failure and remediation.
Agency	- Patient identity often discussed as having things done to them.

	- A lack of agency apparent, with a paternalistic approach to patients considered in many of their narratives of being patients.
Communion	- Patient narrative often discussed in a lonely way, with lack of support from organisations and peer groups. - Unwillingness or anxiety to disclose health issues because of perceived consequences limited sense of belonging and community (e.g. a sense that health issues might result in fitness to practice considerations and therefore removal from the course unfairly)
Exploratory narrative processing	- Extremely reflective and insightful approaches to telling these stories. - Narratives often featured the use of 'I' and 'me' to a much greater extent that the other narratives. - These were often deeply personal discussions.
Coherent positive resolution	- Selection bias likely at play here again. - Students usually very positive regarding the resolution of their health difficulties, or that they were much better managed. - Many considered that these experiences would allow them to be more empathetic clinicians going forward.
Meaning making	- Overlap of the patient and doctor role often complex. - Students at times struggling to understand how they could be unwell themselves and work as doctors.
Performance	- Insight into future positive aspects of practice.

What this emphasises is that students use their experience as patients to form their identities as future doctors. This is an aspect of experience that is rarely appreciated by medical schools, and not explored in any way regarding how students perceive themselves as future doctors in the context of failure.

Interestingly, students have used the patient narrative in some cases to strengthen their sense of being a future doctor through a greater awareness of the need to develop their skills for the benefit of patients and use assessments as a learning opportunity.

Victim narrative:

Some, but not all, of the students considered that the process of failure and remediation was unfair, and to some extent unjust. This idea of justice (or lack of) meant that some of the students considered themselves victims of the system, and that their assessment grades were not reflective of their academic ability. There were four key areas associated with this:

- Personal experiences of failure
- A perceived lack of natural justice
- A lack of autonomy around the assessment, remediation and re-assessment process
- Absence of previous failure against which to situation feelings and generate meaning

Personal experiences of failure:

As referenced above, some of the students reflected that this was their first experience of failure, and as a result they had little to reference to. Students therefore felt that this impacted on their resilience and ability to cope, and created a greater sense of a negative outcome. This was especially the case where students considered that the outcome was unreasonable or unfair.

Participant six reflected that failing an exam at medical school was the first time they had ever not received a passing grade:

"It certainly was a bit of a surprise, and yes, being the first big project I'd failed, I'd lost my clean sweep"

A perceived lack of natural justice:

Students referred to the assessment as lacking authenticity, and as a result feeling that they were unfairly victimised or hard-done by due to this. Many referred to the written applied knowledge tests as an example of an inauthentic approach to assessing medical knowledge, with short vignettes, lack of additional information and no ability to ask for help as they would have done in real clinical practice.

"Some of the questions they asked… I was a bit… "how is this related to my studying" and "how is this relevant"
Participant Five

Participant two also reflected that there were core social norms and expectations that were not necessarily followed within the remediation process that led to them feeling like they had been victimised:

"I went to Catholic school and there was one thing that we always used to say, treat others as you would like to be treated"

A lack of autonomy:

Students especially felt that the process of remediation was unfair where there was a perceived lack of autonomy. Participant six articulated the following:

"I had another remediation this year, and it was another example of how much [it is] just a tick-box exercise"

And participant four felt that the process was something that was just repeated over and over, without due consideration to the specifics of the individual.

"To be honest, I don't really think it helped me progress the second time either, so I'm not the biggest fan of some aspects of remediation"

Absence of previous failure experiences:

Students within the interviews generally identified as high achievers. The majority referred to a lack of previous academic failure as having complicated their experience of remediation because they had nothing to compare this experience to. Indeed, most of the students framed their narratives around being high achievers who did not fail, and therefore there must be a 'problem' with the assessment process rather than with

their knowledge, skills or behaviours. Somehow, the assessment was wrong and their failure was because they were a victim of process.

Many of the quotes relevant to this aspect have been referred to in the sections above within this chapter.

Considerations of narrative structure:

Category	**Overall themes**
Redemption	- Redemption a very minor aspect of this narrative. - Students often rooted in this area if assessment marks did not improve, or if appeals did not overturn assessment results.
Contamination	- Very dominant, a sense that things were being done to them rather than with them. - Their stories about moving and remaining in a 'bad' state.
Agency	- Extremely lacking, students did not feel that they were able to influence curriculum, assessments or outcomes. - Students with a dominant victim narrative were often those who expressed little agency. - Extremely different to those with a dominant hero narrative.
Communion	- A sense of loneliness and lack of control. - Often did not feel a part of communities of practice and associated support systems. - This lack of support often negatively impacted on the doctor narrative.
Exploratory narrative processing	- A very reflective group overall. - However, victim narrative often associated with negative reflections and a sense that they lacked agency or autonomy to change things.
Coherent positive resolution	- Little in the way of positive resolution – those that did had the hero narrative much more dominant.
Meaning making	- Often lack of meaning making, a sense that participants remained stuck in a sense that things had been done to them rather than with them. - Lack of positive reflection regarding the benefit of assessment and feedback.
Performance	- Often very negatively associated.

The victim narrative was one that was often associated with poor outcomes in future assessments and a loss of sense of self regarding previous high academic achievement. The conflicted points in the table above emphasise the turbulence with which students had found the process of failure and remediation and that they had still not yet resolved this narrative and how this impacted on their future self.

This has particular relevance for future remediation interventions, because encouraging students to avoid this sense of being a victim and helping them to create a strong narrative around positive resolution may help them to create stronger, more positive, professional identities.

Family / social narrative:

Finally, the concept of family and social expectations in relation to identity were apparent in nearly all of the narratives that were expressed by students. Again, there is significant overlap in this narrative in the ways that students referred to their experiences as those who had interacted with doctors and medical professionals in different ways prior to joining medical school. The key difference being the broader societal expectations that are encompassed here.

The key aspects were:

- Parental and other close personal expectations / experiences
- The issue of trust and autonomy

Parental experience:

Students who were from medical families often referred to their anxieties relating to expectations placed upon them, and the impact of academic failure in potentially disappointing their relatives. In some cases, students had not even told their relatives that they had not passed an assessment, whilst in others students had received responses they felt were undermining:

"I told my family I got 28% in my exam. They're like "you only got 28%"! That's quite difficult"

Participant Three

These experiences often overlapped significantly with the patient narrative, however, were associated usually with illness of close friends and family members rather than the student themselves.

Students in particular referred to illness of parents and grandparents and how this had impacted on their family and social identity as developing doctors. Students were especially upset where they perceived that their motivation to study medicine had been due to illness of others, and that this had encouraged them to study medicine. Where students had experienced failure this had potentially impacted on their ability to become doctors, and therefore led to complex and difficult emotions regarding previous family illness to be held.

"I wanted… to be the type of doctor I saw treat my mother… that was really important to me"

Participant Nine

"I don't think I'd want my family treated by a failure"

Participant Nine

Interestingly, students used the idea of failure to highlight deficiencies across their practise, rather than in the set areas that they had received non-passing grades. The quotes above also highlight a lack of awareness of the role of assessment as being developmental, rather than one that is always designed to highlight unsafe practise.

Trust and autonomy:

Students struggled with expectations placed upon them by society regarding trust and autonomy, against the experiences of failure and remediation. This was often referred to as being in direct opposition to the expectations of success and absence of failure

seen in social representations of medicine. Many of the quotes relevant to this theme have already been presented in the sections above, however, this reflection from Participant Four is especially relevant:

"Can I really be trusted to… care for patients if I failed. I don't think it means I can't be but the School seems to think so"

These contradictions between personal insights against assessment outcomes were difficult for students to reconcile. This student made this particular comment in relation to how their parents were proud of their achievements, but that they felt that this had been undermined by assessment. This confusion inhibited their full engagement with remediation because they were both cross and confused by their experiences and therefore did not engage fully with identifying and correcting deficiencies in their learning as a result.

Using coherence to explore the narratives in greater depth:

One of the key contributions to knowledge of this PhD is the further analysis of narrative identity formation, viewed through the concept of coherence. The different constructs of coherence will now be considered in turn as a way of bringing further depth to the analysis, and these will be considered across all the narrative identities considered above. Followed by an analysis of structure, the thesis will present three cross-cutting themes for consideration in Chapter Nine.

Temporal coherence: The telling of events in a clear and chronological way:

The nature of the interviews invited students to tell their stories, and this was a key consideration relating to why and how questions were asked. Therefore predictably, student interviews contained strong temporal coherence, aided further because experiences were focussed around the academic year, assessment award boards and the outcomes of progression decisions. Therefore, the academic year provided a basis against which temporal coherence was developed. This was particularly true where

students were required to repeat assessments or repeat years, where these events formed a key point in time in the student narratives.

In addition to their experiences of failure, remediation and further assessment, students also referred to historical events that provided context for their experiences. This was especially true in relation to the presence or absence of previous failure, with those students with an absence of previous failure often presenting the most disrupted or chaotic narratives as a result of their experiences of failure and remediation. Participant eleven demonstrated this with the following quote:

"I'd never failed anything before, ever. So to have failed something for the first time, a big thing, I had nothing to compare it to. I felt really confused a lost"

Where students had experienced an interruption to their studies, or taken time away (often for mental or physical health reasons), it was apparent that the temporal coherence of their stories was more complex, and often more difficult to follow as the researcher. However, whilst the story may have been more complex to follow, the identities that students discussed if anything appeared to be more formed. Participant One, for example, discussed time away from the programme due to mental health difficulties, but reflected that this time out of a competitive and assessment driven course provided time and space for them to consider their identity as a developing doctor and as a result return to study with a greater understanding of their current and future role:

"The year [I deferred) was kind of wiped off… but then it was a really good experience the second time"
Participant One

Within the interviews with students, participant one had perhaps the most positive to say regarding assessment and remediation, but it was apparent that much of this came with the benefit of a break from study that many of the other students had not experienced.

The presence of temporal coherence to such an extent demonstrates the seminal event that failure was for many of these students and that remediation in particular needs to provide a place for students to share their experiences, make sense of their stories and construct new narratives around their experiences that focus on improvement rather than self-destruction.

Causal coherence: Drawing clear cause and effect relationships, and how this impacts on a sense of self:

This element was more mixed across the transcripts. Whilst cause (assessment failure) and effect (remediation) were extremely clear due to the format of the two courses, the nuances of what caused the failure in the first place were much more varied. For example, whilst some students referenced working approaches (or indeed, partying too much!) as the cause, others felt that systemic issues relating to the assessment format were to blame.

"I was probably going out a bit too much!"
(Participant Eleven)

"I probably could have spent more time practising questions [for the upcoming exams]"
(Participant Thirteen)

"I don't understand why they test us so much and in the ways they do"
(Participant Twelve)

Of interest, some students integrated failure into their sense of self, describing themselves as their academic grade, for example participant eight who references themselves as their grade:

"I was unsatisfactory"
(Participant Eight)

"It made me question… if I was good enough"
(Participant One)

The direct link students made between their assessments and their sense of self provides an important insight into the way that medical schools can form future professional identities by the assessment approaches and outcomes they choose. Whilst Schools may hope to instil a greater sense of personal resilience to manage negative life events, without appropriate support and explanation students can enter a period of significant self-doubt that without support can be very destructive to their sense of self as future professionals. Remediation interventions must therefore consider how assessment outcomes can impact on students and provide time and space for students to understand their evolving identities and separate assessment outcomes from their own sense of professional worth.

Thematic coherence: the narrator reflecting on their story, the meaning and the memories created:

This thesis has referred on a number of occasions to the importance that both medical schools place on reflective practise, and that this forms a core aspect of the attributes that the Universities select for as part of the application process to medicine. Most recent data for both Universities suggests that for every applicant who successfully receives a place on the course, 11 other students are unsuccessful (167). For all students included within this study, application processes at the time included specific marks for evidence of reflective practise at both the first stage of applications (review of application forms) and the second stage (interviews for medical school entry).

It is perhaps, therefore, unsurprising that students showed very high levels of reflective practise and high levels of self-awareness regarding how their experiences had made them think and feel. These high levels of awareness mean that the narratives identified by me as the researcher were usually clear and coherent, aiding in the analysis and understanding of student experiences.

Medical education and training also places significant importance on the role of story telling in patients explaining their symptoms and illness experiences. Students enrolled on a medical course will therefore have experience of both listening to and delivering these formed narratives. As a practising medical doctor myself it is also a strength of this research approach that I am used to, and comfortable with, allowing individuals to tell their stories and explore the meaning created from them.

Cultural coherence: the context within which the narrative occurs:

Context was referenced very regularly by students, with a key awareness of several areas:

- The expectations of medical students and how these differ to other students
    - "We didn't get to go out after our second year [like other students]" (Participant Five)
- The public expectations on doctors and medical professionals
    - "It's a responsible thing to do, become a doctor, and be a medical student" (Participant Two)
- The demands and requirements of the medical regulator
    - "You feel like the School and the GMC are waiting to pounce" (Participant Eleven)
- The pressures on healthcare services and challenges to meet demand
    - "It was just really busy [on the ward] all of the time" (Participant Four)

Whilst these themes are not surprising, they do highlight the important of the contextualisation of students experiencing failure and remediation, and that the patient safety narrative which runs through this thesis is understood and internalised by students. Providers of remediation therefore need to take much greater care in the way that they explain failure and patient safety to avoid undermining how students experience and learn from the inevitability of failure at some stages during their careers.

Structure:

Alongside the coherence of the narratives, structure assists in helping to delve into the narratives to understand some of the meaning behind what is being said. Across all transcripts the following global observations were made for the eight elements of structure previously presented.

Redemption was apparent in those students who had subsequently passed assessments (especially if this was at the next sitting and did not require the repeat of an academic year).

"I felt so much better once the exam results came out for the re-sits"
(Participant Six)

Contamination, however, was also prevalent, most commonly at the time of assessment failure, but persistent through remediation if the experience of the student was seen to be less than positive.

"It has meant that I worry… every time the exam results are due out… I have to look at them on my own just in case"
(Participant Six)

Agency was usually lacking in the narratives from students, as referenced above, students often referred to assessments and remediation as something that was done to them rather than by them.

"The School made me sit the assessment again"
"I was told I had to re-sit"
"I didn't agree with the result, I thought it [the clinical exam] was really unfair"

Communion was a complex element. In some aspects the competitive nature of student interactions meant that there was a lack of a sense of communion, and this may have been compounded when students did not feel able to share their

experiences of failure and remediation with friends and family. However, the importance of role-modelling has also been explored above.

"I don't talk to other people about results"
"I just want to be on my own when I check"
"Nobody tells you if they've done badly"

Exploratory narrative processing was evident within all of the interviews with students. They were an extremely reflective cohort, almost certainly aided by the emphasis both medical schools place on this attribute at selection in the programme and subsequent reflective practice assessments in the course.

In general **coherent positive resolution** did occur, but perhaps skewed by the absence of students within the sample who had failed the course and been asked to withdraw from their studies. All students involved had either passed their subsequent assessment, or not yet had their further results of retake assessment sittings.

Meaning making and performance were variable in their presence in different interviews. However, in general, students had reflected on their experiences, tried to make them into positive outcomes and made adjustments to their future performance as a result.

Summarised in the table below, the use of a structural analysis, combined with considerations relating to coherence, has allowed for the identification of three cross-cutting themes.

Category	**Overall themes**
Redemption	- Linked very much to the subsequent experience in assessment and the outcome - Usually associated with subsequent positive assessment performance in the next (or subsequent) sitting of the assessment - Impacted upon by absence of those who were withdrawn from the course included within the study

Contamination	- Narratives contaminated by failure and remediation being key disruptive events - Often initially generated by the failure 'event' and at times compounded by the process and experience of remediation - Lack of understanding by those delivering remediation of the negative impact of failure on sense of self and belonging
Agency	- Often lacking throughout the interviews. - A sense that remediation was being done to the students, rather than a process being done with them. - Continued sense that further assessments were impacting on agency and autonomy.
Communion	- Sense of belonging often impacted on interactions with wider cohort. - A sense that failure and remediation are taboo. - To the extent that at times students did not tell even their closest friends and family because of concerns about how this would impact on how they were perceived. - Some positive aspects when students in similar positions were able to come together.
Exploratory narrative processing	- A very reflective group overall. - Perhaps aided by the focus in both medical curricula around the importance of reflective practice, and that this is even an assessed component of their undergraduate studies. - Ongoing uncertainty about how to integrate academic failure into sense of self and how this might impact on future careers.
Coherent positive resolution	- In general, positive resolution occurred. However, selection bias very much an element of this, as I was unable to contact any students who were required to withdraw from the course as a result of failure.
Meaning making	- Disconnect between the understanding that passing assessments is important for patient safety, but that this link in the type and format of assessment undertaken was not always clear.
Performance	- Extensive discussion in several of the interviews relating to an absence of previous academic failure, and therefore uncertainty as to how to respond in a positive and constructive way.

These three cross-cutting themes are:

1. Agency and autonomy
2. Communities of practice
3. The hidden curriculum

Questionnaires:

Earlier in this thesis, the initial results to the questionnaires were presented, in particular, the results of the professional identity scale used by students. Whilst the analysis has moved on from the somewhat positivistic view that identity can be measured on a scale, the results of the subsequent narrative analysis does demonstrate that questionnaires and scales may have some use in supporting students through failure and remediation.

Within the responses to the questionnaires, it was apparent that students felt most like doctors when asked questions about the theoretical aspects of being a doctor (for example, considering ethical and moral issues) and least like doctors when delivering care to patients, or working with others within the community of practice.

The subsequent results of the interviews have demonstrated further areas where students, through their narratives, questioned their future role as doctors. For example, the experience of failure being incompatible with their understanding of the medical role and the lack of failure being spoken about within their communities of practice. Educators may therefore wish to consider if the use of questionnaires within remediation practices can be used to highlight areas where students feel least comfortable and remediation interventions created around these to support professional identity formation. Examples may include those individuals supporting remediation sharing their own experiences of failure, or using case studies where failure and remediation have been positive learning experiences for established clinicians.

Through crafting these student narratives into more positive discussions about the role of failure and remediation as not just acceptable, but inevitable, medical schools may be able to support students to develop their identities into much more positive reflections on themselves and their future roles.

Chapter Nine: Communities of practice, the hidden curriculum, and agency:

Introduction:

The development of a conceptual framework considering the impact of failure and remediation on identities, through the lens of personal narratives, is a novel approach to understanding how students develop as doctors and a key contribution of this research to medical education knowledge.

Figure 13: Conceptual Framework.

The framework above draws on the outcomes presented in Chapters Seven and Eight to present diagrammatically the narratives students create around failure and remediation; those which are associated with more positive remediation outcomes, and those areas that undermine the attempts to improve knowledge, skills and behaviour through remediation interventions.

Such narrative identity development does not, however, occur in isolation, and whilst much of this thesis has considered the impact of individual perspectives on identity formation, there are clearly strong external factors impacting on students, their socialisation into the world of medicine and how this subsequently impacts on the ways they perceive themselves as developing doctors.

This chapter with consider overt and covert communities of practice, the hidden curriculum, individual agency, and how this research is especially important in a time of unprecedented challenge and change for the NHS.

Communities of practice:

Highlighted as a vital aspect of making sense of student experiences of remediation within interviews, communities of practice have long been an important element of medical practice, and the environment within which students learn. The chapter relating to identity in this thesis begins to consider the importance of socialisation in the way that students develop and form their identities. Medical education is not unique in this aspect and this has been widely written about in diverse areas, including international relations (168). Other registered professions, such as teacher training, have also identified and researched this phenomenon in the past (169).

Gale et al in 2011 also considered the importance of communities of practice (or indeed '*Communities of praxis')* in supporting professional identity formation in academic staff within further and higher education (170). This research project also engaged participants in interviews to discuss their experiences as part of understanding their professional identity journeys. Concluding that this remains an under-researched area, but one that is important to understanding how we support and develop staff and students.

Healthcare teams are hierarchical structures, often led by a senior clinician. Whilst attempts have been made to 'flatten hierarchies' as part of the human factors focused patient safety agenda, there remain often marked differences between the levels of responsibilities and indeed professional respect and accountability of different members of the clinical team (171).

These steep hierarchies within medical education are important, because the impact of those at the 'top' of the career ladder can be significant on those who are developing their professional identities, and seeking to become increasingly autonomous and

respected medical practitioners. Therefore, the messages that are conveyed by those in senior positions impact significantly on those individuals who are striving to develop their identities as doctors, as illustrated by several of the comments from participants in this research.

However, hierarchies within medicine are changing. Within my own practice, I will usually introduce myself to patients and students by my first name with the aim of ensuring open communication which does not include barriers related to roles and responsibilities. Differences in approach may introduce confusion for students and whilst understanding the differences in approach of individual clinicians is an important learning outcome for healthcare students, conflicting messages for students at an early stage of their careers can be difficult and challenging to work through.

Communities of practice may also be important in terms of a sense of purpose in job role, and in developing professional identity. McAdams (103) and Kurzwelly (155) investigated how differing degrees of 'purpose' in job role and identity were associated with job satisfaction. They found that those with a clearer sense of their role were generally happier, and delivered higher quality patient care (as defined both by patient satisfaction and by care outcome metrics e.g. medical error).

Within the medical workforce, senior clinicians are often celebrated for their achievements. Culture means that 'failures' whilst experienced, are rarely discussed. The narratives around medical error, involvement of the regulator and personal failure (for example at postgraduate examinations) are rarely discussed. This creates and sustains a community within which failure is seen as unacceptable and not tolerated. This culture is also created through the popular media. Stories of medical malpractice, error and mistakes are often high profile within the media that the general population consumes. Such narratives also create a sense that failure is not to be accepted, and therefore that students should consider their own academic failures as something to hide rather than something to learn from.

Learning environments as part of a wider 'ecosystem':

Building on the concepts of communities of practice, Jones et al referred to ecological systems theory as a way of understanding the complexities which exist in the ways that individuals interact with their environments (172). This theory explicitly refers to different levels of interaction between individuals, organisations and wider systems of practice that students may encounter. The authors argue in particular that the use of such systems theories can help to understand and make sense of the ways learners interact with their environments, and also aid educators in making sense of different teaching and research initiatives. Such an approach can therefore act as the bridge between the theoretical and the actual in terms of medical education.

Environments within medical education can be especially high-pressured, and with current industrial action and, as previously noted, record numbers of newly qualified doctors leaving the NHS; exploration and understanding of the wider health system is vital to ensuring that approaches to both assessment and remediation are sympathetic to broader issues. Within the conceptual framework, the impact of the victim narrative on student perceptions of self have been explored. With students working in extremely challenging situations, narratives around victim roles will reduce their preparedness for practise and impact on patient experience and care. Developing assessment and remediation approaches that are aware of the impact of the victim narrative and seek to promote more positive narrative identities are vital for educationalists to consider.

The hidden curriculum in medical education:

With the importance of communities of practice in education, also comes the challenge of the hidden curriculum. Often considered to be a negative aspect of learning, the hidden curriculum has usually been studied as a concept that undermines core messages given to students as part of their formal studies. The systematic review in particular referenced the work of Goldie and colleagues in exploring how the hidden curriculum can impact on professional identity formation.

Given the significant pressures on NHS care at the present time, the role of the hidden curriculum is likely to be even more significant than at the time these interviews were undertaken. There is a risk that the standards of care provision that are taught within medical schools are at odds with those that students see and experience on their clinical placements. For example, students may learn about urgent and emergency care pathways (two-week-wait cancer referrals are a good example) that cannot possibly be delivered in a healthcare system under extreme distress. These experiences create a dissonance between what students learn within a medical school setting and then experience on their clinical placements. Whilst such findings are not novel (173) their relevance at a time of heightened pressure has not been revaluated, and not through the lens of professional identity formation, a further gap this study helps to fill.

In the context of this thesis, these conflicting messages and experiences can greatly impact on the way that students create their internal and external narratives and as such form their identities. This is perhaps most true regarding assessment, clearly a core element of this thesis. Assessment within medical education has been a core component of medical curricula for many years. The GMC, as the regulators of medical education, take a particular interest in assessments at medical schools through their Quality Assurance of Basic Medical Education processes, built upon the key publication *Outcomes for Graduates (35).*

Assessments within medical education have been seen as key in ensuring that students are progressing well and fit to practise for their stage of education and training. However, variety exists across all UK medical schools in terms of the type, number and standard setting of assessments that are undertaken. The action and implications of norm-referencing were discussed at length by participants as part of this research project. The majority of the students who agreed to take part in this project did so as the result of a failed Applied Medical Knowledge (AMK) assessment. This assessment includes norm-referencing, where students are marked against their cohort and the bottom 15% receiving grades that are considered ‘fail’ and could impact on progression to the next stage of the programme, depending on past and future performance.

Students have for some time discussed within the School that they consider this approach to be unfair, with their performance depending not just on their own work, but also that of others. One particular area of contention is that year on year, achieving the same mark by answering the same number of questions correctly or incorrectly, could be associated with either a pass or fail grade depending on the performance of others within the year.

Students therefore expressed their concern (as they have in previous studies (173, 174)) that they were in competition with their peers, directly contradicting information provided to them through other curricular areas, such as clinical skills, where team work is actively encouraged. Indeed, within the University of Plymouth curriculum, students undertake a summative assessment on team-working, where the aim is to complete a project as a group.

This hidden curriculum, and potentially confusing messaging around helping others, is referenced throughout the interviews. Of particular note, is that this creates and identity dissonance between the role-modelled behaviours of team work as a positive element of clinical practice (and therefore doctor identity) within some areas of the course, whilst being actively penalized in areas such as the AMK.

These messages lead to greater confusion around the approach to remediation undertaken by students, where they are unclear if they should be working collaboratively, or against their peers to obtain the upper hand. Participant thirteen shares their views relating to norm referencing and their interpretation that they were being compared (inappropriately) to those with different levels and types of experience:

"I find it [the assessment process] a bit bonkers, like… we're not fifth years, we are not foundation doctors yet, everyone is learning at a different rate"
(Participant 13)

For students to engage with assessment processes, we know that they need to have an understanding of how and why they are being assessed. These challenges are likely to become more pronounced with the introduction of the Medical Licensing Assessment (MLA) by the GMC over the coming years. These assessments will include a standardised medical knowledge assessment which will increasingly allow not just students to be compared against each other, but also the performance of individual medical schools relative to other schools within the UK. This process, which has been designed to ensure that patients and the public have confidence in the standards of education and training for doctors in the UK, risks increasing competition within and between medical schools and a greater impact of the hidden curriculum around assessment to impact on students and their development as doctors of the future.

Agency:

The concept of student agency has been explored within medical education before, but usually in the ways that students drive their own learning, not in the context of remediation (175). Perceptions of students with high levels of agency as “mavericks” has perhaps demonstrated that students with higher levels of reported agency are not embraced as part of education learning culture (175).

Where students reflected that their remediation journey had been associated with higher levels of agency (often referred to as their ability to influence their experiences), so their interactions were viewed as more positive, and their narratives around their identities demonstrated a ‘better’ outcome. The reverse was also true:

Example of higher level of agency:	Oh, every time. I feel a lot better. I feel like I know what my strategy now is and I’ve got confirmed proof it works. (Participant Three)
Example of lower level of agency:	That was the nasty thing of remediation for me. Is having to go through it I felt like a failure. And again I think that’s more to do with what life is like outside of medical school and before medical school and this kind of culture that is created by this kind of standing hierarchy. (Participant One)

Table 21: Examples from the transcripts of agency

Agency also highlights the conflicting messages students received as part of their education. As future healthcare professionals, a concept of autonomy is introduced from the beginning of their studies, associated with the need to uphold professional values and behaviours to keep patients safe and maintain confidence in the profession. With the approaches to assessment and remediation described by students in this study, it is apparent that these experiences contradict that sense of autonomy by limiting students' ability to progress through their studies at the rate they would like. This conflict is heightened by the potential loss of further agency should they be required to repeat years of study or be withdrawn from the course altogether.

As students transition from didactic education approaches experienced in secondary and further education towards partners in their learning at medical school their expectations regarding agency increase. Both medical schools are based around small group learning, where students are encouraged to drive their education through the use of clinical cases. These case-based or problem-based learning approaches in particular encourage high levels of student autonomy as part of preparing students for clinical practise. Remediation interventions that undermine these steps are particularly difficult for students to engage with, as the pedagogic approaches are so different to those which students have become accustomed to.

To address these issues with perceptions of reduced agency in remediation there needs to be a greater appreciation during the design and delivery of both assessments and remediation interventions as to how students may feel that their agency is being impacted upon. Such consideration will be especially useful for students to understand that even when qualified, there remain significant constraints and limitations on practice driven by financial, ethical and space considerations. Such findings are new within the undergraduate sphere of medical education, but consideration has been given to the importance of agency in remediation of practising doctors through research undertaken as part of the RESTORE project (Realist SynThesis of dOctor Remediation). This realist review, incorporating 141 records, concluded that involving the doctor In the remediation programme provided a perception of control in the process and helped motivate doctors to change (176). These findings are supported

through this research within undergraduate medical education and help grow the literature regarding the importance of participant agency in remediation programmes that participants engage with and adopt change.

This research was undertaken prior to the COVID-19 pandemic, but recent research has suggested that undergraduate learners had very mixed experiences of learning during the healthcare crisis that ensued. However, one element which some students have referred to positively is the greater agency they experienced as a result of the move to online or hybrid working (177). Agency is therefore a key element, not just in medical students, but within all students and their perceptions and satisfaction with their learning.

The challenges ahead for the medical education landscape:

Much has changed in the health service over the last few years. Increasing demands (particularly from an aging population), the impact of the COVID-19 pandemic and the implications on the workforce of the UK's exit from the European Union have all led to a demand-supply mismatch. This mismatch is perhaps most obviously seen in the widely reported delays for urgent and emergency care (2).

Students are not immune to such experiences. The communities of practice within which they learn, and the hidden curriculum that they are exposed to are in particular related to workforce and care pressures. It should not be underestimated how students internalise their experiences in a healthcare system under enormous pressure and the impact this subsequently has on their learning and medical practice.

The introduction of the new UK MLA also means that, for the first time, students will be required to sit and pass nationally benchmarked assessments to enter the UK medical register held by the GMC. The introduction of a new assessment will cause both anxiety for students, but also necessitate a new approach to remediation for an assessment that is not designed or administered by individual schools, unlike the assessments they have previously required students to sit to complete their degree. With this, comes challenges for an appropriate approach to remediation for a high

stakes assessment, but one that also has opportunities to consider how such approaches could consider the impacts on professional identity formation of students undergoing the process. By ensuring appropriate narratives around these assessments, openly discussing implications of failure and promoting agency in the ways that students address their deficiencies, this could go a long way to generating more positive profession identities as part of student development at medical school.

My own experiences as a leader in undergraduate medical education have also highlighted the increasing awareness of mental health and wellbeing within the student population. In the post-pandemic education landscape, it appears that there is both an increase in experiences of mental ill-health and a greater awareness of the phenomena. This combination has resulted in a welcome focus on how students within higher education are best supported. In the case of failure and remediation, the design and delivery of these aspects of learning are within the control and influence of providers. As such, given the impact of these particular areas on students it would appear to be an area of high priority for medical schools to consider and address to aid with improving student experience and wellbeing as part of their studies. The challenge will remain that patient safety must be the primary consideration of any medical degree and this will always necessitate some students failing assessments and requiring support to address their deficiencies. Sadly, sometimes, it will also require students to withdraw from a course that is not suited to them and their specific skills. Framing failure as an inevitability and as a learning process would go a long way to supporting students to form professional identities that recognise that this can be a learning opportunity, and to move away from the concept that failure is abnormal or a threat. The process of supportive, holistic remediation is a vital aspect in ensuring that such messages are both heard and understood.

A thesis published in 2023 would also not be complete without reference to the evolving implications of artificial intelligence on the future of assessment and remediation interventions. Whilst many medical education assessments are currently less impacted by AI (for example, a majority of assessments within the later years of the course take place in-person, in the workplace and depend on human to human

interaction) there are significant possible implications for the ways in which students are assessed remotely and those assessments that require extended written answers.

Assessment and remediation are, in my view, going to need to embrace the realities of a new approach to learning and there exist many opportunities to improve and develop patient care based on this.

How the research has developed over time:

This thesis has evolved over the seven years since I started this research. At the start, my views of professional identity formation were decidedly positivistic, with an expectation that identity could be measured and quantified in students as they moved through their medical school experiences. As my understanding and experience developed with this project my views have changed significantly, indeed, although this thesis asks questions regarding professional identity formation what is presented could be argued to be narratives of experience rather than 'measurements' of professional identity.

Whilst narrative experiences and impacts on identity are linked, it would be inappropriate to suggest that this thesis has completed what I initially set out to consider given the evolution of both my understanding and the focus of the research. However, although the outputs may be more a narrative of experience, these findings do have significant implications for the development of medical school curricula that seek to support students through their academic journeys and ensure that experiences of failure and academic support are positive as part of their developing doctor learning.

Chapter Ten: Conclusions:

Introduction:

This thesis has demonstrated, through an initial systematic review and subsequent iterative, narrative analysis of questionnaires and semi-structured interviews, the impact that experiencing failure and undergoing subsequent remediation can have on the stories medical students tell about becoming doctors. Through this narrative approach to understanding student experiences, a window into their journey of professional identity formation at two UK Universities has been considered and explored as a way of addressing gaps in the literature relating to how remediation impacts on students. This will now be explored as to how such interventions can be used to develop more positive personal narratives in support of professional identities in the future. This is important because previous research has demonstrated that this positively impacts on both doctors and the patients they treat, but not previously explored the undergraduate education perspective.

This chapter will now review how this information answers the three primary research questions posed at the start of this project:

1. What do we know about professional identity formation in medical students and the factors that influence this process?
2. How do students narrate their experiences of failure and remediation as part of their developing professional identities?
3. What does new understanding contributed to by this thesis mean for the future design and delivery of remediation interventions for medical students?

This chapter will also review the strengths and limitations of the research and make suggestions for future areas of study that will seek to answer as yet unresolved questions relating to student failure, remediation and professional identity.

Research Question One: What do we know about professional identity formation in medical students and the factors that influence this process?

A key contribution to new knowledge of this thesis is the production of a systematic review of the literature, examining current understanding of professional identity formation in medical students and junior doctors in published literature. Through robust and systematic searching, 54 papers were included in total. Using a narrative synthesis approach to the construction of the review, seven key themes were identified:

1. What is professional identity?
2. How does professional identity differ from personal identity?
3. What is the difference between professional identity and professionalism?
4. What approaches do medical students and doctors use to develop a professional identity?
5. What impacts do different professional identities have on patients and colleagues?
6. What disrupts professional identities and how do individuals respond?
7. What role do patients, the public and society play in the development of professional identities of doctors and medical students?

From these identified themes, definitions of professional identity, personal identity and professionalism were established that assisted with the further development of the thesis:

Professional identity is understood to be a way of being and relating in professional contexts. An identity that is dynamic, relational and situated in relations of power. It intersects with other identities and is unique to the person who holds it.

Personal identity is understood to be a sense of self that incorporates the many different identities that people hold. It is particularly situated in personal experience.

Professionalism is understood to be a way of behaving and acting that is in keeping with the expectations of the profession, regulatory bodies and the wider public. It is a way of acting, rather than a way of being, although the two are closely linked.

The systematic review highlighted, in particular, the importance of communities of practice in the way that students are socialised into the role and developing professional identity of a future doctor. These communities of practice were important aspects of becoming clinicians, but potentially complex given the messages received from more experiences doctors (at times) conflicted with information provided by medical schools. Therefore, socialisation into medical roles was important both for students to develop their identities as future doctors, but also emphasised the role of the hidden curriculum in the ways that students understood their medical assessments and remediation. These findings were replicated in the interviews with students, with participants emphasising the different messages they received regarding failure and remediation from their School as opposed to their future colleagues.

The systematic review also explored how professional identity is best understood as an intersection of the different identities that an individual holds. Studies had demonstrated that the overlap of these identities is fluid and contextual, with dominant aspects of identity apparent in different situations. For medical students, aspects of their identity as high achievers was of particular relevance, because failure and remediation undermined this core aspect of self. This intersectional understanding of professional identity was also present within student narratives of their experiences, and an important aspect of understanding the outcomes presented in this thesis.

For high achieving students, failure was identified as a key disruptor to personal and professional development with corresponding impacts on professional identities. Less formed or disrupted identities were associated with poorer outcomes for individuals and patients, and as such were found to pose significant safety risks to healthcare. Despite this evidence-based recognition of the risk of professional identity disruption, there was a significant lack of literature considering how approaches to assessment and supporting individuals through failure (including through the use of remediation) could be developed.

This literature gap is addressed through research questions two and three, seeking to understand what students experience as part of their remediation programme and how these findings can be integrated with those of the systematic review to make recommendations that improve the experiences of students in the future. In addition to answering the initial research question as to what is currently known, the systematic review also shaped the design and interpretation of both questionnaires and interviews, aiding with the iterative coding of information obtained.

Research Question Two: How do students narrate their experiences of failure and remediation as part of their developing professional identities?

Medical students in this study told stories and constructed narratives of their experiences, prompted by their initial responses to a questionnaire inviting them to participate. Through these narratives, a window into the different identities held and developed was observed, along with insights into how failure and remediation disrupts and impacts upon these complex and intersecting identities.

It was apparent that students' previous personal (including as patients) and academic experiences were highly significant in the ways that they viewed their role as medical students, their perceptions of becoming doctors and how they perceived failure and remediation had impacted on them and would do so in the future. In instances where students had family members who were medical or healthcare workers these narratives regarding the role of doctors were most formed and this provided helpful additional insights into the pressures medical students perceive they are under to perform academically. This was especially seen through the threat that exam failure was narrated to pose to their future realisation of the doctor identity due to possible withdrawal from their medical studies.

In addition to lived experiences, the lack of previous academic failure was a key narrative from the interviews with students, exacerbating feelings of disappointment caused by assessment failure and remediation. This absence of previous experience of failure meant that students simultaneously deconstructed a core part of themselves

(as an academic high achiever) whilst also attempting to overcome the deficiencies highlighted in assessments. Students described a sense of loss and being lost in their journeys to become doctors at this stage, some of whom had not recovered at the time of taking part in interviews. These experiences were accompanied with an apparent lack of awareness and understanding from those members of staff undertaking remediation interventions as to the difficult and complex emotions students were working through. Remediation interventions as described by students did not offer time or apparent awareness of the importance of processing these difficult emotions and as such many students were left with a sense of unfinished business relating to their assessment failure. Subsequently they were unable to move on in their professional identity development journeys without further self-directed reflective practise that may have come at a cost to their personal health and wellbeing.

Five core narratives were observed from the stories told by students, present to a greater or lesser extent in all of the interviews completed:

- Doctor
- Patient
- Family / Society
- Hero / Protagonist
- Victim

These narratives provided an insight into the ways that students spoke about forming and re-forming their identities through coding their experiences in the analysis of questionnaires and interview transcripts. Subsequent review of structure and coherence, generated further insights into how these narratives were associated with their professional identity formation by exploring how prior experiences, contradictions in narratives and broader social considerations influenced their exploration of their stories. This additional step generated three cross-cutting themes of agency, communities of practice and the hidden curriculum.

It is important to note that although this thesis has identified five core narrative identities from student stories, these were not told as distinct elements of a student's

sense of self. Instead, these narratives were crafted around each other. As such, at times there was evidence of conflicting narratives and inconsistencies in student stories as they attempted to make sense of their experiences and how this would impact on them both as medical students and as future doctors. The use of structure and coherence as a way of exploring student narratives was an important aspect of recognising the intersection between these narrative identities and how contradictions are an important element of understanding the confusion students experience from current approaches to assessment and remediation.

Narratives constructed around doctor and hero were generally positively represented in relation to remediation, in particular with students using these narratives to make sense of their experiences and how these would impact on their future studies. However, the victim narrative represented the negative aspects of remediation associated with little agency and a sense that the system was working against, rather than with them. These experiences detracted from the aim of remediation to improve knowledge and skills.

Student narratives were also organisationally and socially situated, with the impacts of the wider course, student cohort and other identities held by students highly significant in the ways they made sense of their experiences. These are defined by the three cross-cutting themes of the hidden curriculum, community of practice and agency.

Understanding the core narratives students created has been a helpful and insightful process as to the complex interplay of personal, organisational and social aspects of being a medical student.

Doctor narrative:

What students perceived to be the role of the doctor varied significantly between participants. Impacts of role-models, family members who were medical practitioners and individual experiences of healthcare were especially relevant in the ways that students told their stories. Students referenced the doctor narrative positively, one that

was aspirational, and a role and identity they hoped to achieve in the future. Much of the anxiety and concern expressed within the interviews referenced a possibility that as a result of failure and remediation they were less likely to achieve this in the future. These emotions were strong and difficult to process for some of the students, especially those who were still taking part in some form of remediation. However, the narrative was also protective in helping students focus on the end goal of their academic endeavours, of which remediation was a part. This maintained their academic drive and motivation for their studies.

The impacts of failure on the ability to achieve the doctor professional identity compounded many of the stories that students told of their experiences. Whilst students made some reference to the need to ensure that they met the high standards required of doctors, the barriers that were perceived to be from assessment were often referred to as unfair, and contradicted the messages from the medical schools that assessment was about growth and development, not punitive action.

Where students presented with the most disrupted narratives regarding their doctor identity was also where the greatest reference to unfairness and crossover with the victim narrative was strongest. Students expressed that they felt that having achieved a place at medical school, becoming a doctor was some sort of inevitability, only for the process of assessment to be an unexpected barrier in their journey. As the financial implications of studying medicine become ever greater, the lack of certainty regarding graduation may have further strong impacts on the ways that students perceive their roles as medical students.

The doctor narrative was therefore important for students to make sense of their experiences and how failure and remediation had created uncertainty about their future. Giving students time and space to explore this is important so that they can understand the importance of assessment to ensure patient safety and that remediation should be a constructive and supportive process.

Patient narrative:

Much like the doctor narrative was linked to prior experiences, the patient narrative also related to participant's own illnesses or those of close family members or friends. Where reference was made to personal illness, experiences were sometimes directly linked to failure and remediation (for example, mental health difficulties experienced or exacerbated by academic failure) and at other times experiences prior to medical school which influenced their decision to study medicine. Ongoing chronic physical and mental health conditions were also discussed, and with the rising numbers of students in higher education declaring long term health conditions this is an area that will require rapid focus for future remediation interventions.

The patient identity was often held in contrast with that of the doctor, with little evidence of integration of the patient and doctor narratives as being complementary. Instead, doctors were held as individuals who were almost not allowed to be ill, and not permitted to be patients themselves. Given the references to mental health and wellbeing that students made in relation to themselves it was apparent that these narratives caused internal conflict that was particularly highlighted by failure and remediation and was difficult to reconcile. In general, students' reflection on remediation appear to suggest that little in their remediation journeys sought to address this.

Where there was the greatest overlap between the patient identity and that of remediation related to a loss of agency and a sense that remediation was being done to (rather than with) students. This loss of agency demotivated students to engage with remediation and emphasised the role of the victim, a narrative that undermined the aims of remediation; to improve knowledge and skills of students where deficiencies had been found. The patient narrative therefore contained aspects that were both positive and negative for the outcomes of remediation.

Hero / protagonist narrative:

The hero or protagonist narrative was closely linked to that of the doctor, usually framed as someone fighting ill-health. However, there was close relation to areas where students perceived that their experiences of academic failure were flawed, and that in their hero roles they were battling against an organisation which had subjected them to unfair experiences and assessment outcomes. This was a complex narrative, and whilst present in all student stories, explored and explained very differently by different participants. The dominant experience, however, was one of heroically overcoming failure (with or without perceived benefit of remediation) and should be carefully interpreted in the context of all participants in the study having continued their studies on the programme, and therefore experiencing academic success subsequent to their failure. The hero narrative also helped students to maintain motivation around remediation and continue their focus on their studies.

Experiences of mental health (often associated with the experience of failure) were seen to be in contrast with the hero narrative and as such, students appeared to be reluctant to accept that all individuals have mental health, and at times that most of the population will experience some degree of mental ill-health. These areas are of vital importance to discuss and consider as part of future remediation interventions.

Family and societal narrative:

The family and society narratives were closely linked and reflected expectations from families (especially medically qualified parents) and society (usually as presented through the popular media). These identities were presented as at odds with the actual experiences of studying medicine. Data collection for this research was undertaken prior to the COVID-19 pandemic and significant and sustained pressures on the NHS being currently experienced. Whilst it would be unwise to draw firm conclusions regarding the impact of these new experiences on students, it can be hypothesised that there is now an even greater reality gap between what students view through the popular media and their experiences within healthcare settings. Thus, the hidden

curriculum likely becomes even more relevant as Schools increasingly teach students about a method of healthcare delivery that cannot feasibly delivered in reality.

In the more recent past, industrial action being undertaken in England by groups of junior and senior doctors is also likely to influence the ways in which students perceive themselves and their future roles. Dissatisfaction by the profession in relation to pay and working conditions may result in lower tolerance of adverse outcomes and a greater focus on blaming systems and assessments, rather than personal reflection on areas that could be improved.

Victim narrative:

The victim identity linked closely to experiences of remediation, especially where students felt that undergoing such a process was unjust. This identity narrative was also closely related to students perceiving assessment outcomes as unfair and unreasonable. Norm-referencing, in particular, where students perceived that their assessment marks were predicated on the performance of their peers was deemed to be unjust, especially where students felt that the outcome was therefore not based on their own knowledge and safety regarding clinical practice, but entirely based on it they were ‘better than’ other students within their cohort.

Students, when discussing victim narratives, particularly referenced a lack of autonomy and agency in their learning. This lack of agency was presented as at odds with the role of a doctor, perceived to be autonomous and able to influence outcomes for themselves and others. These contradicting narratives once again meant that students struggled to reconcile their interpretation of their future doctor roles with that they were experiencing as medical students.

Identity, intersectionality and implications for the future:

Throughout this work, my viewpoint on identity has changed and developed. My initial perspective that identity is a distinct phenomena that can be measured has been replaced with an understanding of identity as a fluid, ever-changing concept that

students build and re-build throughout their entire careers. This change in perspective has also highlighted the difficulties in labelling the identities that students hold. Instead, the research has utilised student stories and the narratives they create as a window into the process of professional identity formation.

It has also become apparent through this work that the development of a professional identity is much more than the 'doctor identity' that students seek to hold. Professional identities are formed through an intersection of the many different identities that students possess and are fluid, responding to the situation that students find themselves in. Students in particular are on the very periphery of the community of practice and are therefore especially vulnerable to rapid changes within their understanding of the doctor identity, and swift changes in the way that they view themselves as part of the profession.

The intersection of these evolving identities, and the influence from socialisation, results in students being especially impacted upon by the hidden curriculum and role-modelling from established healthcare professionals (usually senior doctors). Throughout interviews, narratives from students were varied and unique. Thus, the creation of a definitive model of how identities intersect is neither appropriate nor possible. Depending on the experiences of students, their identities may dominate at different times in different ways.

Brown et al in 2020 (178) also discuss the need to consider 'career identity' alongside professional identity as part of a scoping review examining student experiences of longitudinal integrated clerkships (LICs). These LICs aim to immerse students within communities to experience different approaches to learning and to delivering healthcare. The authors argue that professional identity formation does not necessarily go far enough in terms of understanding medical students and that instead, career identity (where individuals associated with being a type of doctor, rather than a doctor in general) is an important area for future development. The approach to understanding professional identity through narratives I would suggest is an appropriate and robust way to explore further with medical students and junior doctors not just their doctor identity, but how they are associating with further communities of

practice within the medical field (for example, as a surgeon, a paediatrician, a radiologist etc.)

Research Question Three: What does new understanding contributed to by this thesis mean for the future design and delivery of remediation interventions for medical students?

The conceptual framework above demonstrates the key research findings from this thesis and the impact on the different narrative identities on the development of students as they seek to obtain the professional identity of doctors.

Doctor and hero narratives were mostly associated with coherent stories about the positive aspects of the healthcare profession and were protective for students when experiencing failure and remediation as a way of both reminding students of their goal and emphasising the process of overcoming deficiencies in knowledge and skills.

Family and patient narratives were strongly associated with previous healthcare experiences and therefore an understanding of the role of the doctor. These narratives were presented in both positive and negative ways depending on students' prior experiences, but were useful to students in understanding their identity journey.

Narratives of being a victim were often lacking in coherence and associated with negative remediation experiences. Students were less engaged with remediation processes and as such this undermined both their sense of being a future doctor and the outcomes of improving knowledge and skills that are the fundamental aim of remediation interventions.

Future remediation interventions therefore need to focus on the development of positive narrative identities in order to shape and develop students' views of their future doctor role and to encourage engagement with processes that are designed to improve their practise. Not addressing these issues can potentially lead to lower levels of student satisfaction and higher rates of future burnout and medical error. There are therefore real-world consequences of poorly constructed remediation interventions that must be considered in the development of assessment and remediation approaches.

Experiences from students that helped to build these narratives around the doctor and hero were associated with positive reinforcement of their future role as doctors, emphasising the importance of assessment in growing and developing their skills and ensuring that assessments were viewed as fair and appropriate. The remediation intervention is therefore closely aligned to the perceived validity of assessment methods and helping students to understand how and why they have been assessed in the way they have is a core element to achieving these constructive narratives.

As explained throughout this work, identities are difficult to measure, are not fixed and it is rare for students to refer to their specific identities. Instead, they create narratives of their experiences that are a window into the identities they hold at a particular time. Students narrated that with time their identity as a future doctor increases and evolves. Through overt and hidden curricula, students increase their experience, and with it their agency and autonomy as future clinicians, particularly influenced by role-modelling, communities of practice and the way they are assessed.

This thesis has considered the concept of the *hidden curriculum* in some detail, but it is important to differentiate between those areas which are truly hidden (for example,

the ability to navigate the medical school culture due to the experience of parents) and those aspects which are associated with the wider learning culture of medical schools. For example, norm-referencing is part of the learning culture of these two medical schools. In this case, it is not directly part of the hidden curriculum, but it contributes to a (hidden) culture of competition which is in conflict with the overt staff assertions that failure is acceptable and expected. The contradictory nature of these two elements of the formal curriculum creates confusion and uncertainty for students seeking to enter into the profession. In my education role this is an opportunity for significant learning relating to how we assess and support students and the ongoing use of such methodological approaches to standard setting. Within my own work I am increasingly encouraging colleagues to move away from anything that promotes a sense of competition within the cohort to one which encourages a focus on patient care, student experience and ensuring the best possible outcomes for all those involved in healthcare.

Within this thesis it has been shown that failure and remediation are core disruptors for medical students and their sense of self. Failure and remediation have been seen to impact on several identities that intersect to form a broader professional identity. The impact on each of these constituent identities is individual and founded in broader life experiences. Where there is an impact on agency comes the greatest challenge to identities that students perceive as being very autonomous. It is therefore fundamental to any remediation intervention that students feel partners in their learning and able to influence both remediation and their future studies.

To date, approaches to remediation have been knowledge focussed and positivistic in their outlook. Little, if any, attention has been given to supporting student professional identities through the process of remediation, although this research has highlighted the significant identity disruption that can occur through failure and remediation.

Implications of the research:

Whilst this thesis has considered the implications for medical education, it is also important to situate this within the wider Higher Education context. ‘Remediation’ may

be a term that is used more widely within medical schools than in other disciplines; however, the concept would be recognised across other areas of the HE landscape, especially those courses validated by professional societies and regulatory bodies. Whilst courses with a foundation in the arts and humanities may be less likely to be regulated in this way, 'students in difficulty' will exist within all courses at some point in time. The learning as to the implication of failure on students and how they view themselves and how they can be best supported will have relevance in these areas too.

The focus on mental health within the sector is increasing, with a meta-analysis from 2021 suggesting the pooled prevalence of depression and suicide-related outcomes in students to be as high as 21% (179). The implications of this research are significant for remediation approaches which need to have a more holistic and student-centred approach. Where this can be achieved, both academic attainment and course satisfaction in HE have been shown to be enhanced (180). In medicine, and given the challenges faced by the NHS mentioned in Chapter 1, this focus on staff and student support will only become more important in coming years.

As the use of artificial intelligence (AI) in the sector (by faculty and students) increases it may also be that there is increasing consideration of the use of new technology to aid with student support (181). However, this thesis emphasises the importance of human socialisation and interaction to develop and support professional identities. I remain sceptical of the ability of AI to achieve this. AI will certainly have a role in the future of medical education and the work future doctors undertake with patients and there is a clear need to educate students as to the best and most responsible use of such emerging tools. They will, in my view, never be a replacement though for human-human interaction and the true empathetic support this can offer. These views are grounded in the discussion earlier in this thesis relating to the importance of socialisation and entering a community of practice. Whilst this remains the model of medical education, AI is unlikely to have a significant role in the way students who experience failure and require remediation are supported.

Given the importance highlighted in previous research of professional identities on areas such as patient safety, individual wellbeing and organisational resilience, remediation approaches must consider the impact on professional identity formation in the future in order to support students and ensure they deliver the best and safest patient care for the future.

As medical curricula develop to include earlier patient contact and a greater focus on delivery of clinical and communication skills, evidence from this thesis shows that these areas are those that are most fragile in the way students consider themselves (as demonstrated in the questionnaires) and most likely to be impacted negatively by experiences of remediation (as evidenced in the interviews). Current remediation processes are therefore not fit for purpose to deliver modern medical curricula.

In order to do this, course leaders and remediation providers must recognise that:

1. Assessments must be designed with the overt and hidden curriculum in mind to ensure the correct messages are being received by students.

Within this study, students have referenced on several occasions the disconnect between what they are told by their medical schools, and what they experience. Messages in particular relating to competence, competition and the role of assessments in maintaining safety were highlighted by students as key areas where contradiction was experienced. Medical schools therefore need to consider how the delivery of assessments align with the stated aims and recognise that much student learning takes place outside the physical footprint of the medical school. By discussing the hidden curriculum with students, and inviting students to share their experiences as part of remediation interventions what is hidden can be addressed, ensuring that students have the opportunity to make sense of these conflicts.

In making sense of these conflicts, students can be encouraged to develop more stable narratives of themselves and as a result form more stable identities, associated with better outcomes for them and their future patients.

2. The impact on student mental health and wellbeing of failure and remediation must be addressed as a core element of assessment and remediation processes.

Students throughout their interviews and questionnaires cited the impact of failure on their sense of wellbeing. Medical schools must accept that there are significant impacts of actual or perceived failure on high-performing students and provide students with the opportunity to discuss these experiences and provide appropriate support.

3. The hidden curriculum regarding failure and remediation must be considered and outed to ensure interventions are not undermined.

With the development of the MLA, students are likely to consider medical school assessments to be even higher stakes than they did before. Medical schools must understand how students perceive the assessments they undertake and regularly review what hidden messages and experiences students may have that are not initially recognised by the School. Close working between staff and students, for example, through staff student panels are vital to this close and collaborative working. These formal aspects of student representation through University mechanisms can ensure that students feel listened to and are able to shape and influence the development and design of future assessments and remediation interventions.

4. Members of staff undertaking remediation interventions must recognise the impacts of assessment failure on students and their wellbeing.

Students perceptions as to who undertakes remediation matters, and as such ensuring that staff members are well trained is of vital importance. This study has demonstrated that the impact of assessment failure and remediation impacts significantly on how students perceive themselves as future doctors, and this too impacts on their wellbeing. It is vital that those who undertake remediation give due consideration to these impacts and are trained appropriately to manage these.

5. Student identities are core to the way they experience remediation, and should be discussed and supported throughout any remediation interventions.

Whilst student narratives of their experiences and the identities they are forming form a major aspect of this study, student experiences of remediation did not focus on these areas during their formal remediation sessions. Given the importance this study has shown professional identity formation has on the future of medical careers and patient experience, this must be a core consideration in future. Medical schools may wish to use validated questionnaires such as the one used in this study to help understand how students perceive themselves as future doctors, and target support and development around those areas where students feel least confident. This will ensure that students are provided with an holistic approach to remediation that considers the important outcomes of this study.

6. Agency and autonomy in the way that students are facilitated to take part in remediation is a core element of student identity formation and satisfaction.

To achieve this, students must feel ownership and partnership in remediation interventions. Where students were most positive about their experiences was where they felt most able to influence and adapt remediation to their needs. This should be standard practise for all future remediation interventions.

7. Communities of practice regarding normalisation of failure and remediation is a key element of supporting students through a disruptive and at times upsetting process.

Through the hidden curriculum, the statement that failure was ‘normal’ and expected was undermined. Medical schools should give consideration to individuals sharing their experiences of failure, the learning that was achieved from this and how it has allowed them to become closer to obtaining a professional identity as a practising doctor. Through this, medical schools can realise their responsibilities in challenging stigma associated with failure and ensure that responses to such adverse outcomes are managed constructively with learning that benefits future patient care. Changing the perceptions of remediation in this way would promote a healthier culture relating

to remediation and ensure that the next generation of doctors and medical educators can further improve experiences for medical students of the future.

The vast majority of doctors within UK practice work within the NHS, and historically most doctors would continue in their NHS roles for their entire career. However, things are changing, and expectations from medical practitioners are evolving. Progression data for medical students who have qualified in the last few years suggests that fewer and fewer are entering the NHS for long term careers, with burnout, poor working practises and pay cited as key reasons. Many of these highly trained individuals are moving abroad, whilst some are leaving medicine all together. As our population ages, and our need for doctors increases, this poses an existential threat to the functioning of the health service and the wider health of the nation.

Not all these doctors are leaving because they have experienced some form of failure or required remediation. But the lessons we can learn regarding supportive communities of practice, the need to control the hidden curriculum and what it means to develop a doctor identity are vitally important to ensure that we stem the current haemorrhage of UK trained doctors out of the health system.

Limitations of this research:

The value of this study lies in its role as a research project which investigates, in two university contexts, the perspectives of medical students who experience failure and remediation. The implications for development of remediation interventions which are educationally effective and support positive identity formation are of significant importance and interest both within medical education, and in the wider HE sphere.

The study's contribution to knowledge is made possible in part by the involvement of insider research, and this has allowed me to offer a rich portrayal of student experiences and perspectives. The research uses a novel approach to understanding student experiences of remediation and identity formation and explores comparisons and contradictions between student experiences.

Further research can always benefit from review of the strengths and limitations of such research.

Strengths:

- Involvement of two medical schools with similar, but diverging approaches, allowing for comparisons and contradictions to be explored between student experiences
- Students self-identified as having experience 'failure' to avoid difficulties in definition at the point of recruitment
- Positive response rate to online questionnaires
- A novel approach to understanding student experiences of remediation and identity formation

However, despite these strengths and the important contribution to new knowledge this thesis contributes there are areas for development. In particular more demographic data would have been beneficial in terms of making sense of the student narratives. Ethical considerations and the need to balance my role as both a member of faculty and PhD student made collection of this data difficult, but would be an area for further data collection were I to carry out the project again. This would provide an even deeper context for students and their experiences and provide further information as to the role intersectionality plays in performance at medical school and the attainment and awarding gap.

In addition, the difficulty of undertaking research with students who have experienced failure should not be under-estimated. This is not a topic which medical students discuss easily or openly and as such care must be taken in designing and undertaking such research. This also means the inclusion of students who withdrew from the course were unable to be contacted for clear ethical and practical reasons.

Finally, there is the contested area of professional identity formation and the extent to which students narratives can be used as a proxy for this. During the course of my PhD my understanding of these concepts developed and my use of narratives as a

proxy for professional identity formation (rather than trying to 'measure' changes to professional identity) emerged as a more meaningful approach. The very nature of identity is that it is fluid and personal and I have gained significant insight into this. Future research may wish to focus on the ability to categorise this identity formation journey in more detail to highlight the points at which disruption is most likely to occur.

Reflections:

This has been an interesting and extremely rewarding process. As the research has developed it has become apparent that whilst the initial aim was to understand the professional identity formation of medical students, this is a concept that is extremely hard to study. As such, narrative identities have been explored as a surrogate for professional identity, but this comes with the significant limitation that using this approach to understand professional identity formation requires extrapolation. The reality is that with the understanding that I have now gained I would not set out to explore professional identity, but instead to explore how students narrate their experiences and what insights this provides into how remediation can be developed to best support students to successfully complete their studies whilst ensuring patients receive the best possible care from their future doctors.

Bias in the context of narrative approaches to understanding experiences is a complex concept. My struggle with 'bias' has been mostly related to my background as a previous student and member of staff within the medical schools studied. As such, this gives me a different perspective that may have influenced how the research was constructed, undertaken and researched. The earlier discussion relating to insider research is perhaps the best way to make sense of the implications of this and to emphasise that this can provide a unique insight into student experiences whilst it is vitally important that reflection and openness regarding the possible impacts of my previous roles is acknowledged.

Data for this thesis was collected towards the start of the project and my thinking has developed and changed over time. In particular, my appreciation of the complexities of student performance linked to differential attainment and the awarding gap means

that this data would have been extremely useful to further explore how different student characteristics can impact both on student performance and on responses and outcomes of remediation. As understanding of the role of intersectionality in student performance has grown this will be an important area to explore in further detail with future studies and research.

This PhD has been about understanding what some students experience as part of their assessment journey and associated remediation. Further research is required, including testing of the conceptual framework presented above in order to understand to what degree, if any, the results of this PhD can be generalised to other medical schools and other students.

The very nature of identity is that it is personal, fluid and constructed based on the experiences that students have. Generating a generalizable theory is therefore unlikely to ever be possible. Instead, recognition of the broad factors that can influence professional identity formation should be considered in order to produce personalised, bespoke remediation plans which recognised that a 'one size fits all' approach to remediation does not work. This PhD furthers the understanding of professional identity formation in medical students, especially at times of identity challenge linked to assessment failure in highly performing individuals. The conceptual framework should be used by interested researchers to develop their own remediation plans and outcomes-based research that draw on these areas to understand both the overt and covert impacts of remediation on tomorrow's doctors.

The students who were involved in this project were also drawn from those students who chose to take part. Students who had withdrawn from the programme were not contacted, and these may be the students who have the greatest experience of remediation and greater insights into the more formal aspects of the process e.g. stage three remediation when there are discussions about possibly discontinuing studies.

Students also may have chosen to take part because they had the more polarised views of their remediation i.e. those which were the most positive or the most negative.

Given the large number of students who undergo remediation, many will have not taken part at all and therefore there may be other students with very different views.

Future Research:

This study has made a significant contribution to our understanding of professional identity formation in medical students. It uses a rigorous methodology to analyse narrative accounts of failure and remediation, and offers practical implications for medical educators in terms of designing pedagogies for remediation. Further research would be helpful in terms of engagement with students who withdraw from study after failure and remediation. Despite the obvious challenges of reaching this cohort, the experiences of this group of students offers important insights into understanding the impacts of failure and remediation. This could perhaps be achieved through a longitudinal study of medical students throughout their time at medical school, some of whom may withdraw from the course following academic failure and remediation.

A further consideration for future research is an exploration of the differential impacts of remediation on different demographic groups, particularly those with protected characteristics. Isolating the risk and protective factors which may influence the ways in which students respond to remediation is also important. The methodology outlined here could easily be adapted to incorporate a consideration of student backgrounds more explicitly – perhaps using a narrative life history approach which explore wider socio-cultural backgrounds.

By highlighting the ways in which narrative interviews can offer an insight into professional identify formation in medical students, this research has set the scene for future research activities and for developing more effective remediation strategies.

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Glossary:

AMK	Applied Medical Knowledge Test
BMBS	Bachelor of Medicine, Bachelor of Surgery degree
EU	European Union
FE	Further Education
GMC	General Medical Council
HCPC	Health and Care Professions Council
HE	Higher Education
HEE	Health Education England
HEI	Higher Education Institution
HEIW	Health Education and Improvement Wales
HESA	Higher Education Statistics Agency
ISCE	Integrated Structured Clinical Examination
LFTF	Less than Full Time training
MLA	Medical Licensing Assessment
NES	NHS Education Scotland
NHS	National Health Service
NMC	Nursing and Midwifery Council
OSCE	Objective Structured Clinical Examination
PCMD	Peninsula College of Medicine and Dentistry
PhD	Doctor of Philosophy
PMQ	Primary Medical Qualification
PMS	Peninsula Medical School (University of Plymouth)
UEMS	University of Exeter Medical School
UK	United Kingdom

Appendices:

Appendix One: Ethics Application:

PLYMOUTH UNIVERSITY **FACULTY OF HEALTH & HUMAN SCIENCES**	Application No: (for FREC use)

RESEARCH WITH PLYMOUTH UNIVERSITY

Faculty Research Ethics Committee

APPLICATION FOR ETHICAL APPROVAL OF RESEARCH

Title of research: Professional identity formation after remediation: the implications for professional development and clinical practice in medical students.

1. Nature of approval sought (Please tick relevant boxes)

(a) PROJECT*: [X] (b) PROGRAMME*: [ ]

If (a) then please indicate which category:

- Funded research project [ ]
- MPhil/PhD project [X]
- Other (please specify): [ ]

**Note: In most cases, approval should be sought individually for each project. Programme approval is granted for research which comprises an ongoing set of studies or investigations utilising the same methods and methodology and where the precise number and timing of such studies cannot be specified in advance. Such*

approval is normally appropriate only for ongoing, and typically unfunded, scholarly research activity.

2. Investigators/Supervisors

Principal Investigator (staff or postgraduate student)*:

Name: Dr James Read
Email: james.read@plymouth.ac.uk
Address for written correspondence:

C506 Portland Square
Drake Circus
Plymouth

Other staff investigators:

Please see supervisor details below

Director of Studies/other supervisors (only where Principal Investigator is a postgraduate student):

Dr Julian Archer – Director of Studies (Clinical Senior Lecturer, CAMERA, Plymouth University Peninsula Schools of Medicine and Dentistry)
Dr Sam Regan de Bere – 2nd Supervisor (CAMERA, Plymouth University Peninsula Schools of Medicine and Dentistry)
Prof Debby Cotton – 3rd Supervisor (Professor of Higher Education Pedagogy and Head of Educational Development)

Please indicate Department of each named individual, including collaborators external to the Faculty:

Please see details in brackets above. The PhD studentship is based within the Collaboration for the Advancement of Medical Education Research and Assessment (CAMERA) team within the Peninsula Medical School.

**Note: Principal investigators are responsible for ensuring that all staff employed on projects (including research assistants, technicians and clerical staff) act in accordance with the University's ethical principles, the design of the research described in this proposal and any conditions attached to its approval.*

3. Funded Research

Funding body (if any)

Internally funded PhD studentship.

Is there a potential conflict of interest in the research arising from the source of the funding for the research (for example, a tobacco company funding a study of the effects of smoking on lung function)?

Yes ☐

No ☒

If the answer to the above question is yes, please outline the nature of the potential conflict of interest and how you will address this:

4 Duration of project/programme with dates*:

PhD studentship runs from October 2016 to October 2019. It is anticipated that all data will have been collected by October 2018.

**Approval is granted for the duration of projects or for a maximum of three years in the case of programmes. Further approval is necessary for any extension of programmes.*

5. Research Outline:

Please provide an outline of the proposed research. Note that this should be sufficient to enable the committee to have a clear understanding of the project. It should normally be a maximum of 2,000 words. While this should be written in a way appropriate for your research you should address the following areas:

Background: situating the study within its research area, including references, and, where appropriate, within relevant policy and practice developments or professional agendas

Aims/Key Questions: should be stated clearly, including how the researcher anticipates their fulfilment will move forward knowledge and, where appropriate, policy or practice

Recruitment: of participants – including where and how participants will be recruited; any inclusion or exclusion criteria; justification of the sample size

Methodology: the application should contain a clear outline of methodology, including both data collection and data analysis processes. This should include a description, including references of the particular methodology being used; how it will be employed in relation to this study; which techniques of analysis will be used once data are collected and how this will be applied to the particular data set.

Background:

All medical students within the United Kingdom train and practice within a highly regulated environment, designed to protect patients and members of the public from harm, and promote excellent medical care (35, 36). As a result of this, medical students are frequently assessed to ensure that their skills are developing appropriately and that they will become doctors who are fit to practice at the point of graduation from medical school. The focus on fitness to practice across the continuum of medical education and training has become more high profile in

recent years with the introduction of Medical Revalidation by the General Medical Council (the organisation which regulates doctors and medical education at both undergraduate and postgraduate levels in the UK) (182).

In the undergraduate arena, some medical students will not meet the standard required of them in assessments and 'fail'. Whilst vital to ensure the safety of patients and the public, this can have a significant impact on the individual and their career, both at medical school and after the point of graduation (65). This is especially true in medical students who have generally been academically high performing individuals who are not used to experiencing failure (12). Such impacts include changes to the way that individuals see themselves as developing doctors.

Remediation may be offered to those who have experienced failure as a way of supporting their further development and to address the deficiencies in their practice that caused this initial failure to occur. There are many different types of remediation, but to date there has been very little research examining which of these approaches works best (15). In addition to this, there has been limited research examining what impact undergoing a period of remediation has on the individual and how this affects how a person views themselves as a developing doctor (12).

This research ethics application will refer to the term 'failure' throughout and is used because the word is widely employed by organisations involved in training medical students and widely understood by people who are trained by these organisations. The term 'failure' can appear judgemental; however, its use is not intended to be and is used because it is the most accurate and well understood way of describing the experiences that individuals have had.

Aims and Key Questions:

The overarching research question to be answered by this research project is:

'What impact does experiencing failure and undergoing subsequent remediation have on the professional identity formation of medical students at two UK Universities?'

Aims:

- Develop a theoretical framework for the development of professional identity in medical students.
- Explore how the experience of remediation might impact upon a medical student's sense of self, their perceptions of their personal and professional identity, and subsequent professional behaviour
- Identify what factors in remediation might influence any changes in perception of self or professional identity (e.g. educational imperatives, medical cultures in different specialties, personal/professional discourses, settings etc.)
- Consider how any influencing factors might be addressed to ensure a holistic approach to remediation that encompasses personalised measures and strengthened resilience amongst medical students.

Objectives:

- identify and review relevant background literature (in a systematic way) around how medical students and doctors develop a professional identity and what factors are known to impact on this
- develop a conceptual framework of how medical students develop their professional identity and how this relates to other forms of identity construction. This may include a discussion of what constitutes 'positive' and 'negative' identity construction.
- record and compare experiences of medical students who have undergone remediation of various types, and subsequent discussions about the impact of remediation on their sense of self and professional identity
- map the various influences that are brought to bear on such interaction and talk (including the use of lay, educational and medical remediation discourses,

the norms of attainment-related professional identity in different specialties, the impact of environment in which remediation takes place etc.)

- develop micro (narrative) and macro (discursive) frameworks for theorising and researching the personal, socio-cultural and political impacts of remediation through the formation of mid-level theories pertaining to remediation and professional identity construction
- assess educational needs by identifying opportunities for learning

Methodology:

Broadly, there are two parts to this study, an initial online questionnaire and then a semi-structured interview either undertaken with those who complete the questionnaire and are happy to take part in an interview or as a standalone interview. The use of both questionnaires and interviews allows data collection from more people than would be possible through interviews alone. In particular, the questionnaire will allow for the collection of important demographic data that will not be acquired on the same scale in the interviews. Completion of an electronic questionnaire also allows participants to engage with the study who, for whatever reason, do not wish to take part in a face to face interview. This approach in particular recognises that talking about topics such as failure and remediation can be difficult for some people, but that their contributions to the research are highly valid and important to capture if they wish to take part. Using the questionnaire as a method of recruitment for the interviews also ensure an 'opt-in' approach to recruitment for interviews that ensures individuals self-select to take part.

The questionnaire is intended to take 20 minutes to complete, including five minutes for the participant to read the information sheet (which accompanies the questionnaire) and decide if they wish to participate in the study. Participants are then able to choose if they would like to receive further contact from the researcher about taking part in a semi-structured interview.

The semi-structured interviews are intended to take 60 minutes to complete, including five minutes at the start of the interviews for information to be provided and for the participant to decide if they consent to take part. There are also five minutes reserved at the end of the interview for a debrief to be performed.

Recruitment of Participants:

The research plans to recruit medical students who have experienced remediation (of any type) from years one to five of their undergraduate medical degree at both Plymouth University Peninsula Medical School and the University of Exeter Medical School.

Inclusion Criteria:

- Medical student enrolled on a programme that will award a primary medical qualification at either the University of Plymouth or University of Exeter
- Including those who are undertaking an intercalated degree and remain registered with either the University of Exeter or Plymouth
- Must have undergone some form of formal remediation
- Willing to participate in either an online questionnaire, a face to face interview or both.

Exclusion Criteria:

- Individuals who are no longer registered with the University (for example, they have withdrawn from the course or graduated)
- Students who feel that taking part in the research would cause them psychological distress
- Students who are unwilling to take part in an online questionnaire or interview

Recruitment to the study will take place initially through invitations to take part in the online questionnaire, run through Survey Monkey. Invitations will be made through email communication from the administration teams at Plymouth University Peninsula Medical School and the University of Exeter Medical School. These invitations will not be made in a targeted way and instead all students in years one to five at the two medical schools will be sent information. This ensures that no individuals feel that they have been singled out to participate, and also that the research team do not have access to the details of individuals and their experience

of remediation, unless people choose to take part in the study. An example of the email, research information and online consent form are included as an appendix to this application. The email will contain a web-link which students can access to complete the questionnaire if they would like to take part.

An incentive will be offered to students for taking part. All students who provide their consent to take part in and complete the questionnaire will be provided with the opportunity to be entered into a prize draw to win a £50 Amazon gift voucher. If students wish to be entered into the prize draw then they will be asked to provide an email address at the end of the questionnaire. This email address will be stored separately from their answers so that it will not be possible to link their contact details to their questionnaire responses. Students can choose not to provide an email address if they do not want to. At the completion of the questionnaires one of the email addresses will be chosen at random (by picking out of a hat) and the successful participant emailed.

In addition to email communication, the researcher will also attend the start of large group teaching sessions (such as plenaries) to give a brief five minute explanation of the research aims and design as part of a purposive sampling strategy. Contact details for the researcher will be provided (should students wish to participate) in addition to a web-link for the online questionnaire. It will be emphasised that there is no expectation that the students take part and that they are free to withdraw at any time should they consent to take part in the study. It will be made clear that as a PhD student, the researcher is not involved in the teaching or assessment of medical students and therefore there is no disadvantage to students if they choose not to take part. If students wish to take part in an interview only and not the questionnaire then this option will also be presented by the researcher. Academic tutors will also be asked to pass on written information to their tutees.

If students consent to take part in the questionnaire they will be asked at the end of the process if they would be willing to take part in an interview with a researcher. Written information will be provided as part of the questionnaire, including contact details should they have any further questions. If the students are happy to take

part in an interview they will be asked to provide their contact details through the online questionnaire. All personal information will be kept securely and will be accessible by the research team only.

A summary diagram of the recruitment process is contained below:

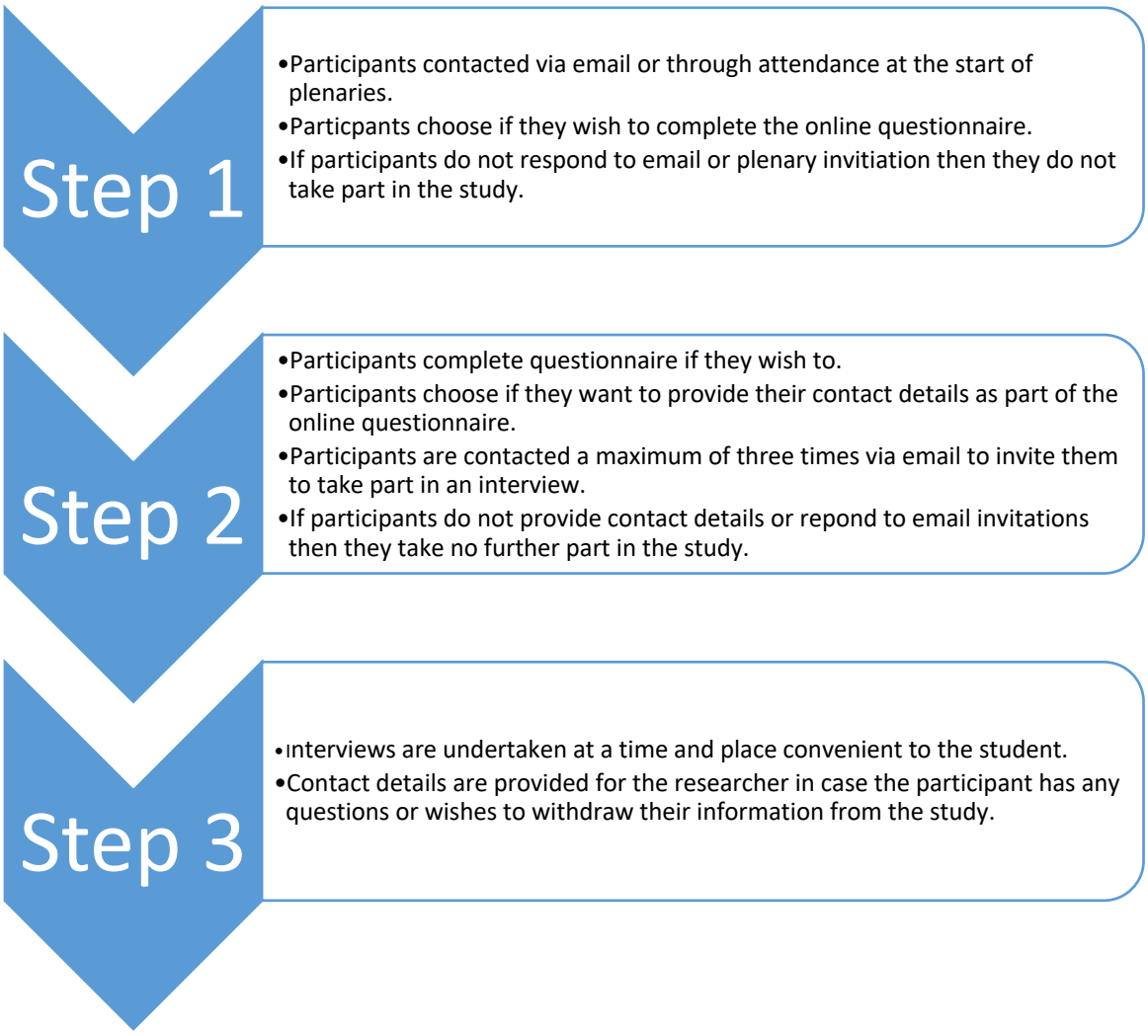


Figure One: Recruitment Flowchart

The recruitment process does not aim to achieve a representative sample size, instead the aim is to understand some of the experiences of students who have undergone remediation in order to develop a conceptual model for further testing.

Questionnaire Design:

The questionnaire will contain questions which are mostly qualitative in nature, asking people to answer questions using written prose. Some of the questions will relate to demographic details such as age, gender and ethnicity (which is known to be important in differential attainment at medical school(183)). Other questions will be a scale of one to seven (as part of a validated scale on professional identity, previously used with medical students (161)) with participants asked questions and requested to indicate on the scale the degree to which they agree or disagree. The questionnaire will take approximately 20 minutes to complete, including five minutes for consent to be obtained at the start of the questionnaire. Participants will be asked to provide their postcode as a means of estimating socio-economic class using the POLAR classification, which is widely used in higher education(184).

At the end of the questionnaire, participants will be asked if they would like to take part in a semi-structured interview to talk about their experiences of remediation with a researcher. Participants will be provided with written information about the interviews online. If they decide that they would like to participate they will be asked to complete their name and email address so that the research team can contact them. This information will be kept confidential at all times. It is hoped that at least 50 responses will be obtained.

Analysis of the questionnaires will involve simple descriptive statistics of any numerical values. A linear regression analysis will also be performed using the responses to the professional identity formation scale. Subsequently, a simple thematic analysis of free text comments will then occur. Results of the questionnaires will be used to further inform the design of the interview protocol.

A draft copy of the questionnaire is included with this application. There may be some minor alterations made to this questionnaire following a period of piloting, which will be undertaken following ethical approval. Piloting will be undertaken with a mixture of medical and non-medical respondents to ensure that the online questionnaire works as intended.

Interview Design:

For those who wish to take part, interviews will take place at a time and location convenient to participants, but will occur on a medical school site, either part of the University of Plymouth for Plymouth Medical Students or the University of Exeter for Exeter Medical Students. Interviews will last a maximum of one hour, including five minutes at the start for written informed consent and 5 minutes at the end of the interview for a debrief. Interviews will be recorded and then transcribed verbatim (excluding the debrief at the end of the interview). Following a six week 'cooling off period' transcripts will be anonymised and all participants will be assigned a unique reference from which it will not be possible to re-identify them.

It is hoped that a minimum of 20 interviews can be completed. Interviews will only be performed face to face in view of the sensitive nature of the topic of the remediation. This should allow the researcher to detect any distress early and offer the opportunity to stop the interview. Such cues may be less obvious if the interviews were undertaken remotely.

Prior to the interviews taking place, the researcher will review the responses given by the participant in their questionnaire. The ability to link the answers provided to the initial questionnaire with the subsequent interview has a number of advantages, including the ability to explore in more detail any issues raised in the questionnaire. The provision of demographic data in the questionnaires also allows for a greater understanding of the spread of data that is being obtained, as whilst the aim of the study is not to achieve a representative sample, it will be important to understand any student populations that have not been covered by the interviews.

Interviews will be carried out in keeping with the attached lone worker policy to provide assurances of safety for the researcher and participants. Interviews will be recorded on a secure device and all information kept in accordance with the data protection act, including secure storage of all recordings and transcriptions accessible only to the research team in a locked room, use of an encrypted University computer and retention of identifiable and non-identifiable data for the

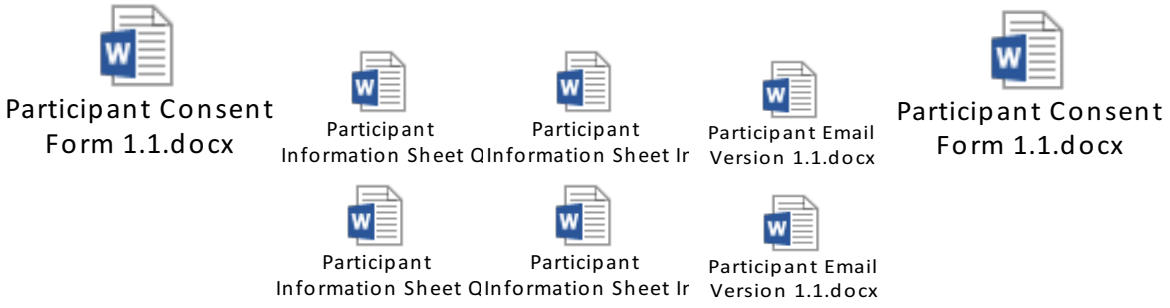
minimum period of time, in keeping with the University data protection and storage guidance.

Following transcription of the interviews, a discourse analysis of the transcripts will occur. The research project relies on a discursive methodology that values the version of reality that an individual communicates through verbal communication and their narrative of the events that have happened to them. A discursive analysis considers not just what people say, but how they say it and the importance that they give to the various things that they say.

This form of analysis aims to gain a more in-depth understanding of the experiences that individuals have had, and does not take everything that they say at face value. This methodology has been widely employed in previous similar studies with good results. The aim is to generate both micro and macro discursive frameworks (185).

At the end of the process and summary of the findings of the research process will be made available to participants through both a website link and emailed copies (at the request of participants).

6. Where you are providing information sheets for participants please INSERT a copy here. The information should usually include, in lay language, the nature and purpose of the research and participants right to withdraw:



Please also find below copies of the draft questionnaire and interview protocol:


Questionnaire v1.2.docx


Interview Protocol V1.2.docx


Questionnaire v1.2.docx


Interview Protocol V1.2.docx

Ethical Protocol:

Please indicate how you will ensure this research conforms with each clause of Plymouth University's *Principles for Research Involving Human Participants.* Please attach a statement which addresses each of the ethical principles set out below. Please note: you may provide the degree of detail required. Each section will expand to accommodate this information.

(a) **Informed consent:**

i. How will informed consent be gained?

In seeking to survey and interview individuals who have experienced failure and subsequent remediation, this study is aiming to study a group of individuals who have been through a potentially difficult process. Some of these people may have found this experience emotionally straining and stressful. Therefore, this study design ensures that individuals who consent to take part in this project do so with full informed consent, knowledge that they are able to withdraw from the study at any time without any detriment to themselves and access to support services which can provide assistance. These services include local Occupational Health and Wellbeing services, student counselling services and signposting to further support such as through NHS General Practice and The Samaritans. Medical students also have access to pastoral support through their tutors should this be required. Participants will be asked to reflect on their own emotional responses to the failure that they have previously experienced and the remediation that they have subsequently taken part in. Therefore, before starting this process, participants will be asked to consider if taking part in the study may cause them distress, and if this is the case they will be encouraged not to consent to take part in this study.

All consent will be obtained after participants have had the opportunity to read written information and had the opportunity to speak to the researcher either

verbally or using electronic communication (at the preference of the participant). All consent will be recorded and retained in line with University best practice for research.

Participants will be consented for the use of anonymised direct quotes from their questionnaires or interviews in the researcher's thesis, conference presentations and publications.

ii. Are there any issues [e.g. children/minors, learning disability, mental health] that may affect participants' capacity to consent? If so how will these be resolved?

There are no anticipated issues relating to an individual's capacity to consent to take part in this research project.

Will research be carried out over the internet? If so please explain how consent will be obtained

One part of the research project will involve the completion of an online questionnaire. This will be undertaken using a widely used research programme (Survey Monkey) with which the project supervisors have extensive expertise. The first page of the questionnaire will be a consent page. This will explain to participants the details of study and that by continuing with the questionnaire they are indicating their consent. Those who do not consent will be asked to close the website page.

Contact details for participants who wish to take part in the semi-structured interviews will be obtained through the questionnaire process. These contact details will be stored confidentially and allow the researcher to explore key areas raised in the questionnaire during the interviews with individual participants. These details will be kept securely and confidentially at all times.

(b) **Openness and honesty:**

i. How will you ensure that participants are able to have any queries they have answered in an open and honest way?

Contact details for both the researcher and the supervisory team will be provided to all participants at the start of the study, before they decide if they wish to participate in the study. Participants will also be reminded of these contact details at the end of the questionnaire and again if they choose to take part in an interview.

Contact details will include an email address and telephone number for both the PhD student and the Director of Studies,

ii. Is deception being used? If so, please indicate which of the following is relevant to its use

There is no use of deception in this project.

Deception is completely unavoidable if the purpose of the research is to be met	☐
The research objective has strong scientific merit	☐
Any potential harm arising from the proposed deception can be effectively neutralised or reversed by the proposed debriefing procedures	☐

iii. (If deception is being used) please describe here why it is necessary for your research

(c) **Right to withdraw:**

i. Please indicate here how you will enable participants to withdraw from the study if they so wish [where this is not research carried out over the internet]

Participants will have their right to withdraw explained to them at the start of the questionnaire process and at the start and end of the interviews. Should participants wish to withdraw before the completion of the online questionnaire they can simply close the web page and no information will be sent to the researcher.

Participants who wish to withdraw from the interview process may do so at any stage during the interview being conducted and the recording will be destroyed. Participants will also be provided with the opportunity to withdraw up to six weeks after their involvement in the study. As part of this process they will be provided with a transcript which they can request factual edits are made to.

It will be explained to applicants that once their data has been anonymised (once their questionnaire has been submitted electronically or once their interviews have been transcribed and the six week period has elapsed) that it will no longer be possible to withdraw their data from the study. This is because the researcher will no longer know which data relates to an individual participant.

ii. Is the research carried out over the internet? If so please explain how you will enable participants' withdrawal.

No information will be collected from participants until they have submitted their answers at the end of the questionnaire. At this stage, due to the anonymised submission of information, it will not be possible for participants to withdraw their information from the study. Participants will be fully informed of this before consenting to take part in the project.

(d) **Protection from harm:**

Indicate here any vulnerability which may be present because:

- *of the participants (they may <u>for example</u> be children or have mental health issues)*
- *of the nature of the research process. Indicate how you shall ensure their protection from harm.*

The discussion of failure and subsequent remediation with participants may involve participants being asked to explain events that they found difficult, embarrassing or emotionally stressful. In view of this, participants will be free to withdraw from the study at any time, up to a maximum of six weeks after their involvement in the study. They will also be provided with details of support organisations which can help, including Occupational Health and Well-being services and support through pastoral tutors and the student counselling service.

It is possible that individuals who have experienced remediation may disclose information which suggests a risk to patients, the individuals themselves or others. In this case, the researcher would have a responsibility to break confidentiality in order to ensure safety. In this event, the researcher would discuss the issue with their Supervisor immediately and an agreed action plan created. Participants will be consented for the fact that disclosures that present the potential for harm will necessitate breaking confidentiality. Should this be required, participants will be informed of consent being broken before it occurs.

Depending on the nature of the disclosure, information may be passed to the medical school.

Please note *- researchers contacting children as an aspect of their research must be subject to DBS/CRB checks. These can be arranged through Human Resources.*

Does this research involve:

Vulnerable groups	☐
Sensitive topics	☒
Permission of a gatekeeper for initial access	☐
Deception or research which is conducted without full and informed consent	☐
Research that will induce psychological stress, anxiety or humiliation or cause minimal pain	☐
Intrusive intervention (e.g., the administration of drugs, vigorous physical exercise or hypnotherapy)	☐

Will your samples include **students whose coursework will be assessed by the researcher(s**) (for example you are recruiting students for your study which includes some that will be assessed by you as part of their degree/diploma)?

Yes ☐

No ☒

If **Yes,** please answer the following

(1) Student participation in research for pedagogic purpose

Where recruitment of the research sample involves participants who are being academically assessed by the researcher but whose participation forms part of the overall assessment for their degree/diploma

(i) does participation in the research form part of the students' own assessment as part of their degree/diploma (e.g. psychology students who can opt to participate in a research project as part of their assessment for their degree)?

(ii) If this is the case please describe how assessment follows from this research and alternative arrangements available for those who decide not to participate

(2) Student participation in research for non-pedagogic purposes

Where recruitment of the research sample involves participants who are being academically assessed by the researcher but whose participation <u>does</u> <u>not</u> form part of their assessment for their degree/diploma

*Please state where and how you will ensure students understand that their participation is entirely voluntary and that they can participate or withdraw at any time without prejudice to their relationship with the University or any staff, and without prejudice to their assessment of academic performance***.**

(e) **Debriefing:**

Describe how you will debrief participants

Participants will be invited at the end of the interviews to undertake a period of debriefing, which will not be recorded. At this stage they can discuss their concerns

and they are free to request at this stage that their interview is not used in the research project and is destroyed.

Students will also be provided with the contact details of the researcher and their supervisor, in addition to the details of support services, including student counselling and wellbeing services.

(f) **Confidentiality:**

How will you ensure confidentiality and security of information?

All data will be handled in accordance with the Data Protection Act. Submitted personal data through the online questionnaire will be stored on a secure university server with access only to the research team. This information will be destroyed as soon as interviews are complete or at the request of the individual the data relates to (in the case of contact details).

All other information, including survey responses and interview transcripts will be anonymised and participants given an anonymous individual identifier, from which it will not be possible to identify them. Transcripts will be kept in a locked filing cabinet in a locked room at the University. Electronic copies will be stored on an encrypted University laptop.

Interviews will be undertaken in a private environment where there is no risk of being overheard by others.

(g) **Anonymity**

How will you ensure anonymity of participants?

The online questionnaire software ensures that when participants submit their data that their responses are anonymised and assigned a unique identifier which cannot be used subsequently to identify them. The questionnaire will ask students if they are happy to provide their contact details for further information about taking part in an interview with the researcher. Contact details will be destroyed at the end of the

study, or earlier if the participants request. Contact details to request this will be provided both electronically to all participants and in paper form at their request.

The interviews will be recorded on secure recording devices. These recordings will be uploaded to an encrypted University computer in a locked office and the original recording destroyed. Following uploading the recording it will be transcribed by the researcher or approved University transcription service. The written transcripts will be anonymised and each participant assigned a unique identifier which cannot be subsequently used to identify them, following the six week withdrawal period provided to participants in case they change their minds. Once the transcripts have been produced and the six week period elapsed, the original recordings will be destroyed, leaving only the anonymised transcripts.

(h) **DBS/CRB Checks**

Do researchers require DBS/CRB checks? If so, how will this be managed?

DBS checks are already held by the PhD student as part of their employment with Plymouth Hospitals NHS Trust as a registrar in elderly care medicine.

(**i**) **Professional bodies whose ethical policies apply to this research:**

N/A – no other ethical policies apply to this research.

(j) **Participant Contact – Queries, Concerns or Complaints**

The following will normally be provided on an Information Sheet for Participants.

Please note that all participants should be given a named person to whom they can address any queries concerns or complaints (in the first instance) or whom they can inform of their intent to take up their right to withdraw. This will be a member of the research team, normally the Director/Principle Researcher in the project.

Please note also that participants should also be informed of a contact to whom a complaint about the conduct of the research may in the first instance be directed as it relates to them. This will normally be the Research Administrator to the Faculty Research Ethics Committee.

Please Confirm the following:

I/we have provision to furnish participants with a named individual to whom they can address any queries concerns or complaints (in the first instance) or whom they can inform of their intent to take up their right to withdraw ☒

I/we have provision to furnish participants with a contact to whom a complaint about the conduct of the research may be directed ☒

8 Researchers' Safety

(a) **Are there any special considerations in relation to researchers' safety?**

Interviews are planned to be undertaken on a one to one basis between the researcher and medical student participants. A lone worker policy has therefore been developed and is attached to this ethical submission.

(b) **If so what provision has been made *(for example the provision of a mobile phone, or a clear recording of movements)***

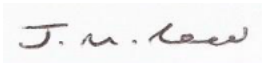
The researcher will ensure that the supervisory team are provided with a full interview schedule and the mobile telephone number of the researcher. There will be a clear expectation that at the start and end of the interviews that the researcher 'checks-in' with the Director of Studies so that they are aware of the movements and safety of the researcher.


Lone Working Policy Version 1.doc


Lone Working Policy Version 1.doc

9. Declaration:

To the best of our knowledge and belief, this research conforms to the ethical principles laid down by Plymouth University and by the professional body specified in 6 (g).

Principal Investigator: Signature 

Date 27/6/17

Other staff investigators: Signature(s) Date

Director of Studies (only where Principal Investigator is a postgraduate student): Signature  Date 29/06/17

Appendix Two: Ethical Approval

25th August 2017

CONFIDENTIAL

Dr James Read
C506 Portland Square
Plymouth University,
Peninsula Schools of Medicine & Dentistry,
Drake Circus
Plymouth
PL4 8AA

Dear Jamie,

Application for Approval by Faculty Research Ethics Committee

Reference Number: **16/17-792**
Application Title: **Professional identity formation after remediation: the implications for professional development and clinical practice in medical students.**

I am pleased to inform you that the Committee has granted approval to you to conduct this research.

Please note that this approval is for the duration of the research as listed on the application form (i.e. 31st October 2019), after which you will be required to seek extension of existing approval.

Please note that should any MAJOR changes to your research design occur which effect the ethics of procedures involved you must inform the Committee. Please contact Sarah Jones (email hhsethics@plymouth.ac.uk).

Yours sincerely

Professor Paul H Artes, PhD MCOptom
Professor of Eye and Vision Sciences
Co-Chair, Research Ethics Committee -
Faculty of Health & Human Sciences and
Peninsula Schools of Medicine & Dentistry

Appendix Three – Systematic Review Search Strategy

Systematic reviews aim to answer a specific question. The SPICE framework (Table 2) has been used to break down the research question and generate a search strategy.

Table 2: SPICE framework for this review:

Setting: Medical education learning environments internationally
Perspective: Students, doctors, teachers, administrators, employers, patients
Intervention: Identity construction, formation, evolution and disruption
Comparison: not applicable
Evaluation: All forms (including experience, perception, view, reflection, change)

Figure 5: SPICE framework for systematic review.

A combination of key words and related synonyms based on the formulated SPICE question devised to maximize sensitivity and specificity (please see table 2) was used to explore the topic, along with a review of the grey literature and backwards and forwards reference searching. Each term listed under the respective SPICE heading was entered into the database and truncated where appropriate. All individual searches were combined using the "OR" Boolean operator to form a single group. Each SPICE heading was then combined using the "AND" function to provide a final list of citations. Each database was searched by the author (JR) in consultation with two reviewers. As advised by an information specialist, the following databases were searched: MEDLINE (EBSCO), PubMed, PsycINFO, EMBASE (Ovid), CINAHL, British Education Index, ERIC and Cochrane Library.

Duplicate studies were removed using EndNote and double checked by a research team member. Only peer-reviewed journal articles were searched.

Web searching

Grey literature was also searched to ensure sufficient coverage. For the purpose of this review, grey literature was defined as 'that which is produced on all levels of government, academics, business and industry in print and electronic formats, but which is not controlled by commercial publishers" and includes websites, reports,

theses, conference proceedings, and technical specifications and standards. Conference abstracts were included within this search as this is an evolving area of medical education and therefore important information may not yet be in press.

Setting: "Medical education" OR "hospital" OR "medical school" OR "primary care" OR "secondary care" OR "general practice" OR "university"

AND

Perspective: "medical student" OR "learner" OR "doctor" OR "resident" OR "attending" OR "teacher" OR "educator" OR "administrator" OR "professional" OR "trainee" OR "consultant" OR "registrar" OR "senior house officer" or "house officer" OR "foundation doctor" OR "physician" OR "surgeon" OR "patient"

AND

Intervention: "identity construction" OR "identity formation" OR "identity development" OR "identity disruption" OR "identity change"

AND

Evaluation: "change" OR "develop*" OR "impact" OR "reflect" OR "learn" OR "construct*" OR "form*"

Figure 6: Search strategy for systematic review.

NB. Identity has been used as opposed to professional identity as scoping searches demonstrated that abstracts of papers referring to professional identity sometimes use just identity within the abstract. There were therefore relevant papers excluded and the numbers of papers was small. Therefore, this was to ensure that appropriate papers were not excluded.

Inclusion criteria:

The review process used three reviewers, one PhD student (JR) and two collaborators. Articles were distributed across the two reviewers so that the PhD student reviewed each citation and the two supervisors independently reviewed 15% of the total citations at each stage. All potential articles underwent a two stage screening process:

Stage 1: all citations were screened on their title and abstract. Reviewers met to discuss results. Where decisions could not be made from the title and abstract alone (four articles), the article was retrieved in full. The inclusion criteria form was applied to all titles and abstracts to ensure standardisation of inclusion/exclusion.

Stage 2: Full texts of each included article from stage 1 were obtained. Each study was read in full and assessed for review inclusion by two reviewers. Any discrepancies that could not be resolved were sent to a third reviewer for a decision (one paper).

Studies that meet the following inclusion criteria were retained:

- Date: 1996-2023. Chosen as the majority of relevant published information has been within the last 30 years based on those papers retrieved on scoping and papers from earlier than this stage are likely to be of limited use due to the developments in society (with which professional identity is closely linked).
- Language: English only. Given the limited resources of the project we were not able to ensure translations of non-English language texts would be accurate enough to allow for effective analysis. Studies published in languages other than English were therefore excluded.
- Study type: all study types were included provided they were peer reviewed.
- Setting: all medical education learning environments.
- Participants: medical students and doctors at all stages of postgraduate practice (including continuing professional development).

Inclusion criteria form:

1. Is the study a peer reviewed journal article?

   Yes (proceed) No (reject)

2. Is the study published between 1996 and 2016?
   Yes (proceed) No (reject)

3. Is the study available in English?
   Yes (proceed) No (reject)

4. Does the study discuss factors impacting on professional identity in doctors or medical students?
   Yes (proceed) No (reject)

5. Is the study just on personal identity or social identity construction / formation with no reference to professional identity?
   Yes (reject) No (proceed)

To develop a manageable focus, studies: not in English; published outside the date parameters set; or discussing social identity or personal identity without reference to professional identity were excluded. Studies relating to other professions were excluded as this is outside the scope of this review.

Data extraction:

Following decisions on inclusion and exclusion the papers were uploaded into NVIVO. A narrative thematic review was then undertaken with codes revised over five rounds of coding to develop the over-arching themes that are presented in this paper.

Appendix Four: Systematic Review Data Extraction Table:

Author, Year and Location	Article Title	Study Design	Study Outcome	Critical Appraisal	CASP Score (0-10)
Richard L Cruess, Sylvia R Cruess, Donald Boudreau, Linda Snell, Yvonne Steinert, 2015, USA	A schematic representation of the professional identity formation and socialization of medical students and residents: a guide for medical educators	Review article	This paper is designed to review the current literature relating to professional identity formation across the continuum of medical education practice. It examines what has already been written about identity formation and how this relates to existing psychological and sociological models of professional identity. The authors use this literature to develop a schematic representation of identity formation in order to explain the different factors that influence this process.	The review does not provide details of a systematic method of searching and relies greatly on author experiences and literature interpretations. However, this paper does add significant new knowledge to the area of medical education.	N/A
J Donald Boudreau, Mary Ellen Macdonald and Yvonne Steinert, 2014, Canada	Affirming professional identities through an apprenticeship: insights from a four-year longitudinal case study	Longitudinal qualitative case study utilising multiple methods of data collection	This paper examined the role that mentoring and apprenticeship models play in the formation of professional identity. They studied several medical students in a single medical school and examined the role that peer support groups run by established doctors (but still quite close to graduation) played in identity formation.	The research methods are novel and add significantly to the existing literature, utilising and developing existing conceptual models. However, there were a small number of participants in one institution and so the transferability of results is questionable.	8

			They concluded that role modelling and socialization is key and that this encouraged a professional identity to become so intertwined with personal identity that the two became virtually inseparable. This was closely linked with an increase in patient contact.		
Frederick W Hafferty, Varret Michaelec, Maria Athina Martimianakis, Jon C Tilbury, 2016, USA	Alternative framings, countervailing visions: locating the 'P' in professional identity formation	Review article	This is an opinion piece based on work over several distinguished careers. The paper argues that there are parallels between PIF in medicine and the military but that there are important differences in the end points. The paper also raises an interesting concept that the role of the professional in medicine is often to disrupt the organisations that made them into professionals in the first place e.g. advocating on behalf of patients, undertaking new research to disrupt the status quo etc.	Opinion piece drawing on a wide variety of literature. Interesting concepts considered, especially those relating to other professions but no clear method presented about the literature that was reviewed.	N/A
Richard L Cruess, Sylvia R Cruess and Yvonne Steinert, 2016, USA	Amending Miller's Pyramid to Include Professional Identity Formation	Review article	This is the last of three papers published by Cruess' which examined the role that professional identity plays in modern medical	The paper provides a useful update to Miller's pyramid and continues to argue the need for curricula that focus on PIF. However,	N/A

			education. This paper recommends an update to Miller's pyramid to emphasise the importance of PIF and discusses some of the existing methods of measuring PIF both within and outside of medicine. It comments that we remain tied to measuring behaviours rather than identity in many cases due to difficulties in what can actually be assessed,	there remains the issue of a lack of empirical research and heavy reliance on opinion.	
John Goldie, 2013, UK	Assessment of professionalism: a consolidation of current thinking	Review article	The paper examines the assessment of professionalism more than professional identity. Therefore it examines more 'does' than 'is'. It does, however, importantly emphasise the importance of context in making assessments and designing curricula which are involved in professionalism and professional identity formation.	The paper reviews some of the existing literature and aims to be accessible for practising medical educators.	N/A
Michael J Green, 2015, USA	Comics and medicine: peering into the process of professional identity formation	Qualitative primary research utilising thematic review of comics produced by students	This paper presents a novel way of encouraging students to reflect on their experiences and how this has changed their professional identity. The overall theme is one of reflective practice assisting students in forming their	Whilst the paper presents a novel and interesting approach to understanding PIF, the methodology contains a number of flaws. Firstly, the author interprets the drawings of others without speaking to the artists, placing	6

			identities, especially when examining critical events. It is especially useful for those students who struggle to put complex events or those which are distressing into words but can communicate them more easily through pictures instead.	their own interpretation at the centre of the study. Secondly, the numbers are small and the review only retrospective.	
David Sklar, Betty Chang, Benjamin Hoffman, 2011, USA	Commentary: experience with resident unions at one institution and implications for the future of practising clinicians	Reflective commentary	This paper was a reflective piece from the authors, considering their experiences with residents who had formed a Union to promote improved working conditions. The authors considered that they were concerned that unionisation would develop professional identities that were not for the benefit of patients or colleagues but that actually this did not translate into practice.	Small-scale opinion piece, no formal data collection or analysis. No follow up or discussion with residents.	N/A
Julie Apker, Susan Eggly, 2004, USA	Communicating professional identity in medical socialization: considering the ideological discourse of the morning report	Qualitative discourse analysis of transcripts of educational meetings	This paper examined the role of the morning report, a purely discourse based presentation of patients overseen by more senior doctors. It examined the interaction between less and more senior doctors and concluded that from these interactions the more senior doctors greatly shaped the	This is a really interesting paper. The authors are transparent about the role they play and why they chose the research design and methodology, which seems appropriate for this complex meeting.	10

			experience of the less senior doctors.		
Sandra Jarvis-Selinger, Daniel Pratt, Gelnn Regehr, 2012, Canada	Competency is not enough: integrating identity formation into medical education discourse	Review article	In this paper the authors consider how a competency based approach to medical education has divided the training of doctors into smaller units, perhaps at the expense of the bigger picture. They refer to some of the literature about PIF in doctors to argue that a broader approach to considering PIF is required in order to move the focus from acting like to a doctor to becoming a doctor.	This is an interesting review of medical education in the USA and the struggles that arise from the desire to promote a competency based medical education. However, there is no methodology presented for the literature review or rationale for those conflicting papers that are not included.	N/A
Jill Konkin, Carol Suddards, 2011, Canada	Creating stories to live by: caring and professional identity formation in a longitudinal integrated clerkship.	Qualitative longitudinal study with medical students involving interviews	This study examines how the use of longitudinal placements with continuity of patient care can encourage students to develop a patient centred professional identity, based around an 'ethic of caring'. It explores the emotional impacts of getting to know patients on medical students and how the longer term relationships that are produced allow for students to understand and empathise with their patients to a greater degree.	This paper provides a new approach to understanding PIF. It uses a methodologically rigorous approach to tackle this question but doesn't always consider how the faculty members themselves could influence the results.	8
Jennifer Barr, Rosalind Bull, Kim	Developing a patient focussed professional	Qualitative study of semi-structured	This paper emphasises the importance of early	The paper reviews a significant amount of the literature, but not	9

Rooney, 2014, Australia	identity: an exploratory investigation of medical students' encounters with patient partnership learning	interviews and focus groups with medical students.	and continued patient contact as a method of forming a professional identity following qualitative interviews and focus groups with students. Not only this, but it advocates this method to ensure that this professional identity is patient centred, introducing the idea that there are different forms of professional identity. The paper also discusses that early patient contact helps to satisfy the demands of society and their expectations from doctors, and manages the increasing burden of chronic disease.	in a systematic way. The educational intervention, by the authors own admissions, may not lend itself to generalizable and transferrable results which may limit the usefulness of the study.	
Jason M Satterfield, Caroline Becerra, 2010, USA	Developmental challenges, stressors and coping strategies in medical residents: a qualitative analysis of support groups	Mixed methods study with themes identified from attendance at support groups and questionnaires analysed regarding stress and burnout	The paper discusses how stresses change with time and progression through medical training and as doctors develop a professional identity. Progressing from stress about critical events through to stress about knowledge. These emotions were considered important parts of identity formation and development but considered that appropriate support, especially from peers, was vital to	The paper utilises predominantly qualitative research design and questions but utilises a quantitative analysis at times. Data collection from the support groups was mostly thematic.	5 (but actually a mixed methods paper)

			appropriately support students.		
Annika Lindh Falk, Mats Hammar and Sofia Nystrom, 2015, Sweden	Does gender matter? Differences between students at an inter-professional training ward	Questionnaire with mixed methods	The paper discusses how there are differences in the professionalism and professional identity formation between male and female medical students working on a inter-professional learning ward. Male students tend to work less inter-professionally because they construct their identity related to a traditionally male dominated medical workforce. Female students tend to construct their identities related to other professions and team working, thereby leading to materially different professional identities. Medical students were less positive than their allied health professional peers about inter-professional learning.	Questionnaire response rates were very good. There was only limited information and depth to the analysis of the reasons for the outcomes that were measured.	7 (but actually a mixed methods paper)
Joseph M Kaczmarczyk, Alice Chuang, Lorraine Dugoff et al, 2013, USA	e-Professionalism: A new frontier in medical education	Non-systematic literature review	This paper examined the literature as was current at the time examining the use of social media by medical students and junior doctors. It discusses the concept of developing an online professional identity and that often people	Searches were not carried out in a systematic way, but a reasonable breadth and depth of literature was discovered	N/A

			forget the accessibility of social media means that things they do as part of their personal lives then reflect badly on them professionally. The paper advocates greater understanding and training for all doctors and medical students about the need to develop an e-identity that is in keeping with the professional identity.		
Brudget O'Brien and David Irby, 2013, USA	Enacting the Carnegie Foundation Call for Reform of Medical School and Residency	Opinion piece regarding the Carnegie Report	This paper discussed the changes that were suggested to US medical education and training in the Carnegie report. One of the four recommendations was to consider the role that PIF has in training medical students and doctors. The paper therefore reviews some of the literature in a non-systematic way.	The literature review is not systematic. David Irby was one of the contributors to the Carnegie report and therefore there may be a perceived conflict here.	N/A
Ester Helmich, Sanneke Bolhuis, Tim Dornan, Roland Laan and Raymond Koopmans, 2012, Netherlands	Entering medical practice for the very first time: emotional talk, meaning and identity development	Qualitative interview based study	A narrative approach to research can help us to understand what students experience as part of their professional identity formation. The paper proposes that there are four steps to this journey and that students progress through these at variable rates, depending on their experiences and	The sampling approach is unusual – 17 transcripts were received but only 9 fully analysed (those that the authors felt best exemplified the desired outcomes). This raises some questions about research bias.	6

			the social and professional networks that they are a part of.		
Cythnia Stull, Christine Blue, 2016, USA	Examining the influence of professional identity formation on the attitudes of students towards inter-professional collaboration	Qualitative research	This paper used Keegan's stages of professional identity development to explain how students react to IPE. It explained that students at the first stage of IPE often do not appreciate the role as they are so anxious about understanding their own role rather than others. However, this therefore might be the right time to undertake such courses before these identities become too fixed to encourage early understanding of the benefits of IPE. Those students with a more developed professional identity appeared to value IPE more.	The study utilised previously validated questionnaires, with a good explanation of the research underlying these tools. Incomplete questionnaires were excluded, but could have shed some useful information.	9
Hunkar Korkmaz and Yesim Y Senol, 2013, Turkey	Exploring first grade medical students' professional identity using metaphors: implications for medical curricula	Qualitative study using written reflections from students	Metaphors can be a useful tool for helping students explain their developing identities in the early stages and it can be used to flag those students struggling to form an appropriate identity.	Small scale study, a significant degree of author interpretation into metaphors and some data excluded for unclear reasons.	2
Walter Hendelman and Anna Byszewski, 2014, Canada	Formation of medical student professional identity: categorising lapses of professionalism and the learning environment	Qualitative study using surveys	This questionnaire based, qualitative study, aimed to understand from medical students what had influenced their professional development,	The questionnaires asked students to report examples of exemplary professional conduct and those that they felt were unacceptable. As	6

			particularly focussing on times when they had witnessed unprofessional behaviour and how this had impacted upon them. The top three causes of unprofessional behaviour were arrogance, impairment and cultural or religious sensitivity.	students were being asked to comment on more senior doctors there may have been a reluctance to do so – leading to under-reporting. There was relatively little examining how exactly witnessing these lapses impacts on PIF.	
Catherine Gonsalves, Zareen Zaidi, 2016, USA	Hands in medicine: understanding the impact of competency-based education on the formation of medical students' identities in the United States	Qualitative study examining student narratives explored through ceramic hands	This was a novel approach to asking students to consider how their experiences of a competency-based medical education had impacted on the PIF. It utilised different ceramic models of hands to try and encourage discussion. There were three themes that emerged.	The project was very abstract and author interpretations formed a significant part of the study, making significant assumptions about what students meant.	7
Heather D Frost, Glenn Regehr, 2013, Canada	"I AM a doctor": Negotiating the discourses of standardization and diversity in professional identity construction	Critical review of the literature	This review of the literature argues that there are two conflicting discourses relating to professional identity formation in medical students. On the one hand, they are encouraged to conform and form identities that are the same as those already in their profession. On the other, diversity is increasingly encouraged. This therefore creates tension between	The paper considers only those publications that the authors considered 'seminal' and does not search in a systematic way.	N/A

			identities and promotes the formation of three different types of identity: one that conforms, one that promotes diversity over conforming and one which is a hybrid of the two.		
Palav Babaria, Sakena Abedin, David Berg, Macella Nunez-Smith, 2012, USA	"I'm too used to it": A longitudinal qualitative study of third year female medical students' experiences of gendered encounters in medical education	Qualitative study involving interviews with six female medical students at multiple times over a 12 month period	This study sheds important information on the gender differences in medical education and training, particularly focussing on the issues surrounding gender discrimination through the use of semi-structured interviews, based around frameworks of student-patient and student-supervisor relationships.	The study involves only a small number of students and is both location and institution specific. However, it does shed important light on the ways that students deal with perceived discrimination and how this impacts their identity formation.	9
LV Monrouxe, 2010, UK	Identity, identification and medical education: why should we care?	Literature review and development of conceptual models	Non-systematic review of the literature and development of key themes and questions for medical educators to consider	Non-systematic review of the literature	N/A
Vicki Langendyk, Iman Hegazi, Leanne Cowin, Maree Johnson, Ian Wilson, 2015, International	Imagining alternative professional identities: reconfiguring professional boundaries between nursing students and medical students	Review of the literature	This paper examines the literature relating to how educators can promote appropriate professional identities through medical students and nursing students working together.	Non-systematic review of the literature	N/A
Leslie Hoffman, Ronald Shew, Robert Vu, James Brokaw, Richard Frankel, 2016, USA	Is reflective ability associated with professionalism lapses during medical school?	Retrospective case-control study utilising qualitative methodology	This paper retrospectively reviewed eight years of graduating medical students from a single US based	Scores of reflective ability were developed using a validated rubric but still relied on subjectivity of the	10

			medical school. From this group, 70 students were identified who were flagged as demonstrating lapses in their professionalism during the course of medical school. The reflective entries of these students were compared with those of students who had not been flagged as having lapses in professionalism. The study concluded that those students cited for professionalism demonstrated significantly lower levels of reflective ability.	researchers. It is not clear from the paper if the researchers were blinded as to whether the reflections they were reading were from those who were cited for professionalism compared to those who were not. There was no discussion with students to further explore key themes and assumptions.	
P M Niemi, 1997, Finland	Medical students' professional identity: self-reflection during the preclinical years	Qualitative study of identity development utilising learning logs and identity status interviews.	The paper considered how the quality of reflection that was demonstrated by students was linked to the stage of professional identity development that they had achieved. The paper presented the idea of four stages that medical students progress through during their identity development and that there is a significant difference in the progress through these stages amongst student cohorts.	The paper presents key themes arrived at during the process of review of the learning logs and interviews, but the process used is somewhat unclear. However, in general this is an interesting and innovative paper.	10
Sally Warmington and Geoffrey	Medical students' stories of participation in	Qualitative, ethnographic approach	This paper examines the idea that students develop their	The study interviewed a small number of students	9

McColl, 2016, Australia	patient care related activities: the construction of relational identity		professional identities in relation to patients. This can lead to the development of identities in which patients are seen as adversaries and a 'them and us' approach to delivering patient care that students are particularly susceptible to when they have very poorly formed identities at the start of their clinical careers.	and faculty. 25% of students dropped out but there is little consideration as to why this might be. The results are not easily transferrable to other courses.	
Esther Helmich, Els Derksen, Mathieu Prevoo, Roland Laan, Sanneke Bolhuis and Raymond Koopmans, 2010, Netherlands	Medical students' professional identity development in an early nursing attachment	Mixed methods study which used questionnaires and focus groups with a mixture of quantitative and qualitative approaches.	This paper involved questionnaires with medical students before and after a four week nursing attachment as part of their medical degrees. There were subsequent focus groups performed with students. Data were analysed quantitatively and qualitatively. The study suggested that students categorised doctors differently to other health professionals, developing conflicting views of doctors throughout their experiences, with altruism clashing with arrogance and poor communication skills.	The study uses mixed methods but uses a quantitative approach to analyse predominantly qualitative data – raising concerns about the data interpretation.	5
Andre Vagan, 2009, Norway	Medical students' perceptions of identity in communication skills training: a qualitative study	Qualitative study	This study used focus groups to explore with students how their experiences of communication skills teaching in their first	The study relied greatly on the author's interpretations of what students expressed and what	8

			year helped to shape their identities. The study used focus groups with ten students repeated over the course of the year with interviews transcribed and analysed. The study considered that whilst communication skills training can help to form identities, poorly formed identities can detract from the learning process and create confusion in students and their patients.	students thought of their identities. These identities were often poorly shaped and therefore students were limited in their ability to reflect on these issues. There was no feedback from patients on colleagues about identity.	
Michaell McLean, Patricia Johnson, Sally Sargeant, Patricia Green, 2015, Australia	More than just teaching procedural skills: How RN tutors perceive they contribute to medical students' professional identity development	Qualitative study of interviews with clinical tutors	This study involved interviews which were transcribed and coded with eight of the nine clinical tutors involved in the teaching of medical students. The research team coded the interviews together. The research reported that clinical tutors feel they play an important role in identity development by role-modelling good behaviours for students to copy.	The study was with small numbers and did not correlate what students felt with what the tutors reported.	7
Jean Clandinin, Marie Therese Cave, Andrew Cave, 2011, Canada	Narrative reflective practice in medical education for residents: composing shifting identities	Qualitative study of narratives from junior doctors – focussing on one doctor	The paper discusses that each professionalism framework is useful and valid but that the field of medical education is currently involved in multiple discourses which can cause confusion and different strategies to	The paper considers the discourse of only one doctor in detail which it uses to develop frameworks on.	5

			promote professionalism with different models of remediating professionalism lapses. The paper aims to help medical educators to identify these conflicts.		
David Irby and Stanley Hamstra, 2016, USA	Parting the clouds: three professionalism frameworks in medical education	Opinion piece	This paper, developed by two leading medical educationalists with an interest in PIF presents three frameworks that they consider could be used to consider professionalism. The latest of these frameworks considers the role of PIF in medical education and considers some of the methodological and literature basis for this approach.	This is a useful review of the different frameworks that are being used in medical education but is US focussed and based on the experiences of the authors primarily.	N/A
Mark Holden, Era Buck, John Luk, Frank Ambriz et al, 2015, USA	Professional identity formation: creating a longitudinal framework through TIME (Transformation in Medical Education)	Review article (non-systematic) and subsequent explanation about the inclusion of PIF in the medical school curriculum	This paper reviews the current literature relating to PIF in a non-systematic way. Usefully it also discusses how this can be put into practice and considers the ways that they have developed their curriculum around encouraging appropriate professional identities.	Very novel and one of only a few papers that have considered how PIF can actually be put into practice.	N/A
Mark Holden, Era Buck, Mark Clark, Karen Szauter, Julie Trumbler, 2012, USA	Professional identity formation in medical education: the convergence of multiple domains	Review article	This article reviews the current literature relating to PIF and considers overlaps with other	Useful review article which draws on a wide range of the literature but tries to	N/A

			professions, including the clergy. The article also considers three overlapping domains that they argue contribute to PIF: professionalism, psychosocial identity development and formation.	cover a great deal in a short article.	
Hedy Wald, David Anthony, Tom Hutchinson, Stephen Liben et al, 2015, USA and Canada	Professional identity formation in medical education for humanistic, resilient physicians: pedagogic strategies for bridging theory to practice	Commentary piece	The authors present three pedagogic innovations that they fell contribute to PIF in both undergraduate and graduate education. 1 -integrative reflective writing to promote emotional awareness and resiliency. 2 - synergistic teaching modules about mindful teaching modules and resilient responses to difficult interactions and 3 - strategies for effective use of an electronic portfolio.	Further review article which also touches on the overlapping idea of resilience and how this is related to PIF.	N/A
Lydia de Lasson, Eva Just, Nikolaj Stegeager and Bente Malling, 2016, Denmark	Professional identity formation in the transition from medical school to working life: a qualitative study of group-coaching courses for junior doctors	Qualitative study	Junior doctors who had recently graduated founded a period of group coaching useful in order to develop their identities through the ability to share experiences, receive feedback and use a narrative approach to their experiences to make sense of what had occurred and how they had responded to these situations.	The study interviewed a large number of students and used multiple different forms of data capture with a robust method of data analysis.	10

Ian Wilson, Leanne Conwin, Maree Johnson and Helen Young, 2013, Australia	Professional identity in medical students: pedagogical challenges to medical education	Literature review and commentary	This is another, older, review of the literature that discusses the role of socialization in the formation of professional identities and the challenges that PIF faces from different expectations from patients and other stakeholders.	The paper discusses the important role of socialisation but has now largely been super-seeded by more recent papers.	N/A
Hedy Wald, 2015, USA	Professional identity (trans)formation in medical education: reflection, relationship and resilience	Expert commentary	This paper considers the literature relating to PIF and relates this to some of the literature regarding concepts such as reflective practice and resilience.	The links made to resilience are useful.	N/A
Siun O'Flynn, Martina Kelly and Deirdre Bennett, 2014, Ireland	Professionalism and identity formation: students' journeys and emotions	Editorial	This is predominantly an editorial that seeks to explain two other recently published papers which consider PIF.	This paper adds little above what is already included in this review through the Cruess papers.	N/A
Anne Wong and Karen Trollope-Kumar, 2014, Canada	Reflections: an inquiry into medical students' professional identity formation	Retrospective review of student reflections	This research focussed on the reflections of early years medical students as they progressed through the course. Student reflections were read and coded with the following key themes: prior experiences, role-models, patient encounters, curriculum and societal expectations.	There was a significant predominance of female students, which may have impacted on the results.	9
Richard Cruess, Sylvia Cruess, Donald Boudreau, Linda Snell, Yyonne Steinert, 2014, Canada	Reframing medical education to support professional identity formation	Generation of new conceptual models	This paper looked at the role that simulated patients have in developing the identities of doctors in medical students. It is interesting that one of	This is a novel paper and one of a trio of papers written by the Cruess' on this topic.	N/A

			the key findings was that SPs felt that some people with well formed existing identities struggled to form new identities as a professional.		
Michelle McLean, Patricia Johnson, Sally Sargeant and Patricia Green, 2015, Australia	Simulated patients' perspectives of and perceived role in medical students' professional identity development	Qualitative review of interviews with simulated patients	Small scale study involving interviews with simulated patients who had direct contact with medical students. These simulated patients considered that those students with more formed previous identities were at a disadvantage. They felt that they had a significant role in helping students to form appropriate identities.	Only 14 participants and no interviews with students to consider other perspectives.	10
Eliza Miller, Dorene Balmer, Nellie Hermann and Gillian Garham, 2013, USA	Sounding narrative medicine: studying students' professional identity development at Columbia University College of Physicians and Surgeons	Focus group interviews with students	This study involved students undergoing training in narrative medicine, followed by focus groups to understand their experiences. Students expressed that there were three areas of narrative based medicine that helped them to form their identities: attention, representation and affiliation.	This study was very single institution based and the outcomes may be hard to transfer. There were also issues in the way that the focus groups were run and the data interpreted.	5
Alan Bleakley and John Bligh, 2006, UK	Students learning from patients: let's get real in medical education	Expert commentary with literature review	This paper explores the reasons for an increasingly patient centred approach to medical education and training and advocates that this should be more	The paper discusses several key areas of the literature and explores some of the conceptual frameworks. However, there is a clear aim and	N/A

			widely adopted by those who train medical students and doctors. It considers the value of early patient contact and the implications that this has on professional development.	agenda in the paper and the literature is not always presented in a balanced way. The literature review is not systematic.	
Joanna Sharpless, Nell Baldwin, Robert Cook, Aaron Kofman et al, 2015, USA	The becoming: students' reflections on the process of professional identity formation in medical education	Analysis of student narratives	This study examined the experiences of students around their PIF through the use of guided written reflection and interviews. Students expressed that role-modelling played a key role in their identity development.	The study design involved small number of students and rather than developing overall themes, outcomes were very specific to individual students. Whilst this might make the findings more accurate for that student it makes transferability much more difficult to other settings and people.	7
Lucinda Roper, Kirsty Foster, Karen Garlan, Christine Jorm, 2015, Australia	The challenge of authenticity for medical students	Review of student essays on the topic of professional development with a thematic analysis performed	This study examined the essays of 56 medical students regarding their professional development. The essays were coded and three key themes developed: 1- controlling the experiences and emotions of their patients 2 – failing to be authentic 3- agonising over what patients might want. The paper concluded that medical students struggle with the idea of being authentic as they feel patients want doctors, but they are not yet	This is a very interesting paper but relies on author interpretations of student essays, rather than discussions with students themselves.	9

			accepted into this group.		
Emily Meyer, Susan Zaptaka, Rebecca Brienza, 2015, USA	The development of professional identity and the formation of teams in the veterans affairs Connecticut Healthcare System's Centre of Excellence in Primary Care Education Programme (CoEPCE)	Qualitative interviews with junior doctors and nurse practitioners	This study examined the effect of multi-professional teams on identity formation. Groups of junior doctors and nurse practitioners worked together for a year and were interviewed at multiple times to understand how this was impacting on their identity. The study considered that multi-professional teams help to form group identities which are better for patients and break down the traditional 'them and us' mentality.	An interesting and innovative study that considers PIF in a more up to date model of medical working where doctors do not learn or practice in isolation.	10
John Goldie, 2012, UK	The formation of professional identity in medical students: considerations for educators	Literature review including developing new conceptual models	This paper reviewed the literature in a non-systematic way and proposed that PIF should feature more prominently in medical curricula.	Non-systematic review of the literature.	N/A
Kirsty Foster and Chris Roberts, 2016, Australia	The heroic and the villainous: a qualitative study characterising the role models that shaped senior doctors' professional identities	Qualitative study involving interviews with established clinicians	This study involved interviews with practising senior clinicians about who they felt shaped their identities as they developed as doctors. The interviews categorised role-models into two major groups – the heroic and the villainous and discusses the impact that the hidden curriculum can have on doctors and their practice.	A retrospective look back at identity formation that may not represent how people actually formed their identities, but novel in terms of the current literature.	10

Nicholas Talisman, Nancy Harazduk, Christina Rush, Kristi Graves, Aviad Haramati, 2015 USA	The impact of mind-body medicine facilitation on affirming and enhancing professional identity in health care professions faculty	Questionnaire based qualitative study	This study involved the use of validated questionnaires to consider the impact that mind-body medicine facilitation has on the professional identities of those who undertake the sessions. It considered that through impacts on empathy, communication and stress levels that the course did impact on the professional identities of those who took part.	Small scale study where the outcomes had already been pre-empted at the start and data collected seemed to be in a way that would only prove or disprove these presumptions rather than generate any other themes.	7
Charo Rodriguez, Sofia Lopez-Roig, Teresa Pawlikowska et al, 2015, International	The influence of academic discourses on medical students' identification with the discipline of family medicine	Qualitative study	Interviews were carried out with students internationally regarding their thoughts about family medicine and how they interpreted the identities of these doctors differed to other specialties. This study was less about individual professional identities and more about the PIF of different groups of specialists. Depending on the perceived worth of the speciality in different countries by patients and colleagues made a significant difference to the way that professional identities were formed and the perceived worth of these identities.	One of only a few papers that considers the different professional identities between specialties, but added little to this paper as the focus was less on individual identity development. Study performed well and high quality overall.	10

Lynn Knight and Karen Mattick, 2006, UK	When I first came here, I thought medicine was black and white': Making sense of medical students' ways of knowing	Qualitative study involving interviews with medical students	Interviews were carried out with medical students based at a UK medical school to explore their thoughts about medical knowledge and their development as professionals. Students expressed simplistic views about identity and knowledge but this developed through their time at medical school. Scientific and experiential ways of knowing seemed to help shape epistemologies and identities.	Concepts quite abstract but relatable to different courses.	10
Alan Bleakley, 2006, UK	You are who I say you are: the rhetorical construction of identity in the operating theatre	Qualitative study examining transcripts from operating theatres around critical events.	Transcripts from recordings undertaken in operating theatres in a UK hospital were analysed around critical events. The author examined the role of hierarchy and individuals feeling constrained by their professional identities, making it harder for them to challenge others and speak up.	Complex paper with significant amounts of presumption.	8

Appendix Five: CASP Scoring Grid:

Paper Title	Clear aim	Qualitative methods	Appropriate design	Appropriate recruitment	Appropriate data collection	Relationship between author	Ethics	Rigorous data analysis	Clear statement of findings	Value	Total
Affirming professional identities through an apprenticeship: insights from a four-year longitudinal case study	1	1	1	1	1	0	1	0	1	1	8
Formation of medical student professional identity: categorising lapses of professionalism and the learning environment	1	1	0	0	1	0	1	0	1	1	6
Comics and medicine: peering into the process of professional identity formation	1	1	0	0	1	0	1	0	1	1	6
Communicating professional identity in medical socialization: considering the ideological discourse of the morning report	1	1	1	1	1	1	1	1	1	1	10
Creating stories to live by: caring and professional identity formation in a longitudinal integrated clerkship.	1	1	1	0	1	0	1	1	1	1	8
Developing a patient focussed professional	1	1	1	0	1	1	1	1	1	1	9

identity: an exploratory investigation of medical students' encounters with patient partnership learning											
Developmental challenges, stressors and coping strategies in medical residents: a qualitative analysis of support groups	1	0	0	1	0	1	1	0	1	1	5
Does gender matter? Differences between students at an inter-professional training ward	1	1	1	1	1	0	1	0	0	1	7
Exploring first grade medical students' professional identity using metaphors: implications for medical curricula	0	1	0	0	0	0	1	0	0	0	2
"I'm too used to it": A longitudinal qualitative study of third year female medical students' experiences of gendered encounters in medical education	1	1	1	0	1	1	1	1	1	1	9
Entering medical practice for the very first time: emotional talk, meaning and identity development	1	1	0	0	1	0	1	0	1	1	6
Examining the influence of	1	1	1	0	1	1	1	1	1	1	9

professional identity formation on the attitudes of students towards inter-professional collaboration											
Hands in medicine: understanding the impact of competency-based education on the formation of medical students' identities in the United States	0	1	0	1	1	0	1	1	1	1	7
Is reflective ability associated with professionalism lapses during medical school?	1	1	1	1	1	1	1	1	1	1	10
Medical students' professional identity: self-reflection during the preclinical years	1	1	1	1	1	1	1	1	1	1	10
Medical students' stories of participation in patient care related activities: the construction of relational identity	1	1	1	1	1	1	1	1	0	1	9
Medical students' professional identity development in an early nursing attachment	1	1	0	0	0	1	1	0	0	1	5
Medical students' perceptions of identity in communication skills training: a qualitative study	1	1	0	1	1	0	1	1	1	1	8
More than just teaching procedural skills:	1	1	0	1	1	1	1	0	0	1	7

How RN tutors perceive they contribute to medical students' professional identity development											
Narrative reflective practice in medical education for residents: composing shifting identities	0	1	0	0	1	1	1	0	0	1	5
Professional identity formation in the transition from medical school to working life: a qualitative study of group-coaching courses for junior doctors	1	1	1	1	1	1	1	1	1	1	10
Reflections: an inquiry into medical students' professional identity formation	1	1	1	1	0	1	1	1	1	1	9
Simulated patients' perspectives of and perceived role in medical students' professional identity development	1	1	1	1	1	1	1	1	1	1	10
Sounding narrative medicine: studying students' professional identity development at Columbia University College of Physicians and Surgeons	0	1	0	1	1	0	1	0	0	1	5
The becoming: students' reflections on the process of	0	1	1	1	0	0	1	1	1	1	7

professional identity formation in medical education											
The challenge of authenticity for medical students	1	1	0	1	1	1	1	1	1	1	9
The development of professional identity and the formation of teams in the veterans affairs Connecticut Healthcare System's Centre of Excellence in Primary Care Education Programme (CoEPCE)	1	1	1	1	1	1	1	1	1	1	10
The heroic and the villainous: a qualitative study characterising the role models that shaped senior doctors' professional identities	1	1	1	1	1	1	1	1	1	1	10
The impact of mind-body medicine facilitation on affirming and enhancing professional identity in health care professions faculty	1	1	0	1	0	1	1	0	1	1	7
The influence of academic discourses on medical students' identification with the discipline of family medicine	1	1	1	1	1	1	1	1	1	1	10
When I first came here, I thought medicine was	1	1	1	1	1	1	1	1	1	1	10

black and white': Making sense of medical students' ways of knowing											
You are who I say you are: the rhetorical construction of identity in the operating theatre	0	1	0	1	1	1	1	1	1	1	8

Appendix Six:

Full list of initial codes derived through iterative coding process:

Code	Number of References	Number of Participants
Ambition	1	1
Animal Narrative	1	1
Ashamed	1	1
Assessments	1	1
Career Guidance	2	2
Comfort	1	1
Community of Practice	2	2

Competition	10	4
Confidence	5	2
Coping Strategy	1	1
Crisis	1	1
Culture	10	4
Disability	3	1
Doctor Narrative	4	3
Doubtful	1	1
Embarrassment	4	1
Emotion	1	1
Exceptionalism	1	1
Experience of Remediation	1	1
Failure	2	1
Failure Narrative	1	1
Family	1	1
Feedback	1	1
Friendly	1	1
Friends	1	1
Frustrating	1	1
Guilt	1	1
Hiding	1	1
High Achiever	3	1
Honesty	1	1
Identity Clash	1	1
Identity Dissonance	3	1
Intimidating	1	1
Irrelevant	1	1
Jealousy	1	1
Lack of previous failure experience	1	1
Learning Disability	1	1
Mental Health	7	3

Mental State	3	2
Negative Marking	1	1
Nervous	2	2
Not a big deal	1	1
Not spoken about	1	1
Occupational Health	1	1
Offensive	1	1
Outsider	3	1
Overwhelming	1	1
Passive Role	2	1
Patient Narrative	7	3
Peer Group	1	1
Personal Issue	1	1
Pressure	1	1
Psychological Safety	1	1
Psychotherapy	1	1
Punishment	3	2
Reflective Practice	1	1
Religious Identity	1	1
Reputation	1	1
Role-modelling	1	1
Self-doubt	2	1
Subordinate	1	1
Tick-box exercise	1	1
Unclear	1	1
Unhelpful	1	1
Weakness	1	1
Worrying	2	1

Appendix Seven: Data Analysis

This appendix provides a worked example using participant two to help demonstrate the process taken for each individual involved in the study.

Participant Two:

Participant two was a male medical student from an international background, and therefore registered with the University as an international student. They reflected throughout their interview that they had a number of physical disabilities (including a rare genetic condition that will not be referenced to preserve their anonymity) that required regular trips to specialist care within London.

These disabilities had created a number of difficulties within their studies. The impact of missing placements due to hospital appointments was combined with hearing and speech problems that had made elements of the course much more difficult. The student reflected throughout their interview that the impact of these disabilities appeared to have been under-appreciated by the School, and that much of their experience of remediation could have been spared had appropriate support and adjustments been put in place prior to assessments, rather than in an apparent reactive way once a less than satisfactory assessment outcome had been achieved.

Category	Examples from transcripts	Author narrative
Redemption	"So for me, I've had a lot of good experiences… I want to use this to be caring first of all and empathic and understanding"	Refers to own experiences of remediation, and information provided in the interview relating to disability, as a positive outcome to develop increased empathy for patients and as a result feels will become a better doctor.
Contamination	"The issue I have found with it, is that is usually comes too late"	Reflecting on the fact that remediation happens after a failure had already happened, rather than being a more proactive process.
Agency		
Communion	"I've actually been at this medical school for a very long time now. I've repeated, this is my third year repeating"	The regular changes that the student experienced moving between medical cohorts impacted on their sense of belonging. Indeed, they really didn't feel that they belonged socially, and therefore this impacted also on their professional development.

Exploratory narrative processing	"My experience with them is that with them it has always been very dependant on the tutor and sort of, uh, how they decide to remediate you"	Reflection here that the process of remediation is very dependant on the skills and attributes of the member of staff involved in the process.
Coherent positive resolution	"People do make mistakes, and whether you are a medical student, or you know, you are a registrar or consultant – people do make mistakes and people do become humble enough to accept it and try to move forwards as much as possible, and learn from it"	Increasing understanding with experience within the field of medicine, that mistakes do happen, and that all individuals (regardless of grade or experience) will still make them. Links this back to academic failure at medical school, and develops greater internal peace with failure.
Meaning making	"I was disabled, I was clumsy, but I didn't want to admit it"	Reflects on the impact of a physical disability, but also concerns relating to the impact of declaring this on future medical career, especially how might be perceived by others.
Performance	"I was born with a congenital condition, a very rare conditional called [excluded to protect anonymity]. I've had multiple surgeries and this has really affected my psychologically, and socially. And so for me, it's about, I want to treat patients in a different way, and be caring and empathetic"	Extensive discussion of the experiences that this student has of their own physical disability, how this made them want to study medicine, and the impact of failure and possible withdrawal from the course on their mental health and wellbeing.

Doctor narrative:

The student reflects throughout their interview about their own experiences of being a patient, but also how this will increase the empathy that they feel for patients, improving their performance as a future doctor.

Patient narrative:

This is a strong element of this interview, especially as the student attributes many of the causes of their failure to their underlying diagnoses.

Hero narrative:

The student presents their struggle against the system as they overcame both their disability, but also perceived discriminatory practises of the medical school as being an important element of this narrative.

Family narrative:

This is not especially prevalent within this discourse.

Victim narrative:

This is closely linked with the student's narrative regarding both patient and hero above. The School and the system are perceived as being unfair and having inappropriately discriminated on the basis of disability, without appropriate support and adjustments put in place until it was too late.

Participant Three:

Participant three is a female medical student, aged 22 and in their fourth year of study. Both their parents were doctors and they underwent remediation due to the AMK.

Category	Examples from transcripts	Author narrative
Redemption	"I found remediation helpful because I think that when you are in that situation , it's nice to have support and	This student provided a positive reflection on their experience of remediation. They found that the process was supportive.

	actually know different ways of learning”	
Contamination	“Exams were difficult. I was always at the bottom… and I put a lot of pressure on myself… so it all got messed up basically” “It did have an impact. Mainly, as I said before, on the confidence of knowing medical knowledge”	The student references that, as a result of norm-referencing, they were aware that they were towards the lower end of academic performance in the cohort. As a result this impacted on their confidence, and therefore their evolving doctor identity.
Agency	“A lot of our year are really secretive about it [exam marks].”	The impact of norm-referencing is again demonstrated here. The student reflects that the sense of community and collaboration within the year is impacted. Given that core outcomes of the course are team working it is especially interesting that their experience of the hidden curriculum is played out here in contradicting these core elements.
Communion	“If they could change anything, it would maybe be the pastoral support that comes with it [remediation]”	A reflection that the impact of remediation can also be emotional, and that greater support of this element would have been appreciated.
Exploratory narrative processing	“I would say it impacted in the way that I feel a lot more comfortable with my medical knowledge now”	There is some resolution here, in that the outcome for the student in the longer term has been positive.

Coherent positive resolution		The student passed their next assessment, and felt that remediation was a factor in supporting this.
Meaning making	"That's what I got told by my Mum. It's a learning opportunity, rather than something else. Accept the fact that your thing doesn't work and then take on board what does work, and hopefully improve"	As noted, this student has two medical parents. There is therefore a further element of socialisation here and positive reinforcement.
Performance		As referenced above, the student did pass their next assessment.

Doctor narrative:
The student's narrative as a future doctor is disrupted in that their confidence of their medical knowledge is impacted by failure and remediation. However, with improved performance in subsequent assessments this is improved.

Patient narrative:

The student references their experiences of remediation and that they would have found more pastoral support helpful. This links in to reflections relating to greater focus on psychological health and wellbeing.

Family narrative:
The student has the particular experience of being from a 'medical family' in this case, with both parents practising doctors within the UK. This is especially relevant because of the additional pressure that the student feels in terms of wanting to demonstrate their skills to their parents. Of particular reference, is that the positive reinforcement from the mother of the student carries relevance both as a family member, but also as a member of the medical profession.

For the remainder of the transcripts, key areas are presented.

Participant Four:

Participant four is a final year (fifth year) female medical student, aged 25. They underwent remediation due failing the AMK assessment, on more than one occasion.

Category	Examples from transcripts	Author narrative
Redemption		
Contamination	"I've had to repeat the year twice now" "The first time [remediation] it really didn't work for me" "There's a lot of shame there, so it impacted on me showing up for things, because I didn't really want to admit it, that I didn't know anything"	
Agency	"There is definitely an element of self-doubt. There is worry about how it will impact in the future"	
Communion		The quote above demonstrates that this student did feel able to work with their colleagues regarding improving their performance, but that they also did not attend some sessions (especially after having to repeat the year) because of concerns as to how they might be perceived by their peers.

Exploratory narrative processing	"There was definitely an emotional or mental aspect to where I was going wrong. I was very much telling myself I couldn't answer the question when approaching them" "I don't think it was remediation, it was me any my friends. So I have a lot of friends who do well in the AMK and than I just end up talking to them about it"	
Coherent positive resolution	"I was definitely like, you know something, go for it"	
Meaning making	"Secretly, I feel like I've finally cracked it [the AMK]"	
Performance		

Key extracts:

Doctor narrative:

"I felt inadequate to be a medical student"

Participant Five:

Participant five is a 21 year old female medical student who underwent remediation due to a failed AMK and also due to a less than satisfactory professionalism judgement.

Category	Examples from transcripts	Author narrative
Redemption	"I learnt that I can use virtual patients to aid my learning, and that I could even use my	

	walk to Uni as an opportunity to study"	
Contamination	"I think making sure the people doing the remediation aren't as negative or kind of putting people down. Sometimes it can be quite repetitive"	Reflections from the student that their experience of remediation had, at times, felt uncomfortable and negative. Rather than the initially advertised process of positive support.
Agency	"After remediation, I felt that I wasn't smart enough to study medicine and I felt I was being interrogated. I know that I am smart enough though"	
Communion		
Exploratory narrative processing	"What colour in association, and just orange, I felt this orange , warm feeling in my tummy [associated with passing]" "Whether it's motivation, or whether it's just something going wrong on the day, or I there's something deeper that you have to find out why you're not doing well consistently"	
Coherent positive resolution	"I think they're [parents] quite proud of me. They've been quite supportive. When I've said I haven't passed an	This student was the first in their family to attend medical school.

	exam or something, they're always like, don't worry about it"	
Meaning making	"I guess you see doctors in the hospital and GPs, and you really feel like, I want to be like that"	Reflecting on their experience of failure and remediation, and how they hope that this process will allow them to become a 'good' doctor, as role-modelled by those with whom they have interactions.
Performance		

Participant Six:

Category	Examples from transcripts	Author narrative
Redemption	"I think the most useful thing was sort of analysing the feedback with my tutor and then getting his perspective on it as well, and working together to try and understand what was wrong with it"	
Contamination	"So, it was about a year ago, I messed up" "I was disappointed initially, because I'd but quite a lot of time into it, so was expecting a better mark"	
Agency	"I got a few sentences with just outlined the problems… which I thought were a little unfair"	Discussing feedback from a Consultant Surgeon who had marked an essay regarding a patient the student had been involved in the care of.

Communion	"I didn't make a song and dance about it, but I did tell my housemates, but I didn't tell lots of people"	
Exploratory narrative processing	"My tutor and I had a bit of a laugh about… where he's bringing up my spelling mistakes… there's actually quite a lot of spelling and grammar mistakes in the feedback"	
Coherent positive resolution	"Eventually I thought, it was going to happen at some point"	
Meaning making	"Being the first big project I'd failed, I'd lost my clean sweep" "Well, there's the one black mark against my name"	
Performance	"I cruised through School for the most part"	

Participant Seven:

Category	Examples from transcripts	Author narrative
Redemption		Discusses how using own experiences to support other students who have struggled with assessments
Contamination	"What if I fail again? What if I fail again" "It makes me super nervous"	

Agency	"For me, it was a big thing that it was negatively marked"	
Communion	"I don't like that it's [AMK] marked against your peers… I think that it sets a very competitive tone, and not in a good way" "Why are you being so weird with me right now? I just came over to say hi… I'm not going to steal your knowledge or something" "I'm so dumb, why is everyone else so smart"	
Exploratory narrative processing	"It doesn't set up a nice atmosphere" "I couldn't figure out what the reason was for me failing"	
Coherent positive resolution	"Oh my God, I'm above the mean!"	
Meaning making	"Maybe I need to answer more questions" "In real life, you've got the patient, you've got help around you" "It's made me reluctant to ask for help" "The exam has made me doubt myself"	

Performance	"I had to re-do chemistry [at school] and I felt terrible, I felt horrible about it" "I'm so dumb, why is everyone else so smart?"	

Participant Eight:

Category	Examples from transcripts	Author narrative
Redemption	"I've had satisfactory grades [in the AMK] since and I don't have to do it again"	
Contamination	"I was unsatisfactory" "I didn't eat properly, I didn't sleep properly"	When referring to their performance in an AMK
Agency	"I think you need to seriously consider the emotional constitution to do a career [in medicine]" "How dare they, you know, question me"	
Communion	"They actually seemed to care about me, and they were actually like, you are going to pass" "I mean it's not the sort of thing [remediation] that you'd expect people to advertise"	
Exploratory narrative processing	"The anger is a great motivator for me, when I'm pissed off I am like, this is getting done, this is stupid and it's not happening any more"	Evidence of significant emotion around this. Anger very strong feeling to have.

	"I was feeling pretty low at the time, pretty bad self-esteem"	
Coherent positive resolution	"I've had friends who have had to repeat the whole year… and I feel really lucky that I've not had to do that"	
Meaning making		A more senior medical student than some of the other interviews, in someone considering the impact on their future career. In particular, wanting to pursue a career in obstetrics and gynaecology.
Performance		Interesting reflections throughout the interview regarding the impact of being an international student and not having any close family within easy distance in the UK. Parents were both medical practitioners in Canada, but with high expectations regarding performance, and apparent limited knowledge of the UK training system.

Participant Ten:

Participant ten is a 21 year old male medical student. Both of their parents were doctors (GPs) who experienced remediation due to a less than satisfactory professionalism judgement.

Category	Examples from transcripts	Author narrative

Redemption	"I totally get, like, I totally get why they want you… to be reflective, communication"	
Contamination	"He gave me a borderline judgement [in professionalism]"	
Agency	"Basically [I] just had a long presentation, but from my point of view I didn't feel I'd kind of had much guidance" "I emailed the professionalism leads and asked if there was any way to appeal it… and like there really wasn't" "Felt sometimes doctors can give quite harsh feedback and not always constructive"	Sense that could not act on the feedback because it was not constructive, constraining ability to improve.
Communion	"Everyone is human, everyone makes mistakes"	
Exploratory narrative processing	"Oh God, I was quite upset at the time. Mainly disappointed and a bit… you know a reasonable amount of effort into the sessions, so yeah I was irritated"	
Coherent positive resolution	"[Not having failed before] probably made it worse, I supposed these things will become more routine and you will get used to it… and letting it wash over you a bit"	

Meaning making	"It was the first time I'd got anything like that, like borderline-ish" "I wrote a complaint to the medical school"	
Performance		Refers to lack of previous experience with failure (as above) and that this may have contributed to the experiences he had.

It is interesting to note, that whilst the student clearly felt that their professionalism judgement was unfair, the following comment was made within their questionnaire submission to join this study. In response to the question ' what was the reason that you experienced remediation':

"Absolute wanker of a PPG [professionalism group] tutor have me a borderline judgement because my presentation, which I had spent hours preparing for, was too long"

Victim narrative:

There is a clear victim narrative throughout the interview and in the questionnaire that was submitted as part of the initial stages of the research study. The student clearly remains angry and frustrated (as indicated by their use of strong language to describe their tutor). It is interesting that they appear to lack some insight into the fact that their behaviour could well be considered to be unprofessional.

Participant Eleven:

Participant eleven is a 22 year old female medical student in her third year of studies. She received remediation due to failing an AMK assessment.

Category	Examples from transcripts	Author narrative

Redemption	"I wasn't doing the extra work, so I took her advice on that one" "And then I passed all my exams"	Referring to the advice provided through the remediation team regarding regular studying and active recall.
Contamination	"I just bombed all the time on the AMK" "I went into second year on a 'doubtful' and it was the first thing… I've never felt so low" "It really, really knocked my self-confidence"	
Agency	"A little bit of positive reinforcement is good for me"	
Communion	"I was trying not to be a medical student, because my close friends were English students at the time"	
Exploratory narrative processing	"I think I was probably going out a bit too much" "I think I would have maybe offered more one-to-one support" "So I think partly my rebellion, and partly not studying the right things for the exam"	
Coherent positive resolution	"Hindsight's a great thing isn't it!"	In relation to now understanding better approaches to study, and not going out partying so much.
Meaning making	"When I saw your email [about remediation] I thought	

	finally… someone's actually looking into it"	
Performance		Describes impact of being schooled locally, and impact of entering the medical school under part of widening participation initiative.

The student comments that they feel that there were ulterior motives for remediation in the response to the questionnaire:
"It felt as though they were trying to figure out which students weren't worthy of being at medical school… I asked for help with my assessments and found that I didn't receive an awful lot of help"

Participant Twelve:

Category	Examples from transcripts	Author narrative
Redemption	"I feel it did help in the end"	
Contamination	"I think it felt more like a telling off" "I didn't really feel the point of them [the remediation team] was to help" "I got criticised a lot [by the remediation team]" "You don't have what it takes to be a doctor"	
Agency	"The meeting with my tutor was a bit pointless" "There wasn't really any plan in place to stop me failing the next one [professionalism assessment]"	
Communion	"Because I used to be quite quiet, I failed two"	

Exploratory narrative processing	"I sort of like, faffed around with the bed a bit"	Reflects that some of the perceived reasons for failure were related to equipment issues, which they felt were unfair.
Coherent positive resolution	"I didn't fail any more professionalism judgements"	
Meaning making	"It's quite difficult to tell in those situations whether I am like I think, I am just unlucky… or if I am really awful, an awful medical student and really unprofessional"	
Performance		

Participant Thirteen:

Participant thirteen is a 21 year old female medical student in her third year of study. She underwent remediation due to failing an AMK assessment.

Category	Examples from transcripts	Author narrative
Redemption		
Contamination	"I got a borderline on my AMK, so I had to have remediation with my tutor"	
Agency	"I find it [the assessment process] a bit bonkers, like… we're not fifth years, we are not foundation doctors yet, everyone is learning at a different rate" "My tutor is really hard to get hold of"	
Communion	"My sister was ill at the time"	

	"I was ill at the time"	
Exploratory narrative processing	"Sometimes I think that wall sort of slips and then I'm like, oh God I am rubbish"	
Coherent positive resolution		
Meaning making		
Performance		