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**Swimming with the Big Fish: An Exploration of the Influences on
Academic Self Concept During Early Years Undergraduate Medical
Education.**

Judith Barbaro-Brown

A Thesis submitted for the degree of Doctor of Education

Department of Education, University of Durham, UK

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Abstract

Academic self-concept (ASC) has been studied extensively in school-age children, less so in under-graduate students, with even fewer studies focusing on ASC in medical students. ASC is the perception of one's academic ability and evidence suggests it starts to develop in very early childhood. The link between ASC and academic achievement has been previously demonstrated but not specifically in medical students. The role of the Big Fish Little Pond Effect (BFLPE) has also been implicated in the development of ASC, but research suggests that the BFLPE does not occur in medical students.

ASC scores were collected at four data points from a complete cohort of medical students at a UK medical school using the Medical Student Self-Description Questionnaire (MSSDQ) to provide a set of ASC scores for each student. There was a statistically significant increase in ASC scores between data collection points 1 and 4. A sample of the cohort participated in a series of semi-structured interviews to explore the perceptions and experiences which are thought to affect ASC. Six themes emerged from the interview data – Self-esteem (S), Tenacity (T), Academic Behaviour (A), Social Interaction (I), Resilience (R), and Feeling Secure (S) - STAIRS. These themes do not appear to be hierarchical and point to aspects of student experience that create positive or negative situations. Students can use the STAIRS to move up towards positive self-regard and good experiences, or down towards negative ones and lowered self-worth.

ASC increased in medical students as they progressed through the programme, but the BFLPE was apparent. Targeted support for students using the STAIRS themes as guidance could be beneficial for students experiencing the detrimental effects of the BFLPE.

Declaration

This thesis is the result of my own work unless referenced to the contrary in the text and includes nothing that is the outcome of work done in collaboration except where specifically indicated in the text. No part of this thesis has been submitted elsewhere for any other degree or qualification.

Judith Barbaro-Brown

Durham University

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Dedicated to Dad – I wish you could have read it

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Chapter 1. Introduction

1.1 Outline: Defining Academic Self-Concept

The central theme of this thesis entitled “Swimming with the Big Fish: An Exploration of the Influences on Academic Self Concept During Early Years Undergraduate Medical Education”, focuses on exploring academic self-concept (ASC) in early-stage medical students and the factors which may influence this during their under-graduate study. The thesis will also look at the influence of the Big Fish Little Pond Effect (BFLPE) on ASC in this same group of students, which is important to explore because previous research suggests this does not exist in medical students, whereas observations of this group suggest different. ASC is the perception of one’s academic competence, ability and skill in comparison to others (Trautwein et al, 2009) and evidence suggests this begins before the age of 10 years (Rubie-Davies, 2006). Marsh (1990) demonstrated the link between ASC and academic achievement, and also described its association with the Big Fish Little Pond Effect (BFLPE). Higher ASC occurs when the individual performs better than classmates and it is this social comparison that underpins the BFLPE. This phenomenon is prevalent where a student compares themselves to others where there are a number of highly achieving students, creating feelings of self-doubt (Suls et al., 2002). This is especially influential when individuals compare themselves to others perceived to be the same, and therefore the assumption could be made that high-achieving students constantly compare themselves to other high-achieving students in their class. This creates potential for comparisons to detrimentally effect some students, so being able to identify whether BFLPE is manifesting will identify the need the development student support strategies.

1.2 Why study ASC?

The benefit of a positive ASC is found in the affect it has on academic performance (Chen et al 2013), and a higher ASC helps students feel positive about themselves. Medical students learn in a competitive, high stress, high workload, high stakes environment that also expects them to be collaborative and socially-connected in their learning. Students with lower ASC are more likely to be socially isolated (usually by their own choice), which then impacts on their ability to learn, further impacting on self-esteem and in turn reducing ASC further. By exploring the influences on ASC in medical students during the early years of their programme it may be possible to identify the factors which contribute to lower ASC, which would then allow the creation of strategies to support students in this situation, helping them to reach their full academic potential.

1.3 What was the driver for this study?

The initial driver for this study came from observation of a highly competitive culture amongst students at a UK medical school which continued throughout their Phase 1 study (the first two years of a five-year programme). When starting Year 1 the majority of students came directly from secondary education and had usually been highly performing in their year group, achieving at least the minimum entry requirement of three grade A's at A level, although most of them had A star grades and four A levels. Where they had been, they were the big fish in the little pond, and were joining a cohort of around 100 other students, most of whom had also been the big fish in their pond. Initially this did not appear to be an issue but after publication of the first summative examination results it became apparent that some students were finding it difficult to maintain a position in the cohort where they

were 'top of the class'. Some students started exhibiting competitive behaviour that was destructive and detrimental to fellow students, such as not sharing information during group activities, pretending that they were not doing any revision or preparatory work, and preventing other students from accessing learning materials.

A feature and requirement of results release on the medicine programme was that the cohort was ranked by result, therefore each student could see their position in relation to other students, and although the results were published by anonymous number students could see where they came in relation to others. Ranking in this way occurred after every formal summative assessment episode and would carry on throughout the five-year medicine programme. At the end of the programme their ranking positions at the end of each academic year would be collated and this would help determine the Foundation Training place offered to a student. Ranking scores from the first two years would be combined, and this, together with the combined ranks from each of years 3-5, are combined to produce a final ranking. This ranking is then compared to all other UK graduating medical students that academic year, placing the student in a particular decile which then influences the Foundation training place that student might be offered. This makes it very important for a student to maintain as high a ranking as possible throughout the programme.

Students who were ranked at the lower end of the scale at the end of each academic year often expressed feelings of unworthiness and of being undeserving of a place on the programme. They appeared to have lower self-esteem and lacked confidence in their ability, even though they had achieved the entry criteria for medicine and therefore clearly had

experienced previous academic success. Frequently the lowest ranked students isolated themselves socially and did not actively engage with the personal tutorial system which was there to provide academic support. When the results were released after each examination period it was not unusual for staff to hear students who were at the top of the rankings commenting on the level of ability of students in the lower rankings, even though they were unaware of whom those specific students were. Students also failed to put the ranked position into context, such that whilst rankings went from 1-92 (depending on the size of that cohort), the actual spread of the exam marks was relatively narrow, and therefore the student with the lowest ranking usually had a mark within 35% of the highest mark.

Teaching staff also made comments about the lower-ranked students, who were given pejorative labels such as 'bumpers', as in bumping along the bottom. These labels tended to stick with these students throughout their time on the programme, and whilst it may have been the case that these students were always going to struggle to achieve pass marks, the fact that they were labelled as poor meant that some staff always had low expectations of those students, and their subsequent behaviour towards those students reflected this.

There appeared to have been very little investigation specifically into influences on ASC in medical students, the only work that done at that point was in a very small cohort of medical students in Australia (Jackman et al, 2011). The conclusion of that study, which was carried out over a short period of time on a small number of participants, was that ASC did not change in medical students and the BFLPE did not occur. These results did not seem to reflect the researchers observations of the medical students, therefore after observing the

student behaviour over a number of cohorts it was decided to explore how students felt about their academic ability by measuring their ASC score and asking them about their experiences on the programme to see if there were specific factors influencing their ASC, such as their ranking and their interaction with peers, because ASC relates to the perception of one's level of ability within an academic area, and is influenced by how one perceives performance of others in the same learning environment – the Big Fish Little Pond Effect (Marsh & Parker, 1984).

1.4 Aim of the research

The overall aim of the research was to explore any changes in ASC in students in the first two years (Phase 1) of an under-graduate medical programme, who had moved from an educational environment in which they were one of few highly achieving students to one in which there were a large number of other highly achieving students, and explore the context of this from the perception of the students. Taking a constructivist, interpretivist, phenomenographical stance, this research would look at an individual's perception of ASC and the affect it had on them by employing a Mixed Methods Research (MMR) approach utilising a questionnaire and semi-structured interviews. This would provide data that would allow description, analysis and understanding whilst taking into account the differences between individuals. It was hoped that whilst the cohort was relatively small, the outcomes of the research would be generalisable as the experiences and influences within this group could be applicable to similar student groups at other institutions. The overall goal was to gain a wider understanding of the issues faced by high-achieving students in high-stress

learning environments in order to inform future curriculum development and student support strategies.

1.5 Thesis research questions.

In order to address the aims of the study, two central questions were proposed:

- 1. Does ASC change during the first two years of an under-graduate medicine programme?**
- 2. What are the factors that may influence ASC?**

1.6 Organisation of the Thesis.

The thesis comprises eight chapters. This introductory chapter introduces the driver for the study and the basis for the research, together with the underpinning definition of ASC. The literature review in Chapter 2 explores this definition further and considers the place of ASC in the wider context of self-concept. Chapter 2 also differentiates ASC from similar concepts such as academic confidence and self-esteem, and reviews the evidence relating to influences on ASC, such as age, gender, stress, and locus of control. The BFLPE is also discussed in relation to these influences.

Chapter 3 outlines the research methodology, providing a framework and theoretical approach together with rationale for instrument selection. Chapter 4 presents the operational process of data collection and provides a discussion on how ethical considerations are addressed.

Chapter 5 presents and discusses the data from the ASC questionnaires. The scores for the cohort are presented, together with comparisons by gender and programme entry route, and the statistical analysis of these. Chapter 6 provides the data from the semi-structured interviews, using the words of the participants to identify themes and create a narrative of their experiences.

Chapter 7 further explores the themes that emerged in Chapter 6, providing a wider understanding of each before suggesting a framework which could be used to identify and support students who may need help either academically, emotionally, or socially. Chapter 8 discusses the application of this framework on an individual student level as well as within an institutional context, and makes recommendations for implementation of the framework as well as identifying future areas for further research.

1.7 Summary

This chapter has provided an over-view of the study and introduced the central component of academic self-concept (ASC). The two research questions were proposed and the theoretical perspective and operational approach for the research was briefly outlined. The following chapter reviews the literature to provide a scene-setting for the study, and provides evidence to suggest a gap in the knowledge around ASC in medical students, creating a space from which this research can offer further explanation.

Chapter 2. Literature review

2.1 Overview.

This thesis explores Academic Self-concept (ASC) in early-stage medical students and the factors which may influence it over a period of time. The thesis also aims to articulate how/if ASC relates to the Big Fish Little Pond Effect (BFLPE) in this same group of students.

Research on ASC has mainly been based within the field of educational psychology and has been on-going since the 1970s so whilst it is important to note that a significant amount of the initial research was carried out some time ago, work has continued over more recent years in exploring and developing the original models that were proposed. Generally, there has been little change to the underpinning theory of these models which were originally based around children in main-stream schooling, but more recently researchers have applied them to differing areas, e.g. older students, university courses, post-graduate education. This has resulted in a body of literature which covers a relatively wide timespan, hence this literature review will necessarily be reflective of the original seminal literature as well as the more recent work.

2.2 Self-concept - definition and importance

Self-concept is the way in which an individual perceives themselves in relation to others, with this perception strongly influenced by the surrounding environment and an individual's experiences, meaning they are subjective beliefs about oneself, our strengths, and our weaknesses.

Trautwein & Moller (2016) indicated an association between self-concept and academic achievement stating that whilst measures of self-concept (such as ASC) may not accurately predict how an individual may score in assessment, but may also act as an indicator of potential achievement, meaning that self-concept remains important for educational practice;

“Self-concepts are not an inner mirror of outside reality, but they still reflect a certain “reality”: our own reality. And it is this personal, private reality—and not the objective reality—that is most closely related to what we think and consequently what we do. Feeling competent in a specific area motivates and energizes behaviour in that domain and is associated with many favourable long-term outcomes.”

(Trautwein & Moller, 2016 pp187)

There are multiple definitions of self-concept and this was noted by Shavelson et al (1976) who gave their definition as;

“self-concept is a person's perception of himself. These perceptions are formed through his experience with his environment and are influenced especially by environmental reinforcements and significant others. We do not claim an entity within a person called "self-concept." Rather, we claim that the construct is potentially important and useful in explaining and predicting how one acts”

(Shavelson et al, 1976 pp411)

Whilst this definition uses somewhat gendered language, it provides the broad view that self-concept is developed through interaction with and interpretation of one's environment and with influential others, emphasising the important influence of social interaction.

Shavelson et al asserted that whilst it was an hypothetical construct, it was helpful in having the ability to explain and predict behaviour.

A similar definition which also accentuated the influence of significant others and the environment was provided by Marsh in his paper 'The Multidimensional Structure of Academic Self-Concept: Invariance over Gender and Age';

"a person's self-perceptions, formed through experience with and interpretations of one's environment. It is especially influenced by evaluations by significant others, reinforcements, and attributions for one's own behaviour and accomplishments"

(Marsh, 1993, pp842)

Marsh was interested in differences in self-concept between males and females (discussed further later in this chapter), and stated that most studies focusing on self-concept lacked theoretical basis, made the assumption that self-concept was the same across the genders, and did not utilise reliable instruments to collect data. However, his definition echoes that of Shavelson et al, and suggests that the underlying accepted definition was little changed in almost two decades between the publications of these papers, and that there has been little change in other definitions that have been offered since.

2.3 Hierarchy model of Self-Concept

Shavelson et al (1976) reviewed research and theoretical models relating to self-concept (or lack thereof), and developed a model suggesting that self-concept was both multi-dimensional and hierarchical, further suggesting that it become increasingly multi-faceted with

age. The hierarchical aspect of the model placed general self-concept at the top level, with the subdivisions of academic and non-academic aspects of self. Below this academic self-concept further divided into specific subjects such as maths and English, whilst the non-academic components sat in emotional, physical, and social domains. Shavelson et al (1976) illustrated this multi-dimensionality (Figure 1), also showing the domains of academic and non-academic self-concept.

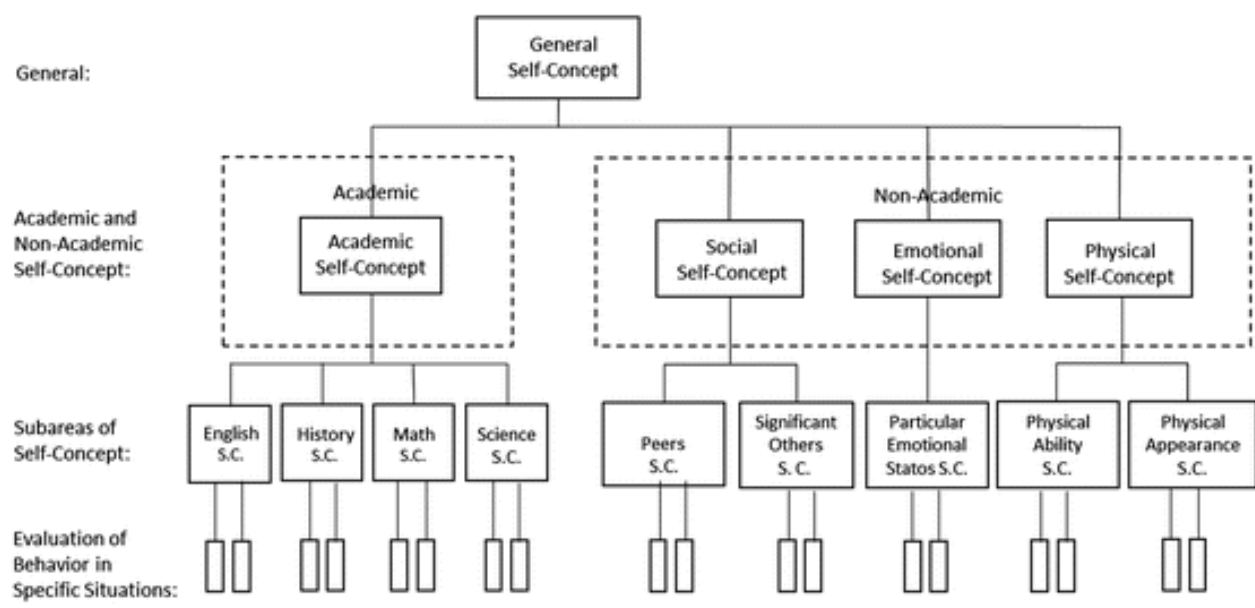


Figure 1. The hierarchical self-concept model of Shavelson et al. (1976). (Adapted from Shavelson et al, 1976 pp 413).

The model was supported by later work (Byrne, 1984; Fleming & Courtney, 1984; Marsh & Shavelson, 1985; Marsh, 1990a), becoming influential across self-concept research and confirming the four large domains as academic, social, emotional and physical, with academic self-concept further differentiated into different disciplines. The reviews of Shavelson et al’s model strongly supported the multifaceted structure and confirmed that

self-concept could only be understood fully if all the dimensions were considered. In further support of the model Marsh and Shavelson (1985) described self-concept with a number of characteristics:

1. Self-concept is multifaceted – individuals tend to categorise the information they hold on themselves, relating the categories to each other. This categorisation tends to be unique to the individual, or sometimes to the group with which the individual identifies.
2. It is organised hierarchically, perceptions of behaviour ranking beneath inferences about the self in specific areas, which then rank below general inferences about self.
3. As one moves down through the hierarchy self-concept moves from being relatively stable in the general situation to less stable in more specific situations.
4. As the individual moves from childhood to adulthood, self-concept becomes more influenced by external factors, such as family and peers (significant others).
5. Individuals exhibit both descriptive and evaluative dimensions so that they may describe themselves as feeling sad/happy, whilst also evaluating their ability in particular areas, eg, they are good/bad at languages.
6. It differs from other constructs such as self-efficacy, self-esteem, and self-worth (these three specific concepts will be explored later in this chapter).

Marsh, Byrne, and Shavelson (1988) later provided an alternative view which differentiated between two academic self-concept factors: maths and verbal. Verbal self-concept concerned beliefs about academic ability in languages as well as humanities subjects, whilst maths self-concept concerned beliefs about ability in science subjects (Figure 2).

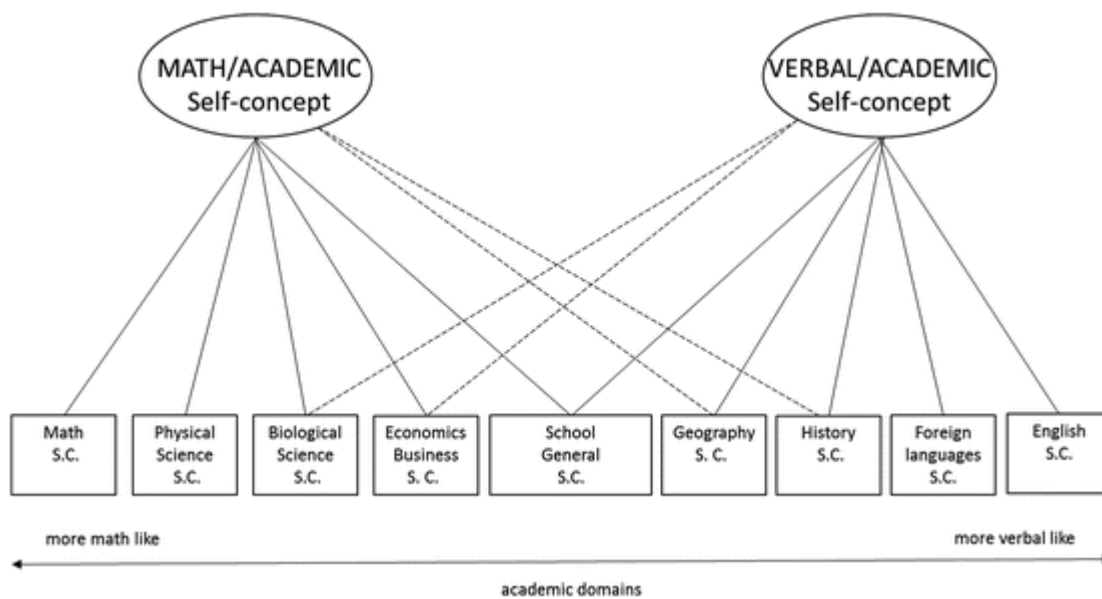


Figure 2. The theoretical model of structure of academic self-concept developed as part of the Marsh/Shavelson revision (Marsh & Shavelson, 1985) of the Shavelson et al. academic self-concept model (1976) (Adapted from Marsh et al, 1988 , pp 378).

This revised model remains pertinent to self-concept research and is currently the model in which the majority of research is situated.

2.4 Age Effects in Self-Concept

Marsh (1989a) suggested that there was a decline in self-concept between early and middle preadolescence. It then remained steady for a short period before beginning to increase at late adolescence and into early adulthood. He also reported that in younger children there was less differentiation between the four domains (academic, social, emotional and physical), but then differentiation increased during adolescence. However, he later refined this to suggest that very young children (approximately 4-6 years) can show differentiation

between the domains more than thought previously (Marsh, Craven, & Debus, 1991). Similar conclusions were drawn by Stipek and MacIver (1989) who reviewed research relating to the effect of changes in age on how children and young people judge their own intellectual competence. They also found a decline in self-concept with increasing age in earlier adolescence together with an increased differentiation, but their suggestion was that the perception of competence in subjects such as maths and English did not occur until around the age of ten (late Elementary school in the USA where the work was conducted).

However, the authors did not address the issue of peer/significant other influence in early to middle adolescence, and it may be possible that the decrease in self concept at this time is related to this. The later increase in self-concept occurs as the individual matures (late adolescence and early adulthood) - perhaps they are less influenced by others at this point?

2.5 Gender Differences in Self-Concept Research

In the same study as mentioned in the previous paragraph, Marsh (1989a) also looked at the effect of gender on self-concept with the conclusion that there were gender differences in the domains which reflected gender social stereotypes. Some of the gender differences favoured girls, such as verbal self-concept, but on the whole boys were more favoured in most of the domains, especially with maths self-concept, and the greatest difference was seen in the physical domain. Further studies have drawn similar conclusions relating to verbal, maths, and physical self-concept (Hattie, 1992, Wigfield et al 1991, Meece et al, 1982). Eccles (1987) also reported the same typical gender differences in verbal and maths self-concept, girls rating the usefulness of their English ability higher than boys whilst boys

rated maths ability more highly. It is important to bear in mind this emerged from research carried out in Western/European cultures and the same stereotypes may not hold true for Asian or Eastern cultures. Eccles noted that as girls grew older and into adolescence their negativity towards maths grew stronger as did their positivity towards English, leading to the conclusion that gender differences in these areas begin to emerge along cultural stereotypical lines at this age, and continued to develop in later adolescence. Marsh (1989b) suggested that this gender difference is due to differential socialisation;

"sex-linked differences in socialization patterns may fail to reinforce adequately boys' positive attitudes, expectations, and performance in verbal areas as well as failing to reinforce adequately girls' positive attitudes, expectations, self-concepts, and performance in mathematics" (Marsh, 1989b, pp 195).

In this quote the term 'sex-linked' would have been the culturally-accepted descriptor, whereas currently the term 'gender-linked' would be more commonly used. For the purposes of this review the two are taken to mean the same thing – the binary view of male and female. It is worth noting that this research was carried out in the 1980's prior to the widespread recognition and use of the term 'non-binary' in relation to gender identity and the shift in societal view of sex versus gender, therefore some care needs to be taken in extrapolating gendered interpretations of research to a group of individuals living 30-40 years after the original research. This does not mean that the 1980's research should be ignored, but more that changes in society in the last two decades may mean that gender stereotyping is different now compared to then.

In his 'High School & Beyond' study (1989b) Marsh continued to explore this, looking at maths and verbal attainment scores in 15-18-year olds. He compared these to maths and verbal self-concept score and later to university attendance. His study found a small gender difference as per the previous research in relation to maths and verbal self-concepts, but found minimal difference between males and females when it came to course selection for maths and English, and that the determinants of course choice were common to both genders. The outcome from the study was that his results did not support his earlier proposition that differential socialisation caused the gender differences, and that the gender difference between maths and verbal self-concept was disappearing. It would be interesting to have this study repeated in current times to explore whether that was still the case.

As discussed earlier in this chapter, self-concept is seen as multi-dimensional and hierarchical, with general self-concept at the top and academic and non-academic aspects of self-concept on the next level down. The next section of this chapter will focus on ASC, exploring how it relates to concepts such as self-esteem, academic confidence and the Big Fish Little Pond Effect (BFLPE).

2.6 Academic Self-Concept (ASC)

Academic self-concept can be defined as the perception of one's academic competence, ability and skill (Trautwein et al, 2009) and evidence suggests that it can start to develop in very early childhood (Tiedemann, 2000). There is a strong comparative aspect to this (Cokley, 2000), and children are already comparing themselves academically to their peers

by the age of 10 (Rubie-Davies, 2006). Marsh (1990) demonstrated the link between ASC and academic achievement, ASC being seen as both the cause and effect of the latter (Cockley, 2007).

As described earlier in this chapter, ASC sits within the multi-dimensional hierarchical model described by Shavelson et al (1976), varying with age but stabilising in older children and young adults. Guay, Marsh & Boivin (2003) suggested this occurred because increasing age brought with it both an increased self-awareness and awareness of the responses of others, and therefore the young person developed a sense of their own self by comparing themselves to others, and this appears to support Marsh's findings around increasing ASC in young adulthood (discussed previously).

The definition of ASC was further refined by Schöne et al (2002) who developed a model to differentiate four domains of ASC: social; absolute; criterial; individual. In the social domain the individual compares their performance with peers, i.e. classmates, and it is closely associated with the Big Fish Little Pond Effect (BFLPE). It is a fair assumption that social ASC is affected by the level of class achievement, with a higher social ASC occurring when the individual performs better than classmates. This social comparison is the underpinning concept of the BFLPE and reflects social comparison theory where there:

“exists in the human organism, a drive to evaluate his opinions and abilities”

(Festinger, 1954, p. 117).

This phenomenon is particularly pervasive where a person compares themselves to others such as in a class where there are a number of highly achieving students, leading students to question whether they are as good as other students (Suls et al., 2002 p. 15). This is especially influential when individuals compare themselves to others perceived to be the same, and therefore the assumption could be made that high-achieving students constantly compare themselves to other high-achieving students in their class.

By contrast, absolute ASC is not related to any specific thing, nor to anyone else, and so is not related to achievement of peers. It more reflects that individual's general belief about their ability in a given situation, i.e. whether they think they are generally good at learning at school. Because there is no comparison to others, Trautwein & Moller stated that absolute ASC was not related to the BFLPE (Trautwein & Moller, 2016). However, other authors have found some evidence that absolute ASC could be related to the BFLPE in school-average ability (Marsh & Craven 1997, Becker & Neumann 2016), whereas Jackman et al said that there was no relationship (Jackman et al 2011). However, Jackman's study was carried out in a small group of university students whilst the other studies were carried out on larger groups of school-age pupils. It may be that the relationship is dependent on other factors such as age and level of study.

(NB – in this chapter the term 'pupil' relates to individuals of compulsory school age, i.e. up to 16years, 'student' is used to refer to those in post-compulsory education).

Neither criterial ASC (individual performance evaluated according to an objective criterion or standard), nor individual ASC (individual performance of self in comparison to previous

performance of self) are influenced by social comparison, so this is difficult to frame in the social context essential to the BFLPE, therefore the assumption is that criterial and individual ASC are not affected by the BFLPE (Marsh et al., 2008). Taking a wider view of these four domains, it is difficult to see them as wholly separate and independent of each other, and a reasonable approach to take would be to accept that there is over-lap between them, albeit to differing extents.

2.7 Benefits of a positive ASC

Chen et al (2013) state the benefit of a positive ASC is that it motivates academic performance. Their study explored the relationship between ASC and achievement, and they found that in Chinese students aged 16-18 years old, prior academic success positively affected subsequent ASC, and prior level of ASC influenced their academic achievement. This reciprocal relationship appears to be related to age as younger children have less stable ASC and therefore do not exhibit the same effect. As age increases and children begin to understand their abilities their ASC becomes more stable and becomes a better indicator of academic achievement (Marsh, Craven & Debus, 1998).

ASC also appears to be a good predictor of the choice of academic route, the level of ASC directly influencing the type of institution and course selected, future aspirations, and ultimately a student's general achievement on their chosen course (Guay et al, 2003, Guay et al 2004, Marsh & Craven 2006, Chapman et al, 2000, Jackman et al 2011). Where an individual has an higher ASC they are more likely to feel confident in their ability - ASC in older children and young adults predicts motivation and achievement level (although not

specific achievement in specific assessment) and in turn achievement predicts ASC (Chen et al, 2013), offering the conclusion that ASC may possibly be one of the most important constructs in social science (Marsh & Craven, 2006).

2.8 Academic Self-concept and Academic Self-efficacy - is there a difference?

Self-concept has frequently been considered to be the same as self-efficacy, but there are fundamental differences between them (Jackman et al, 2011). Self-efficacy was defined by Bandura as the belief in one's ability to succeed in a specific task, and according to Bandura people with high self-efficacy view difficult or challenging tasks as opportunities to succeed. Being internalised, it is not usually influenced by the performance of others (Bandura, 1982), whereas self-concept relates to individual beliefs about self in relation to others and may change as external reference points change, e.g. starting a new university course, or being part of a new cohort.

ASC and academic self-efficacy are also terms which are often, and incorrectly, considered as the same. Academic self-efficacy theory is the belief that an individual can be successful at a specific subject, at a specific level (McGrew, 2007). It is based in the social cognitive model of motivation and according to Eccles & Wigfield (2002), Bandura defined it as;

"...individuals' confidence in their ability to organize and execute a given course of action to solve a problem or accomplish a task; he characterized it as a multidimensional construct that varies in strength, generality, and level (or difficulty)" (Eccles & Wigfield, 2002, pp 110).

Individuals demonstrating high self-efficacy are able to organise themselves, plan and execute tasks effectively, and are confident in their ability to do this, although there may be some task-selection in that individuals tend to avoid tasks where they feel less competent - one could ask whether this is more a reflection of staying within a comfort zone where competence is high rather than risking poor performance in an unfamiliar task. Is this perhaps the individual not demonstrating high self-efficacy but rather anxiety around having low competence at a different task, leading to avoidance of that task? Self-efficacy theory suggests that self-efficacy will vary with the difficulty of the task, therefore to answer the question posed above, its level varies with the task. In the context of academic self-efficacy this means that a student may perform well in one subject, but this is not necessarily predictive of how they will perform in a different academic subject. i.e. it is situational rather than stable. So, whilst it can contribute to academic performance, positive self-efficacy cannot compensate for a lack of skill or knowledge. Therefore, if a student anticipates failure because they know they do not possess the requisite knowledge/skill, they are less likely to actively engage in the learning activity (Wentzel, 1999).

Considering the above, it is clear that academic self-efficacy differs from ASC – it is task specific, relating to the belief in how well one can perform that task, and can change in relation to the difficulty of the task. ASC is the general perception of one's ability, particularly in comparison to others, and unrelated to competence in specific tasks.

2.9 Academic Self-concept and Self-Esteem

These two terms are also frequently used to mean the same thing, but as with the terms discussed above, they are distinct. As previously discussed ASC focuses on the belief of being good at an academic subject compared to others in the class, and therefore has an external frame of reference. Self-esteem focuses on the affective belief about the self, irrespective of the performance or behaviour of others;

‘Self-esteem is the sense of value, degree of approval, affirmation, and a feeling of self-acceptance and self-worth that individuals have toward themselves’ (Amirkhani et al, 2018 pp747)

In contrast to ASC, self-esteem has an internal frame of reference which compares the self with the self across a period of time, relying on self-generated aspiration rather than comparison with others. (Skaalvik & Skaalvik, 2002). Those with high self-esteem cope more easily with difficulties, whereas lowered self-esteem often creates feelings of low self-worth, anxiety, and feelings of inadequacy (Amirkhani et al, 2018). It is clear there is a link between ASC and self-esteem because academic achievement can be linked with higher self-esteem, but it is important to be clear that whilst the two may be closely aligned, they still remain as separate concepts. Self-esteem will be discussed in more detail in Chapter 7; Exploring the Themes.

2.10 Is Academic Self-concept the same as Academic Confidence?

A further clarification to make is the difference between ASC and Academic Confidence. The latter was discussed by Sander & Sanders (2006) and defined as;

“the way in which students differ in their approach to their actions in order to achieve their academic objectives” (Sander & Sanders, 2006, pp29).

Academic confidence is held to be different to general confidence and is relative to how an individual views their own academic ability so there is some over-lap with ASC, and to some extent, self-esteem. As with self-esteem, academic confidence has an internal frame of reference, and as discussed above, ASC has an external reference frame as it relies on comparison with others. Belief in, and expectation of, success in academic study generally means that students will perform well where they feel competent (they have self-efficacy). Students with higher levels of academic confidence are frequently high achievers whereas students with lower academic confidence may be less engaged and have difficulty in transitioning from one academic environment to another, as well as perceiving some tasks to be more difficult than they really are. Students with high ASC also have a strong belief in their own ability, but this is their personal perception relative to others in their class and therefore this may change in relation to different cohorts or groups.

2.11 The Big Fish Little Pond Effect

Students with a high ASC are more likely to continue with behaviours that increase their academic success. If they do succeed, this becomes self-affirmatory and they continue to carry out these behaviours. This reciprocal model shows that achievement and ASC are mutually reinforced (Arens et al, 2016). Continuing this rationale, it should also follow that a student with a lower ASC may have a negative self-concept, and by comparing themselves to ‘brighter’ classmates may be demotivated. In this situation a student may feel that they

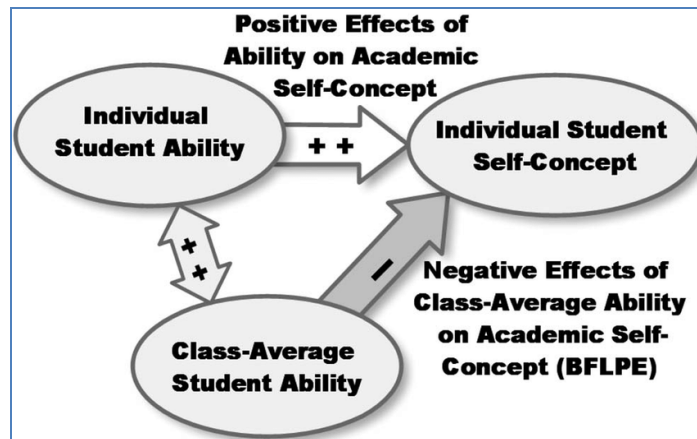
cannot compete and their behaviour changes so that they fail to achieve their full potential. This negative contrast effect is thought to have a strong influence on creating a lower self-concept in students (Marsh et al., 2000; Trautwein et al., 2009).

Alongside this is the importance of social comparison (Marsh & Craven, 2002) demonstrated in the Big Fish Little Pond Effect (BFPLE), first described in this context by Marsh & Parker in 1984, and which has since become a hugely influential theory in educational psychology. It described the phenomenon of students who were in classes with highly achieving students having a lower ASC when compared to students of similar ability in lower-achieving groups. Hofreichter et al (2018) provides a good definition of BFLPE:

“A student (little fish) who attends a high ability class or school (big pond) has many opportunities for upward-comparisons, which in turn are related to a low self-concept. However, if a student (big fish) would attend a rather low-ability class or school (small pond), the opportunity for downward-comparisons increase, leading to an increase of the student’s self-concept.” (Hofreichter et al, 2018, pp2)

This is illustrated in Figure 3, showing the relationships between individual student ability, individual self-concept and class average ability. A student who perceives themselves to be ‘good’ at something will have a higher self-concept if they are amongst students they don’t perceive to be as good. However, if classmates are perceived to be ‘better’, then that student will have a lower self-concept. This negative effect is the BFLPE.

Figure 3. Conceptual model of the big-fish-little-pond effect (BFLPE). Taken from Marsh et al, 2014.



2.12 Social Comparison Theory

The BFLPE relies on social comparison, a constant phenomenon which individuals make in multiple situations on a daily basis. Research on social comparison can be traced back to William James in the 1890's, but was more formalised by Leon Festinger as Social Comparison Theory in 1954. Festinger proposed nine hypotheses:

1. People try to evaluate themselves and their abilities through objective means;
2. If objective means are not available then people compare themselves to other people;
3. As people's opinions diverge, the tendency to compare decreases;
4. People constantly want to improve, whether it be in their ability, status, or achievements;
5. There are external factors that can make it impossible to change one's ability;
6. People stop comparing themselves when the object of the comparison is no-longer desirable or beneficial;
7. When the comparison group becomes more important or valuable, people will try harder to appear more similar to the group;

8. People tend to distance themselves from others who hold significantly diverging opinions;
9. People who hold very similar opinions to the majority of others within a group are less likely to change their own opinions, and are more likely to be influential on others.

The theory has been developed and refined, particularly in relation to the types of social comparisons people make, one such being the concept of downward comparison (Wills, 1981). Downward comparison is when someone compares themselves to another group or person in order to feel better or more superior, this having a positive effect on their self-regard. Comparing oneself to those who are seen as superior (upward comparison) can have a negative effect on self-regard. If this was contextualised as ASC in a learning environment, downward comparisons would be more likely to result in increased ASC, hence the Big Fish Little Pond Effect. This is supported by the work of Wheeler & Suls (2005), which confirmed that upward social comparisons with students who performed better led to lower self-concept.

However, Collins (1995) suggests this may not always be the case, and that people may make upward comparisons in order to create a more positive view of their situation, encouraging the aspiration towards self-improvement. In this case, individuals may highlight the similarities between themselves and the 'elite' or desirable group so as to increase the association with that group. An example of this 'reflected glory' (or assimilation effect) can be seen in relation to the type of institution attended by a student.

Pupils attending highly achieving schools feel pride in their school's good reputation, even if they are not the most highly-achieving pupil and this has a positive effect on their ASC.

However, this can be counter-balanced by the BFLPE which occurs within their specific class (Hofreichter et al, 2018), and this negative contrast has been shown to have the greater impact on ASC (Marsh et al., 2000; Trautwein et al., 2009).

Since the introduction of the BFLPE concept it has been researched in different educational, social, and cultural contexts, has proved to be intercultural and stable, and is seen across all levels of student ability (Marsh and Hau, 2003; Huguet et al., 2009; Seaton et al 2009, Chiu, 2012; Becker and Neumann, 2016; Areepattamannil et al., 2017). Marsh et al (2007) also demonstrated that it could continue for up to four years after students had finished their education, and that it occurred in students with special educational needs as well as gifted and talented students (Marsh & Craven, 2006, Preckel et al, 2008). However, there is variation in agreement over the size of the effect, ranging from it being minimal to moderate; this makes it difficult to provide a definitive conclusion for the size of the effect, and many researchers suggest that there are many variables and factors that may moderate the BFLPE, eg, age. Effect size is important to consider as this indicates the amount of difference made by (in this case) the BFLPE, the larger the effect size the more likely that the BFLPE is occurring. But there are a large number of variables in this situation and therefore large effect sizes are difficult to obtain. Marsh (1987) stated that the effect was more likely with younger children as they were beginning to form their ASC, however a 2018 meta-analysis found that BFLPE was significant across all ages right up to college education, but was strongest in high school and weakest in primary school (Fang, et al, 2018)

Fang et al state that college students are experienced enough not to rely much on the opinions of others but this is somewhat of an over-simplifying sweeping statement. What is more likely is that there were insufficient data in the studies included in the meta-analysis to provide further clarification, and therefore the nuances and influences within this age group were not obvious. In relation to the strongest effect being seen in high school, this is attributed to the streaming system that creates classes of high, medium, and low achieving pupils (Houtte and Stevens, 2015; Salchegger, 2016; Dumont et al., 2017). Immediately, pupils in the highest level classes face increased academic pressure to perform, allowing for greater comparison between classmates. Whilst there may be an assimilation effect in being part of the 'top' group, the contrast effect of seeing other pupils perform better has a greater effect on ASC – it feels good being seen as a high achiever, but it feels bad when someone else performs better. Pupils in the middle and lower groups may not feel the assimilation effect, and they are just as exposed to the contrast effect if they see others in their class performing better. In reality, it does not matter what level of ability these pupils have as they are all at risk of experiencing the BFLPE. As ASC has been found to be a better predictor of achievement than previous academic performance and has a significant impact of future educational and occupational choice, it is important that specific attention should be paid to the BFLPE during high school in order to try and minimise its effect.

A further factor which may impact on the BFLPE is the type of study undertaken. It is clear from the literature that there is a significant amount of evidence supporting the importance of ASC for self-esteem and achievement and their contribution to the BFLPE, but much of this relates to children in compulsory education, or students in post-16 educational settings.

In these environments there are usually a range of abilities within a single learning cohort and therefore it is possible for an individual to see themselves as being more academically able in comparison to colleagues. However, highly achieving students frequently have high aspirations, and those who go on to study subjects which are challenging, such as medicine, will face the reality of being in a cohort of students who have all been highly achieving – they have all been ‘the biggest fish in the pond’. In these situations, it has been noted that as highly successful students move into high ability settings, their level of ASC decreases (Marsh et al, 1995, Marsh et al, 2008).

Research also suggests that the influence of class composition is important, particularly in groups of high-achieving students (Dumont et al 2017, Stabler et al 2017), although the impact of classroom composition and the social context was not greatly understood until Hoferichter et al’s 2018 study. This study looked at BFLPE in 779 high-ability students in high-ability-tracking schools in Germany (Gymnasium) which focus on students gaining entry to university. The researchers expected to find that BFLPE was present in these students, and that the higher the overall class achievement, the lower individual ASC would be. The study results indicated that students with high academic achievement tended to have high ASC in all four domains (social, individual, absolute, criterial), and that there was a strong relationship between average class achievement and social ASC:

“When comparing two students with equal achievement, but from different classrooms, students from classrooms with higher overall achievement reported significantly lower levels of social ASC. This effect is particularly striking, because with every improvement of the overall grades on the class level, a student’s social ASC

decreases. This result not only confirms the BFLPE in homogeneous high-achievement settings, but also supports the idea that the BFLPE is driven by social comparison mechanisms based on social comparison theory” (Hoferichter et al, 2018 pp8)

In effect, the ‘cleverer’ and more highly achieving the learning group overall, the more the ASC reduces, demonstrating that the social environment has a significant impact on ASC. There has previously been criticism of BFLPE research inferring that it does not provide evidence that BFLPE truly exists (Dai & Rinn, 2008), but Hoferichter et al provide clear evidence of its effect in this study, and clearly link it to Social Comparison Theory.

If they are correct in their conclusion that social comparison is an integral factor in ASC, then one could also consider that a pupil evaluates their ability purely on the social context of the school (i.e. a highly achieving or an average-achieving school) and that comparison with class-mates performance may not even be necessary, self-concept being a social product (Rogers, 1947).

2.13 Gender and BFLPE

Generally it has been thought that BFLPE is not influenced by gender (Marsh & O’Mara, 2010, Marsh et al, 2008), and as mentioned previously it has been shown to be intercultural and stable across all levels of student ability. The only factor which appears to have some influence is anxiety level, with BFLPE being more obvious in very anxious students. This was demonstrated by Seaton et al (2010), although their research did not report on whether there was a gender difference in levels of anxiety.

The first research to specifically investigate the influence of gender on BFLPE was carried out in Germany (Plieninger & Dickhäuser, 2015). They hypothesised that BFLPE was more apparent in females than males;

“females might be more susceptible to the invidious influences of their classmates because they feel more attached to their peers than males do... .. Seeing that the BFLPE results from social comparison processes, and seeing that females seem to be more responsive to such comparisons, we expect a larger BFLPE for females”

(Plieninger & Dickhäuser, 2015 pp217).

The study used data from the PISA-E assessment of 15-16 year old German pupils in 2006, resulting in a sample size of 35,015, 49.8% of which were female, and in 2006 the assessment focused on scientific literacy. The results showed that the BFLPE was greater in girls than boys and concluded this was because girls relied on performance of their classmates to help them judge their own performance. As previously discussed in this chapter BFLPE relies on social comparison theory and research indicates that females employ social comparisons more than males (Guimond et al, 2007; Wehrens et al, 2010) therefore this would not seem to be a surprising result. The results further reported that females were more attached to their classmates and that this also made them more likely to demonstrate the BFLPE more than males, but the authors did not provide evidence of how they had confirmed this. It is possible that social attachment was demonstrated differently between genders but the authors were not aware of this. Finally, the research also confirmed the findings of earlier work about the influence of anxiety, and that being anxious

made pupils more vulnerable to the BFLPE, but again there was no report of whether anxiety levels were greater in males or females.

Whilst this study does provide some evidence of a gender difference it is sensible to remember that the assessment from which the data was collected was science-based. As discussed earlier in this chapter, boys have a higher self-concept in maths and science domains compared to girls (Hattie, 1992, Wigfield et al 1991, Meece et al, 1982, Eccles (1987), and there is a clear link between BFLPE and ASC (Marsh & Parker, 1984), so it is perhaps unsurprising that in this circumstance there was a gender difference in the results. Perhaps if the data had been collected around a verbal/language-based assessment the result would have been the opposite, therefore it is clear that further work is required in this area which encompasses more than the maths/science domain.

What is important to bear in mind when considering gender and BFLPE is that much of the research has been carried out pre-2000's therefore the social constructs around gender stereotyping and gender expectations are different. When looking at this research through the lens of today's view of gender we could perhaps be in danger of dismissing some of the findings, so perhaps a better approach would be to remain mindful of the context of that research and the judgements that were made within socially accepted norms of that time. In a further couple of decades a new generation of researchers may have added to the body of knowledge and the understanding of the influence of gender (however we define that) on BFLPE may well develop differently.

2.14 Stress and ASC

In the context of this study, the focus is on ASC in medical students and its impact on their learning. The assumption that all medical students are equally academically orientated and will not be affected by comparison with other able students is explored in Coburn & Jovaisas' 1975 study. They looked at stress in a group of first year medical students (n=55), particularly in relation to perceived failure, finding that students feared they would not be able to manage their learning or acquire the correct level of knowledge, and the researchers concluded that this was highly damaging to the students' ASC. The students completed a questionnaire and self-rated themselves against 19 listed sources of current and anticipated stress, rating their responses on a five-point scale from 'not stressful' to 'highly stressful'. A point to note here is that the authors did not state whether each point on the scale was provided with a definition, therefore choice of category by the student was based on their own subjective definition of what these terms meant, so it is possible that aspects of individual resilience to stress and differing coping mechanisms may have had an impact on the choice of category. As part of this study the researchers assumed that the main sources of stress would be around academic issues, and whilst the top four sources of student-reported stress were academic, the results indicated that social stress was also important although the researchers did state that levels academic and social stress appeared to be independent of each other. They also noted that there appeared to be the formation of small sub-groups within the medical cohort consisting of students who were not 'typical' or 'mainstream' medical students, e.g. being female, married, or not having attended the institution previously on pre-medicine programmes. These students were much less certain of their academic competency, either because they were genuinely less able than their

counterparts, or because they felt a much greater need to achieve high grades but had no opportunity to compare themselves fairly with their colleagues. Students in these sub-groups did not have lower levels of stress and anxiety, but their stress was related more specifically to academic issues and their personal ability to be successful. The students who were considered 'mainstream' and had previously been in pre-medicine programmes did not have the same levels of academic stress, but instead had higher levels of social stress than the sub-group students.

The researchers also noted that students suffered indirect stress through experiencing thoughts about the volume of knowledge they were expected to acquire, the fear of dropping out of the programme, or whether illness may prevent them from attending, which led researchers to suggest that perceived stress may be more important in relating student attitude with student-school interaction whilst at medical school. The researchers concluded that all students felt significant stress regarding their programme whether academic or social, but that there were no mechanisms in place to help prepare students for dealing with this and that the encouragement of academic competition within medical schools placed unnecessary demands on students. A point to note here is that this study did not explore in great detail the influence of differing social background in the formation of the sub-groups, and whilst this would seem to be a significant omission it is important to remember that issues of social mobility in medicine in order to reflect a more diverse society, and the Widening Participation agenda were not as influential in the 1970's as they are today.

The prevalence of stress in medical students was also explored by Mosley et al (1994). Depression, stress, and coping were explored in 69 third year medical students at Mississippi Medical Centre using a combination of questionnaires and symptom inventories. Clinical depression was found in 23% of students whilst 57% reported high levels of somatic distress (physical symptoms of stress). The study did not explore the causes of stress in any detail as the focus was on how students dealt with stress, concluding that students who had developed coping strategies had lower levels of stress and fewer symptoms of depression. However, the study is valuable in the context of acknowledging the high levels of stress amongst medical students.

Guthrie et al (1995) investigated stress in first year medical students at a UK medical school. Students were sent postal questionnaires and asked to complete the 12 item General Health Questionnaire (GHQ-12), the Maslach Burnout Inventory (22 item self-report), and the course stress questionnaire, and also to self-report their levels of alcohol intake. Of the 204 students invited to participate, 172 completed the questionnaires and provided the requested information, giving a response rate of 84.3% (a good response considering this was a postal questionnaire). The GHQ-12 measured probable psychological disturbance and 36% of students scored above the threshold for this, with no difference between males and females. Alcohol intake levels were generally reported as higher in males compared to females although there was no correlation between levels of stress and level of alcohol intake. However, self-reporting of alcohol intake is known to be unreliable in relation to actual alcohol intake, and it is seen as less socially-acceptable for females to admit to higher levels of alcohol intake, so the correlation could be somewhat tenuous in this context. This

study was carried out in year one medical students and indicates that even in the early stages of training the levels of stress can be high enough to cause psychological harm. However, Guthrie et al's 1995 study collected data from a single measurement point only and therefore it would be difficult to determine from this the effect of stress across a full under-graduate five-year medical degree.

Guthrie et al (1998) then proceeded to complete a 5-year longitudinal study to assess levels of psychological stress in medical students using the same cohort as their 1995 study. The 1998 study's two aims were to establish whether some students would regularly report psychological issues throughout their training, and to identify possible issues in year one which could predict psychological stress in the final year of the programme. The first year students who participated in the 1995 study had already provided their baseline data therefore there were 172 participants for the 1998 study, and in year four 167 students returned questionnaires, falling to 155 for the final year. As with the 1995 study, alcohol intake was self-reported therefore the same care in interpreting correlation would be required for the 1998 study. Those who did not participate in year one were not approached for further data in the later years as there would be no baseline comparison for these students. The results indicated that a small number of the students experienced psychological distress throughout their medical training. This group also reported higher levels of stress in their first year compared to other students, but this difference was not repeated in the fourth or fifth years.

The strongest predictor of psychological distress in the final years of the programme was the year one score on the GHQ-12 questionnaire, with reported stress in year one being associated with stress in the later years of the programme, but the authors conceded that the relationship is weak. They also failed to consider the unique situation of year 1 medical students who are not only dealing with new academic information but are also experiencing the difficult transition into higher education, combined with a move away from home (possibly for the first time), and the need to develop a new social circle. By years 2 and 3 the students are no-longer in that transition and are likely to have settled in to living independently with established friendship groups, therefore it is likely that some of the sources of stress have gone. The authors suggested that a further longitudinal study was needed to explore any relationship with reported stress in year one with stress during working years, and it would be interesting to see if any such study compared the stresses associated with starting a new job with those experienced when starting at university, both or which are significant transitions.

Firth-Cozens (1987) carried out a study where data collection extended for a further period of time after graduation of medical students. No relationship was found between reported stress during fourth year UG training and reported stress in GPs ten years post-graduation. The Firth-Cozens study did demonstrate that students with high levels of self-criticism reported higher levels of stress once they had started to work in General Practice. As with the earlier Guthrie et al 1995 study, Firth-Cozens (1987) and Guthrie et al (1998) both demonstrated no difference between males and females in reported stress levels. However, there does need to be a note of caution as the data was collected from self-report

questionnaires which can lack validity, but this limitation is acknowledged by the authors. Guthrie et al (1988) did not explore personality factors, and neither are these mentioned in the Firth-Cozens study so the impact of personality traits such as neuroticism and conscientiousness were not considered, therefore it is possible that in some students these played a larger role in contributing to their stress levels. Guthrie et al concluded:

“Our findings suggest that medical schools are currently admitting a small group of students who are distressed at the beginning of their training and may remain distressed throughout. These few individuals are at high risk of emotional disturbance during postgraduate training. Further work needs to be done so that they can be identified either before they have entered medical school or early in their medical training. The instruments used in this study were crude. More detailed psychological profiling of students might help to identify those who are psychologically unable to cope with medicine as a career, while distinguishing them from students who are empathic and receptive to the distress of others” (Guthrie et al, 1998, pp242).

Saipanish (2003) also investigated stress in medical students who cited that their leading causes of stress were academic problems, mostly related to tests and examinations, followed by difficulty with course content. This study looked at stress across all years in a Thai medical school and involved 636 participants with an average age of 20 years and 5 months and an equal distribution of males and females. After holding focus groups to identify possible sources of stress, the students completed a questionnaire which consisted of the Thai Stress Test (TST) and further specific questions formulated from the results of

the focus groups. Students were asked to rate themselves on a four-point scale from 'no stress at all' to 'severely stressful'. The Thai Stress Test (Phattharayuttawat et al,2000) is designed to reduce language and culture barriers and is specifically focused on stress in Thai people. It consists of 24 items and is rated on a three-point scale of 'never', 'sometimes', and 'often'. It focuses on events in daily life rather than specifically in medical school, and therefore the researchers used this to indicate levels of stress separate to those related to study and academic work.

Of the thirty-one identified sources of stress, the top source of stress was academic problems (46.8%), followed by difficulties with peer relationships (42.1%), and personal health issues (32.9%), although researchers did state that support from tutors was offered around this and that students found this beneficial. Overall, 61.4% of the participants felt stressed and fell into the mild stress (59%) and high stress (2.4%) categories. It is interesting to note that no significant relationship was found between academic achievement and stress level, but this could well be related to the design of the study which was short term and did not measure stress levels over a long period of time, therefore it would be difficult for this study to explore changes in achievement related to stress.

Saipanish also noted that the atmosphere was highly competitive, and whilst raw assessment scores were similar amongst the students, the grading process created a 'top' and 'bottom' set of students. This allowed comparison with each other rather than measuring what the students had learned, which he deemed to be unfair and damaging to their ASC. Saipanish concluded that this grading system created an even more competitive

environment which impacted negatively on student peer support mechanisms and therefore he felt that a better evaluation system was needed. Whilst the study sample consisted of equal numbers of male and female students with no difference in academic stress levels reported between the genders, there was no further discussion about this lack of difference. It is possible that the specific design of the questionnaire mitigated for this, or that cultural factors were influential in how stress was reported in males and females, and it is a weakness of the study that this was neither explained nor explored.

2.15 Student Wellbeing

Following on from the above exploration of stress and ASC, it would be appropriate to also look at the issue of student wellbeing.

“The mental health of university students has been a public health issue of increasing concern in recent years with a growing body of empirical research showing that university students are a ‘very high risk population’ for psychological distress and mental disorders (Baik, Larcombe, & Brooker, 2019 pp674).

There is an increasing awareness of mental health issues in the general population, particularly in the younger generation. A recent survey, based on figures from 2017 showed that there has been an increase in reported emotional disorders in 5-15 years olds (including anxiety and depression) from 3.9% in 2004 to 5.8% in 2017, and across the whole 5-19 year old group approximately 8.1% reported emotional issues, which translates as 1 in 12 individuals (Mental Health Foundation, 2021).

These figures relate to young people generally not just those in education, but this does create a significant issue within educational institutions, and evidence demonstrates that prolonged psychological distress impacts emotional, physical, and cognitive function (Kitzrow, 2003). The years of further and higher education in particular represent a time of greater vulnerability to reduced mental health, with increases in depression and anxiety reported at this time (Liu et al, 2018). This affects not just the student but may also impact on peers and staff in the form of disruptive behaviour and poor academic performance, but at the extreme can lead to self-harm and suicide (Brooker, Baik, & Larcombe, 2017), necessitating the requirement on ethical grounds for institutions to take steps in ensuring student and staff wellbeing is a high priority.

This is not a new phenomenon and not limited only to UK universities, e.g. Stallman's 2010 study carried out at two large universities in Australia reported elevated levels of psychological distress in 84% of participants compared to 29% within the general population, and similar reports arise from studies in the USA, Canada, Spain, Greece, and Sweden (Eisenberg, Hunt, & Speer 2013; Dyrbye, Thomas, & Shanafelt, 2006; Adlaf, Demers & Gliksman, 2005; Vaez, Kristenson, & Laflamme, 2004). Denovan et al's 2019 UK study highlighted the need to particularly address this on a practical level as an understanding of the levels of distress and the nature of them is essential for the development of appropriate counselling and support services. This is especially important as problems can be acute in students up to the age of 26 years because they are still transitioning to becoming adults (Macaskill, 2013), as well as dealing with multiple stressors such as academic demands, funding, part-time working, and parental pressure (Denovan et al, 2019). An even more

recent UK study looking at psychological distress in dental students reported levels of 36-44% and levels of 21-36% in medical students compared to 17.8% in the general population (Collin, O'Selmo, & Whitehead, 2020), a reminder that psychological distress is not limited to one student discipline.

Universities are in a position of responsibility for the wellbeing and welfare of their students and there have been multiple initiatives to help improve mental health, promoting the development of initiatives to manage stress and also a recognition of the importance of promoting a positive mindset (Wells, Barlow, & Stewart-Brown, 2003; Stallman, 2011), but whilst these initiatives are important there is still limited evidence of their effectiveness (Baik, Larcombe, & Brooker, 2019). The recognition that student mental health and wellbeing is also related to the social and academic environment is also becoming clearer;

“the ability of individuals to cope with and manage stress only addresses one part of the picture of student mental health; it is also important to promote protective factors in the university’s social and academic environment... In a university context, this approach recognizes the importance of the teaching and learning environment to students’ mental health and wellbeing”. (Baik, Larcombe, & Brooker, 2019 pp676).

There has been little focus on how universities could manage environmental stress and provide health-promoting environments (Dooris et al, 2010), with even less focus on the student perspective of this (Baik, Larcombe, & Brooker, 2019). Given that one of the research questions in this study was to ascertain factors affecting ASC it could be argued that some of the factors influencing ASC and student mental health/wellbeing may be

common to each other, and hence the outcomes of the study may help in the development of appropriate student support processes.

2.16 Gender and ASC.

Earlier in this chapter the relationship between gender and BFLPE was explored, so in this section studies exploring the effect of gender on ASC will be discussed, being mindful that the points raised previously regarding social concepts of gender are also applicable to these studies. It is generally stated that ASC is higher in males than females (Kling et al, 1999). Some studies also indicate that there are differences in belief about academic ability and competency between the genders (Marsh, 1989a, Wigfield et al 2001), whilst others more specifically suggest differences based on certain subjects, as discussed earlier in this chapter (section 2.5). The effect of age generally on ASC was discussed earlier in Section 2.4, but it seems that little work has been done to look at this in relation to gender, type of study, and type of institution.

Significant differences in ASC were reported by Sar Abadani Tafreshi in a 2006 study in Iran (Sar Abadani Tafreshi, 2006) with males reporting higher levels than females. This study took place in the University of Tabeiyat Moalem in Iran, therefore the strong influence of social and religious factors could be thought to account for this. However, a different study, carried out at the University of Shiraz, also in Iran, found that self-concept was not influenced by gender (Hossaini, 2002), therefore the potential influence of these factors may not be important. The differences in ASC reported in the 2006 Sar Abadani Tafreshi study confirmed the findings of an earlier study at that same institution, when a significant

relationship had been identified between self-concept and gender (Zareh, 1994), therefore perhaps the influence of the cultural attitude of the institution may be more important when exploring gender differences in ASC.

The role of gender in ASC was also explored in Matovu's 2012 study involving university students (not specifically medical students) in Malaysia. Results indicated that females showed higher academic effort than males, had higher ASC levels and showed higher academic achievement, which contrasted with results from earlier studies (Kling et al, 1999, Hossaini, 2002, Zareh, 1994). This study also showed that females in the Faculty of Arts and the Faculty of Sciences achieved more highly than males (in undergraduate study) and concluded that as academic achievement directly correlates with ASC, then females in these Faculties had a higher ASC than males. This contrasts with Marsh (1989) and Harter (1999) who said that males had higher ASC on science-based courses than females. The Matovu study concluded that in terms of teaching and learning strategies and student support, consideration should be given to gender differences as ASC can be influenced by this, and that the level of ASC can be reflected in the student's academic achievement.

2.17 ASC, locus of control, and academic dishonesty

Attributing success or failure depends upon where a student perceives the control of the situation lies and whether it is internally or externally attributable, i.e. an internal or external locus of control. The belief that success or failure is not under personal command may lead to academic dishonesty (the willingness to pass off the work of another as one's

own), and students with an external locus of control may believe that they have no control over achieving success. This may lead them to be more willing to be academically dishonest;

“Cheaters tend to consider their behaviour acceptable when they can describe it as caused by external forces rather than their own dishonesty” (Rettinger & Kramer, 2009, pp295).

Beliefs about the self, such as locus of control and ASC, are thought to influence the decision to be academically dishonest (cheat), and the attribution of success, whether internal or external, is involved in how a student perceives themselves and the formation of their ASC (Marsh, 1986, Siegle et al, 2010). Locus of control relates to the perception an individual holds about the causes of success or failure in their life (Findley & Cooper, 1983, Weiner, 1985, Rin & Boazman, 2014):

“For example, if an individual interprets a failure as the result of too little effort (an internal locus of control), he or she likely believes that increased effort will make a positive change in the outcome. Those with an internal locus of control are more likely to strive for achievement, work to improve their situation, apply what they learn toward positive outcomes for the future, and persist in the face of failure. Conversely, if an individual interprets a failure as the result of a difficult exam or an unfair instructor (an external locus of control), he or she may believe that his or her performance is due to factors beyond his or her control and may not see any reason to hope for future improvements” (Rin & Boazman, 2014 pp89).

There is general agreement that it is better to have an internal locus of control (Crandall & Crandall, 1983), which also tends to lead to higher academic achievement and greater academic success generally (Kirkpatrick et al, 2008). There is also consensus that high ability students such as those studying medicine have a strong internal locus of control (Assouline et al., 2006; Heller & Ziegler, 1996; Laffoon, JenkinsFriedman, & Tollefson, 1989; Siegle et al., 2010). Lafoon et al (1989) also state that highly achieving gifted students show a significantly higher internal locus of control compared to gifted students who underachieve, and this is confirmed by Knight (1995) who demonstrated that underachievers have a lower internal locus of control than high achievers. This could be because highly achieving students have more confidence in their ability and success;

“In other words, gifted students tended to believe they have more control over their coursework due to the fact that they could control the learning strategies they used and the amount of effort they put in to their work” (Rin & Boazman, 2014 pp90).

The relationship between ASC and locus of control is an important one as having a higher ASC and the accompanying belief in ability and control over performance may prevent a student from trying to cheat (Murdock & Anderman, 2006), and for medical students this is especially important as any proven case of cheating or academic dishonesty in any form usually results in expulsion from the programme. There has been little research into cheating amongst high ability students, possibly because higher ASC and high academic self-efficacy lead to lower levels of academic dishonesty (McCabe & Trevino, 1997; Whitley, 1998) and so there are many fewer cases. However, Abilock (2009) suggests that given the high stakes and heavy workload of challenging courses (such as medicine), it is unlikely that

some students do not engage in dishonest behaviour to some degree. This is an interesting stance to take and perhaps indicates a level of cynicism from that author. The suggestion that there is cheating on medical programmes is one that is difficult to investigate, but one must bear in mind that it may be occurring at some level but that the academic systems are not yet sensitive enough to detect it.

2.18 ASC and medical students

A study which directly focuses on ASC in medical students was carried out by Jackman et al (2011). This measured the ASC of twenty first year medical students using the Academic Self Description Questionnaire II (ASD-QII). This tool was specifically designed by Marsh in 1992 to measure ASC in school-age students. It used a range of subject areas (e.g. geography, English literature, music, art) and asked students to rate themselves on an eight-point scale in relation to questions on their performance in these subjects, such as 'I get good marks in maths'. The scale ranged from 'definitely false' to 'definitely true', with a total of 136 questions. Jackman et al modified the questionnaire so that the phrase 'in most academic subjects' replaced references to specific subjects, and changed the scale responses to range from 'strongly disagree' to 'strongly agree'.

The modified questionnaire was applied before and after the student's first assessment, and was followed up by focus groups. The results of the questionnaire were that there was no statistically significant difference between the before and after assessment scores for ASC, suggesting that academic self-concept did not change in this group of students, and their performance in the assessment did not appear to have any effect on their self-concept level.

The outcomes from the focus groups also suggested that there was very little change to ASC after assessment, with a number of themes arising which were related to satisfaction with their performance, and an expectation that they could improve this. The major theme was the attribution of poor performance to externalised factors, such as examination questions being irrelevant, their revision time being too short, or being unsure what to expect. Students also felt that if they had put more effort into their preparation, they would have performed better.

The general conclusion from this study was that there was no change in self-concept in medical students, that the BFLPE was not occurring, and that the nature of the programme created a level of competition between students. However, the sample size in this study is relatively small, involving only 15% of students from a single cohort, and taking place within a very narrow timescale, therefore it could be argued that there was insufficient power due to the small sample size, likely resulting in a Type 11 error. The authors do acknowledge these limitations, and suggest that this may have been why no significant change was detected. They suggest that future research should involve a larger sample size, over a longer period of time.

Litmanen et al (2014) explored the perceptions of the learning environment in medical students in relation to their wellbeing, levels of exhaustion, engagement in study, and their ASC, in a comparison between problem-based learning (PBL) and lecture-based learning (LBL) environments in a Finnish medical school. In terms of the relevance of this study to the UK, PBL is a commonly employed curriculum design across UK medical schools therefore

the findings of this study could extrapolate to UK medical students, although caution is needed in making direct comparisons as there are differences in cohort make-up between Finnish and UK medical schools. Their aim was to investigate whether the perception of worry would result in higher levels of exhaustion in students, and whether lower levels of exhaustion would correlate with satisfaction in the learning environment. The authors also wished to see if they could confirm the findings of a previous study (Skaalvik, 1997) which concluded that lack of interest/engagement showed a negative relationship with ASC. Litmanen et al collected data from 610 participants across three Finnish medical schools – two had traditional lecture-based curricula whilst the third was PBL-based. The participant population was not evenly split between the genders, with 69% of the population being male. In the UK there is generally an equal gender balance in medical school cohorts, so this significant gender imbalance should be considered before making assumptions about the results being reflective of the UK situation.

Participants were asked to complete the MED NORD questionnaire, designed to measure student wellbeing and learning environment perception using the Higher Education Stress Inventory (HESI) across five areas (satisfaction, disengagement, worry, workload and feedback). There were 133 items on the questionnaire, rated using either a 1-4 or 1-5-point Likert scale. ASC was measured by asking participants to say whether they were worse, the same, or better than the average of the class, their response being scored as one, two or three respectively. In terms of ASC this is a very crude measure which does not encompass the nuances of the more extensive Academic Self Description Questionnaire II used by

Jackman et al (2011), therefore care should be taken in assuming any change in ASC in this study is comparable to the results of the Jackman study.

The questionnaire was distributed and returned via post and whilst participation was voluntary, participants were offered an incentive to return the questionnaire, resulting in a response rate of 83% (610 responses from 735 sent out). The results showed that levels of exhaustion related positively to levels of worry about future workload, whilst satisfaction and worry about future competence in studying showed a negative relationship with lack of interest. There was also a positive relationship between ASC and exhaustion, suggesting that students with higher ASC also had a strong study ethic and were willing to push themselves to work harder (ASC was also higher in the PBL students). Lack of interest was negatively related to ASC, but this would seem appropriate given that medical students have already shown a high level of commitment to achieve a place at medical school and are already emotionally invested in succeeding in their studies. Of further interest is the difference in levels of worry concerning workload between students on PBL and LBL curricula. PBL students reported higher levels of workload worry and exhaustion early in the programme, although as they became more 'expert' at PBL the levels of exhaustion reduced. The authors suggested this was because in the early stages of the course PBL was new and overwhelming for the students, but with feedback and support these students adapted and became proficient at the PBL process. If the PBL students had learned helpful strategies to deal with the workload and were able to organise their learning more effectively then it would follow that they were likely to be less worried and tired.

The Litmanen et al study does not focus specifically on ASC, and there is a significant gender imbalance which could potentially account for some of the results in relation to ASC, but it does clearly illustrate the importance of the learning environment and levels of stress on ASC. The implication for many UK medical schools with PBL curricula is the need to recognise the importance of other factors such as social environment, institutional culture, pastoral support, and student cohort cohesion (Genn, 2001).

A further study also looked at ASC in PBL medical students (Abdalla et al, 2019). The study aimed to explore whether ASC was increased by following a PBL curriculum, and whether this was related to having a higher internal locus of control. The study was carried out in a Malaysian medical school using 255 Phase One Medicine students (years 1 and 2 of the programme), with 67.1% of participants being female. This is almost the direct opposite of the gender mix in the Litmanen et al study so again caution is needed in assuming a direct similarity with UK medical school cohorts. Participants completed a questionnaire of three sections; section 1 used a 10 item scale to look at attitudes towards PBL, section 2 used an 8 item scale to assess ASC, and section 3 used an 8 item scale to assess locus of control. As with the Litmanen study, the measure used to assess ASC was not extensive, but the authors estimated the questionnaire had good reliability after testing its internal consistency using Cronbach's α test - 0.72 for the ASC section of the questionnaire where a score of 0.7 or higher indicates good reliability.

The results of this study confirmed those of the Litmanen study – that there was a positive relationship between ASC and attitude towards PBL. The authors also stated that their

results contradicted those of the earlier Jackman et al (2011) study, and whilst this is correct, they incorrectly quoted the Jackman study as saying medical students had lowered ASC. It is possible that the larger cohort size in both the Litmanen and Abdalla studies gave more reliability to their conclusions relating to increased ASC in medical students, i.e their studies were better powered because of the larger sample sizes.

Research on ASC has also taken place in non-medical students in relation to self-concept and self-esteem. Amirkhani et al (2018) looked at the relationship between these in medical sciences students at an Iranian university. Two questionnaires (the Coopersmith Self-Esteem Inventory (CSEI) and the Rogers Self-concept Questionnaire) were each completed by 394 students, and whilst they found no statistically significant difference in self-esteem and self-concept between males and females, they did find there to be a significant difference in relation to the specific subjects studied – students studying medicine had higher scores than those studying nursing, and those from nursing had higher scores than those on operating room procedure courses. This led the researchers to infer that the field of study has an impact on self-concept, and therefore being a student on a course which is perceived to be of a ‘higher’ academic level implies that one has a high ability to learn, leading to the development of a higher self-concept and self-esteem. Amirkhani et al concluded that it was important to take into consideration the different areas of study and the affect this may have on self-concept when looking at supporting academic achievement, and that factors such as academic and social feedback and the attitude of teaching staff were influential.

Rosman et al (2018) conducted a study with psychology students just beginning the first year of their under-graduate study to explore any BFLPE when starting their programme. Academic self-concept was measured using a questionnaire where they were asked to rate their proficiency on a 7-point scale against five statements, e.g. 'In general, my academic abilities are...." with a score of 1 being low and 7 being high. The questionnaire was administered at four points across three semesters. Initially 137 students completed the first questionnaire, with some drop-out at each measurement point (even though students were paid to participate), and 114 students completed the fourth measurement point. The researchers found no evidence of BFLPE across the time period of the study, and self-concept scores did not decrease even though the students were in a more academically competitive environment. It should be remembered that there were only five statements on the questionnaire therefore there may have been insufficient granularity in the data collected to show significant differences. However, they did note that students who were achieving higher grades increased their ASC scores across the time period whilst students with lower grades showed a decrease in self-concept score. This seems to confirm the view that 'success breeds success' – doing well in an assessment confirms a students' belief in their ability, and vice versa. The implications of this are important when looking at students who are not high achievers, and providing encouragement and support for these students is essential in helping them avoid a reduction in self-belief. A further interesting outcome was that over the timeframe of the study, self-concept in females remained relatively constant whereas in males there was a considerable increase over the same time period. One suggestion is that males are more likely to interpret non-verbal cues and oral feedback more positively than females (Roberts & Nolen-Hoeksema, 1989), resulting in the males having a

more positive view of themselves. This has implications for the provision of student feedback to try and ensure feedback is equitable and non-gendered.

2.19 The influence of generational factors.

The participants in this study were year 1 medical students whose ages ranged from 18 – 28 years. The data was collected between 2012 and 2014, placing the participants clearly in the generation known as Millennials. The characteristics of this generation differ to those of the previous generation, and their perceptions about the self and the world also differ significantly (Strauss & Howe, 2007, Evans et al, 2016). It is important to look at the characteristics of this generation as the results of the study could be viewed through a generational lens, and any recommendations for changes to curricula need to be considered in light of the specific characteristics of this generation.

The Millennial generation reached adulthood around the turn of the millennium or very early in the 21st century and are the generational cohort directly after Generation X (born in 1960s and 1970s) and preceding Generation Z (born late 1990s and early 2000s). The Millennial generation are also referred to as Generation Y, or GenY, and the participants in this research study fall mainly within the birth parameters of this generation. According to Merriam-Webster, Millennials are the generation born between the early 1980s and the mid-1990s (Merriam-Webster.com, 2019). Rauch was more specific in his definition, citing 1981-1996 as the birth range (Rauch, 2018), both being similar to the Oxford Dictionary definition of:

“... the generation born in the 1980s and 1990s, comprising primarily the children of the baby boomers and typically perceived as increasingly familiar with digital and electronic technology” (Lexico.com, 2019).

Understanding how this generation perceive the world, their motivations, and their behaviour, is important in helping to explore their sense of self concept and their response to education, particularly to medical education. There are differences in the way this generation process information and act compared to their parents and educators, therefore an understanding of the group’s characteristics is essential (Evans et al, 2016).

2.20 Generational Theory

The term ‘Millennial’ was first introduced by Strauss & Howe in 1987, who wrote extensively about this generation in their book, *Generations: The History of America's Future, 1584 to 2069* (1991). Marketing and advertising groups quickly adopted the term and added the alternative term of ‘Generation Y’. Strauss & Howe (Strauss, 1997) developed Generational Theory and argued that there were common characteristics in each generation, with an underlying pattern of four basic generational archetypes – Hero, Artist, Prophet, Nomad – the pattern repeating in the same sequence with each subsequent generation. According to this theory Millennials sit within the Hero archetype, and are civic-minded, pragmatic, and self-reliant, growing up as team-oriented optimists during times of crisis who work hard to resolve problems and challenges.

Generational Theory is not supported by all, with some seeing this as stereotyping (Levine, 2009), whilst others suggest that it is overly deterministic and lacking in evidence (Twenge, 2006). Twenge describes the Millennial generation as 'Generation Me', and Elmore suggested there were growing numbers of Millennials exhibiting Narcissistic Personality Disorder (Elmore, 2010 pp16). However, Twenge's own work around narcissism in Millennials (Twenge & Campbell, 2009; Twenge, 2012) has itself been criticised by Arnett, who suggested that Millennials are exceptionally generous and less narcissistic (Arnett, 2013), supported by the findings in Wetzel et al's 2017 study which indicated a decline in narcissism in this group.

2.21 Alternative view of Millennials

An alternate perspective to Strauss & Howe comes from Elmore (2010) who describes the Millennials in four words: overwhelmed, overprotected, overconnected, and overserved. Elmore suggested that they experienced high levels of internal and external stress, with one study reporting that 94% of college-age participants felt overwhelmed by their lifestyles (American College Health Association, 2007). External stress may also arise from not having experienced healthy pressure whilst growing up, being shielded from the demands of normal living, preventing them developing resilience. Internally, they have a strong need to be the best, and have been told they are the best from a young age, creating competitive environments where success is highly prized. Living up to this expectation may be difficult, and they may not have the emotional tools to help them deal with any lack of success (Elmore, 2010). Elmore also suggests that the many opportunities to connect and interact

with others creates a constant 'noise' but with a dependency on technology for social contact rather than engaging with more traditional types of face-to-face interaction.

2.22 The Snowflake Generation

Looking at the work of authors such as Strauss & Howe, Twenge, and Elmore, the general perception of Millennials appears to focus mainly on their negative characteristics. It is this that frequently dominates any discussion around them leading to a sub-group of Millennials being dubbed as the 'Snowflake Generation', a term first used in Claire Fox's 2016 book 'I Find That Offensive!', although references to 'snowflakes' were popularised in the 1996 book (and later the film) Fight Club, with the famous quote "*you are not special, you are not a beautiful and unique snowflake*" (Palahniuk, 1996). Tunde & Ramona (2019) characterised the Snowflake generation as:

"emotionally hypersensitive, extremely fragile, with low tolerance to frustration and low ability to cope with the difficulties of life, exaggeratedly protected, not allowed to find solutions to experience real situations, These young people are deficient in managing the real-life situation correctly. They do not face hardship, (they) develop anxiety, depression, and their self-esteem often has extremely low values" (Tunde & Ramona, 2019 pp38).

The implication is that these young people lack resilience and are unable to deal with situations where their opinions are not valued; having been over-protected by parents they have not had the opportunity to learn strategies to cope with confrontation nor to deal with criticism and are perceived as intolerant of views different to their own. These perceptions

are popular tropes in the media and often used to denigrate Millennials (Alyeksyeyeva,2017). The characterisations of Millennials given by Strauss & Howe compared to those given by Elmore, and Twenge, are almost polar opposites – the former suggesting Millennials are resilient whilst the latter authors suggesting they are not. There appears to be little common ground between the two and perhaps this polarisation of views is part of the issue when discussing the Millennials in that it is difficult to find middle ground on which to build a better understanding of that generation.

2.23 Why is it important to understand this generation?

More than any other generation the Millennials have absorbed the message that they are important and entitled to special treatment, and whilst one could argue that feeling positive about themselves is a good thing, it can also lead to unrealistic expectations around education, employment, and material wealth. This generation experienced a very different educational experience to any prior generations as previously, all modern knowledge was paper based with a strong reliance on carefully controlled dissemination by experts and specialists. The arrival of digital technology completely changed this so anyone could access huge volumes of information in seconds and with minimal effort. As learners the Millennials have had to think and process information differently which can be challenging for their educators who experienced learning in a more analogue, paper-based environment. Millennial students are not afraid to question or challenge and can access information instantaneously meaning they can ‘fact check’ what they are being taught. They remain engaged as long as they think the learning is important – they need to know why they are being taught something and if there is no strong rationale for the learning they will question

its relevance. In this generation learning is not for learning's sake, but as a means to a specific end such as passing an exam - if learning is framed as being important for future practice rather than an impending exam they do not see it as particularly important (Evans et al, 2016).

There is also a strong social and collaborative aspect to the way Millennials like to learn. Social media is a strong influence allowing them to share opinions quickly amongst their peers and groups such that frequent social interaction is a standard part of life. The increased use of problem-based learning and peer-assessment takes advantage of this where social interaction is an integral part of the learning process. Added to this they are thought to be visual and active learners (Royce & Newton, 2007), so incorporating hands-on activities which require discussion and collaboration may aid information retention, but the activity must be meaningful otherwise there is a risk of it being considered a waste of time (Weiler, 2004, Eckleberry-Hunt & Tucciarone, 2011).

To summarise this section, the Millennials are unique in being the first generation to have lived only in a digital world, connected to more information and knowledge than was previously possible and able to interact almost instantly with anyone, anywhere. This has created a group of young people who are informed, aware, and socially conscientious, but sometimes viewed as privileged and entitled. To ensure their educational experiences have meaning it is important to have a clear understanding of what motivates them to learn, supporting the creation of a learning environment that is mindful and supportive of their strengths. Developing an understanding of this generation may help identify issues

affecting how these individuals perceive themselves, how they manage set-backs and deal with stress, and hence development of their ASC. Therefore the outcomes of this study could identify ways to develop supportive learning environments which build on the particular strengths and characteristics of this group.

2.24 Summary

In exploring Academic Self-concept and its relationship with the Big Fish Little Pond Effect it has been necessary to look at some of the concepts and theories which underpin them. The literature covers an extended period of time and much of the seminal work on ASC and BFLPE was carried out in the 1970's and 1980's by a relatively small number of researchers, hence the frequent appearance of the same author across a range of areas. As these theories gained support the body of evidence supporting them has grown substantially, although the majority remains focused on compulsory school-age education. It is only in the last two decades that ASC and BFLPE in post-compulsory education students have been studied in any great detail, and for medical students the first study to look specifically at ASC was the Jackman et al study in Australia in 2011 which stated that ASC did not change in medical students and the BFLPE was non-existent in that group.

In this chapter the literature has provided clear evidence of the link between ASC and BFLPE, although nothing specifically relating to how the two may affect each other in the early stages of under-graduate medical education. The chapter establishes the framework in which ASC sits but highlights gaps in the evidence to further explain the relationship between the two. This study falls within that space, and by examining the relationship

between the two and the factors which may impact upon it, a better understanding of the academic and psychological support required by medical students can be developed, with a view to creating a framework in which this support can be delivered. As a final note, the importance of generational factors has been explored in relation to the specific group of participants in this study so that generational influences can be contextualised when exploring the results of the study.

The following chapter provides the theoretical approach taken in designing this study, and the methods used to enact it will be described in Chapter 4.

Chapter 3. Methodology

3.1 Introduction.

To support the aim of the study, it was decided to take a constructivist, interpretivist stance so that the data could emerge through the exploration and observation of different individual's experiences and perceptions. Using a phenomenographical approach rather than focusing on the phenomenon of ASC, the research looked at the individual's perception of ASC, and the affect it had on them. This provided data that would allow description, analysis and understanding whilst taking into account the differences between those individuals. It was hoped that whilst the cohort was relatively small, the outcomes of the research would be relatable as the experiences and influences within this group could be applicable to similar student groups at other institutions. The overall goal was to gain a wider understanding of the issues faced by high-achieving students in high-stress learning environments in order to inform future curriculum development and student support strategies.

3.2 Theoretical Framework

The purpose of this research was to explore changes in Academic Self Concept (ASC) during the early stages of a student's time at medical school, identify any influential factors, and attempt to explain why these factors may have an impact. In order to answer the research question it was appropriate to take a relativist, subjectivist ontological approach, and adopt a constructivist, interpretivist epistemology, allowing data to emerge through the exploration and observation of different individual's experiences and perceptions (Kraus, 2005). Little work has been carried out specifically in relation to ASC and medical students

so the aim of the study was to gain an understanding of the students' experiences, and from this begin to develop an explanation of what was happening.

Ontologically this research was approached from a position of a relativist, constructivist, interpretivism, looking at the experiences and perceptions of an individual's reality which have been influenced by social and individual factors. The research attempted to make sense of their world by trying to gain experience of that world from the viewpoint of those living within it and accepting that there are different perspectives, none of which are necessarily wrong (Abma & Widdershoven, 2011). The reality is constructed by the individuals, and each individual has their own reality. These relative and multiple realities rely on differing systems for meanings, and the acquired knowledge is socially constructed (Lincoln & Guba, 1985). Using this viewpoint means employing methods which allow for human interaction and personal contact, the researcher and subject being mutually interactive and interdependent (Hudson & Ozanne, 1988), with an openness to the development of new knowledge, guided by the subject. This collaborative approach aims to interpret meaning rather than use it to generalise and predict. This research study looked at the experiences of students during their time on an under-graduate medical programme, in particular how their interactions with others and the organisation influenced how they perceived themselves as individuals within their cohort. In effect, the research explored their individual realities which are influenced by social interaction and social expectation in an attempt to identify the phenomena that influence their academic self-concept – trying to develop knowledge from the experience of others (Abma & Widdershoven, 2011). This sits well within a relativist / constructivist / interpretivist reality, with the researcher and subject

directly interacting, and both of them benefitting from the development of new knowledge and understanding:

“thus, reality is constructed through the interaction between language and aspects of an independent world” (Scotland, 2012 pp11).

3.3 Why is Constructivism an appropriate epistemological approach for this study?

Epistemology is concerned with nature of knowledge and how it can be developed and created, so if ontology is the nature of what is, then epistemology describes the development of the knowledge of what is, and the relationship between the knower and the knowledge (Scotland, 2012). With relativist ontology the epistemological stance is subjectivist, based on the experienced world, with knowledge only arising through the interaction with the world. If interaction did not occur, then there would be no knowledge.

Using the analogy of a tree, Crotty states:

“We need to remind ourselves here that it is human beings who have constructed it as a tree, given it the name, and attributed to it the associations we make with tree”

(Crotty, 1998 pp43);

the tree arising from, and being constructed by, our experience and perception of it. If no-one saw or knew of the tree it would not exist because there had been no conscious experience of it, nor interpretation of it. This consciousness is a characteristic of experience and awareness and is the relation between the experiencer and the object – the inseparable ‘connectedness’ of the individual and the world – something which Brentano and Husserl termed ‘intentionality’ (Moustakas, 1994, Van Maanen, 1997). In terms of this research study it was the student’s perception of the situation around them and their position within

this which provided the experience. The students experienced what it was like to work, study and socialise in that cohort as well as with other students in the university who may be following different programmes. Their ideas about their own ability will be influenced by the behaviour and remarks of students around them, creating a view on their position and standing which may change depending on whether they are with other medical students or with non-medical students. It is possible that as a medical student within the wider student population they see themselves as being 'bigger fish', to use Marsh's phrase (Marsh & Parker, 1984) even though the 'pond' is larger, but have a different perception of themselves within the confines of their particular programme cohort. These experiences create the specific reality for each student – their intentionality.

As an epistemology constructivism is closely associated with the ontological use of the word, proposing that all knowledge is constructed from prior knowledge, and that we develop further meaning, knowledge, and understanding from previous experiences and interactions. It developed from the discussion around the philosophical paradigms upon which the nature of research enquiry are based (Appleton & King, 1997), and some authors have used the term 'naturalistic inquiry' to mean the same thing (Lincoln & Guba, 1985, Guba & Lincoln, 1982), but in more recent years the terms 'constructivism' and 'constructivist paradigm' have replaced this. The original theory is generally attributed to Jean Piaget (1896 – 1980), who has been referred to as "*the great pioneer of the constructivist theory of knowing*" (von Glaserfeld, 1990 pp22), and who has had influence in many disciplines, such as education, sociology, psychology, and research. Constructivism is the perspective that:

“all knowledge, and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world, and transmitted within an essentially social context” (Crotty, 1998 pp42).

And furthermore:

“Everything that is said is said by an observer” (Maturana, 1998 pp25)

Therefore, in the view of constructivists knowledge and understanding of reality exists only as a result of human and social interaction and observation, denying the existence of the world as an objective reality (the positivist stance). Instead it asserts that reality is a result of the social construction of the individual, therefore there can be as many realities as there are individuals, even if some of these realities are similar or shared (Lincoln & Guba, 1989). This approach sits well with the previous discussion relating to perceptions and realities of medical students within their cohort and the wider student group. These students may have different realities depending on their specific academic and social activities, even though they may share a range of activities and social situations.

This interpretivist stance means that concepts such as truth, normality, and rationality, must be viewed contextually (Mills, Bonner & Francis, 2006);

“as relative to a specific conceptual scheme, theoretical framework, paradigm, form of life, society, or culture . . . there is a non-reducible plurality of such conceptual schemes” (Bernstein, 1983, pp 8).

“In other words, the world consists of multiple individual realities influenced by context” (Mills, Bonner & Francis, 2006, pp26).

The interpretivist approach/paradigm can be seen as anti-positivist and is often also called constructivism (Mack, 2010). The approach is heavily influenced by hermeneutics (the interpretation of written, verbal and non-verbal communication) and phenomenology (the understanding of social phenomena), meaning that:

“social reality is seen by multiple people and these multiple people interpret events differently leaving multiple perspectives of an incident” (Mack, 2010 pp8);

and so research in this paradigm occurs through the direct experience of the individual, strongly reliant on the relationship between the researcher and the subject, and the meaning that is co-constructed to that understanding is developed rather than explained (Hayes & Oppenheim, 1997; Mills, Bonner & Francis, 2006).

3.4 Limitations to this approach

However, there are limitations to this approach, and critics cite the inability to generalise results as a major weakness, although this is usually a view taken by positivists. This lack of transferability means that it is less useful for the development of policy because it is usually highly contextualised (Scotland, 2012), but as the goal of constructivist/interpretivist research is create understanding pertinent to a specific situation, the need to generalise is absent. In relation to this research study it is the absolute intention to explore the specific situation pertaining to this group of students so the need for generalisability is less important. A wider research study encompassing more than one medical school would

perhaps address the issue of generalisability, but in this case it is the specific perceptions of this student group which are of interest.

A further criticism is that the research is subjective, relying upon the researcher's interaction with the subject, and the risk of influencing the subject that this creates. The defence of this is that immersion in the research process is a fundamental element, subjectivity being part of how the researcher's perspective is developed, whilst there will be objectivity in the data analysis;

“interpretivists still take an objective stance when analysing [sic] the data they collect. By bracketing their assumptions, they look at the data thoroughly so that the data informs the researcher about what is going on in the environment, instead of the researcher's own preconceptions” (Mack 2010, pp8).

The impact of the researcher on the subject is an important issue and will be discussed in more detail in Chapter 4 (Methods). However, in this context it is important to understand that the researcher has to be embedded within the process as it is important for these particular students to know that there is a shared knowledge in terms of the organisation and structure of the medicine programme, and also a shared understanding of the particular stresses and issues faced by medical students even though the researcher has not had the same experiences in relation to being a member of that cohort. By having this knowledge the researcher has credibility with the students, but they must also acknowledge that they may be unaware of number of personal issues, formal and informal relationships, and social

situations. The researcher is on the periphery rather than within the student group, so there is 'permission' to be there as a legitimate observer.

This research is focused on gaining an understanding of the experiences and views of students in their first two years studying medicine, but the body of work relating to this is minimal and contextualised to a different situation, therefore to develop an understanding requires an inter-active approach which relies on the individual student constructing their own reality, and sharing this experience with the researcher out-with the limitations of scientific, objective enquiry. In terms of epistemology, constructivism, or more specifically, social constructivism, places emphasis on the subjective relationship between the student and the researcher - the creation of knowledge and reality comes about through the social interactions and relationships between researcher and student as well as between students, allowing them to construct meaning together (Hayes & Oppenheim, 1997), making constructivism an ideal approach.

3.5 Why use a phenomenographical approach?

A phenomenographical approach was chosen for this research as this focuses on studying the differences in how people think about things. Rather than look at the phenomenon itself an understanding is gained about how people think about that phenomenon, e.g. one could study the geographical process in the development of a mountain, but this is not the same as studying the responses of people to the view it creates, and this last is phenomenographical. In essence, this interpretivist methodology explores the different

reactions and responses of individuals to a situation (Marton, 1986), and is based on the following proposition:

“whatever phenomenon or situation people encounter, we can identify a limited number of qualitatively different and logically interrelated ways in which the phenomenon of the situation is experienced or understood”. (Marton 1994 pp4427).

In terms of a definition;

“Phenomenography is focused on the ways of experiencing different phenomena, ways of seeing them, knowing about them and having skills related to them. The aim is, however, not to find the singular essence, but the variation and the architecture of this variation by different aspects that define the phenomena” (Walker, 1998 pp26).

Phenomenography emerged in the 1970s as a new approach developed by a group of educational researchers, led by Ference Marton, who were investigating variation in student learning outcomes (Yates et al, 2012). It is mainly used for exploring issues directly related to learning and understanding how individuals learn, and how they view themselves within the context of learning. It is founded on the view that individuals may be exposed to the same situations and phenomena, but collectively their experiences and understanding may differ (Marton, 1986). People differ in their responses to phenomena and so may report the experience differently to others (Ornek, 2008). This may be because of previous experiences and understanding, differing contexts, or simply because of a differing philosophical approach. However it is important to be clear that it is not the perception of the researcher to the phenomenon which is being studied, it is that of the study participant. This allows

exploration of what that individual thinks whilst the researcher remains neutral. This 'bracketing' is a fundamental part of phenomenographical research, otherwise the outcome risks being simply a report of the researcher's perception of the phenomenon rather than the subject's view;

"Bracketing is primarily undertaken in order to reveal the personal reality of the individual. The presuppositions which are bracketed would tend to assert an objective reality (the 'first order') rather than focus on 'second order' reality of the student life world" (Ashworth and Lucas, 1998, pp419).

Seeing the situation through this second order perspective promotes investigation through the experience of the subject by describing the experience of that individual, and allows for variations in perception (Marton & Pang, 1999). In the context of this research study it is vital that the views of the students are allowed to emerge without the influence of the researcher – it is their perception of what it is like to be a student in that cohort which is of value. The researcher cannot have that same level of experience or understanding and therefore must remain separate (so far as is possible) in an attempt to explore what the student's real experiences are, and to describe them from the participant's point of view.

Appropriate data collection methods in phenomenographical research include focus groups and surveys, but the primary method is the face to face interview, with the purpose of creating as complete a realisation of an individual interviewee's experience as possible. Phenomenographic interviews have been described as a specialist form of qualitative research interview (Bruce, 1994), and have a specific set of qualities;

“It is: 1) centered on the interviewee's life-world; 2) seeks to understand the meaning of phenomena in his life-world; it is 3) qualitative, 4) descriptive, and 5) specific; it is 6) presuppositionless; it is 7) focused on certain themes; it is open for 8) ambiguities, and 9) changes; it depends upon the 10) sensitivity of the interviewer; it takes place in 11) an interpersonal interaction, and it may be 12) a positive experience” (Kvale, 1983 pp174).

In essence the phenomenographical interview seeks to illustrate the relationship between the subject and the phenomenon rather than focusing on the subject, or the phenomenon, hence in this research study it provides an ideal vehicle for exploring the aim of the study - how the students feel about learning within their cohort rather than finding out specific information about individual students. Even though the interview data may be collected at an individual level, the phenomenographical process lets the data be looked at collectively so as to provide a wider picture of the variation of experience. The semi-structured interview in this context will be discussed in more detail later in this chapter.

Analysis of phenomenographic data looks to provide a description, analysis and an understanding of these experiences (Marton, 1981), whilst taking into account the variations between individuals - the ‘theory of variation’ (Pang, 1999). This allows use of their own experience when the researcher analyses the data, i.e., collective analysis of individual experience (Akerlind, 2005). The differing experiences and perceptions of the subjects provide variation, which can then be categorised – referred to as ‘categories of description’, or the ‘outcome space’ (Cousin, 2009) – consisting of inter-relating

conceptions. The categories are often related to each other in a hierarchical manner, but it is also possible to see them as linear and/or sequential (Akerlind, 2009). This 'sorting' process has been summarised neatly;

“The first criterion that can be stated is that the individual categories should each stand in clear relation to the phenomenon under investigation so that each category tells us something distinct about a particular way of experiencing a phenomenon. The second is that the categories have to stand in a logical relationship with one another”. (Marton 1981 pp125).

The variations between these categories are the 'dimensions of variation' (Akerlind, 2009), but as the process of phenomenographic analysis is on-going and iterative, as well as comparative, there is a continual sifting and re-sorting of the data, with further comparisons between the different categories as well as within the categories. Further discussion of data analysis can be found later in this chapter.

Using a phenomenographical approach in educational research is beneficial as it helps to provide an understanding of how students experience aspects of the educational process. If one of the goals of higher education is to encourage the development of conceptual understanding (Entwistle, 1997), then an understanding of how students think about or perceive a concept is helpful in guiding the development of student learning support strategies:

“phenomenographic information about the different conceptions that students hold for a particular phenomenon may be useful to teachers who are developing ways of

helping their students experience or understand a phenomenon from a given perspective” (Orgill, 2002).

3.6 Summary

This research study is looking at a relatively small number of students, within a single cohort at one university, but in terms of generalisability, the experiences and factors which occur within this group may also be applicable to similar student populations in other institutions. An understanding of what happens in one population may contribute to the development of a wider appreciation of some of the issues faced by high achieving students in high-stress learning environments, which may help inform future development of the curriculum, learning and teaching strategy, and student support. As discussed earlier in this chapter, critics of the interpretivist approach claim that one cannot generalize from this approach, and as this research relates to one cohort in one academic institution only then critics could attempt to claim that this study would not be generalisable. However, given the homogeneity of the medical school curriculum and the medical student recruitment process (both tightly controlled by the GMC), a strong argument could be made that the experiences of students on the programme were reflective of those of students on other UK medical programmes, and therefore generalizing the recommendations from the outcome would be acceptable.

Chapter 4. Method.

4.1 Introduction

To achieve the aims of this study it was necessary to employ a two-phase, mixed methods approach to data-collection using a survey and interviews to support the intended interpretivist, constructivist approach.

In this chapter the specific approach to the data collection will be described and discussed in both the qualitative and quantitative phases of the study. The specific data collection tools will be clarified together with the data collection plan, timescales, and data collection instruments, concluding with reflections on the limitations and constraints of the study design.

4.2 Data collection - approach

Collection of data on ASC employed a self-administered questionnaire which provided quantifiable data, but as the study was also exploring perceptions of academic self-concept it would also be necessary to collect this in the form of qualitative data via semi-structured interviews. This mixing of both quantitative and qualitative approaches is a classical mixed methods approach which allows the two data sets to be combined and creates the opportunity for multi-perspective analysis.

The mixed methods research (MMR) approach combines qualitative and quantitative forms of research during data collection and analysis with the aim of increasing the overall strength of a study to more than could be achieved using either quantitative or qualitative

methods alone (Creswell, 2009). This was an appropriate approach for this study for a number of reasons:

1. Corroboration / clarification – the combination of qualitative and quantitative methods seeks to triangulate the data, identifying convergence with the hope of increasing the validity of the study's conclusions (Green et al, 1989).
2. Development – the use of one method can provide data which can inform the use of the other method. In this case, the quantitative data on ASC levels at different stages of the programme will help to inform the development of questions for the focus groups and interviews.
3. Explanation – qualitative data may be able to provide an explanation or increase the understanding of the quantitative data.
4. Expansion / completeness – the use of both types of data can provide a wider view of the study situation which could not be gained using a single method.
5. Context – combining both types provides a contextual understanding together with the opportunity to offer externally valid findings or identify relationships within the data (Bryman, 2006).
6. Diversity of views - allows the combination of differing perspectives from both the participants and the researcher whilst revealing common understandings and experiences (Bryman, 2006).

The MMR approach has been described as a third research paradigm (Denscombe, 2008) but it has at times been seen as problematic in that it seeks to combine both qualitative and quantitative data which are both underpinned by different paradigms, so much so that the

use of a mixed methods approach is said to be impossible (Denzin & Lincoln, 2005), and this incompatibility argument is the commonest criticism of MMR. Timans, Wouters & Heilbron also provide an interesting exploration of place of MMR in their 2019 paper “Mixed methods research: what it is and what it could be”, concluding that the combining or different approaches in MMR is important and should be taken seriously, but at the same time it is problematic. They suggest that viewing the combination of methods as the same as combining epistemologies is too simplistic.

Teddlie & Tashakkori (2011) address the issue of incompatibility with their discussion of ‘methodological eclecticism’, contending that there is the freedom to combine the methods that best help address the research question. The same authors also contend that these methods have been successfully mixed in social sciences research for decades and this has been able to provide more meaningful research than either approach could provide singly;

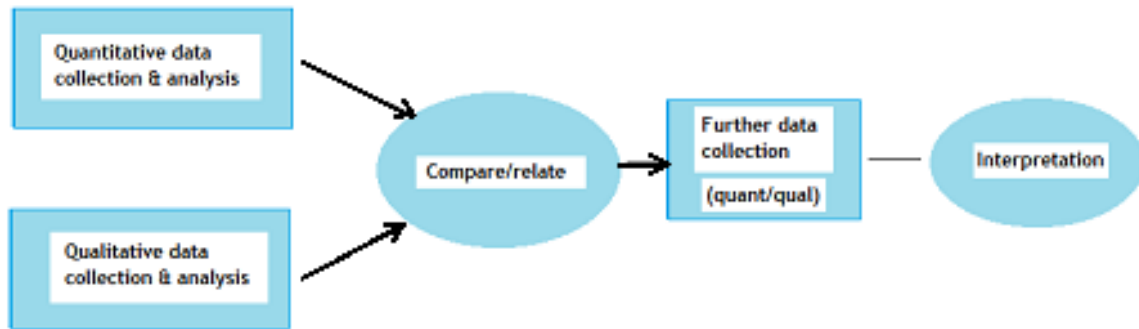
“We believe that the employment of QUAL, QUAN, or MMR approaches in any given study depends on the research questions that are being addressed....MMR techniques should only be used when necessary to adequately answer the research questions”

(Teddlie & Tashakkori, 2011 pp 295)

For this study, MMR offers a research approach which allows the use of both qualitative and quantitative paradigms to quantify changes in how participants feel about themselves (the ASC score), and also to allow them to share contextual thoughts on their situation (the interviews), allowing the combination of the data to explore the impact or influence (if any) of one upon the other.

There are a number of mixed methods designs, but the most appropriate for this study is a convergent sequential design (Figure 4).

Figure 4. Convergent sequential mixed methods design.

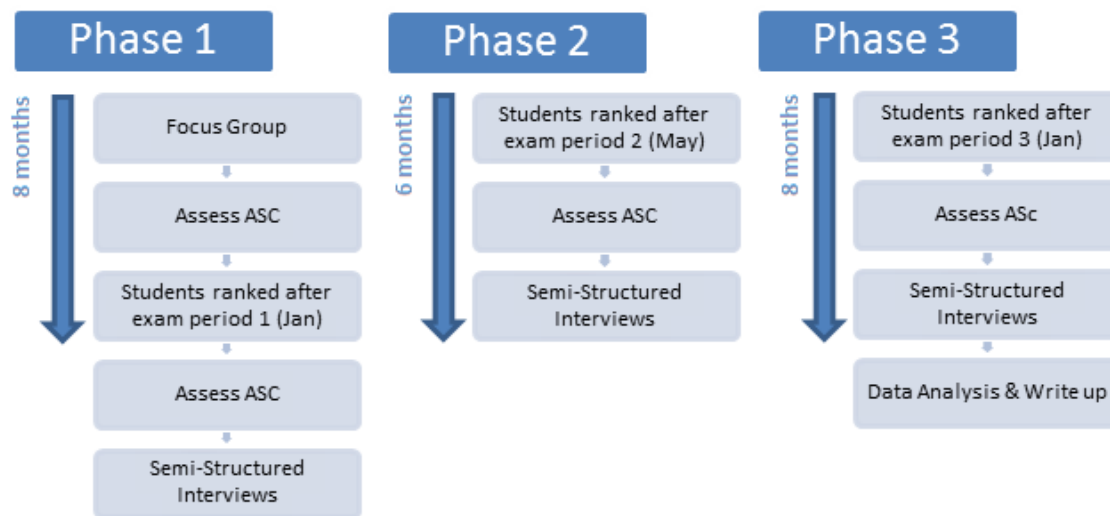


In this approach the quantitative and qualitative data are collected at the same time, although independently and with both methods having equal importance. The data is analysed separately before any further data is collected for clarification, and then all data are merged during interpretation (Creswell & Plano Clark, 2011). This is a well-known mixed methods approach, and may sometimes be confused with classical triangulation. However, triangulation is not the main focus in this study- the aim of one set of data is not to provide support for the other, but rather both sets of data provide insight into different aspects of the research and the subsequent convergence of the two aims to provide data which describes and explains in a complementary fashion using the differing strengths and weaknesses from both qualitative and quantitative processes. It is ideal for this study as collection of the ASC data does not rely on collection of interview data, and vice versa, the data sets are not inter-dependent and are still meaningful on their own. The subsequent blending of the data allows a richer understanding of the experiences and perceptions of students who are living the reality of challenges to their ASC.

4.3 Data Collection Plan - Overview

A single cohort of first year medical students was identified as the study cohort, and this numbered 96 students. The group were given a short presentation to provide information about the aims and methods of the study. All students were provided with an information sheet and invited to participate voluntarily. Those that volunteered completed a consent form, and then subsequently completed an ASC questionnaire which would provide the baseline ASC score for each student. All students were also invited to participate in a focus group irrespective of whether they were taking part in the ASC data collection, and 20 students volunteered for focus group membership. From the group who had completed the initial questionnaire, 12 students were selected to take part in a number of semi-structured interviews. Initially ten students agreed and two declined, so a further two students were selected, who both agreed to take part. This group of twelve students underwent an initial one-to-one, face-to-face semi-structured interview (additional consent gained), and then had a further interview after each major summative assessment episode. These twelve students took part in three interviews each – the first after the first major summative examination period four months after they enrolled on the programme, the second after the end of year summative examination period in their first year, and the final interview after the first major summative examination period in their second year – the time span for this was approximately eighteen months. Concurrently, the cohort who had consented to complete ASC questionnaires completed a further questionnaire after each major summative examination period, so including their initial baseline score, each student had four ASC scores taken over a period of eighteen months (Figure 5).

Figure 5. Schematic of Data Collection Plan.



4.4 Sample size and selection – quantitative data

For the quantitative arm of data collection, the full cohort of 96 students was invited to participate, and of this 87 students agreed to participate. This non-probability sampling approach has the advantage of allowing potential participants to choose to take part, which may also decrease the likelihood of them dropping out of the study (participant attrition). This approach does create the possibility of self-selection bias, but as the sample represented approximately 90% of the student cohort it was felt that the sample was representative of the whole group.

4.5 Sample size and selection – semi-structured interviews

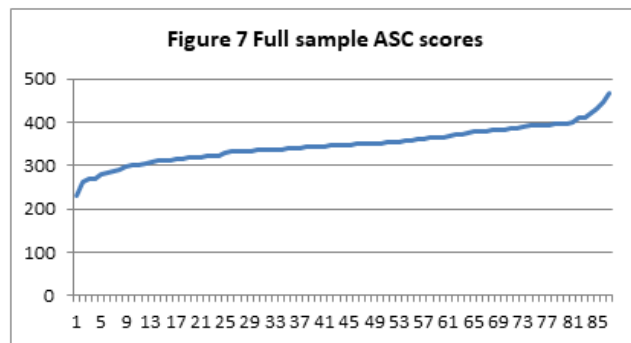
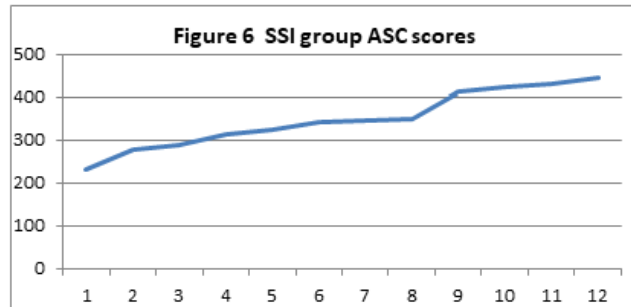
Once the participants had completed the first ASC questionnaire all of the scores were ranked in order. It was decided that there was capacity to carry out twelve semi-structured interviews (SSIs) after each quantitative data collection point throughout the study, meaning that four sets of interviews would be organised. In order to facilitate selection for invite to an SSI, the ranked ASC scores were divided into two groups (top and bottom), with

the cut-off between the groups at the median score. Six scores were selected anonymously and at random from each group, and the twelve relevant students identified. Each student was then contacted via email with an invitation to participate in SSIs, and provided with further information on the study, and given the opportunity to ask further questions. Of the original 12 students, two declined to participate and a further two students were identified from the relevant ASC score group, both of whom agreed to participate. Table 1 provides the demographic data of these 12 students.

Table 1. SSI participant data

	M/F	Age	Initial ASC score	Initial cohort rank	Nationality	Secondary education	Previous/ higher degree Y/N
1	M	23	344	91	White British	State	N
2	M	19	288	18	White British	State	N
3	F	24	313	46	White British	State	Y
4	F	19	231	34	White British	Private	N
5	F	20	348	12	White British	State	N
6	M	18	432	56	Pakistan	International School	N
7	F	20	279	54	White British	Single-sex selective	N
8	F	19	411	26	White British	State	N
9	F	18	323	7	Pakistan British	State	N
10	M	22	446	45	Saudi	Private	Y
11	M	19	422	21	Black British	State	N
12	M	18	343	52	White British	State	N

When comparing the spread of ASC scores of the SSI participants (Figure 6) to those of the full sample (Figure 7), the line of inclination is similar, confirming that the spread of ASC scores in the SSI group are representative of the whole sample.



4.6 Ethics & Consent

It is fundamental to all research that it is carried out ethically and with integrity, protecting both the researcher and the participants. Clear, transparent, and accurate recording and reporting of data supports reliability and validity but this cannot be at the expense of participants who need to be confident that they will be protected from harm and of being individually identified. Durham University has a clear policy regarding its expectations of managing ethical considerations and the responsibilities of an individual researcher. The policy states:

From: Research Integrity Policy & Code of Good Practice (2017)

<https://www.dur.ac.uk/research.innovation/governance/policy/integrity/>

All researchers should:

a) act in accordance with high ethical standards, values of mutual co-operation, openness, professionalism and the open and honest exchange of ideas.

b) comply with all University, legal and ethical requirements and other guidelines that apply to their research.

Principal Investigators should:

a) adhere to the behavioural standards expected of all researchers.

b) take overall responsibility for project activity, ensuring that the project is conducted in line with applicable standards and requirements.

This study involved collecting data from adult participants who were registered as first year under-graduate medical students on the Phase 1 Medicine Programme based at Queen's Campus, therefore ethical approval was sought and gained from Durham University Ethics Committee (Appendix 1).

Students were invited to self-select for participation in the focus group. Students were informed this would be digitally recorded and transcribed verbatim, but that comments would not be attributed to individual students. Students were also made aware that they could be provided with a copy of the transcript on request. A participant information sheet

was provided to students prior to taking part in the focus group, and students were asked to sign a consent form (Appendix 2).

Students who took part in the semi-structured interviews were also provided with an information form (Appendix 3) which stated the aim of the interviews, the expected duration, who was conducting the interview, and what would happen to the data collected. Students were assured of anonymity, and that data would be digitally recorded, transcribed verbatim, and stored appropriately and in-line with the UK legislation current at that time (Data Protection Act 1998), with access only available to the researcher. Students were informed that they could withdraw at any point, and could request that their data also be withdrawn if they wished, without any impact on their future studies or progression. Students were also offered the option to receive a copy of their interview transcripts if requested. Students taking part in the interviews were provided with this information prior to consenting to participate. Students also signed a consent form prior to each interview taking place (Appendix 4). Students were advised, prior to consent, that extracts from interviews may be quoted in publications or academic presentations, although again these would not be attributed to an individual.

Qualitative research interviews can be seen as a form of moral inquiry (Cresswell, 2009), therefore the interviewer must ensure sensitivity in the questions that are asked, and thoughtful, non-judgemental consideration of participant responses. At each point prior to each interview, participants were reassured regarding confidentiality and anonymity in relation to any personal attribution of views or comments, and it was confirmed that at no

point during their time at the University would any of their data have an impact or bearing on their status or performance on their programme. Additionally, all interviews took place in a neutral environment that was not a staff office or a classroom. Place names and data which could potentially identify a student were removed, and whilst a number of direct quotes were used, these were attributed by using an alternative identifier.

Students who took part in quantitative data collection were also provided with an information sheet prior to participation explaining the nature of the research (Appendix 3). They were provided with a copy of the questionnaire so they could review what questions they would be asked, and were given an opportunity to seek clarification if needed prior to completing a consent form. One aspect of the questionnaire that was clearly stated to potential participants was that they would be completing the questionnaire on four separate occasions over a period of 18 months to see if there was any change in an individual's score. In order to track this there would need to be identifying data on the front page of the questionnaire which would allow the researcher to ensure each student's questionnaires were grouped correctly. Students were assured that once all the questionnaires had been collected and grouped by individual student, the identifying front cover was removed and only the actual questionnaire data was recorded. Once the front sheets had been separated there was no mechanism for being able to re-unite the correct cover with the relevant questionnaires, and in this way students were assured of anonymity. The front covers were stored separately to the questionnaires.

Students were assured that confidentiality and anonymity would be maintained, although it was made clear that should a participant reveal information that suggested they, or another individual, was at potential risk of harm, then the researcher had a duty of care to pass this on to an appropriate person, such as the Designated Safeguarding Lead. Additionally, data would not be shared with the University or Department, or in publication, without it being anonymised and students were encouraged to be candid and open in their responses without needing to fear that their comments could identify them or would create a difficult situation for them at that point or in the future.

The original questionnaires were securely stored as hard copies only, with the responses being entered into a secure Excel spreadsheet to be stored electronically. The focus group and interviews were digitally recorded, and these were stored in both electronic and hard copy format. The electronic files were also stored on a CDROM with a further copy held on a separate hard drive as well on a separate flash drive. All data was stored securely and electronic files were password-protected. Hard copies were stored in locked filing cabinets.

4.7 Anonymity, matching of questionnaire data, and withdrawing from the study

Students were informed that their ASC scores would be matched with their ranked position within their cohort, and therefore complete anonymity would not be possible until after the data matching process from all questionnaires had been completed. Students were informed that the results would not be anonymous to the researcher, but that there would be anonymity in presentation of the data and in any subsequent report or publication. If a student chose to withdraw, they could request for their questionnaire data to be removed

prior to the final grouping/matching process as this would be easily identifiable, but once all the questionnaires had been grouped and matched to ranking score all individually identifiable data would be removed therefore at this point it would not be possible to remove a specific participant's data. If they withdrew after contributing to the focus group their data could not be separated from the transcript and therefore could not be withdrawn. Participants who withdrew after an interview could ask for their data to be removed, up to the point where data interpretation has taken place, after which time it would not be possible to withdraw their data, although anonymity at this stage continued to be guaranteed.

4.8 Managing the relationship between researcher and participant

This research was carried out on students by one of the academic staff in their department, therefore the researcher needed to maintain awareness of the possible power relationship during the interviews. The researcher made a significant effort to reassure participants of confidentiality, data safety and of the separateness of the research to their programme of study, and endeavoured to create an atmosphere of trust where participants could be candid and open. This is an essential aspect of managing research interviews, and the interpersonal relationship between the researcher and participant is the foundation of valid and reliable data collection.

Research interviews are a form of conversation which has a clear power dynamic – the researcher is in control whilst the participant responds. The researcher traditionally decides the staging of the interview and the rules, they determine the timings and topics, and

control the questions (Kvale, 2006). However, the participant does have the ability to withhold information or answer a question differently and therefore the notion of all the power being held by the researcher is not necessarily upheld (Kvale, 2006), and it has been suggested that the type of interview conducted may affect how control is exercised and by whom (Vahasantanen & Saarinen, 2013). In a completely unstructured interview the participant has a significant level of control over the direction of the interview and therefore may introduce a significant bias to the data (Vahasantanen & Saarinen, 2013). For this study the interviews were semi-structured which allowed the researcher to maintain the direction of the questions, but created space for the participant to spend more time on areas which had more resonance or relevance for them.

A further point to consider was that the researcher was female whilst there were both male and female participants. In a situation where power in a conversation is influenced by traditional roles it may be that gender is influential. Schwalbe and Wolkomir (2003) and Pini (2005) looked at situations where women interviewed men and suggested that men attempt to exert control over the situation, trying to present themselves as more powerful and knowledgeable. The female interviewer could feel minimalised and undermined resulting in unsuccessful data collection. In this study it was felt that as the researcher already had an established academic/professional relationship with the participants the potential effect of gender in this context was minimalised.

There were no significant ethical issues identified in the research process and it was not anticipated that sensitive issues would arise, but there was a strategy identified to manage

this should the situation arise - should a participant become distressed, they would initially be allowed to withdraw from the focus group or interview, and if necessary be offered access to the University Counselling Service. If a participant provided information which indicated that they, or another person, was at risk of harm, then that would be shared with the appropriate individual within the University and College support services.

4.9 Quantitative Data Collection – questionnaire administration

This data was collected using a self-administered questionnaire, completed at a number of periods across 18 months, and each time the questionnaire was completed it would provide a snapshot of ASC at that point. There was no questionnaire available specifically to measure ASC in medical students, but there was a validated and recognised tool that had been used across a range of studies, and that was used in the only other study looking at ASC in medical students (Jackman et al 2011). This was Marsh's Self Determination Questionnaire 111 (SDQ 111), which is one of a series of instruments designed to measure the self-concepts of late adolescents and young adults. Additional versions of the scale (SDQ1 and SDQ 11) are designed for younger pre-adolescent respondents (Marsh and Parker, 1988). This study's sample were young adults therefore only the SDQ111 version was considered suitable. The instrument consists of 122 items grouped into 11 scales ranging from General Self (developed from the Rosenberg RSE scale, according to Marsh and Parker, 1988), to Relationship with Peers (same and opposite sex), and Emotional Stability. The questionnaire asks respondents to rate their belief in their ability in particular circumstances on a scale of 1 (false) to 6 (true) via a combination of positive and negatively expressed statements.

Whilst this instrument is multi-dimensional and useful in assessing respondent's beliefs in aspects of confidence and ability, it does not specifically address the academic or educational component required for this study, and therefore the questionnaire was modified and referred to as the Medical Student Self-Concept Questionnaire (MS-SDQ) (Appendix 5). Modification involved making the statements specifically relate to medicine or the studying of medicine, and provided a seven-point rating scale from Strongly disagree, Disagree, More disagree than agree, Neither disagree nor agree, More agree than disagree, Agree, Strongly Agree.

In addition a further section was added at the start of the questionnaire where participants were asked to give themselves a self-assessment rating against their group as well as provide some basic information about the stage of their study (Figure 8).

Figure 8. Section 1. Background Information.

Please circle to indicate on which stage of the Phase 1 Medicine programme are you currently registered?		
Stage 1	Stage 2	
Is this your first attempt at this stage?	Yes	No
If you answered No, please indicate the most appropriate explanation from the list below.		
<input type="checkbox"/>	Re-sitting the stage	
<input type="checkbox"/>	Re-starting the stage due to illness/other circumstances	
<input type="checkbox"/>	Other (please state):	

Thinking about the students in your cohort, how would you rate yourself within the group?
<input type="checkbox"/> Poor (I am one of the bottom students in my year)
<input type="checkbox"/> Not very good (I am not as good a student as most other students in my year)
<input type="checkbox"/> Good (I am as good as most other students in my year)
<input type="checkbox"/> Very good (I am a better student than most students in my year)
<input type="checkbox"/> Excellent – (I am one of the top students in my year)

Thinking about the teaching staff on your programme, how do you think they rate you as a student?
<input type="checkbox"/> Poor (Most staff think I am one of the bottom students in my year)
<input type="checkbox"/> Not very good (Most staff think I am not as good a student as most other students in my year)
<input type="checkbox"/> Good (Most staff think I am as good as most other students in my year)
<input type="checkbox"/> Very good (Most staff think I am a better student than most students in my year)
<input type="checkbox"/> Excellent – (Most staff think I am one of the top students in my year)

Permission to modify the data collection tool was sought from the originator of the questionnaire, Professor Herb Marsh. After a discussion around the purpose and use of the tool, verbal confirmation of permission was granted. An example of how the statements were modified is given below:

1. I am good at caring for patients
2. I usually receive positive feedback from peers on my course

3. I do not really like being a student doctor
4. I can easily get my colleagues to work happily with me
5. Leadership in medicine is easy for me
6. I enjoy undertaking a leadership role in medicine
7. I can often see better ways of tackling a medical problem
8. I get along well with other health colleagues as a member of a team
9. I am a good student doctor
10. I usually receive positive feedback about my medical knowledge from my teachers

4.10 Scoring the questionnaire.

Completed questionnaires were scored using the following process:

The scores relating to question numbers 1,2, 4-14, 16, 19-23, 25-35, 37, 38, 40-46, 48-50, 52-56, 58-65, 67-69, 71-83, and 85-90 were added together (77 questions = Set X), and separately the scores relating to question numbers 3, 15, 17, 18, 24, 36, 39, 47, 51, 57, 66, 70, & 84 were added together (13 questions = Set Y).

The 13 Set Y questions all related to negative feelings and perceptions, whilst the 77 Set X questions related to positive feelings and perceptions. The total score for Set Y was added to the total score of Set X, resulting in a final score representing the ASC score for that student. An example of this can be found in Appendix 6.

The maximum score which could be obtained would be 526, meaning that the total for all 77 positive questions would have to be 77 multiplied by 7 (539), and the total for all 13

negative questions would have to be 13 multiplied by 1 (13). The sum of the negative questions is added to the sum of the positive questions, giving a score of 529. The minimum score which could be obtained would be 77 multiplied by 1, added to 13 multiplied by 7, giving a score of 168. This calculation was performed for each questionnaire at each data collection point.

4.11 Timing of data collection.

There were four data collection points using the MS SDQ questionnaire. The first collection point took place before any summative assessment had taken place and this provided the baseline ASC score for each participant. For this study, collection point 1 was in the first year of the medicine programme, two months after the programme started (November). Data collection point 2 took place after the results of the first summative assessment had been released. This was the January summative examination in year 1. The third data collection point was after the results of the May summative examination were released (June), and the final data collection period was after the next summative examination period which was in the January of year 2. A fifth data collection period was not used because this would have to take place after the May summative examination results were released, and at this point students would have progressed to Phase 2, which was delivered in a different academic institution, meaning students were no longer available for further data collection. If this study was to be repeated, then it would need to be carried out in an institution which offered both Phase 1 and Phase 2 of a medicine programme where students would be available for more than four data collection points, increasing both the reliability and validity of the results.

4.12 Questionnaire analysis

ASC scores were entered into an Excel spreadsheet, together with data on gender, age, previous academic achievement, the self-assessment rating relating to how they perceived themselves in relation to their academic ability within the class, and also the self-assessment rating relating to how they thought teaching staff perceived them. In addition, the cohort rank after each assessment period was entered for each student. The MS-SDQ data was then analysed using paired t-tests.

4.13 Qualitative Data Collection

4.13.1 Focus groups

Prior to the development of the question plan for the semi-structured interviews (SSIs), participants were invited to participate in a focus group. This is a group interview where participants interact with each other rather than just the interviewer, and where they can also discuss and share experiences around the questions being asked. This is a useful approach for exploring current knowledge as well as gauging the general opinion of a group (Kitzinger, 1995). A focus group is usually guided by a facilitator with a set of open-ended questions designed to stimulate group discussion. The role of the facilitator is to ensure the group does not veer off track unnecessarily and to ensure that group behaviour remains appropriate.

The focus group method approach helps the researcher explore participant's thoughts and views more easily than in a one to one interview as the interaction between individuals may bring forward a much wider discussion because of the differing views. Participants are less

directly guided by the interviewer and are more likely to generate their own questions within the group rather than be strictly limited to an interview question schedule. They are more conversational in nature, encouraging participants to reveal what they think (hence their popularity in marketing to help decide on how a brand or product can be marketed), and this has become the accepted way of simultaneously collecting multiple individual's data in social science research (Liamputtong, 2011).

The interactive setting allows participants to freely discuss their opinions with other group members, and therefore is appropriate for both exploratory and explanatory research (Patton, 1990). This interaction allows access to information that could otherwise be missed as discussion between individuals can stimulate memories and ideas that would otherwise remain hidden in a one-to-one situation – the 'group effect' where group engagement creates an information 'cascade' (Lindlof & Taylor, 2002). Optimal group size is 6-10 participants, with a facilitator/moderator who ensures that all participants are treated with respect and have the opportunity to contribute. This is frequently the researcher, who will introduce topics and ask open-ended questions to encourage discussion. The end result of the focus group is not to develop a consensus or arrive at a decision, but to gain an understanding of a range of perspectives and opinions, and therefore in the context of this research it is an ideal method for qualitative data collection (Krueger, 1994).

Participants can either be invited or can self-select to take part, and if more than one focus group is taking place then there is no need to randomise participants amongst the groups (Leung & Sivithiri, 2009). The setting should be such that interaction between the

participants is encouraged. Data is usually recorded via audio or video recording (with informed participant consent), and these recordings should be transcribed verbatim.

Focus groups have a number of benefits. They are relatively cheap to organise and run, and provide an opportunity for a large amount of data to be collected within a relatively short period of time. They allow direct interaction between a diverse group of people who may not normally meet and this demographic range can bring significant insight into a discussion topic. A focus group may also be less intimidating than a more formal one to one interview, allowing less confident members to contribute. They also allow more in-depth discussion as the participants will explore other's ideas, so whilst providing answers to the facilitator's initial questions, the group can then pose their own more testing questions and provide more granular and specific information;

“Through facilitated discussion, participants build on each other's ideas through “piggybacking”; ... Given their qualitative nature, focus groups allow researchers to look beyond the facts and numbers that might be obtained via survey methodology—researchers can learn or confirm the meaning behind the facts” (Leung & Sivithiri, 2009, pp218).

As well as benefits, there are also limitations to focus groups, the main potential issue being the skill of the facilitator to encourage discussion without introducing bias. A further potential issue is if members of the group are particularly dominant or outspoken, which may prevent contributions from less confident individuals, but again the skill of the facilitator is important in preventing this. There may also be the potential for perceived

group norms to stop the articulation of unpopular or controversial views, so in some cases the true views of individuals may not be expressed, and an additional factor to consider is that confidentiality is compromised as the group can see and hear each other. Participants need to be assured that everyone's views are of equal value and that mutual respect and consideration is essential. It may also be necessary to set 'group rules' about the sharing of the discussion outside of the group, and the identification of group members to others. Looking further at the issues around potentially sensitive discussions, a focus group may actively encourage more open discussion as the more confident and less inhibited participants can break the ice for more taboo topics, and where some members may express thoughts which seem 'different' they can be reassured and be supported by others in the group.

In this study, the time, date and venue of the focus group were organised, and students self-selected to take part. Twelve students attended, seven males and five females. Of the twelve, six were white European (males =4, females = 2), five were South Asian (males = 3, females = 2), and one was Hong Kong Chinese (female). The facilitator explained the purpose of the group and encouraged participants to set group rules around behaviour and respect for other's opinions. Before any discussion took place and before the group rules were set, participants were asked to complete and sign a consent to participate form which explained the nature of the research, what was expected from group participants, and informed them that the session was being digitally recorded, to be transcribed verbatim but without identifying individuals by name. Participants were informed that they could withdraw from the group at any point, but that it would not be possible to remove their

contribution up to that point during transcription. A number of questions had been prepared to help stimulate the discussion, and these were displayed via an overhead projector and screen;

1. How do you think the cohort group dynamic affects how you all feel about learning and learning together, and does this affect how you might see yourself in the group?
2. Do you think the medicine programme creates a competitive environment?
3. What do you think it feels like for students who always come top or bottom of the class?
4. How does seeing the student rankings make you feel?
5. What do you think about the words we use to indicate your grade, eg, fail, bare fail, bare pass, etc? Might you feel different if you were awarded a number instead of a descriptor?
6. What do you think when your peers talk about how much or how little revision they are doing for exams? Do you think people tell the truth about the amount?
7. Are people generally willing to share their learning resources?

4.13.2. Focus Group Outcome.

The outcomes from the focus group were not analysed as a source of data for the main research study but rather were used to aid in the development and design of the questions for the semi-structured interviews, and the following section will reflect this. The twelve participants were encouraged to discuss each question amongst themselves as a whole group rather than dividing into smaller groups. The participants had been part of the same cohort for four months and knew each other relatively well. Additionally, as part of their programme they took part in problem-based learning and small discussion groups up to four

times per week and so were used to actively contributing to discussions and listening to others. None of the participants behaved inappropriately, all were respectful of other's opinions, and very little prompting was needed from the facilitator. One female student took a little time before contributing to the group, but after encouragement from the facilitator and reassurance from fellow group members she began to gain confidence and actively engaged in the discussions. The session lasted approximately ninety minutes, after which the recording was transcribed verbatim. Students were made aware that they could have a copy of the transcription on request and that this would be redacted so that individual students could not be identified, but no student requested a copy of the transcript.

The participants discussed all questions but only two of them created significantly more discussion – Q2 “Do you think the medicine programme creates a competitive environment?”; and Q3 “What do you think it feels like for students who always come top or bottom of the class?”. The consensus from the group was that they were used to being in competitive environments because of their experiences in secondary education, but these experiences had been both positive and negative. Some of those who described their previous experiences of competitiveness talked about feeling pressured directly from teachers with one male participant who came from a single-sex private school saying:

“our teachers used to tell us that if we didn't work hard then we wouldn't get good university places, and they encouraged us to think we were better than ordinary schools and we deserved to do better. The expectation was very much in our faces

and if we didn't do well then we were letting the whole school down, failure just wasn't an option" (Male participant A)

The group agreed with this comment in that they reported feeling significant pressure from those they perceived to be 'in charge', and several of the group mentioned parental influence in this context. Many of the participants indicated that they were also aware of competition from their peers but that this was more covert;

"the teachers told us that competition was high for courses like medicine and law, they tried to help us understand how much work we would have to do to get on those courses..... we all knew that even though it wasn't stated outright to each other that we might be competing with each other for our university places" (Female participant D).

Female participant D came from a mixed-sex selective school and Question 3 elicited her description of being in a large group of around twelve friends which she referred to as 'the mandem', but only one or two in the group whom she considered as close friends. She talked about competition within the group which manifested as being selective with sharing information, directly asking others what marks had been received for assignments, or 'showing off' about level of knowledge. It was interesting to note that whilst she described the social interactions of the group as being important to her she admitted that she did not necessarily trust all of the group members, and she was very selective with whom she shared her own opinions. These, and similar comments, were echoed by all the other female participants and only two of the male participants, although this may have been more of a

reflection of gender difference and willingness to self-disclose rather than the male participants disagreeing. The issue of trusting peers and feeling socially secure frequently appeared throughout the whole focus group session and seemed to be a key theme for all participants. Female participant B expressed this;

“being in a good friendship group can, like, make or break it. When I was doing GCSEs I was part of a group of about 6 girls, it could be really catty and nasty sometimes. You had to watch out what you said ‘cos someone would take it the wrong way. In sixth form a few of the group had left and gone to another college and it was much better, I felt like they all had my back” (Female participant B).

The main themes coming from the focus group related to trust, social groups/interaction, and competition, and it was clear that the participants had experienced similar situations and issues prior to starting the medicine programme. These issues appeared to be important to the participants and were returned to frequently in the discussion, therefore it was these themes which informed the development of the questions for the subsequent semi-structured interviews. For example, in the first set of interviews participants were asked about whether they felt there was competition within the cohort, and this was followed up in subsequent interviews with the same question regarding competition combined with more probing questions around the effect competition had on the social interaction and level of trust between cohort members.

4.13.3 Semi-structured interviews

A major aspect of this research was to ascertain the thoughts of a number of students, and this requires direct contact between the researcher and participant, allowing relatively free discourse to take place without necessarily following a highly structured pathway. This discounts documentary analysis and questionnaires (in this context) as they do not require direct conversation, limiting the kind of information that can be gathered and preventing the researcher from identifying potentially interesting questions and exploring them immediately. The aim of this research was not to look at a whole population for commonalities, but to give a detailed view of one situation and gain an inner perspective, and this would be well supported using the interview approach (Drever, 2003), illustrating clearly the underlying phenomenographic stance. Indeed, Kvale said that the interview:

“seeks to describe and understand the meaning of central themes in the life-world of the interviewee.....The qualitative research interview aims at obtaining uninterpreted descriptions. The interviewee describes as precisely as possible what he experiences and feels, and how he acts.” (Kvale, 1983 p175)

Following on with this line of reasoning, using simple observation to collect data would also be inappropriate as the researcher cannot observe the participant’s inner thoughts or experiences, thereby missing the point of the research.

Interviews are one of the most useful sources of data (Yin, 1994). At one extreme the interviewer reads out a list of questions and possible responses, and the participant selects their answer (the structured interview), commonly providing quantitative data (DiCiccio-

Bloom & Crabtree, 2006). At the opposite extreme there are no pre-determined questions, and the conversation can go in the direction chosen by the participant (unstructured interview) (Newton, 2010). Between these is the semi-structured interview, where there is a general structure from the main questions to be asked but leaving specific detail until during the interview where the participant's responses can be explored in more detail, and in the participant's own words (Drever, 2003). It also allows the interviewer to clarify areas which may seem ambiguous, and overall can provide high quality data not only from what the participant says, but also by observing body language, and in some research it is the sole method of data collection (DiCiccio-Bloom & Crabtree, 2006).

Interview limitations relate to the technique and reliability of the data. Reliability only becomes significant if the interview is carried out with a large number of participants where it might be difficult to ensure exact repetition (Sociology Central, 2012), but with a single participant this becomes less problematic. Greater concern lies with validity, and accepting data as trustworthy from the point of view of the researcher, participant, and those who read the research report. Validity has a different connotation in qualitative compared to quantitative research (Smith, Flowers & Larkin, 2009), and in this context it is not closely linked with reliability or generalisability. The researcher checks for the accuracy of findings by incorporating specific validity strategies into research design, and these include triangulation via different sources of information, clarification of researcher bias, providing sufficient detailed descriptions of the setting, employing different perspectives, and using others to check the accuracy of findings (Creswell, 2008). Connell et al (2018) state that

ensuring face validity, i.e. whether questions answer what they claim to answer, serves to increase confidence around reliability.

More recently there has been discussion relating to whether reliability and validity are appropriate terms to use within qualitative research as they are inherently linked to a quantitative philosophical position. Noble & Smith (2015) suggest that an alternative framework would be more appropriate, proffering Lincoln & Guba's criteria for demonstrating rigour – truth value, applicability, consistency and neutrality – as more accurate for reflecting the nature of qualitative data. However, the use of validity and reliability as terms in the context of this study will continue to be used for consistency as this is a mixed methods piece of research.

Validity in the context of this study is not closely linked with reliability or generalisability and if a different measure provides the same data as interview, this is known as convergent validity. Using multi-method triangulation to protect validity emphasises the idea of convergence – if information is corroborated using different methods within the same study, then high validity can be claimed (Mok & Krause, 1994). In addition, if social constructions and perceptions are participant to change, using a single method is inadequate to reflect this, and triangulation is essential (Denzin, 1990).

In preparation for the interviews an interview schedule was developed to provide a pathway through the process (Kajornboon, 2008; Creswell, 2007). This consisted of a number of broad, open-ended questions designed to encourage the interviewees to talk, with the aim

of gathering a detailed description of the participant's views as closely resembling their experience as possible. The questions had been developed based on the discussion with the previous focus group. The schedule allowed consistency of process between all interviewees. An important point to take into account was to ensure that questions were appropriate and would allow less articulate participants some help in verbalising their response.

A number of issues arose during this process, the initial one being what the questions would be, how many, and their order. Consequently, formulating questions that would provide the information wanted, whilst allowing the participant to give the information in their own way was important. Whilst the general outline of the questions was informed by the earlier focus group the specific questions had to be carefully refined. Based on the advice of Drever (2003) a brief preamble was written for the interviewer to read out to remind the interviewee of the purpose of the interview, followed by an introductory set of questions to act as 'ice-breakers' and also provide a context for the data. A set of main questions was devised, with added prompts to encourage further discussion. The initial draft of the schedule was piloted on a non-medical student, and this resulted in some minor modifications to the questions.

Participants provided consent before the interview commenced. Inextricably combined with obtaining consent is consideration of any ethical issues (Lipson, 1994), as the welfare of the participant is of main concern (Kajornboon, 2008). Capron stated that:

“any kind of research should be guided by the principles of respect for people, beneficence, and justice” (Capron 1989, cited in Orb, Eisenhauer & Wynaden, 2000 p95)

Therefore the principle of informed consent becomes significant so that the participant can exercise autonomy and make an informed decision based on an appropriate level of information, sometimes referred to as a ‘negotiation of trust’ (Orb, Eisenhauer & Wynaden, 2000). The principle of beneficence and justice makes it clear that there must be no harm to participants during the process, hence the need for confidentiality and anonymity to be respected, and justice infers the use of fairness throughout the process, without exploitation or abuse of participants. In the case of this research, justice was less of an issue as the participant was not deemed to be vulnerable, nor in a minority, and a risk assessment illustrated that they were unlikely to be harmed or disadvantaged by the research process or outcome. Patton (1990) and Gray (2004) suggest the following are issues which must be considered:

- A full and clear explanation of the purpose of the interview
- A risk assessment to consider whether there is any risk of stress, legal repercussion, or work-related difficulty
- Confidence on the confidentiality of the process
- Clarity on the ownership, access, and storage of the collected data
- Boundaries of data collection, and how much participants may feel under pressure to provide information

Confidentiality and anonymity were assured so that the participants knew that data could not be traced back to them by anyone other than the researcher. The participants were also assured that they could check the transcript of the interview prior to analysis so that they could review it and make corrections if required. This also provided the opportunity for them to ask for data to be removed if, on reflection, they did not wish it to be included in the study. Subsequently, only one student asked for a copy of their transcript, and this was for the first interview only. This was provided and the student was reassured that they were welcome to suggest corrections, however none were forthcoming and the student did not request any further transcripts from subsequent interviews.

The interviews were digitally recorded, and took between 45 and 60 minutes, depending on how the participants responded to the questions. A number of questions elicited unexpected responses which provided opportunity for further discussion and insight. Once the interview had concluded, each participant was thanked for their time and input, and reminded what would happen to their data. They were also reminded that they would be able to view the transcript if they chose.

A further issue to consider was the role of the author as the researcher within the process, and how this might impact on the participant. Because of the previous nature of the relationship between the researcher and the students – that of lecturer-student – there was the possibility of a power relationship that could be detrimental to the students. The researcher considered the differences between the roles of interviewer and teacher - as interviewer the researcher's role would be more passive, listening without interruption and

allowing the participant to express their opinion. In the words of Orb, Eisenhauer & Wynaden (2000 pp 96):

“For someone who has been used to being in charge or helping, this apparent passivity may cause discomfort and some level of stress”.

4.14 Analysis of transcripts

All transcripts were transcribed verbatim and coded using the following approach; Firstly, to ensure familiarity with the data the transcripts were read and re-read a number of times together with listening to the interview recordings multiple times. This allowed not only familiarity with the data but also the identification of initial themes and categories. This allowed the data to inform and also reflect the themes rather than pre-conceived themes being confirmed by the data. Secondly, the transcripts were colour highlighted for the themes, and the themes then grouped into categories, each category being given an overall code. Additionally, a number of the interview students described experiences which were very negative in terms of being part of the cohort and what had happened to them during their time on the programme, but which were not reflected in the ASC scores of these students – whilst describing seriously unpleasant situations and experiences, their ASC scores were still increasing, suggesting that academic self-concept may not be influenced by social interactions or cohort behaviour.

The overall categories which emerged from the themes were: Academic Behaviour (A), Feeling Secure (S), Resilience (R), Tenacity (T), Social Interaction (I), and Worthiness/Self-

esteem(S) – this provided the acronym STAIRS. These themes will be explored in greater detail in a later chapter.

4.15 Reflections on constraints and limitations of the study method

The main constraint in the data collection process related to the timing of the ASC score collection and the interviews. It was essential that both the ASC questionnaire and interviews were administered as soon as possible after each summative assessment episode was complete so as to capture the perceptions at that time. If ASC and the BFLPE were going to be influenced by performance then a delay in data collection would possibly allow other factors to influence both of these. The aim of the research was not to prevent or amend this influence, but the collection of ASC scores in particular prior to any influence was important. Access to the student cohort was not an issue in this study as students were attending their programme on a full-time basis therefore arranging the interviews did not present a significant challenge, but again it was important not to leave too long a time period between the interviewee's receiving the outcome of a summative episode and the interview so that their thoughts and perceptions could be captured whilst still pertinent.

An important limitation related to the completion of the Medical Student Self-Concept Questionnaire (MS-SDQ). For each participant there were four data collection points. Any participant who did not complete the first data collection point could not be included in the study as no baseline ASC score could be recorded. Any student who did not complete the final data collection point was also excluded as there would not be a final ASC score from which to calculate a change across the time frame of the study. If a participant missed

either of the two middle data collection points then this was less problematic as a start and end score were still available. Overall, this limited the participant number for the quantitative arm of the study, but sufficient numbers were still available for meaningful data analysis.

4.16 Summary

This chapter provides the data collection methods of the study, consisting of both qualitative and quantitative methods, their methods of analysis, the management of data collection, and the overall data collection plan. Due to the necessity of collecting the data at specific time points the plan was correctly followed, and data successfully collected at the identified points during each of the three phases described earlier in this chapter.

The following chapter (Chapter 5) provides the results of quantitative data analysis, and Chapter 6 the data from the semi-structured interviews. The qualitative and quantitative data will be further discussed and considered in Chapters 7 and 8.

Chapter 5. Academic Self Concept Questionnaire: Results and Discussion

5.1 Introduction.

This chapter presents the data collected from the completed ASC questionnaires from the cohort across their first and second years on the medical programme at four data collection points.

The potential cohort for inclusion in this section of the study consisted of 93 students, of which 38 (40.86%) were male and 55 (59.13%) female. In total 87 students from this cohort of 93 completed the first ASC questionnaire to provide an individual baseline ASC score (MS SDQ 1), representing a response rate of 93.54%. At the second data collection point 74 students completed the questionnaire (79.56% response rate), 71 students completed the questionnaire at data point 3 (76.43% response rate), and 67 completed the questionnaire at data point 4 (72.04% response rate).

5.2 Gender distribution of completed MS SDQ questionnaires.

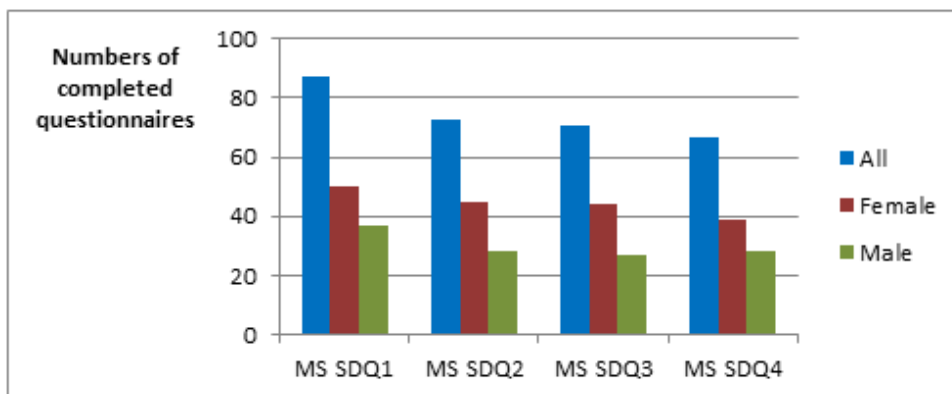
The gender distribution at MS SDQ1 was 57.47% female and 42.53% male. Participants then completed the same questionnaire on a further three occasions across an 18-month period (Table 2). The scores collected at MS SDQ4 represented 77% (n=67) of the original 87 participants, the gender distribution at this point being 57.47% female and 42.53% male (Figure 9).

Table 2. Total numbers of completed questionnaires.

	MS SDQ 1 (baseline)	MS SDQ 2	MS SDQ 3	MS SDQ 4
Female (n)	50 (57.47%)	45 (60.81%)	44 (61.97%)	39 (58.21%)
Male (n)	37 (42.53%)	29 (39.19%)	27 (38.03%)	28 (41.79%)
Total (n)	87	74	71	67

A point to note is that whilst 67 completed questionnaires were received at MS SDQ4, this did not mean that 67 participants had a full set of 4 scores. In reality 56 participants had a full set of 4 scores. Eleven of the participants with MS SDQ 1 & 4 scores were missing a score in either MS SDQ 2 or MS SDQ3. These scores are still relevant because as long as there are scores from adjacent data collection points, eg, 1&2, 3&4, they can still be used in the analysis looking at changes in score between points (this analysis will be presented later in this chapter).

Figure 9. Gender distribution across MS SDQ data collection points



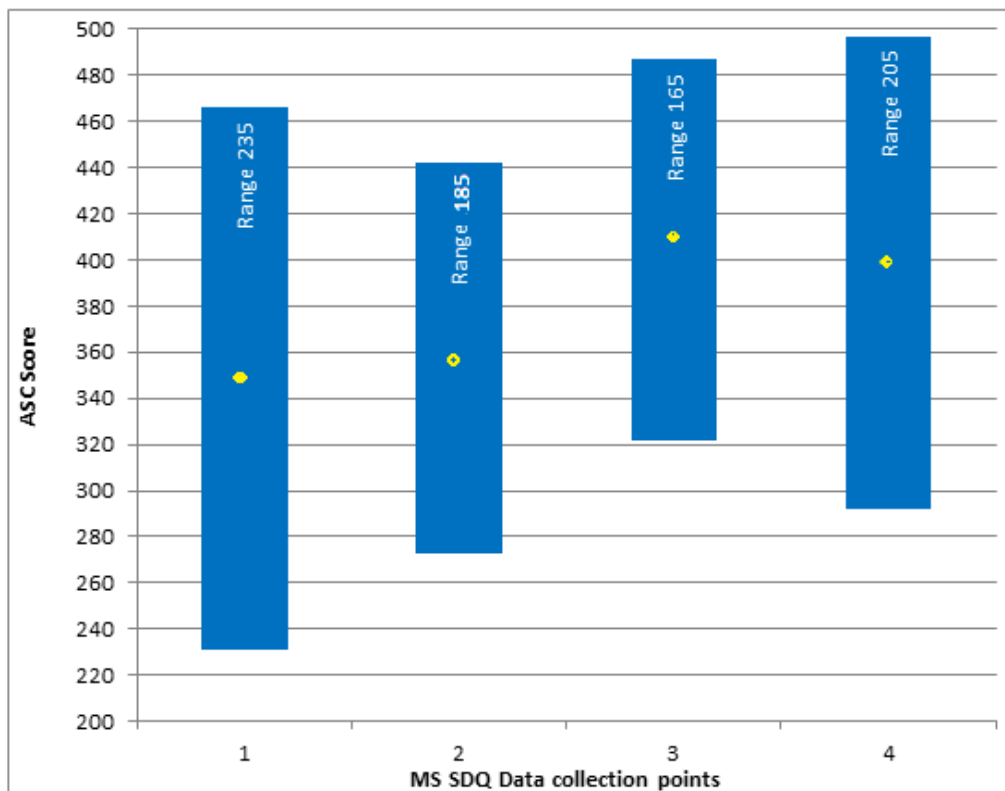
From Figure 9 it can be seen that the gender distribution of the participants did not change significantly across all four data collection points, with the relative percentages being maintained approximately 60/40 in favour of females. This was the same gender balance as the full cohort therefore it will be reasonable to assume that the ASC scores from the participants correctly reflect the gender balance of the wider cohort.

The range of scores collected at each questionnaire distribution are expressed in Table 3 and Figure 10, together with the overall mean for each data collection point.

Table 3. Full cohort - range, and mean scores

Full cohort	MS SDQ 1 (baseline)	MS SDQ 2	MS SDQ 3	MS SDQ 4	Range of means
n	87	74	71	67	
range	231-466 (235)	273-458 (185)	322-487 (165)	292-497 (205)	
cohort mean ASC	348.87	358.98	408.08	403.79	348.87-408.08 (59.21)

Figure 10. Range of ASC Scores with mean ASC, across MS SDQ1-4 data collection points.



The range of scores decreased from the first to the third sets of data, but increased on the final set of data. The mean ASC also increased across the first three ranges but reduced on the last range, although the final mean ASC still remained higher than the first two.

Table 4. Males and Females - range, and mean scores

Females	MS SDQ 1 (baseline)	MS SDQ 2	MS SDQ 3	MS SDQ 4	Range of means
n	50	45	44	39	
range	231-411 (180)	273-412 (139)	345-440 (95)	328-443 (115)	
Female cohort mean ASC	335.52	353.06	401.38	393.51	335.52-401.38 (65.87)
Males	MS SDQ 1 (baseline)	MS SDQ 2	MS SDQ 3	MS SDQ 4	
n	37	29	27	28	
range	288-466 (178)	302-458 (156)	322-487 (165)	292-497 (205)	
Male cohort mean ASC	366.91	368.17	419.00	418.10	366.91-419 (52.08)

Figure 11. Females - Range of ASC Scores with mean across MS SDQ data collection points.

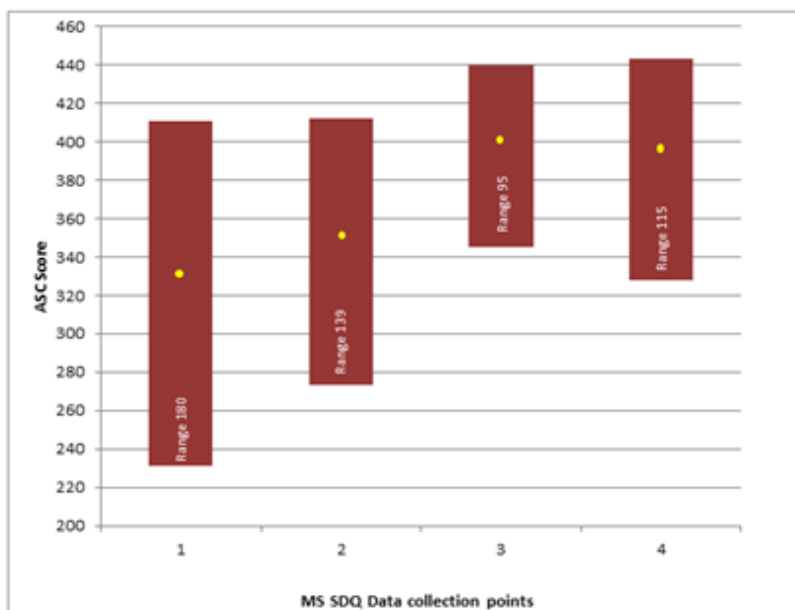


Figure 12. Males - Range of ASC Scores with mean across MS SDQ data collection points.

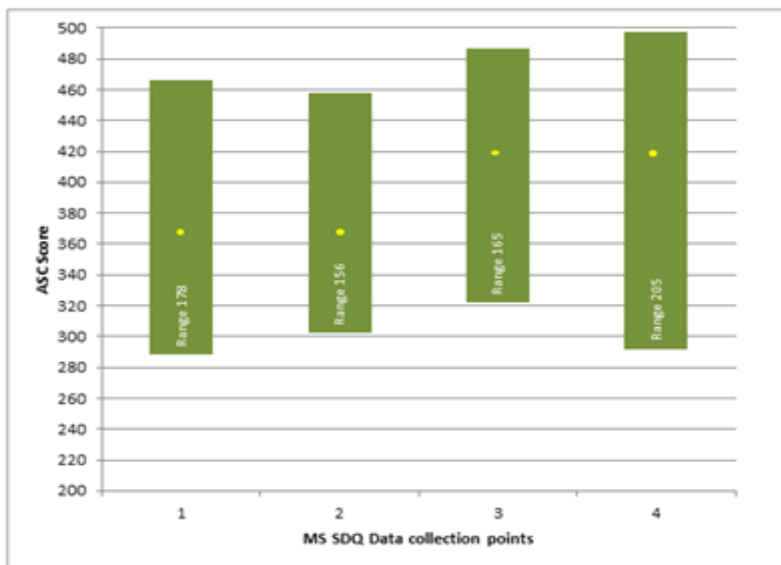
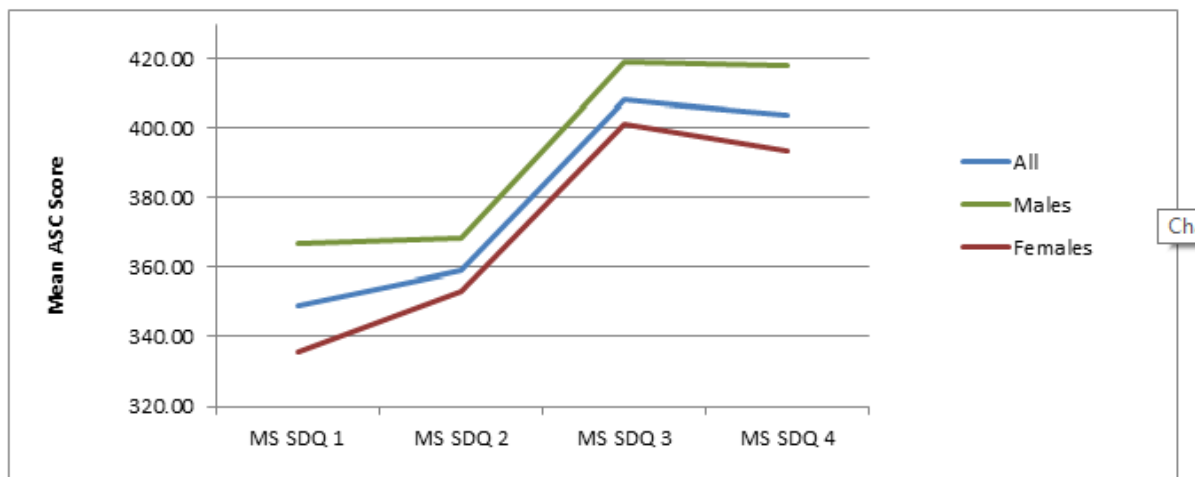


Table 4 and Figures 11 & 12 show the differences in the ranges and means of ASC scores between males and females. The mean ASC score in females was lower than that for males at the beginning of the study, and whilst the mean increased with each data collection point, the mean scores still remained below those of the males (Figure 13).

Figure 13. Mean ASC change



This is consistent with findings of previous studies where females show lower ASC scores compared to males (Kling et al, 1999; Marsh, 1989a; Harter, 1999). Additionally, in females

the mean ASC dipped during the last data collection point whereas for males it remained relatively stable, and again this is reflective of previous studies which suggest that females are more influenced by social comparison and therefore more at risk of the BFLPE, in-turn reducing their ASC score. However, there was still an overall increase in the mean ASC score for females.

It can also be seen from Figure 13 that there was a significant increase in mean ASC score between data points 2 and 3. Data point 2 occurred just after the second summative assessment in year 1 whilst data point 3 was after the first summative assessment in year 2. Between these points the students successfully progressed from year 1 to year 2, and this successful completion of the first year of the medical programme provided a significant boost to the confidence of all the students, hence the increase in ASC across the cohort.

However, it is important to note that a very small number of students failed to progress at the end of year 1 and were required to leave the programme therefore were not able to complete data points 3 and 4. Their data was used in calculating the frequency and means of the first two data sets as at this point they were genuine cohort members. If their ASC had been measured after they exited the programme it is fair to suggest that their scores would have reduced, and if included in the overall cohort data this may have affected calculation of subsequent mean ASC. It is important to acknowledge that only successful students contributed to the last two data collection points, although it is unlikely that their inclusion would have had a significant effect on the results.

5.3 Convergence.

From Figures 14 - 16 it can be seen that there is convergence of the ASC scores in females over the period of data collection whereas there is divergence in males. Figures 15 and 16 show the convergence in the individual ASC scores for males and females across the time period of the study. For females the range of scores at MS SDQ1 was 180 and had reduced to 115 at MS SDQ4, whereas for males the ranges were 178 and 205 respectively.

This may again be due to the increased tendency for social comparison in females compared to males, as suggested in previous studies.

Figure 14. Range of ASC scores.

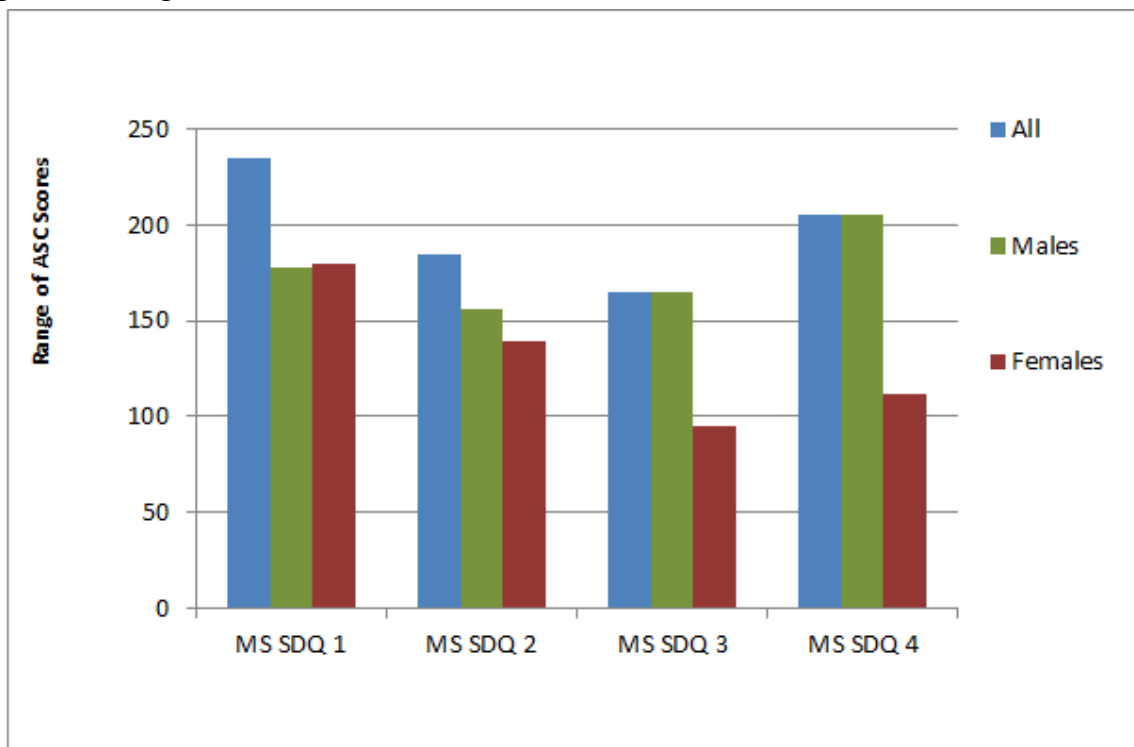


Figure 15. Individual female ASC scores

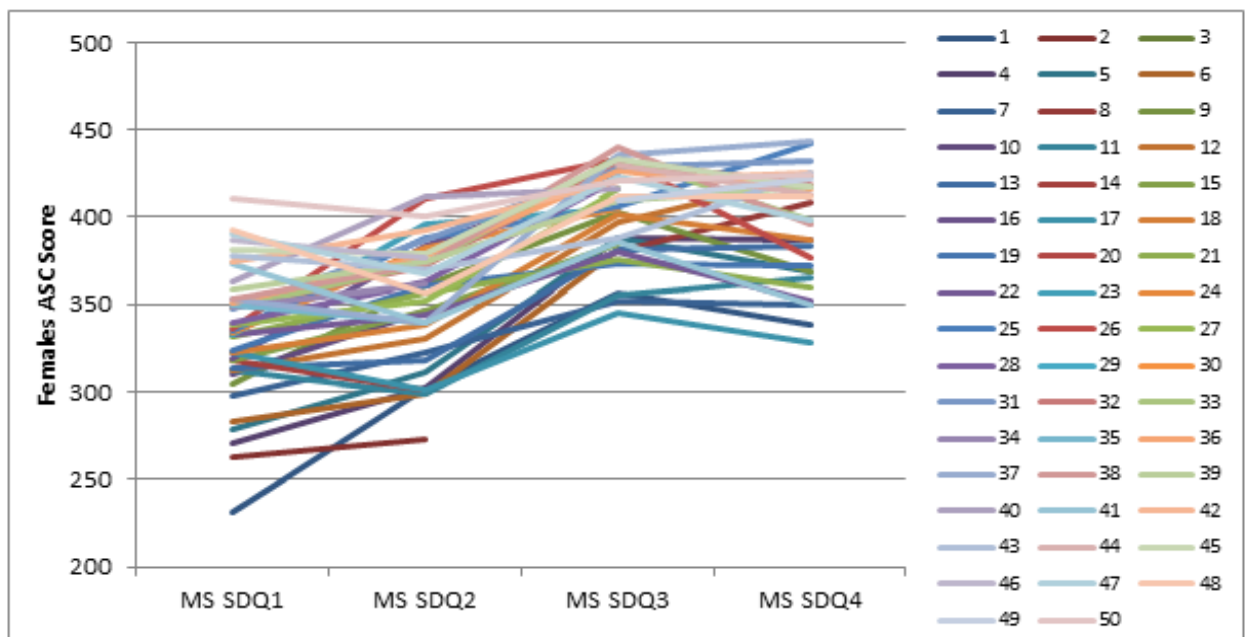
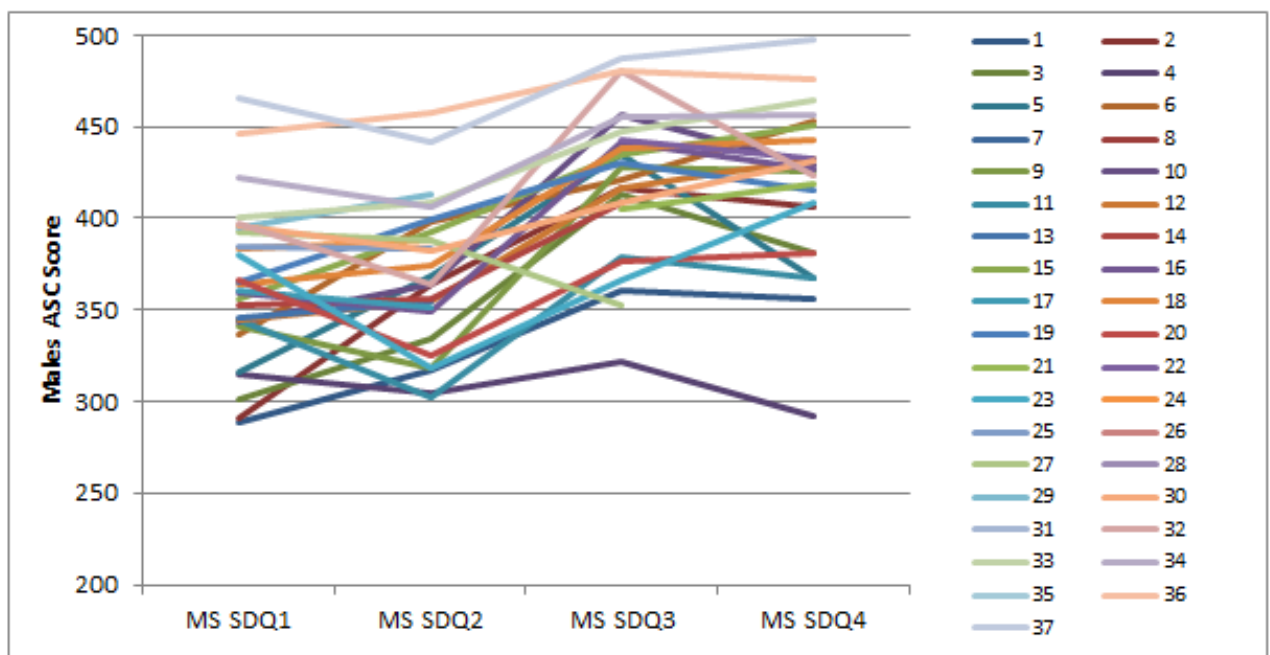


Figure 16. Individual male ASC scores



5.4 Frequency of scores

Figures 17-21 illustrate the changes in frequency of scores over the period of data collection. It can be seen from Figure 17 that the frequency of higher scores increases at each data collection point, confirming that participant ASC scores increased across the study period. From the MS SDQ1 data collection, scores between 345-349 were most frequent (Figure 18), this increased to 360-364 (Figure 19) on the second collection period, 405-409 (Figure 20) on the third collection period, and 415-425 (Figure 21) on the final collection period. This is the opposite of the findings of the Jackman et al 2011 study which claimed that ASC was unaffected, but there are significant differences between the studies. The Jackman study took place over three months whereas quantitative data collection for this study took place across 18 months. There were only 20 students from a cohort of 133 (15.03%) in the Jackman study compared to 87 out of 93 at the start of this study (93.54%). Even accounting for the drop-out rate by end of the fourth data collection point, the participants in this study still represented 72.04% (n=67) of the original participant population. This suggests that with a bigger sample size and a longer data collection period there is evidence that ASC increases in medical students during the first two years of study.

Figure 17. Overall Change in Frequency of ASC scores.

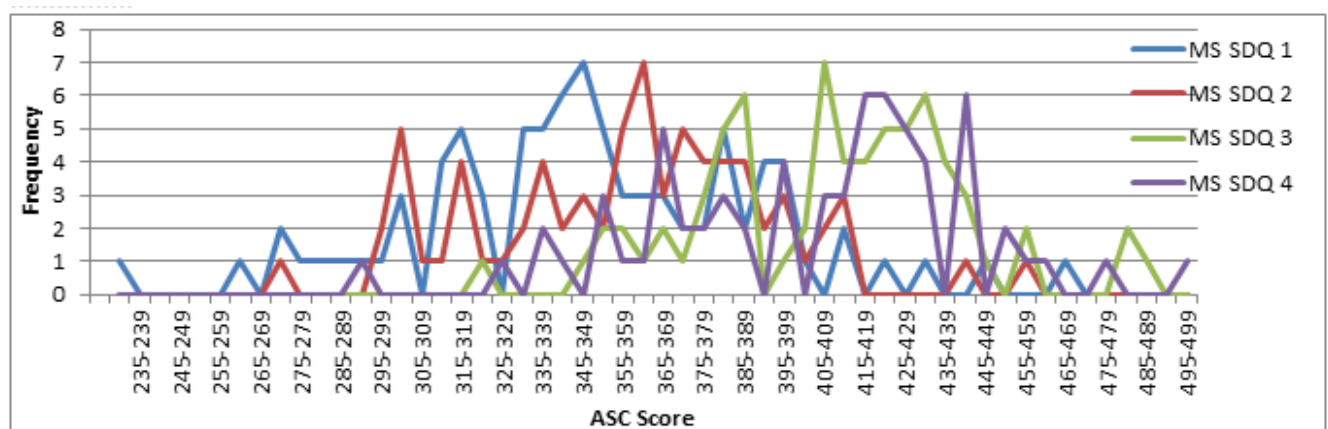


Figure 18. Frequency of ASC scores – MS SDQ1

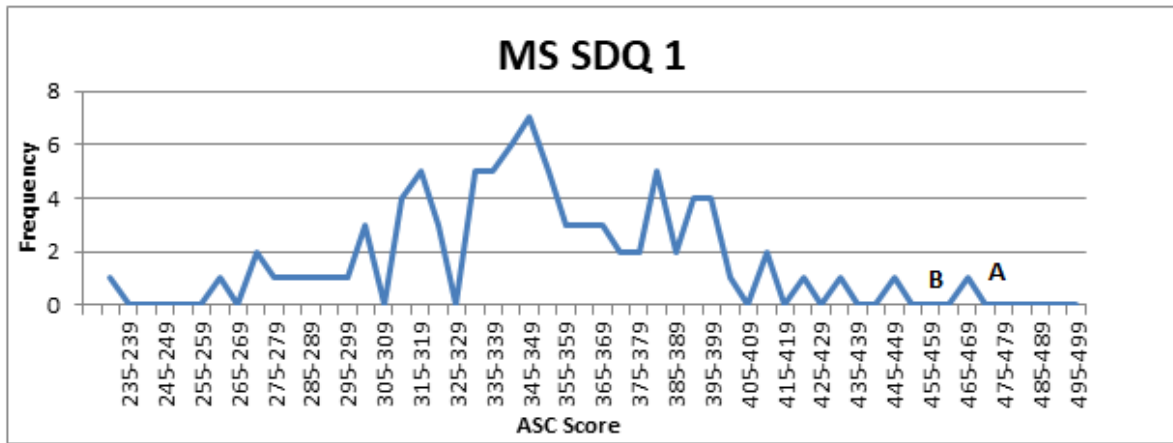


Figure 19. Frequency of ASC Scores – MS SDQ2

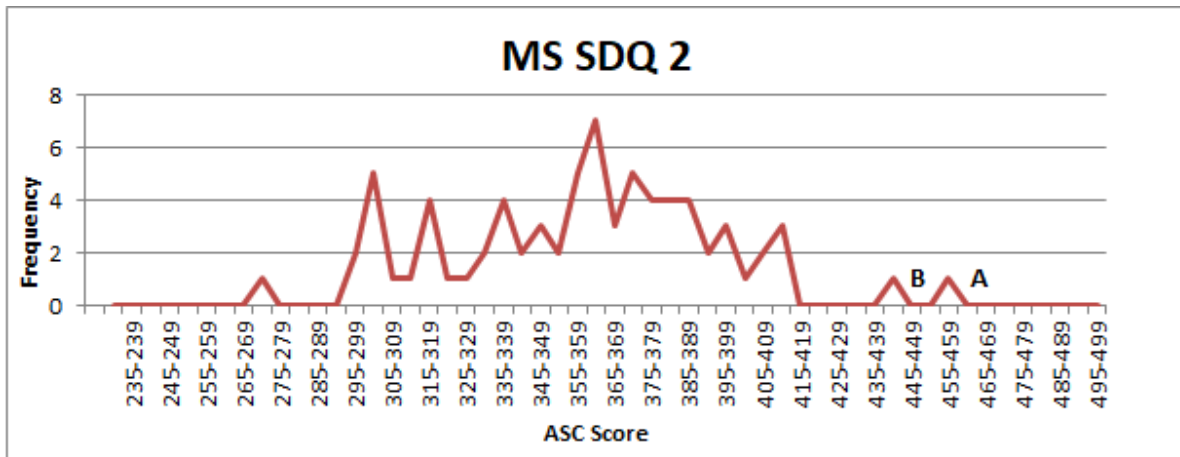


Figure 20. Frequency of ASC Scores – MS SDQ3

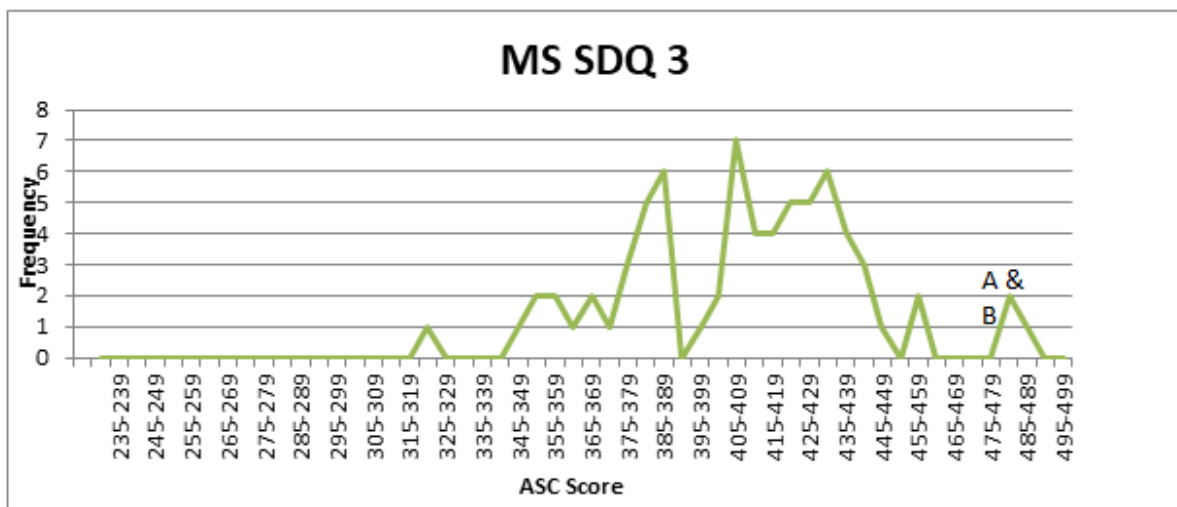
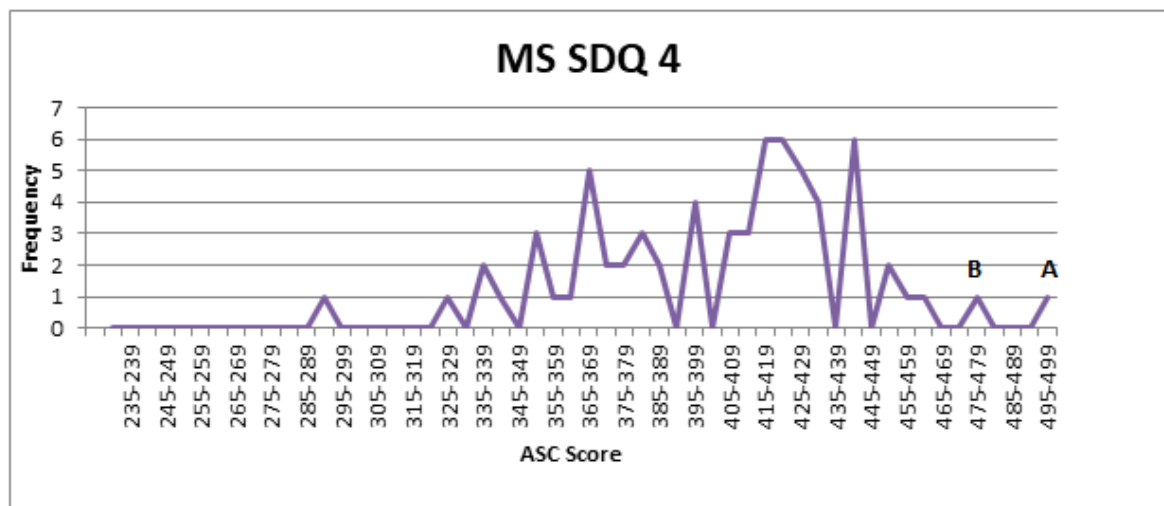


Figure 21. Frequency of ASC Scores – MS SDQ4



5.5 Outlying Scores

An interesting point to note is that there were two participants (student A and student B, indicated on Figures 18-21), who were consistent outliers, demonstrating consistently higher ASC scores than the rest of the participants. Both of these students were academically poor throughout the programme and were always in the lowest decile of the cohort ranking. Student A was usually placed between 87 and 93 in the rankings, although being placed at the lowest rank did not mean this student had failed the assessment but simply that they gained the lowest score but still just exceeded the cut-score. As the holder of the highest ASC score Student A was invited to take part in the semi-structured interviews, but declined the invitation. Student A did subsequently progress to Phase 2, but at this point was holding the lowest rank of the cohort.

Student B failed a number of summative assessments and was required to withdraw from the programme at one point, but gained re-entry subsequent to academic appeal. Student B was not invited to participate in the interviews because they were absent during the first

interview period. However, Student B continued to perform poorly and subsequently at the end of year 2 was unable to progress to Phase 2 of the programme.

These two students cannot have failed to be aware of their academic performance compared to others in the group, but they still consistently demonstrated the highest ASC scores. Of further interest, when completing the first page of the ASC questionnaires which asked students to self-assess themselves compared to other members of the group, in answer to the question *'Thinking about the students in your cohort, how would you rate yourself within the group?'*, at each data collection point they both rated themselves *'Very good (I am a better student than most students in my year)'*. In response to the question *'Thinking about the teaching staff on your programme, how do you think they rate you as a student?'*, at each data collection point again both students rated themselves as *'Very good (Most staff think I am a better student than most students in my year)'*. There is a clear disconnect between how these students perceived themselves, how they thought others perceived them, and their actual academic performance. Whilst both of these students clearly did make social comparisons with the rest of their group, they appear to be significantly lacking in self-awareness. This is a concern as one of the important GMC requirements of registrants is the ability to be aware of one's limitations – medics who are not able to do this pose a risk to patient safety. In this case, Student B left the programme but Student A progressed to Phase 2, and subsequently graduated into the Foundation Doctor programme. It is impossible at this point to say whether Student A's performance as a doctor would be impacted by their lack of self-awareness, or indeed whether they gained more self-awareness during Phase 2, but this identifies an area where further research is

required into the relationship between ASC scores, self-awareness, and future work-related concerns/GMC investigation.

5.6 ASC scores and programme entry route.

The study cohort consisted of participants who started the programme directly after leaving compulsory education and those who had either completed a previous degree or had not enrolled in further or higher education directly after leaving school (Table 5). For the purposes of this study, the age for inclusion in the non-traditional entry category was 21years, this being the point by which a student may have completed a previous undergraduate degree. Figure 22 illustrates the numbers of students from each route.

Table 5. Number of participants by entry route

	All	Male	Female
Traditional entry (18-20 years)	67	24	43
Non-traditional entry (21 years and above)	22	13	9

Figure 22. Participant entry route.

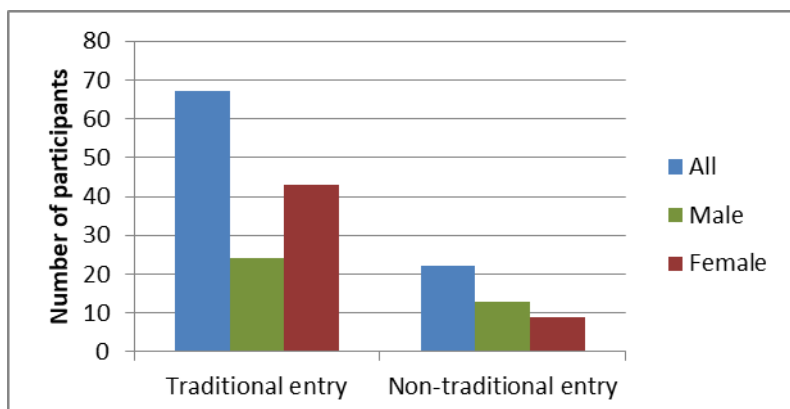
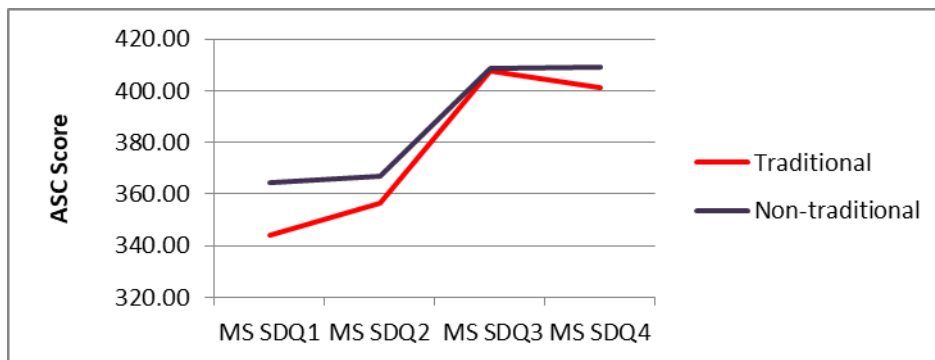


Table 6 and Figure 23 provide the mean ASC scores for at each data collection point for both traditional and non-traditional entry students. At all points, the mean scores of the non-traditional entry students was higher than that of the traditional entry participants

Table 6. Mean ASC scores by entry route.

	MS SDQ1	MS SDQ2	MS SDQ3	MS SDQ4
Traditional entry				
n	66	56	50	49
Mean	343.95	356.43	407.86	401.27
Non-traditional entry				
n	21	18	21	18
Mean	364.33	366.94	408.62	409.17

Figure 23. Mean ASC scores by entry route.



The non-traditional entry students were older than the traditional entry students, and this increased maturity it is likely to account for the generally higher ASC scores in this group, supported by previous research which says ASC increases over time in young adults. These students may have already successfully completed an under-graduate degree in which case they may have higher self-efficacy and belief in their academic ability. The non-traditional students who did not have a previous degree had mainly been in employment and it could

be argued that previous working experience gave these students more confidence in themselves. However, this is an assumption and there is no evidence to support this.

5.7 Significance in ASC change

In order to explore whether the changes in ASC over the period of the study were significant, a number of paired t-tests were carried out. The paired t-test is a hypothesis test which compares the means of two samples where the mean of one sample can be paired with the other, eg, taking a measurement before and after an intervention using the same subject. The paired t-test helps to determine whether the mean difference between the paired observations is statistically significant, i.e. they did not occur by chance, and is indicated by the p (probability) value in the test results. The p value will fall between 0 and 1, the closer to zero the value the more unlikely the difference occurred by chance.

In this study, the ASC score was measured as a baseline, and then after each summative assessment, providing a set of scores for each student. Paired t-tests were performed for each of the following data sets: MS SDQ1 and MS SDQ2, MS SDQ2 and MS SDQ3, MS SDQ3 and MS SDQ4, and MS SDQ1 and MS SDQ4. The aim was look at differences between scores at each measurement point, and also between the start and end point of data collection.

The results are shown in Tables 7-10.

Table 7. Paired t-test 1 – MS SDQ1 & MS SDQ2

t-Test: Paired Two Sample for Means			
	MS SDQ2	MS SDQ1	
	Variable 1	Variable 2	
Mean	359.1111	346.4028	
Variance	1350.0438	1704.6946	
Observations (n)	72	72	
Pearson Correlation	0.7133		
Hypothesized Mean Difference	0.0000		
Df (n-1)	71		
t Stat	3.6137		
P(T<=t) one-tail	0.0003		
t Critical one-tail	1.6666		
P(T<=t) two-tail	0.0006		
t Critical two-tail	1.9939		
Standard deviation	29.8406	Mean difference	12.7083
Standard error	3.5168		
Kurtosis	-0.2640		
Skewness	0.0150		
Confidence Level (95.0%)	7.0122		

Paired t-test 1 compared mean ASC score at MS SDQ1 and MS SDQ2. There **was a significant difference** in the mean scores for MS SDQ1 (M= 346.40, SD= 29.84) and MS SDQ2 (M=359.11, SD=29.84); $t(71)=3.61$, $p= 0.0003$.

Table 8. Paired t-test 2 – MS SDQ2 & MS SDQ3

t-Test: Paired Two Sample for Means			
	MS SDQ3	MS SDQ2	
	Variable 1	Variable 2	
Mean	408.3387	359.3226	
Variance	1149.6047	1286.5172	
Observations (n)	62	62	
Pearson Correlation	0.7061		
Hypothesized Mean Difference	0.0000		
Df (n-1)	61		
t Stat	14.3959		
P(T<=t) one-tail	0.0000		
t Critical one-tail	1.6702		
P(T<=t) two-tail	0.0000		
t Critical two-tail	1.9996		
Standard deviation	26.8099	Mean difference	49.0161
Standard error	3.4049		
Kurtosis	1.0032		
Skewness	-0.0352		
Confidence Level(95.0%)	6.8084		

Paired t-test 2 compared mean ASC score at MS SDQ2 and MS SDQ3. There **was a significant difference** in the mean scores for MS SDQ2 (M= 359.32, SD= 26.81) and MS SDQ3 (M=408.34, SD=26.81); $t(61)=14.39$, $p= 0.0000$.

Table 9. Paired t-test 3 – MS SDQ3 & MS SDQ4

t-Test: Paired Two Sample for Means			
	MS SDQ4	MS SDQ3	
	Variable 1	Variable 2	
Mean	404.3276	410.3276	
Variance	1488.5750	1191.1364	
Observations (n)	58	58	
Pearson Correlation	0.8018		
Hypothesized Mean Difference	0		
df	57		
t Stat	-1.9583		
P(T<=t) one-tail	0.0275		
t Critical one-tail	1.6720		
P(T<=t) two-tail	0.0551		
t Critical two-tail	2.0025		
Standard deviation	23.3336	Mean difference	-6.000
Standard error	3.0638		
Kurtosis	0.3118		
Skewness	-0.3097		
Confidence Level(95.0%)	6.1353		

Paired t-test 3 compared mean ASC score at MS SDQ3 and MS SDQ4. There **was a significant**

difference in the mean scores for MS SDQ3 (M= 410.33, SD= 23.33) and MS SDQ4

(M=404.33, SD=23.33); $t(57) = -1.96$, $p = 0.0275$.

Table 10. Paired t-test 4 – MS SDQ1 & MS SDQ4

t-Test: Paired Two Sample for Means			
	MS SDQ4	MS SDQ1	
	Variable 1	Variable 2	
Mean	403.9077	350.9692	
Variance	1520.9288	1833.8740	
Observations	65	65	
Pearson Correlation	0.6065		
Hypothesized Mean Difference	0		
df	64		
t Stat	11.7073		
P(T<=t) one-tail	0.0000		
t Critical one-tail	1.6690		
P(T<=t) two-tail	0.0000		
t Critical two-tail	1.9977		
Standard Deviation	36.4563		
Standard error	4.5219		
Kurtosis	-0.2095		
Skewness	-0.2569		
Confidence Level(95.0%)	9.0334		

Paired t-test 4 compared mean ASC score at MS SDQ1 and MS SDQ4. There **was a significant difference** in the mean scores for MS SDQ1 (M= 350.97, SD= 36.46) and MS SDQ4 (M=403.91, SD=36.46); $t(64)= 11.71$, $p= 0.0000$.

5.8 Summary

Males generally had higher ASC scores than females at the beginning of the study, and this remained the case throughout. Students with a non-traditional entry route to the programme also generally had higher ASC scores than students with a traditional entry route. The results also show that the mean ASC score increases after each summative episode, suggesting that success in assessment leads to an increase in ASC. For this participant group, ASC increased during the period of data collection, and this increase was statistically significant.

Chapter 6. Semi-Structured Interviews: Outcomes and Discussion

6.1 Overview

The previous chapter presented the results of the ASC score questionnaire for the whole cohort, whereas this chapter will present the data derived from the semi-structured interviews carried out on a selected group of students. The collection of interview data was aimed at exploring the general feelings and experiences of the participants which may have an association with higher or lower academic self-concept (ASC).

Twelve students from a cohort of 93 took part in semi-structured interviews, each student participating in an interview shortly after each MS SDQ questionnaire was completed resulting in four interviews for each student. As well as the interviews being recorded, notes were also made during each interview to help provide context. Table 11 provides the demographic data of the interview participants, together with the anonymous code to identify each participant. Tables 12 & 14, and Figures 24 & 31 show the individual ASC scores and rankings for each of the interviewees.

Table 11. Semi-structured interview participant demographics

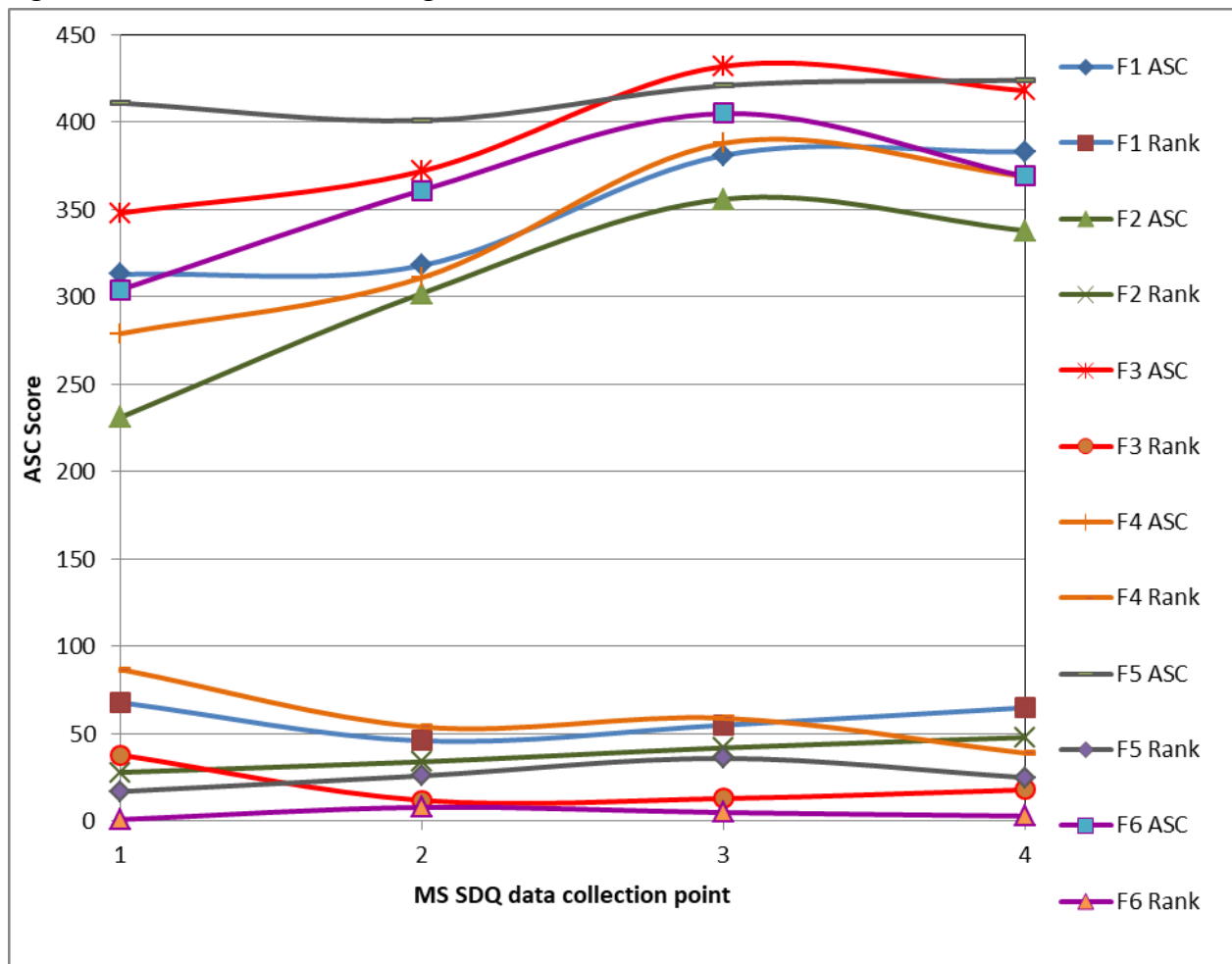
M/F	Age at start of study	Nationality	Previous school type	Previous HE experience	Identifier
M	23	White British	UK comprehensive	No	M1
M	19	White British	UK selective grammar	No	M2
F	24	White British	UK comprehensive	Yes	F1
F	19	White British	UK single-sex private	No	F2
F	20	White British	UK church-controlled comprehensive	No	F3
M	18	Pakistan	International school (private)	No	M3
F	20	White British	UK single-sex selective grammar	No	F4
F	19	White British	UK comprehensive	No	F5
F	18	Pakistan British	UK single-sex private	No	F6
M	22	Saudi	UK private, Saudi private	Yes	M4
M	19	Black British	UK comprehensive	No	M5
M	18	White British	UK selective grammar	No	M6

The ASC scores and cohort rankings were compared for each of the interview participants.

Table 12. ASC scores and rankings, female interviewees.

	MS SDQ 1	MS SDQ 2	MS SDQ 3	MS SDQ 4
F1 ASC	313	318	381	383
F1 Rank	68	46	55	65
F2 ASC	231	302	356	338
F2 Rank	28	34	42	48
F3 ASC	348	372	432	418
F3 Rank	38	12	13	18
F4 ASC	279	311	388	369
F4 Rank	87	54	59	39
F5 ASC	411	401	421	424
F5 Rank	17	26	36	25
F6 ASC	304	361	405	369
F6 Rank	1	8	5	3

Figure 24. ASC scores and rankings, female interviewees.



NB. For clarification, position 1 in the rankings represents the highest position.

Figures 25-30 Individual ASC scores and rankings, female interviewees.

Figure 25. F1

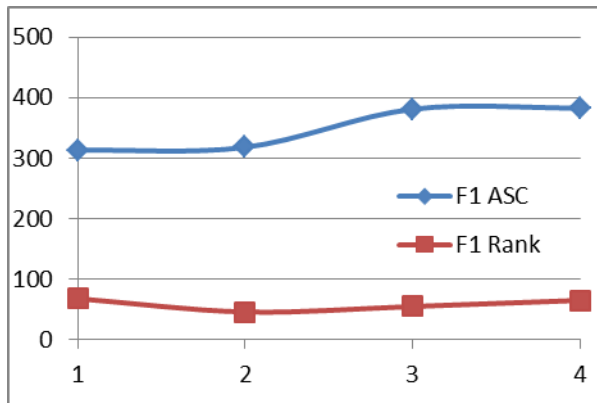


Figure 26. F2

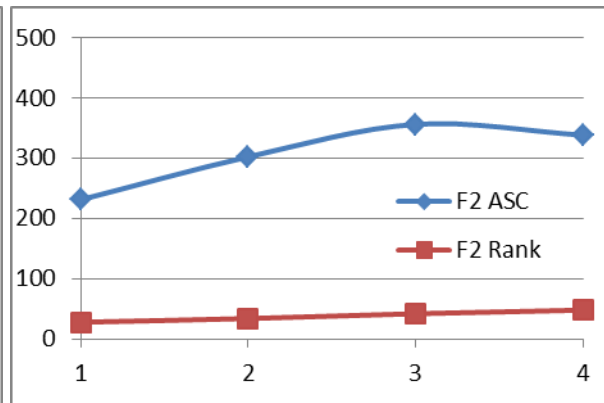


Figure 27. F3

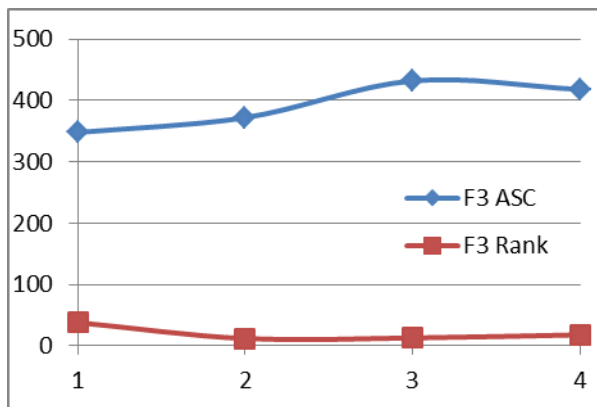


Figure 28. F4

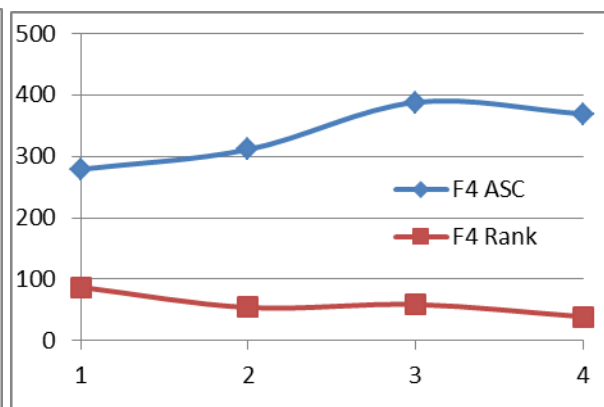


Figure 29. F5

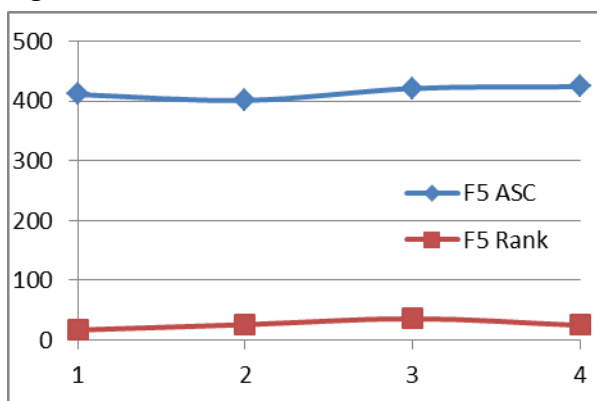
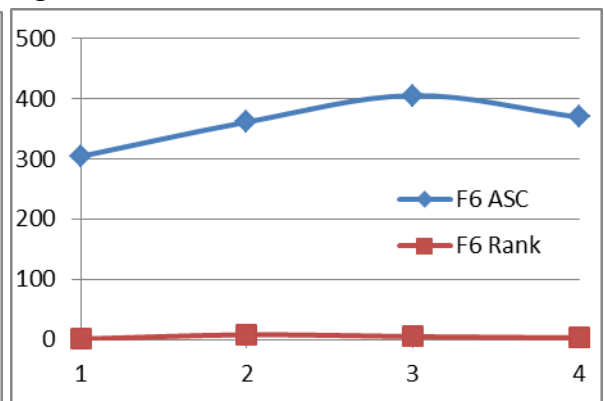


Figure 30. F6



The correlation between ASC score and rank was calculated using the Pearson correlation coefficient (r). Table 15 shows the results for students F1-F6.

Table 13. Pearsons correlation coefficient (r), Students F1-F6.

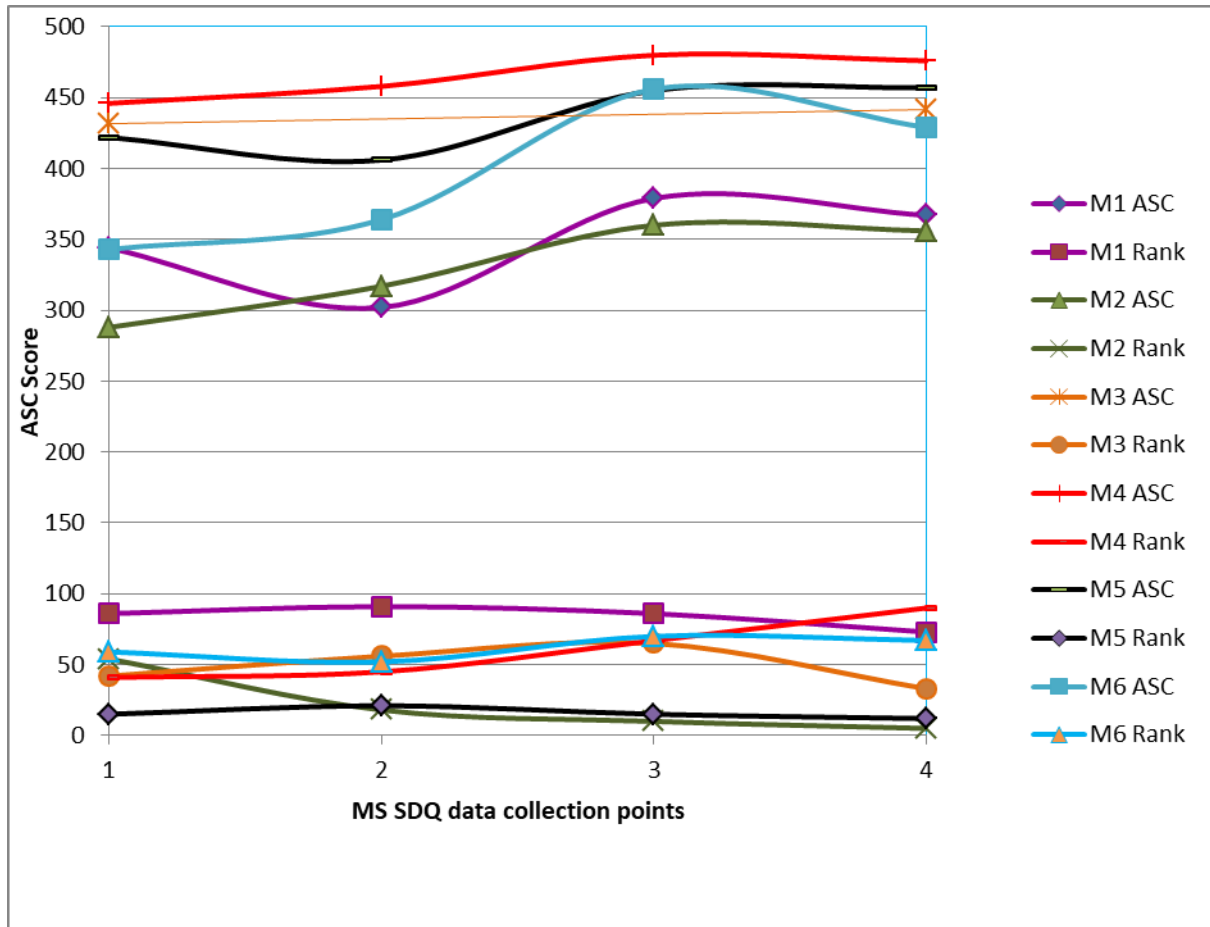
Student	r	
F1	0.133694	ASC increased, ranking remained relatively stable
F2	-0.882031	ASC increased, ranking fell
F3	0.67656	ASC increased, ranking rose
F4	0.70143	ASC increased, ranking rose
F5	-0.35676	ASC increased, ranking fell
F6	0.556088	ASC increased, ranking remained relatively stable

Reviewing the individual ASC scores in relation to the related ranking point, there does not appear to be a consistent correlation between the two in these students, with the correlation coefficient ranging from 0.70143 to -0.882031.

Table 14. ASC scores and rankings, male interviewees.

	MS SDQ 1	MS SDQ 2	MS SDQ 3	MS SDQ 4
M1 ASC	344	302	379	367
M1 Rank	86	91	86	73
M2 ASC	288	317	360	356
M2 Rank	54	18	10	5
M3 ASC	432	No score	No score	442
M3 Rank	42	56	65	33
M4 ASC	446	458	480	476
M4 Rank	41	45	67	90
M5 ASC	422	406	455	457
M5 Rank	15	21	15	12
M6 ASC	343	364	456	429
M6 Rank	59	52	70	67

Figure 31. ASC scores and rankings, male interviewees.



Figures 32-37 Individual ASC scores and rankings, male interviewees.

Figure 32. M1

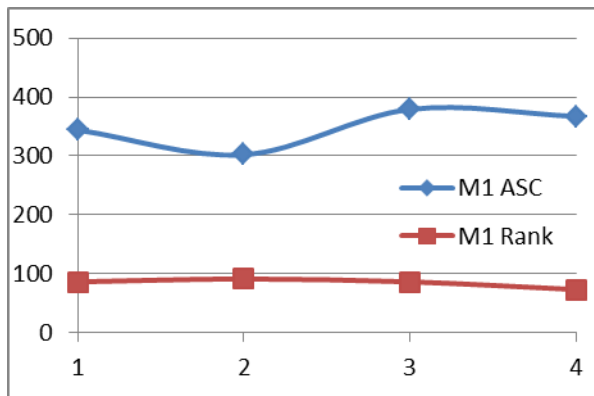


Figure 33. M2

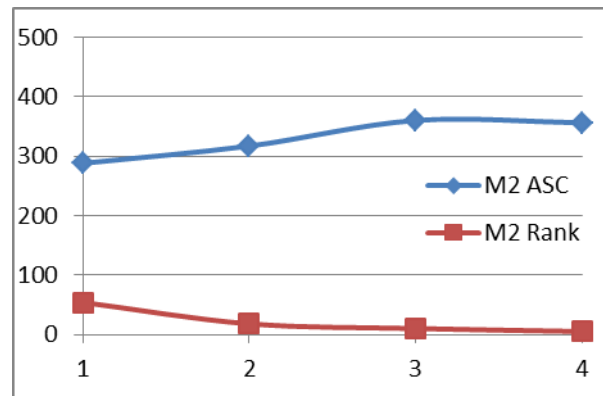


Figure 34. M3

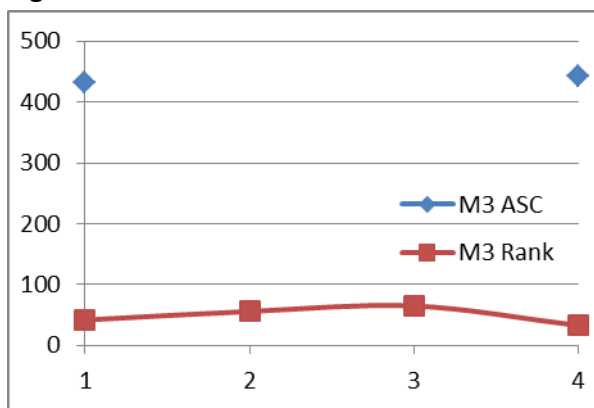


Figure 35. M4

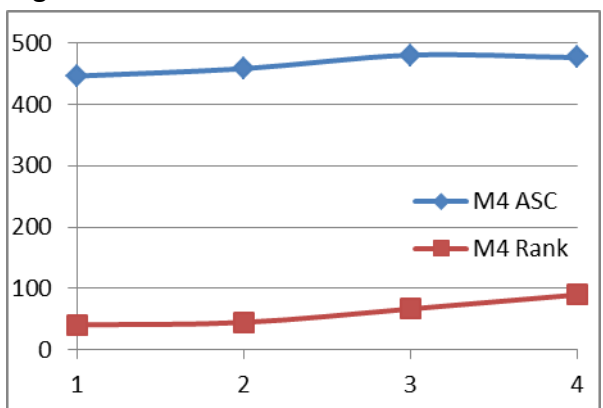


Figure 36. M5

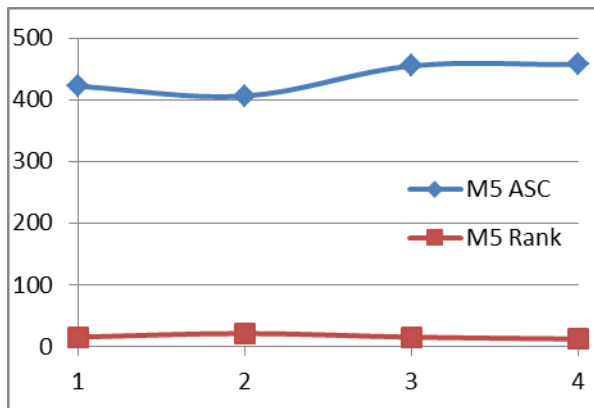
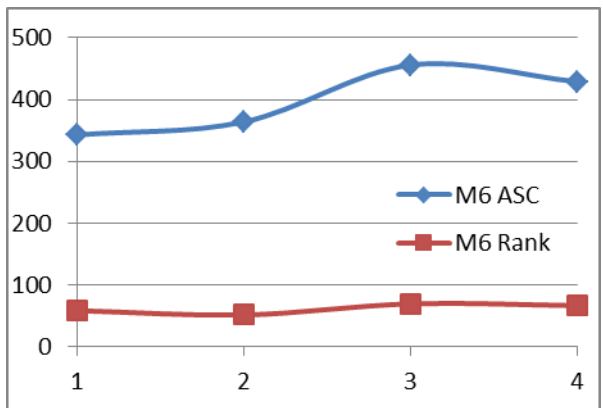


Figure 37. M6



The correlation between ASC score and rank was calculated using the Pearson correlation coefficient (r). Table 17 shows the results for students M1-M6.

Table 15. Pearsons correlation coefficient (r), Students M1-M6

Student	r	
M1	-0.60834	ASC increased, ranking remained relatively stable
M2	-0.92105	ASC increased, ranking rose
M3	NA	Unable to calculate as 2 ASC scores not available
M4	0.837005	ASC increased, ranking fell
M5	-0.84344	ASC increased, ranking remained relatively stable
M6	0.866106	ASC increased, ranking remained relatively stable

Reviewing the individual ASC scores in relation to the related ranking point, there does not appear to be a consistent correlation between the two in these students, with the correlation coefficient ranging from 0.866106-0.92105.

6.2 Coding and Themes

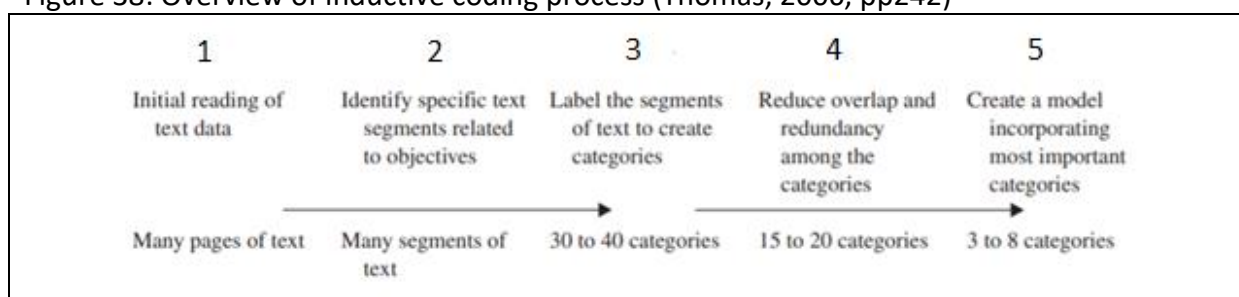
Interview recordings were transcribed verbatim, and the transcripts coded, resulting a large number of codes, each allocated a number. The codes were then clustered into major themes (some appeared in more than one theme) and each major theme was given a title and code letter.

Coding was carried out as an inductive process, where inductive analysis refers to;

“detailed readings of raw data to derive concepts, themes, or a model through interpretations made from the raw data by an evaluator or researcher” (Thomas, 2006 pp238).

This allows the emergence of themes from the large amount of qualitative data and supports the development of theory by taking a ‘bottom up’ approach (Strauss & Corbin, 1994; Potter & Wetherell, 1994). Codes develop from the words of the participants rather than being previously decided by the researcher, the codes being built and modified throughout the process. Deductive coding is more suited to testing whether data is consistent with prior work, theories or already constructed hypotheses and more often is structured prior to looking at the data (Linneberg & Korsgaard, 2019). The inductive approach avoids the restraints of ‘structure’ so that the themes which arise are not constrained by an expectation from previous knowledge (Williams & Moser, 2019). As this study aimed to identify and explore the influences on ASC in these students rather than testing whether specific factors are involved, it was felt that inductive coding was the more sympathetic approach to this. The specific process of coding was based on Thomas’s (2006) inductive analysis coding process (Figure 38) with minor adaptations for this study.

Figure 38: Overview of inductive coding process (Thomas, 2006, pp242)



Step 1 of the process was the initial ‘data cleaning’ - checking formatting, collating transcripts by interview order, clarifying unclear text in relation to spelling, and highlighting interviewer/interviewee contributions. The second step involved multiple close readings of the transcripts by a single researcher to develop familiarity with the content and begin to identify main themes, followed by the emergence and refining of categories in steps 3 and 4

(Table 16). In this study the third and fourth steps merged somewhat with the result that many categories came from specific words or phrases used by participants, e.g. 3 fear of being wrong; 18 common sense vs academic ability; 29 pressure to stay at the top; 38 being here under false pretences; 50 safety in the middle. This process was done by hand using coloured highlighting of the text, and whilst time-consuming it provided the researcher with a deep understanding and appreciation of the data. This enabled a very granular approach to creating the categories and also helped with refining where there was overlap or redundancy between them. The outcome was a relatively large list which differs from the suggested 15-20 in the Thomas process (Figure 38), but it was felt that the data was so rich that to condense the categories further would result in the loss of the subtle detail. The resulting model that emerged in step 5 consisted of six major themes and resulted in the creation of the STAIRS acronym (Table 17). Two of the major themes have fewer categories than others (Tenacity and Resilience), but this was felt acceptable as these categories were talked about by all the participants on multiple occasions, indicating the importance of these to each of the participants.

Table 16. Categories and code number.

NB Categories in bold text indicate specific phrases or words from the participants

<ol style="list-style-type: none"> 1. Feeling safe 2. Cohort mutual support 3. Fear of being wrong 4. Fear of being seen as stupid 5. Social exposure 6. Social separation 7. Social group mixing / inclusion 8. Competition in exam results and ranking 9. Dishonesty about revision strategy 10. Self-protection 11. Disappointment in performance 12. Positive affirmation of own learning 13. Arrogant behaviour of colleagues 14. Bragging about performance 15. Not deserving a place, not being worthy 16. Trust in fellow students 17. Self-esteem 18. Common sense vs academic ability 19. Respect amongst peers 20. Covert behaviour 21. Supporting colleagues 22. Self reliance 23. Academic gamesmanship 24. Emotional distress 25. Self-doubt/self belief 26. Empathy for others 	<ol style="list-style-type: none"> 27. Pride in performance 28. Pressure to perform well 29. Pressure to stay at the top 30. Ridicule from peers 31. Pressure to disclose performance 32. Healthy and unhealthy competition 33. Being complacent 34. Sharing with colleagues 35. Supporting colleagues 36. Confidence in asking questions 37. Jealousy of other's results 38. Being here under false pretences 39. Feelings of guilt when doing well/better than others 40. Motivation to improve 41. Intellectual intimidation 42. Withholding information from others 43. Ridicule of poor performance from colleagues 44. Lack of empathy 45. Social isolation for struggling students 46. Importance of pastoral support 47. Learning opportunities 48. Social superiority of being a med student 49. Getting into academic stride 50. Safety in the middle 51. Importance of what others think of you
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Table 17. Main Interview Themes – STAIRS model

Theme 1 Academic Self-esteem/worthiness (S)	Theme 2 Tenacity (T)	Theme 3 Academic Behaviour (A)
<p>12. Positive affirmation of own learning 15. Not deserving a place, not being worthy 17. Self-esteem 18. Common sense vs academic ability 22. Self-reliance 25. Self-doubt/belief 27. Pride in performance 38. Being here under false pretences 39. Feelings of guilt when doing better than others 48. Social superiority of being a med student 51. Importance of what others think of you</p>	<p>8. Competition in exam results and ranking 29. Pressure to stay at the top 33. Being complacent 40. Motivation to improve</p>	<p>8. Competition in exam results and ranking 9. Dishonesty about revision strategy 13. Arrogant behaviour of colleagues 14. Bragging about performance 16. Trust in fellow students 20. Covert behaviour 32. Healthy and unhealthy competition 33. Being complacent 34. Sharing with colleagues 37. Jealousy of other's results 41. Intellectual intimidation 42. Withholding information from others 49. Getting into academic stride</p>
Theme 4 Social Interaction (I)	Theme 5 Resilience (R)	Theme 6 Feeling secure (S)
<p>6. Social separation 7. Social group mixing/inclusion 19. Respect amongst peers 21. Supporting colleagues 26. Empathy for others 31. Pressure to disclose performance 44. Lack of empathy 45. Social isolation for struggling students 46. Importance of pastoral support</p>	<p>11. Disappointment in performance 18. Common sense vs academic ability 28. Pressure to perform well</p>	<p>1. Feeling safe 2. Cohort mutual support 3. Fear of being wrong 4. Fear of being seen as stupid 5. Social exposure 10. Self-protection 16. Trust in fellow students 24. Emotional distress 30. Ridicule from peers over knowledge/performance 36. Confidence in asking questions 43. Worrying about what tutors think 50. Safety in the middle</p>

In this chapter each of the themes will be discussed specifically in relation to the responses of the interview participants, and in Chapter 8 the themes will be explored in a wider context in relation to the full cohort of participants, society, and the academic institution. Whilst each theme exploration will not include discussion of data from each participant, data from selected participants will be used for each. Data from all participants will be used in the discussion of at least one theme.

6.3 Theme 1. Academic Self-esteem/worthiness (S)

(NB: Numbers given in brackets at the end of each direct quote relate to the code numbering in Table 17.)

Academic self-esteem was a significant theme in the interviews, with all interviewees mentioning it on more than one occasion. Self-esteem begins to develop in early life and is strongly influenced by the family and social environment. Academic achievement is influenced by it, and there is a clear correlation between the two (Mirzaee et al, 2018, Amirkhana et al, 2018) – the higher the self-esteem, the better the academic achievement. This study did not formally measure self-esteem levels so for the purposes of this study the term ‘academic self-esteem’ will be used as it is more relevant to the context of the research. During formal education students create social comparisons and measure themselves against their peers. This peer influence is at its strongest during adolescence and young adulthood, which is the age group of the majority of participants in this study. In addition, the first set of interviews took place during the first term of year 1, the participants had only been at university for two months and were still in the process of forming and confirming friendships. Some of them expressed their worries about not having

many friends and this may have had an effect on their level of academic self-esteem at this point. Successful friendships support higher academic self-esteem so the importance of social acceptance and a supportive network becomes apparent. Student M1 expressed just these concerns and felt that as he had previously been in a working environment and been out of education for a number of years he did not have anything in common with the rest of the group;

"..typically people from my kind of background, socio-economic background and everything, don't really go on to study medicine. So I compare myself to people in the class who are from families of doctors and I feel it.....not really puts them on a pedestal and I don't want to come across as if I'm jealous or anything because I'm definitely not, but I think they are already on a different kind of playing field in a way" (M1, Interview 1) (15, 25)

M1 appeared to have very low academic self-esteem at the start of the programme and said that compared to peers he was not 'clever' and exhibited many of the traits of imposter syndrome, particularly the fear of failure and the denial of competency. M1 said he did not have many friends, and there is evidence that having few or no friends leads to self-doubt and lowered academic self-esteem (Erol & Oth, 2011). On a number of occasions he stated that he did not belong, felt intimidated, and did not deserve to be on the programme;

"I find it sometimes a little bit intellectually intimidating I suppose would be a good phrase because there are some seriously clever people in that class. If a question is asked, I can't even think of an example, say I don't have a clue what the answer would be somebody else has already given the answer and I'm still like "How do they know that?" kind of thing and sometimes I can feel like I don't really deserve to be

studying the same sort of thing because I've clearly got no idea and they have. I feel like I'm a bit of an imposter." (M1, Interview 1) (6,7,15,25,38)

However, in a subsequent interview after M1 had passed the first year of the programme and progressed to the next year there was a change in M1's feelings;

"I think last year when I realised I wasn't doing too well in the January exams, I was getting very caught up in the fact that I could just knock it on the head as a bad decision and go back to (redacted to maintain anonymity). Whereas this year I feel like I'm a bit more invested in what I'm doing because I've passed 1st year. So I obviously can do it and I've got this far, so why not just stay on." (M1, Interview 2) (12,22,25,27)

The effect of being successful in assessments seemed to have a positive effect on M1, and there was also an increase in his ASC score (MS SDQ1 = 344, MS SDQ3 = 379), which is similar to previous research findings on how academic success increases ASC (Chen et al, 2013). M1 always remained in the lower rankings of the cohort but did not express concern about this. M1 also appeared to have developed some degree of resilience in dealing with the feelings of unworthiness;

"I feel more positive definitely. I was feeling pretty negative this time last year. I was thinking about leaving Uni and just continuing with what I was doing before. Now I still have the days where I just think 'ugh what am I doing here' but I think largely I feel in a much better place, so yeah" (M1, Interview 3) (1,12,17,22)

M1 no-longer felt like his place on the programme was undeserved but still expressed a lack of confidence, with low self-efficacy;

“Yeah I feel like I do on merit of passing the first year but I still think there’s obvious room for improvement. I found a lack of direction though for ways to improve so it’s just been.....I’m sure there’s avenues open to me, like talking to my academic advisor to suggest new study methods but I tried that last year and I didn’t really reap any reward from it. So it’s just been a case of trying.” (M1, Interview 3) (22,40)

An interviewee with a similar MS SDQ1 score to M1 but a different perspective was M6, a traditional entry route student whereas M1 was non-traditional. M6 appeared to have much higher academic self-esteem and expressed that they felt comfortable within the cohort. M6 stated that he felt he was ‘cleverer’ as he was studying medicine, and that being able to study medicine made one superior to non-medical students;

“I mean, level of cleverness at medical school is different from level of cleverness anywhere else I think, so there’s accepting.... Well everyone here is, is clever, it’s actually quite nice like I was talking to my brother ‘cos he went to Oxford, I think it’s similar there, like he said anyone you talk to is really switched on and like bouncy and anyone you talk to on the medicine course is really ... they’re switched on, they’re clever. So it’s quite a nice atmosphere” (M6, Interview 1) (11,27,48)

When probed further about how it felt being part of an ‘intelligent’ group;

“I think it’s more fun ... so having everyone clever means ... humour is a sign of intelligence generally so often it’s more fun. I’ve always been around clever people so I think, I’m used to it in a way so I don’t really know how to compare it” (M6, Interview 1) (17,51)

This self-confidence resulted in M6 generally having a very positive attitude. M6 was a middle-ranked student in terms of examination performance and had an MS SDQ1 score of 343 which rose to 456 at MS SDQ3, significantly higher than M1 at the same point. M6's academic confidence was high, academic confidence being the belief in academic ability and the ability to perform well (Sander & Sander, 2006) and shows a large over-lap with ASC and high levels of self-efficacy, which M6 expressed;

"I know I can succeed and I know I did well. Obviously there are a lot of people in the year cleverer than me; I wouldn't put myself above average at all. At the same time I know everyone here is clever, I know that I'm doing fine, I'm happy with how I'm doing so I know I can achieve if I try." (M6, Interview 2) (12,17,22,27,28)

The lowest MS SDQ1 score (231) in the interview group (and of all the females across the full study population) occurred with student F2, a traditional entry route student coming directly from sixth form. F2 appeared to have very low levels of self-confidence, frequently expressing feelings that she did not deserve her place, that she was unworthy and there under false pretences. F2 was consistently in the top third of the cohort rank in performance but compared herself negatively to peers;

"Given where I am like in Medical School I should think so but then there are so many more clever people. I think having been to (redacted for anonymity), like having all my friends they all seemed so much more intellectual, like they can have an intellectual conversation whereas I'm not quite....I don't know. I think I'm ok at some areas but then there are a lot of things I know nothing about, politics and stuff like that. Some things go completely over my head and I just can't retain them, like

Maths yeah I just can't do it. Then some things I think I'm good at so I think I'm clever but only in areas." (F2, Interview 1) (13,15,17,25,38,41)

F2 appeared to have a poor opinion of her own ability to learn and expressed poor self-efficacy;

"I think I'm quite bad at learning... I do write notes in lectures but then revision wise I just write small notes on the most important bits so the night before an exam I can just look at them. Otherwise I'm not very proactive. I always set out to do more than I do. I always need to look over the PowerPoints afterwards and make sure that I understand my notes and I understand the PowerPoint and I've got it all down. That lasts for about a week and then I just leave it all until the week before the exam! It's not good!" (F2, Interview 1) (25)

F2 performed well in examinations but initially felt she was undeserving of the relatively high ranking she had achieved. It is unclear how she attributed this success but there did not seem to be the high internal locus of control that one would normally expect to find in a high ability (i.e. studying medicine) student (Siegle et al., 2010);

"I do feel like it was a fluke. My flatmate, she did quite a lot more revision than I did and there was only a couple of percent in it, but you know that couple of percent can make quite a big difference to your ranking. So I felt a bit bad because I didn't feel like I deserved that place, definitely compared to how much revision she'd done." (F2, Interview 1) (15,25,39)

However, with further examination success and progression into year 2, F2's confidence and self-belief in her ability increased, but there remained the underlying feelings of being undeserving and being unable to take credit for her success. F2 also regularly compared herself with her peers;

"I think the result probably did change my perception of how I perform. I think it was a more accurate marker than the January exams... I was like "argh no" and I wasn't that happy but actually thinking about the amount of work that I put in, I think that is probably correct I think. I feel happy with that position; I feel it's probably the right position for me in comparison to everyone else I would say. So I guess it's given me a bit of confidence because I was never sure ... if my January mark was just a fluke! I don't think it was but I definitely didn't feel cleverer than the majority". (F2, Interview 2) (12,22,27)

F2's ASC score increased significantly after her examination performance, increasing from 231 to 356 at MS SDQ3, but it is interesting to note that whilst her ASC score increased, she remained unwilling to attribute success to her own effort;

"I don't know, I was just really unsure as to where my place was and why I'd done well. Doing well didn't really make me feel secure or good about my place; it made me feel like I just didn't know why I'd done so well. Yeah I do feel like now...because I've seen my friends do a bit more work than me and not do quite so well, I think I felt a bit undeserving" (F2, Interview 2) (15,39)

F2 referred to her exam success as a 'fluke', implying that it was due to luck rather than ability suggesting that F2's locus of control was more externally focused. The relationship

between ASC and locus of control has been demonstrated as important (Murdock & Anderman, 2006), particularly in relation to a student's willingness to be academically dishonest. Whilst there was absolutely no indication that this was the case with F2, evidence suggests that high ability students with an external locus of control are more likely to consider the option of cheating due to the high stakes nature of the assessments.

Student F1 demonstrated a different locus of control compared to F2, and had a much higher ASC score than F2 at MS SDQ1 (313), which continued to rise throughout the study period reaching 383 at MS SDQ4. F1 was a non-traditional entry student, having previously completed an under-graduate degree in a health-related subject she appeared to have high levels of academic self-esteem and self-worth. F1 had an internally focused locus of control that was illustrated by her 'practicality' in relation to her studies;

"I'd rather just look it up myself and then I know it's right. Sometimes they go in to too much detail that I'm not ready for, like I haven't even grasped the basics yet so I don't really want to be rushing ahead in to stuff I know nothing about. So if I just do it myself then..... I feel like everybody else understands what's going on, whereas I don't understand all the time and I just think "it's alright when I get back I'll just go over it again and work it out myself" (F1, Interview 1) (10,12,17,18,22,)

"I've grown up with just getting on with things... in comparison to other people, where they are like "oh we'll get a man in to do that" my family kind of just does it, fixing things and painting the house and stuff. That's just what I'm used to" (F1, Interview 1) (18,22)

F1 showed a lot of confidence in her ability to manage her learning and was confident that she was deserving of her place on the programme whilst there were also echoes of her assumptions that social class was linked to cleverness. She valued 'common sense' and viewed this as being different to cleverness;

"I think I'm probably about average in the world maybe! I think I just take longer to understand things but then compared to clever people I think I have a bit more common sense. My boyfriend is really clever; he's doing medicine as well. He'll just do stupid things that you wouldn't necessarily think were clever but it's just obvious to me that you don't do whatever he's done! Generally I think people that are cleverer have less common sense.....that's my impression anyway! People that are working class that haven't gone to University or anything, they have a lot of common sense because they've had to be quite manual all the time. My dad has never been to university or anything like that, but he's really good at doing little jobs around the house and stuff and I wouldn't have a clue about that. He teases me and says "well you're an academic, you don't know about this!" (F1, Interview 1) (17,18,26)

F1 appeared to be unconcerned about social comparisons - as a more mature student who had successfully completed a previous degree and had worked for a year in the NHS, F1 had 'proof' of her academic ability and did not seem to need affirmation from her peers. F1 was already skilled in some of the practical tasks the cohort was learning and she was able to help her peers who looked up to her experience, which improved her self-confidence;

"I know that I'm not as clever as everyone else but I've just accepted that and I just get on with it really. So I'm not really that bothered.... I don't know whether it's just

my age or something but I suppose I don't really care that much if someone thinks something about me." (F1, Interview 1) (1,7,10,11,17)

"I feel fine in clinical skills because people don't really know anything in clinical skills. Because some of the things I've done before, like the blood pressure and the venepuncture, I feel fine with that because people know that I'm a (redacted for anonymity) so they know not to argue about how blood pressure is done! Yeah but then I think because I've got this label as 'health professional' they just think I know a lot more about clinical stuff anyway, which I guess I do. Say for example we do a cardiovascular examination or something; I've never ever done one of those before ... but because people think I know, it kind of rubs off on me sort of thing." (F1, Interview 1) (2,12,17,19,21,27,34)

6.3.1 Theme 1 - Summary

Apparent levels of academic self-esteem and worthiness within the interview group varied, and there was little difference between males and females, consistent with the findings of Amirkhani et al (2018). Amirkhani's study did suggest that studying medicine gave students higher academic self-esteem compared to non-medicine students, and this was echoed specifically in the comments of one student (Student M6). Academic self-esteem is an important contributing factor to academic success, although success is still possible with lower levels of academic self-esteem (illustrated by Students M1 and F2). But it would seem sensible and supportive to pay attention to students who demonstrate feelings of unworthiness as this can lead to them question their place and consider leaving their

programme of study. Supporting students to help build their confidence and academic self-esteem should be considered as an essential part of the university experience.

6.4 Theme 2. Tenacity (T)

Tenacity is the determination not to give up easily on a task or situation, and is seen as an essential contributing factor in academically successful students. Tenacity as a specific term was not used by any of the interviewees and it did not arise as explicitly during the interviews as did levels of confidence and academic self-esteem. However students talked about knowing that they needed to consistently work hard and that medicine was not going to be easy so the concept of tenacity appears to have been implicit. Linked with tenacity is the mindset of self-efficacy (Dweck et al, 2014), and this belief is a strong predictor of academic success (Bandura, 1997). All the interviewees talked about competition and rankings and were aware of the pressures some high-ranked students felt to maintain their position together with the effort this took. Student F6 was one of the highest ranked students, ranked top (position 1) early in year 1 and ranked 3rd at the end of the study. F6 was a traditional entry route student with an MS SDQ1 score of 323, rising to 403 at MS SDQ3. She was generally confident with what appeared to be good academic self-esteem, had a supportive friendship group, and showed concern for any peers whom she thought were struggling. F6 worried about maintaining her rank position and understood that she had to work hard to prevent herself dropping down the rankings. When asked how that would make her feel;

“I think I would be disappointed because obviously I’ve dropped down but I think, for me I find the exams quite difficult and I put a lot of work into them; I did what I could

and maybe I could have worked a bit harder but I feel like I've learnt a lot from revision and there are more exams to go and I guess I'd get over it basically, eventually. Like I would be disappointed but I don't think I would be distraught" (F6, Interview 1) (8,11,29)

F6 showed tenacity in the willingness to continue to work hard to maintain her ranking, and was aware of the need for sustained effort to reach her goal. Her words also suggested that she would demonstrate some degree of resilience should her ranking fall, illustrating that it can be difficult to find separation between resilience and tenacity;

"it would actually make me work harder though, like it would, because I dropped down I was like 'Oh I know I can do better' so I would work. But coming at the top has kind of, like, you're just waiting to fall down though ... especially when people ask me, I feel a little bit like they're waiting for me to sort of drop down in the rankings... which is why I wouldn't be massively disappointed if I fell, 'cos I've kind of like prepared for it" (F6, Interview 1) (8,16,28,29,30,31,40)

In a later interview F6 continued to express her growth mindset, demonstrating the key behaviours of tenacious students suggested in Lucas & Spencer's 2018 framework—commitment, confidence, control, connection. Reflecting on her high ranking after the end of year 1;

"I don't feel like that's necessarily going to happen again, so I have to work hard again. But I feel like I have that potential and I know that I have that potential, so it's ok....Whenever I do badly in something it always spurs me to do better. I know that's not good enough. I am a bit of a perfectionist generally, so whatever I get wrong I'm

like "I can't get that wrong next time" I have to learn from that and build on that so yeah I would say so" (F6, Interview 2) (22,28,40)

On her approach to the importance of working collaboratively;

"I think it's understanding that you are not going to know everything and you are never going to know everything in medicine. So you have to ask for help and you have to talk to other people basically. I feel like I have progressed in that way because you have so much more stuff and so much less time to do things in, so it's just growing up a little bit I think" (F6, Interview 2) (2,16,21,24)

F6 showed high self-efficacy and was confident in her ability to perform well, understanding that this was under her own control (high internal locus of control) and required commitment. She knew that building on her previous experiences would help her continue to do well, and she valued engagement with others to help her with this.

"Well I just want to do well. I want to do the best that I can do and try and make my assignments the best they can be even if it's difficult. I want to see that final product. It's really exciting when you finish everything and then it's right there and all bound and you're like "wow it's done!" (F6, Interview 3) (12,27,28,40)

Generally, all the interviewees showed some level of tenacity but this is unsurprising as the sustained effort and commitment to achieve a place at medical school requires some degree of tenacity. This was particularly well illustrated by Student M4, a non-traditional entry route student who already held an under-graduate science degree, and had one of the highest MS SDQ1 scores of the cohort (446). M4 originally enrolled on that programme (at a different institution) because there was an opportunity to transfer across to the under-

graduate medicine programme at that institution at the end of year 1. Only twenty places were available for transfer students, the cohort was 75 students and competition was strong;

“... people including myself knew it as “we’re competing against that person sat next to me on the right, he might take my spot” type of thing. You had to get above 70% percent average for you to have the opportunity to get an interview to then apply to go over and only around 55% of the people did that.... So the competition and the stress to get that is very high and you know that it is really hard but you know you have to do it to get in and people do it” (M4, Interview 1) (8,28,32,40)

M4 was unsuccessful in gaining a transfer place and so remained to complete the original degree programme. He felt demotivated but showed tenacity in continuing to study, knowing that completing the degree with a good classification may still allow him to apply to medicine at a different institution.

“It was very interesting because it was completely different because you don’t have a very huge target anymore. Everyone in there obviously wanted to do Medicine but you no longer have that, it’s no longer guaranteed because if you graduate you don’t get a medical place and that’s it. So at the beginning it was a very low mood, very depressing type of year group where everyone was like “why am I here? I don’t need to be here”. There were quite a lot of people that dropped out but I guess that’s just the nature of the course and it was to be expected really” (M4, Interview 1) (11,22,33)

It is interesting to note that M4 described a change in the group dynamic after the opportunity for transfer had passed, the level of competition reduced and students supported each other more;

“Competition is gone so you are helping each other to get the best you can. Again a few of my friends did go across and so we just carried on, we just knew that at the end of the day it doesn’t really make a difference, ... me and my best friend we knew we weren’t going across from early on and so it didn’t really hit us that much. Yeah there were people with a lot of envy and jealousy as you would expect. Then obviously there’s people who would put down people who went across who were like ‘well they’re not going to do good, they’re not going to be good doctors’, ‘they’ve got my place, why are they doing better than me’ type of thing” (M4, Interview 1)
(2,21,26,30,32,34,37,44)

6.4.1 Theme 2 Summary

M4 showed resilience as well as tenacity in dealing with the disappointment of not transferring to the medicine programme, and just as with Student F6, this further illustrates that it can be difficult so separate tenacity from resilience. The positive mindset demonstrated by M4 showed the determination to persevere to achieve a long-term goal, something which Duckworth et al describe as ‘grit’ (Duckworth, et al, 2007). F6 was determined to work hard to maintain her ranking and both students showed commitment, confidence, control, and connection. These factors have significant influence on tenacity and the belief about academic ability (and hence ASC) - as mentioned earlier, the belief in the ability to learn and perform well is a strong predictor of academic performance (Bandura, 1997). To gain a place on a medicine programme requires tenacity and therefore

it follows that all the students in this study were tenacious, but the study did not assess how tenacious they were. Nor did this study look at gender differences in tenacity, although previous research suggests females display higher levels of persistence over longer periods of time compared to males (Christensen & Knezek, 2014). What is apparent from the study is that there is significant competition within the cohort but whether this directly contributes to tenacity is unclear, and raises the question 'are tenacious students also competitive students?'

6.5 Theme 3. Academic Behaviour (A)

The theme of academic behaviour is perhaps the most difficult of the six themes to explore, student-reported academic behaviour being little researched and understood. The working description of academic behaviour for this study relates to how supportive the students were towards each other, competitiveness, and their willingness to share information and learning, as well as behaviours such as dishonesty about the amount of studying, manipulative and strategic activities such as hiding core text books in the library, or actively not returning library books so as to prevent others from accessing them, and their willingness to engage in academic dishonesty. As discussed in the previous themes, medicine is a highly competitive programme with high stakes assessments and without multiple resit opportunities, meaning that failure at a single assessment frequently means students must withdraw from the programme. The consequences of any proven case of academic dishonesty are significant and would also result in a medical student being removed from the programme. One would hope that expected professional behaviour from students would prevent this but it has been suggested that the high stakes and heavy

workload of this type of programme creates an environment for some students to engage in dishonest behaviour to some degree (Abilock, 2009).

Most of the interviewees talked about academic behaviour within the cohort, some of them described supportive behaviours whilst others had witnessed the opposite. One of the main areas where this was discussed was in relation to peers discussing how much work or revision they had engaged in, particularly leading up to examination periods. This was something Student M2 talked about in some depth. M2 was a traditional entry route student with a relatively low MS SDQ1 score of 288, the lowest of all the males in the cohort at this point, but this rose to 356 by the end of the study at MS SDQ4. M2 was a quiet, thoughtful student who was not lacking in confidence but was also self-effacing, which may have accounted for the low initial ASC score. M2 talked about how peers lied regarding the amount of work they were doing but he was unsure whether it was due to competitiveness;

“It’s tricky. People aren’t always honest about how much work they do if you ask them. They’ll say, “oh I haven’t done anything yet” and then you’ll find out they’ve been at the library 12 hours a day everyday sort of thing. So they underplay what they do and I think most people do that. I don’t know. It’s probably a combination of they don’t want to worry their friends and also that they don’t ... want to let people on with how much work they actually do or how much they actually know. I can’t tell if that’s competitive or if it’s trying to reduce the competition.” (M2, Interview 1) (8,9,16,20,32)

M2 had performed well in the year 1 and year 2 assessments and ended up ranked in the top five of the year group. He explained that he had worked hard but that it was not

something of which his peers were aware, he thought that his success created some jealousy and resentment.

“I probably did less than most people but at the same time I also revised really hard in the 6-8 weeks leading up to the exams. I was doing 12-14 hour revision days for about 6 weeks There are some people who I feel would certainly feel that I didn’t deserve to come where I did, because they don’t see me in the library at this point in time and that sort of thing. Because I never noticed before possibly how resentful some people are that they do a lot of work and some of us don’t. Well at least that’s how they perceive it.” (M2, Interview 2) (9,16,19,32,37,49)

M2 did not purposely lie to peers about his studying but also did not go out of his way to indicate how much work he was doing. In his earlier interviews he talked about the group of peers with whom he tended to do revision and that there was a general understanding of supporting each other, sharing their information and learning. In his last interview this had changed somewhat, and the behaviour of some members of the revision group was different;

“Because how we revise normally is we’ll do all our stuff beforehand, then we’ll come back a week early and we’ll just do group sessions for that week where we’ll just run through everything and we can bounce it off each other. That works so much better if everyone is contributing because everyone knows something that everyone else doesn’t. It’s a bit frustrating when you have a couple of people there who know more things than the rest of us and aren’t chipping in.” (M2, Interview 3) (1,2,16,19,34,42,49)

What M2 is possibly describing is strategic behaviour to gain an advantage, students benefitting from the revision work of others whilst being unwilling to share their own work. This was something described by many of the interviewees, although interestingly none of them admitted to this behaviour themselves. They genuinely may not have behaved in that way but given the relatively small size of the year group and the extent to which the interviewees said this was happening, it is likely that for some of them there was a failure to recognise they did this. Alternately, they may have been fully aware of their behaviour but unwilling to admit it to the interviewer, fearing they may be seen as unprofessional.

Peers withholding information was also mentioned by Student M5. M5 was another traditional entry route student and had a relatively high ASC score of 422 at MS SDQ1. M5 presented as confident and had come from a school where he was used to being one of the best performing students – a big fish in a little pond. M5 felt that peers were generally supportive of each other, but also described a situation between himself and another student where competition prevented them sharing information;

“I think generally people share and support each other, I mean you just have some individual behaviours that would be different or otherwise, but I think as a whole, people tend to share because ultimately there’s been a lot of times when I’ve explained topics to other students because I don’t mind sharing, teaching other people. It’s just that sometimes you have those individuals like just want to take but they don’t want to give” (M5, Interview 1) (2,16,34,42)

“I can think of quite a few times this year where because there’s been competition, we haven’t shared information, which is, it’s got to a point where like for example, one of the assignments, because of that kind of competition between some students, like between me and another student, like she wouldn’t share her notes, I didn’t need to share her notes, I was just briefly glancing through her assignment, she wouldn’t even let me look at it but at the same time she said to me to allow her to look at mine, you know it wasn’t reciprocal.” (M5, Interview 1) (16,32,34,42)

When asked about important attributes he thought were needed by medical students M5 talked particularly about collaboration and team-working. From some of his descriptions M5 generally observed supportive academic behaviour between peers (as did M2), but the instances where peers were unsupportive stand out in his recollection as negative experiences. M5 was aware he was very competitive and also aware of the need to maintain his relatively high ranking, but admitted to selfish feelings about other students who went down in rank as he rose;

“No, it doesn’t bother me that somebody else goes down because it’s almost like kind of a selfish interest because I’ve gone up, I don’t really mind that someone else has come down. I think, just like someone else that came down, they probably wouldn’t care if I came down.... competition can be both healthy and unhealthy. And, I’ve seen both sides of it it’s also about students’ mentality and attitude towards their actual studies and what they want to achieve. ... It would be good if we could reduce the amount of competition because you kind of, well for me personally, it puts less pressure on me. So, without the competition I guess it would become more about learning to understand rather than just learning to pass and win” (M5, Interview 1)

(8,28,30,37,44)

M5 had experienced a significantly competitive environment during his school years and had not found it enjoyable, but he also understood the culture within the medicine programme required competition so was willing to benefit from it. This academic self-interest is not necessarily a bad thing and students need to focus on doing their best, but not to the detriment of a supportive peer culture. On a number of occasions he talked about the 'tribal culture' of students who perform well, which he experienced during his school years, but he did not say that this was happening with his current cohort. M5's comment about learning to understand rather than learning to pass demonstrated an appreciation of what his learning was for, but by using the word 'win' it appears he knew this was still within the context of peer competition.

Student F5, a traditional entry student with one of the highest female ASC scores at MS SDQ1 (411), did not describe cohort competition in the same way as M5, but reported a very specific conversation where another student related a story about a student who had purposely altered a Wikipedia page to show incorrect information;

"No I mean there's jokes about "Oh I heard that someone in the past changed Wikipedia so that it was wrong on all the relevant pages. Jokes about "oh you know you shouldn't be helping me, you should be thinking about your own ranking" but I think they are just jokes" (F5, Interview 1) (8,16,20,34)

Whilst this seems most likely to be an apocryphal story, its repetition amongst the peer group possibly indicates their underlying worries about trusting each other, and the passive

aggressive comments about not helping each other somewhat confirm this. Student F5 may have had a high ASC early in the study (411 as MS SDQ1), but it was evident during her interviews that she was very influenced by what her peers said, such that when asked about how she dealt with difficult periods, stated her strategy was initial panic, then ask friends what to do and follow their advice rather than develop her own solution;

“Avoidance! Ignore it and hope that it gets better or sometimes maybe ask other people what they would do. Then I tend to get really dramatic and be like “no that won’t work, nothing will work!”. Yes and trying not to make a decision about it myself by asking other people and saying “tell me what to do, help me!” (F5, Interview 2) (4,16,25)

Whilst this perhaps sits better within Theme 5, Resilience, it does illustrate the extent to which peers can influence behaviour and attitude. F5 initially presented as a student with apparently high academic self-esteem and had come from a school environment where she had been a member of a ‘high achievers club’ (her own description), so as a big fish in a little pond her ASC was high, although throughout the period of the study her ASC score changed very little (from 411 at MS SDQ1 to 424 at MS SDQ4).

Student M3 also talked about competition amongst the cohort. M3 was a traditional entry student, privately education in an International School, with one of the highest initial ASC scores of the cohort (432, rising to 442 at MS SDQ4). When M3 was asked if he felt the cohort was competitive his initial response was that it was not, but it is clear that he had an understanding that competition was to be expected;

'I'd say no. My experience with most of the year group has been that if you're lacking in something and you go to someone else for help, they are more than willing to help you out. I've not seen any kind of any gunning for positions kind of thing at all, obviously you have to be competitive but no one is outwardly like "I'm the best, I'm going to be at the top, you're nothing to me" sort of thing. I've not seen anything like that so maybe people are subtly competitive but not outwardly, definitely not' (M3, Interview 1). (20,21,34)

M3 introduced the idea that the competitive behaviour was less explicit, and was seen in more subtle ways;

'Subtly competitive as in there are always those people in anatomy and SDL who just stand there and spout off information everywhere and people come in and we're like "how does he know that?" or "how does she know that, I've got no idea what their talking about". I guess that kind of cows people and some leave and some try and do their own thing. I guess that, in my opinion, in a way it is showing that 'I know the most in this room'. (M3 Interview 1) (4,13,14,30,41)

M3 appears to be suggesting that some students actively 'show off' their level of knowledge and he appreciated this negative and unsupportive academic behaviour could be intimidating for some students. Student M2 also described negative and unsupportive academic behaviour in his revision group (where some students actively chose not to share their knowledge whilst expecting others to share theirs), but in that situation the opposite was occurring around knowledge sharing. In both cases it is the control of knowledge that is

being used as a type of capital, with the power to share or withhold wielded by individual students.

Student F3 had a slightly different experience around competitive behaviour. She was also a traditional entry route student who presented as confident, with an initial ASC score of 348 (rising to 418 at MS SDQ4). F3 talked about competitive behaviour within her friendship group, and during her first interview she described what happened when the first summative results were published:

“There were a couple of people in my friendship group who really wanted to know how everyone else had done. One particular individual is very competitive and their opinion of themselves is that they are the best, which can become quite stressful sometimes, so they wanted to know how everyone else had done. Other than that people just kind of mentioned it as they were going along. For the most part with most of the people I am friends with it was a “oh how did you do?” it wasn’t a “oh did you beat me?” kind of thing, just the odd individual who was a lot more interested.’

(F3, Interview 1) (8,14,28,31)

F3 generally felt that her fellow students were supportive but was able to easily identify the competitive behaviour of one student which stood out from the others. F3 did not express any feelings of concern around this but appeared to see it as relatively normal behaviour within the cohort, suggesting (as had Student M3), that competitiveness is accepted and acceptable. In relation to her own performance in relation to others, she had a balanced approach;

'I think it is hard on some people but I try not to let it bother me. It's just a number at the end of the day and as long as I'm passing I'm still going to get where I want to be in the end. I'm trying to be sensible about it!' (F3, Interview 1) (12,18,26,32)

F3 maintained this approach with subsequent summative examination performances, even after a specific incident which occurred in relation to the release of one set of examination results. The second set of interviews took place after the summative assessments at the end of Year 1, and results were released to students electronically. Previously, all results were released under anonymous student number, however on this occasion there was an error and students accidentally received access to the full results data for the whole cohort, with names and related anonymous number attached. This was identified immediately and access withdrawn, but in that short window of visibility, some students had already accessed and downloaded the information and shared this with peers. The effect of this was explored in all of the second interviews, and F3 talked about her own feelings and the behaviour she observed;

'I was quite pleased with how I did so it didn't really bother me, but there are certain people who I know who are really competitive and so they had access to the breakdown of everything I got in the exam. I know specifically one person who did go through and look at it all and then started a group conversation on Facebook about how well everyone had done. I didn't really care because I was happy with how I'd done but at the same time I just thought it was a bit inappropriate.' (F3, Interview 2) (5,14,19,30,32,44)

F3 recognised the inappropriate academic behaviour of her fellow student, although it could be argued the initiation of a social media conversation was driven by hubris rather than competitiveness - it is unlikely that student would have drawn attention to it if their own performance had been poor.

This incident was also discussed by F4, a traditional entry student from a single-sex selective grammar school. F4 stated it was something that had not especially affected her, but she had witnessed the negative effect this had on a close friend:

'Where I came, I think everyone would think that's where I would come so it doesn't really matter to me. One of my closest friends was the person who failed and so I could see from another perspective how terrible it was. From my own point of view I didn't really mindshe said "I'm not telling anyone, I'm telling 3 people and no one else is going to ever find out that I failed. No one is going to find out". Then the next day the whole year found out so she was very, very, very upset.....I personally don't really mind where I come and I would tell people if they ask me. People at the top don't want people to know they are at the top or they want people to think they are higher! The people at the bottom obviously don't want people to know' (F4, Interview 2) (4,5,19,21,26,30,37,41)

F4 acknowledged the competitive behaviour of some individuals in relation to wanting others to think they have performed well, and she also indicated that behaviours such as spending time in the library (or not) was noticed by everyone;

'There's some people who spend the whole time in the library and they didn't come in much higher than people who everyone knows didn't spend any time in the library. That didn't make them feel very good about themselves either' (F4, Interview 2) (9,20)

It is interesting to note that F4 echoes the comments of M2 regarding 'library behaviour', and the perception that spending more time in the library indicates 'good' student behaviour;

'No. I just think people spend all their time in the library and I just don't think that's necessary. That's just a competitive thing and I think most medics have that and I don't have that. I was competitive in the OSCE, I wanted to be the best at the communication side of things but I don't know' (F4, Interview 2) (9,16)

This perception amongst the cohort of visibility in the library as an indicator of working hard could be interpreted as an academic form of virtue signalling – carrying out a conspicuous action (working in the library) ostensibly to show off how dedicated and hardworking an individual is compared to others. Introduction of the popular use of the term 'virtue signalling' is credited to James Bartholemew's 2015 articles in The Spectator, where he suggested that the concept had been around for some time but without a term attached to it, and related to the display of expressing opinions particularly on social media, that will be acceptable to other people, often by expressing disgust at certain political ideas (Cambridge Dictionary, 2020). The cohort for this study are a group of individuals embedded in the daily use of social media, so perhaps this is behaviour is sub-consciously

influential in how they choose to signal their perceptions of student behaviour. Research into this phenomenon in university students appears to be non-existent, and perhaps suggests an area for future further exploration.

6.5.1 Theme 3 Summary

As discussed in the introduction to this theme, student academic behaviour is more challenging to explore because of the lack of formalised definition and possibly a lack of perception amongst educationalists. For this study academic behaviour was related to how supportive students were towards each other, levels of competitiveness, willingness to learn and work collaboratively, and behaviours such as academic virtue signalling, manipulative and strategic activities, and willingness to engage in academic dishonesty. Evidence to support engagement in academic dishonesty was not found amongst the interviewees, most likely because of the potentially catastrophic consequences for individuals should they be found guilty of this. The inference is that the expected professional behaviour from medical students prevents this, but the possibility must be considered that sophisticated dishonest behaviours do occur but the systems in place to detect these are not yet sensitive enough. As suggested by Abilock (2009), a combination of heavy workload and very high stakes creates an environment where some students would consider engaging in dishonest behaviour to some degree.

In relation to competitive behaviours, students M2, M5, F5, M3, and F3 all described witnessing this in others whilst explicitly stated they personally were not competitive. Competitiveness was also discussed in Theme 2, tenacity, and was something mentioned by almost all of the interviewees so it appears that it is both accepted and acceptable amongst

the cohort. But, unhealthy competition is something a number of interviewees talked about in that it could interfere with collaborative working and confuse students about the ultimate aim of their learning:

'... It would be good if we could reduce the amount of competition because you kind of, well for me personally, it puts less pressure on me. So, without the competition I guess it would become more about learning to understand rather than just learning to pass and win' M5 (Interview 1) (32)

Finally in this summary of Theme 3, the recognition of 'academic virtue signalling' as a behaviour is beginning to emerge. Overtly and visibly demonstrating behaviour that individuals think indicates their dedication, 'cleverness', or work ethic in order to gain social status or promotion is not a new idea, but in relation to student behaviour could this be a phenomenon that is perpetuated by social media and the need to be 'seen' as a good student? This is possibly what Student M3 is describing when talking about subtle competition and students 'showing off' that they know more than others in the room. If this is the case, academic virtue signalling may also be indicative of other behaviours (eg, extraversion, conscientiousness, agreeableness), and possibly correlate with academic performance, but significant further research would be needed to confirm any potential relationships.

6.6 Theme 4. Social Interaction (I)

Social interaction is embedded in everyday life and society revolves around multiple interactions between people. In the context of this study social interaction refers to the learning relationships students have with their peers and how these impact on their

performance and understanding of how they learn. At the beginning of the study the students had recently begun the first year of their five-year programme and for the majority of them this was their first time living independently away from family. It was unlikely that there were established friendships within the cohort prior to the start of the programme, therefore all students were in the same position of having to adjust to a new living situation whilst creating new friendships and support networks. This transitional period is stressful for them and if not managed well, can adversely affect student performance (Baqtayan, 2011). An additional factor to consider for this cohort of students was that the institution had a collegiate system which provided accommodation, catering, social spaces, and pastoral support. All of the students were allocated to one of two colleges (John Snow College or Stephenson College) situated on the university campus, therefore they lived in close proximity with the opportunity to spend considerable amounts of time in each other's company outside of timetabled learning activity.

The college system was something Student F3 mentioned as being supportive and encouraging of collaborative working. Competition is mentioned but in this context it appears to be healthy and F3 felt it was motivating;

'In our little John Snow group we sit at one side, it's nice because everyone chats to each other in the breaks between lectures. If someone's stuck they can just ask and we'll all just kind of pitch in and help to explain it. It's quite nice, it comfortable, I don't feel competitive. There is a couple of people that are a lot more motivated so you kind of feel like you want to do as well as they do' (F3 Interview 1) (1,2,7,21,40)

F3 also indicated that there was some degree of polarising in relation to students from the same college sitting together, but that did not prevent general mixing between the students;

'Everyone has their own groups, like the Stevo medics always sit in the middle at the back and the Snow medics are off at the sides! Yeah you can get up and go and chat to people in lectures. I think because people are in their college groups, they know them better and they tend to just sit with them and they do social things outside of lectures with them too' (F3, Interview 1) (2,7,21)

Developing a good social support network helps provide security when students first begin university and provides reassurance by allowing comparison of experiences with others in the same situation. These new relationships are the resources the students use to create both physical and psychological stability and security, and strong, socially integrated, supportive networks increase the likelihood of better academic performance (Li et al, 2018). This social aspect of learning also plays a part in helping develop both knowledge and skills, especially where students use each other in a constructive way to help confirm and enhance their own understanding, perhaps by creating informal buzz groups or buddy partnerships where they discuss specific topics, practice tasks and skills, and give each other support and feedback. F3 talked about this in relation to how she used her friends to support her learning;

'Then once I've gone over it and I've got a grasp of the basics, I quite like to talk about it with my friends and bounce ideas off them because I think that's a good way of learning their perspective on it' (F3, Interview 1) (2,16,21)

F3 also valued the importance of a social group in relation to the emotional support they could provide for her, and she for them, which she acknowledged in her third interview;

'I think as well, just support from my friends, because we all learn differently but we're all in the same boat at the end of the day. So when we can go and have a moan to each other about how much we've got left to do it's kind of nice actually'
(F3, Interview 3) (21,26)

The importance of social interaction in learning is described by a number of theories, notably Bandura's Social Learning Theory (Bandura & Walter, 1963), and Vygotsky's Social Constructivist Theory (Vygotsky, 1930-1934/1978), both of which will be discussed in more detail in Chapter 7. As part of Social Learning Theory Bandura stated that learning is a cognitive process which takes place in a social context, something which F3 describes when she talks about 'bouncing ideas' off her friends to help her develop understanding. This is also something which Vygotsky talks about in Social Constructivist Theory as being critical to the co-construction of knowledge between people via social interaction, and his well-known 'zone of proximal development' (ZPD) is the space between what someone can do on their own and what they need the help of others to do, social interactions occurring in this space promoting understanding and the making of meaning. The Vygotsky theory suggests that knowledge is co-constructed and that learning between individuals is reciprocal (as long as the learners are fully engaged in the learning).

In her first interview Student F6 talked about her previous experiences of learning with friends whilst at school, which she felt had not been especially helpful;

'Thinking back, there wasn't that much of that (help). I feel like people asked me to help which I always did, but I don't necessarily feel like everyone helped me.... I don't think everyone was as willing with their time or information.... maybe it was just their perception that their work was theirs and I didn't have any right for their help or anything' (F6, Interview 1) (34,42)

However, F6 went on to describe a different situation with her medical student peers which illustrated the benefits of co-construction and the ZPD;

'What I found really useful this year was whenever we kind of got into groups and did things, like for the OSCE we met up and we'd practise all the clinical skills like the three days before the OSCE and I feel like that really helped It was much easier 'cos there was someone there being able to critique your work rather than just sitting in your room' (F6, Interview 1) (2,21,34)

By her second interview F6 had realised the value of social interaction and acknowledged that this approach was constructive for her own learning and also for her future professional life. For a student to recognise this at quite an early stage of their programme shows a good level of reflection and self-analysis, both important skills for those going into the medical profession;

'I think it's understanding that you are not going to know everything and you are never going to know everything in medicine. So you have to ask for help and you have to talk to other people basically. I feel like I have progressed in that way because you have so much more stuff and so much less time to do things in, so it's just growing up a little bit I think' (F6, Interview 2) (16,19,21)

This introspection was further developed by the time F6 gave her third interview when she talked about the benefits of social interaction helping improve her learning skills. F6 expressed that feeling confident in knowing how to talk to people and ask questions was a skill that she had developed during her time on the programme, and she understood how important social interaction was;

'I think I'm definitely more able to talk to people and just interact with them.

Obviously we've done a lot of clinical skills and stuff, so I feel more comfortable when I go in to hospital to chat to patients and stuff. I feel like I know what I can ask a little bit better and how to ask it, so yeah I think that's really helped..... I definitely feel like I can study better, if that makes sense. Coming into Medicine, I didn't really know how to study or what to do and what to expect. Now I do feel like I get better at it, but I get better at every stage so it's still never quite good enough but it's better than it was' (F6, Interview 3) (7,12,22)

Student M6 also valued the social interaction in supporting his learning, recognising that the social aspect of learning was important;

'I really like it, I feel like I've quite good friends here who also make a good like learning environment and if I'm stuck with anything, in a break I can go to quite a few of them and talk about it and often they are stuck like me, so then I ask a question afterwards. But I think it's a nice environment to learn in' (M6, Interview 1) (1,2,16,21)

When M6 approached his friends when he was 'stuck' he often found they were struggling with the same information, in effect they were all in the ZPD. The strategy to help them

move forward was to ask the tutor a question, but to reach this point they needed to share their understanding and identify where there was a gap in their understanding - they were co-constructing. He talked about this social support in learning during his second interview where he described how his cohort had formed a revision group with the cohort of students in the year below;

'I think it's a really nice group actually. Helping at the formative revision night (for first years) I really did feel like you could stand up and talk to any 2nd year. So I think the group is a very close group, everyone is there to help. Like just now, I was waiting so I went and sat down with anyone I could and chatted about the work. I feel confident that it is quite a friendly year group and everyone gets on with everyone really, I think' (M6, Interview 2) (1,2,16,21,26,34)

This quote illustrates the extent of the social interaction/learning happening at that time where year 2 students created a formative revision group which was for the benefit of year 1 students just about to sit their first formative examination. The year 2 students helped year 1 students fill gaps in their knowledge and whilst it is likely the majority of benefit was gained by the first years, there would have been some reciprocity as re-visiting year 1 material would have helped embed and confirm knowledge for the year two students. In his first interview, Student M3 described how amongst his college flat-mates he seemed to have become someone to go to for help in learning. He was the only medical student in the flat and felt that the other students saw him as being more knowledgeable, which resulted in good-natured banter, but that they genuinely sought his help;

'Yeah I'm the only medicine student in the whole top flat and there's a bit of banter that goes on like "ahh your course doesn't really matter that much, I'm doing an

actual course” kind of thing.... but I’ve noticed they come to me and ask me for help like “oh can you help proofread my essay?” or “oh can you have a look at this” especially my psychology flat mate because they do certain things that relate to Life Cycle and development and all of that. I had to sit down once and help him through a lecture on neurology and how nerves work and things like that. They often come to me for help.... We often sit down and compare notes even though we don’t have the same course, we just sit down and talk to each about our course, kind of share information. (M3, Interview 1) (1,2,7,17,21,26,34)

The social environment of living together creates an opportunity to support each other’s learning so M3 was co-constructing his knowledge with his flat-mates even though they were on different programmes. M3 had realised that by sharing and discussing information he could clarify his own understanding as well as help another student;

‘...because if I can explain to that individual who does not do medicine and I can make them understand about the glomerular filtration rate, then that means I’ve understood it well enough to be able to explain it to anyone’ (M3, Interview 1) (22,40)

6.6.1 Theme 4 Summary

The importance of social interaction is clear when exploring how students develop their understanding. Social interaction in this study related to the learning relationships students had with their fellow students and the impact it had on their performance and understanding of how they learned. Throughout their interviews F3, F6, M3, and M6 all gave examples which support Bandura’s and Vygotsky’s theories around the social aspect of

learning - they relied on interacting with others to co-construct their knowledge, and whilst they would not have been aware of it, they shared the zone of proximal development with each other. F3's 'bouncing' ideas off friends, F6's practising clinical skills with friends, M6 realising he was not the only student to struggle with a subject, and M3's explaining a topic to a friend to help confirm his own understanding, are all good examples of the benefit of social interaction as part of the learning process.

Social interaction also affects academic self-esteem (Harter, 1993), and the role it plays in supporting students during the transition to higher education is crucial. A supportive friendship group who understand the academic challenges faced is especially important for students who may be struggling with understanding content or managing workload. The formation of strong social networks that are supportive creates the opportunity to 'compare notes' and discuss shared experiences, giving reassurance and acting as a resource to create stability and security from which they are more likely to do well academically (Li et al, 2018).

6.7 Theme 5. Resilience (R)

Resilience can be seen as a personality trait that allows an individual to cope with, and recover from, difficult and challenging situations. Hams et al (2018) also describe it as a process which helps people adapt after adversity, whilst Lucas & Spencer (2018) describe resilient people as having the mental ability to recover from challenging situations, so if a student is resilient they are able to accept criticism and recognise it as a vehicle to help them improve. Being resilient impacts positively on student performance, McLafferty et al

(2012) demonstrating it to be a significant predictor of successful coping at university, and correlating positively with academic achievement.

Resilience, tenacity (Theme 2) and academic self-esteem (Theme 1) are closely related and are important contributors to student mental health according to McIntosh & Shaw (2017), and interestingly their paper also highlights the significance of the social environment in helping support resilience. The term 'grit' is frequently used inter-changeably with resilience (Duckworth et al, 2007) and these two are reliant upon a number of external and internal factors (discussed further in Chapter 7) such as the ability to self-manage, maintain perspective, form supportive networks and be socially integrated, all of which are contributing factors to development of resilience. The large overlap between resilience and tenacity was demonstrated earlier in this chapter (Theme 2: Tenacity) in relation to Students F6 and M4, confirming that it can be difficult to look at these as separate characteristics.

When describing how she would cope if she did not perform well in an assessment F6 said;

'I guess I'd get over it basically, eventually. Like I would be disappointed but I don't think I would be distraught' F6 (Interview 1) (11,24)

Whilst M4 in relation to his not achieving a transfer place into medicine on his first degree said;

'It was very interesting because it was completely different because you don't have a very huge target anymore. Everyone in there obviously wanted to do Medicine but you no longer have that, it's no longer guaranteed because if you graduate you don't get a medical place and that's it' (M4, Interview 1) (11,22,40)

Both students were aware of the need to deal with situations that might be difficult and their comments suggest that they would maintain perspective. This is different to the attitude of Student M1 (previously discussed in Theme 1: Academic self-esteem), who struggled with feelings of lack of worthiness when beginning the programme. This was particularly challenging for him when the results of the first summative assessment were published on the student notice board using student anonymous numbers;

'Yeah so I started looking near the top and when I got to the bottom I found mine. That was so disappointing and I was with a group of people when the results got posted and they were all talking between themselves and pointing out their name on the list and I couldn't bring myself to point my name out.... Obviously I could have just lied and said mine was the top or something but I just made my excuses and left...It was constant for a couple of weeks, the nights out after the exam as well were like talking about where they came and comparing. I avoided the nights out' (M1, Interview 1) (4,6,17,24,25,28,30,31,45,51)

To help cope with the disappointment of what he perceived as a poor performance M1 socially isolated himself and found it difficult to create a positive mindset around continuing with his studies. If he had been more resilient it is likely that he would have been able to take a more pragmatic view and maintain his social activity, which possibly may have helped him manage his feelings of disappointment more effectively. M1 found it difficult to cope with the knowledge that he was one of the lowest-performing students in the group and his lowered resilience led to him into questioning whether he wanted to stay on the programme;

'Before January I didn't really think that I was at the bottom I thought I was probably lower tier but not the bottom but since January I've known that, it's been like a massive uphill struggle and I've been second guessing or thinking 'have I made the right decision, should I be here, do I deserve to be here'.... I'm working hard, I was working hard before the exams, but since January I had a period of stoical interest. I just refused to think about medicine and I was on the phone to different people friends and family finding out what they thought I should do' (M1, Interview 1) (6,11,15,25,45)

It is interesting to note that M1 sought the advice of a different set of social contacts outside the university rather than talk to peers, so for a period of time he continued to socially isolate himself from the cohort. However, when he made a decision and a plan (self-managed), realised the result was not 'the end' (maintained perspective) and re-engaged with his peers (social integration) he said things had been better;

'That maintained for maybe 2/3 weeks tops and then I got back into it and I thought 'I'm still on medicine, it's not the end so I may as well make a proper go of it' and that's when I started just living in the library effectively and studying a lot and made a few relationships with people in the library, like interworking, so it's better than it was before Christmas' (M1, Interview 1) (2,7,22)

In his second interview M1 reflected on his previous feelings;

'I think last year when I realised I wasn't doing too well in the January exams, I was getting very caught up in the fact that I could just knock it on the head as a bad decision... I was on the brink of leaving' (M1, Interview 2) (11,15,24)

When asked about why he had stayed and what helped him continue, it was clear that M1 had become more resilient as well as tenacious and he talked about a time in the future 'when' he was qualified rather than 'if' he qualified;

'Focusing on the end picture. That's what keeps me going I think' (M1, Interview 2) (18,22)

He also reflected on how he dealt with difficulties and acknowledged that his strategy was usually one of avoidance;

'I talk to somebody sometimes or just maybe bury my head in the sand or think of alternatives, which I was doing quite a lot last year.... You end up making the situation worse if you are trying to avoid it, obviously because you're not investing yourself fully' (M1, Interview 2) (24,45,46)

The avoidant behaviour, social withdrawal, and comparing performance are all indicators of lower resilience, but M1 had begun to plan and interact with peers and showed a measure of self-reflection, so perhaps he had become more resilient by the time interview 2 took place (the early part of his second year). During his final interview (a short period before the final year 2 summative assessments) M1 talked about resilience as being an essential characteristic of a medical student;

'Resilience I think definitely would feature high, for somebody from my background anyway. Because I'm not traditionally a very high academic achiever and I think if you want to succeed you really have to graft for it.... I think regardless of being given the opportunity I've still had to work hard for it. And the yield that I get with the exam results never seems to reflect what I feel I put in, which is pretty disheartening

sometimes. Well it has been every exam result actually. That tends to be the time that I start think “oh what am I doing, should I just go back to (redacted for anonymity)” ‘ M1 (Interview 3) (11,15,25)

McLafferty et al (2012) demonstrated that resilience is a significant predictor of ability to cope with university as well as correlating positively with academic achievement. M1 had lower resilience throughout both his first and second year, and did appear to have difficulty in coping with the challenges of university, which supports McLafferty et al’s findings. Even though M1 was successful in his summative assessments he still felt he was struggling and feared that this would continue when he progressed to year 3, but he did seem confident that he would progress – a positive change compared to his concerns during his first year;

‘If I’m underperforming so to speak or maybe struggling in comparison to my cohort, whether I’m going to make myself look a bit behind, whether this is all going to happen again, whether I’m going to start to think ‘maybe I’ve tried to do too much’. I don’t really want to think like that, I just want to give it my best shot.... I think it’s warranted though because the 3 results that I have had so far have proven that I’m not exactly up the top of the cohort’ (M1, Interview 3) (11,28)

Student F4 was also asked about whether she thought she was resilient and how she thought she coped when things did not go well;

‘Yes and no. It depends, in some things yes and some things not so much. I didn’t do well in my LP (long project) last year, so this year I’ve just been like “I’m not going to do well again”. But then I didn’t do well in my formative exam but I did quite well in January. So I think it depends on the situation’ (F4, Interview 2) (11,25)

On coping;

'Cry?! Erm...talk to somebody about it and say "it didn't go as well" and then just move on and try and find out where it went badly and just get on with things' (F4, Interview 2) (22,24)

F4 maintained perspective and used her support network of peers, both strategies employed by resilient students, and different to M1 who chose not to seek peer support and considered leaving the programme. F4 was also more reflective on how this characteristic might be helpful later on in the programme and during professional life;

'I think everyone comes in with different weaknesses. You can see there are some people who've come in and they are a lot quieter. You can see like when there are people who...not struggle... but they're not as confident. I don't think you have to be dedicated but I think it's really important to learn to have a balance there. Some people don't have that balance and I just think they are the people who are going to get really stressed, especially when they go in to actual work because it sounds a lot harder' (F4, Interview 3) (17,22)

A similar approach was described by Student F3, but she was reflective and maintained a pragmatic view. F3 also used her social networks to help her 'off load' so she could keep things in perspective, again demonstrating some of the positive attributes of resilient students;

'I've had occasions where I've not done as well as I wanted to in assignments and things like that. I was upset at the time but I think given a few days of reflection, I've bounced back from it and hopefully improved on what I was doing. I do put myself

under a lot of pressure but I think that is positive rather than negative.....at least I hope it is!' (F3, Interview 2) (11,24,28)

On being asked what she thought resilience was and whether she thought she had it;

'It's being able to take criticism, take bad events in your life and learn from them, come back from them and hopefully improve.... Generally I have a bit of a complain to somebody and kind of let them help me feel a bit better about myself. Then go back and look at what I've done with a bit more of a cool head and think 'ok that's fair enough I didn't do very well there, I can improve on that hopefully'. Yeah have a little bit of an emotional outburst first' (F3, Interview 2) (2, 22,41)

A final comment on illustration of resilience came from Student F1, the mature student who had already completed a health-care related degree;

I don't really stress out as much as other people. If I think things are going wrong I just say "oh well I'm not going to die so that's quite good, I'll still be alive after this horrible exam!" (F1, Interview 2) (22)

Whilst F1's resilience and pragmatic approach may well have been one of her personality traits, it could also be the result of her previous degree experience. There is on-going debate about whether students should study medicine as a post-graduate subject rather than as an under-graduate entry as evidence suggests that the greater maturity and the benefit of wider experience results in students with better-developed coping strategies (Sandover et al, 2015), and therefore greater resilience.

6.7.1 Theme 5 Summary

Resilience is a key characteristic in being able to deal with adversity and difficult situations (Lucas & Spencer, 2018). Students who are resilient can cope with challenges, accept criticism, and maintain a perspective to help them reach their goal. Students F3 and F4 both showed they had resilience and in talking about how they coped with difficulties they discussed self-management, maintained perspective, and used their social support networks. Student F1 had successfully completed a previous degree therefore the assumption could be that she had already developed resilience and was using this to good effect. Student M1 was less successful in being resilient, instead avoiding social situations and isolating himself from his peers for a short period, although still using a social network to talk to. In his later interviews he was able to talk about how he had created a plan to deal with his lower exam results, and acknowledged the benefit he gained when he started to interact with peers.

As discussed earlier in this section, resilience, tenacity (Theme 2) and academic self-esteem (Theme 1) are closely related, and the importance of social interaction (Theme 4) should also be acknowledged. These factors all contribute to levels of student mental health (McIntosh & Shaw, 2017), particularly the influence of the social environment. Ensuring students are supported both academically and socially seems to be an underpinning requirement for resilience to develop, so it would seem sensible for institutions to be able to identify where students may show lowered resilience in order to help them achieve their goals, develop coping strategies for future academic and professional challenges, and to support their mental health.

6.8 Theme 6: Feeling Secure (S)

Feeling psychologically secure enough to be able to make mistakes without fear of ridicule or criticism creates a productive learning environment (Clapper, 2010), allowing students to critically reflect, ask for help, and convert errors into learning opportunities. Students who do not feel this security may be more tempted to hide their mistakes and disengage from learning, both of which are significantly detrimental for medical students as well as potentially harmful for future patients. Learning is a social activity and at times there is vulnerability in acknowledging a gap in understanding, but for a group who are learning new material together (as on a medicine programme) it is likely they are all starting from a point of little knowledge. Ideally students should feel confident enough to pose questions or ask for clarification, and this provides benefits for not just the question-poser. Making a mistake in a safe space creates an opportunity to discuss why it was made, converting it to a positive learning experience. In threatening learning environments students feel the need to protect themselves, often staying silent rather than ask questions, not asking for help from either their tutor or peers, and the more complex the learning is, the greater the need for a student to feel psychologically secure in the classroom (Clapper, 2010).

Student M5 (previously discussed in Theme 3) talked about the different feelings he had when in a large group compared to a small group, and how that affected his willingness to ask questions in front of others;

'It is different coming from a class of say around 20 to a class of 90 almost. I feel personally, a bit under pressure to answer questions without a fear of getting them wrong. Even though I'm, sometimes I'm certain that I'm correct; I still don't answer

the questions for fear of getting them wrong ... just in case! Then you get what I call 'the look'; where the whole class turns round and looks at you' (M5, Interview 1) (1,3,4,5,10,30,36)

In a larger group he did not feel secure enough to speak up in case he got things wrong and exposed himself to ridicule from peers – 'the look' - therefore it felt safer to stay silent in front of the group and ask questions of the tutor on a one-to-one basis;

'It's easier to say nothing and kind of wait for the answer and see if that was your answer, even if I'm certain of an answer I still wouldn't say it as such; I mean there's been times this year when I've actually just said the answer but it was kind of just like a spurt out of my mouth, it wasn't something that I intended, so I just kind of shouted it out and hoped the lecturer heard me... I tend to save my questions till the breaks, when I can go and see the lecturer' (M5, Interview 1) (1,3,10,36)

This insecurity seemed to happen when the whole cohort were together (there were 93 students in the cohort), and M5 said this was partly because there were students there who were not in his friendship group so did not know well, suggesting that group size may impact on student interaction and the learning experience. Where the groups were smaller the situation appeared to be different;

'It's like a complete different atmosphere for me from lecture halls. I don't have any problems asking questions in there because we kind of, we get along with each other really well so, asking questions, there's no feeling of competition there at all' (M5, Interview 1) (2,16,32,36)

M5 brought up the idea of competition (previously discussed in Theme 3), suggesting that group size also contributes to competitiveness – larger groups being more competitive with greater consequences if students get things wrong, whilst smaller groups are less threatening;

‘In clinical skills and anatomy, again because the groups are smaller, I don’t have a problem asking questions, it’s just the bigger the groups the more fearful you are of the backlash’ (M5, Interview 1) (1,3,4,5,10)

Interestingly, M5 felt that small groups that were made up of a friendship group, such as in clinical skills sessions where students self-selected their groups, were the least threatening, but in groups that were slightly bigger, and had more of a mix of students, such as in the staff-selected tutorial groups, the willingness to ask questions reduced;

‘With clinical skills, ‘cos you’re in your friendship group, I definitely don’t have problems asking questions. Even with anatomy because the groups are small as well and I ... even if I’m with different people, the groups are small so I don’t have problems asking question but I have found there are times when the groups are slightly larger, I’ve been hesitant to ask a question’ (M5, Interview 1) (1,2,4,5,16)

This begs the question ‘should students be allowed to choose the membership of the groups in which they learn?’ Frequently a tutor will actively mix up small groups to ensure that students are not placed with their friends, but if this stifles the asking of questions perhaps this is not a good strategy. Conversely only working with the same students reduces the possibility of the group benefiting from different and diverse perspectives. Perhaps the decision on how to allocate to groups should be based on the type of material being

learned: the learning and practising of a common skill may be better learned in self-selected student groups so that students are encouraged by friends, willing to participate and not afraid to make mistakes, whereas tutor-selected groups may be better for topics that require discussion and debate so that group diversity can enrich the learning and allow constructive challenge.

In his second interview M5 reiterated the worry of being in a larger group, and this time reflected on the implications this might have for his future professional career;

'I mean in lectures I still don't answer questions much. If I answer a question I'll just have this random impulse that I need to shout the answer and then I go quiet really quickly afterwards. I think the implications for that are people that actually need to ask a question, genuinely need an answer, they'll suffer because they won't get the answer. They'll just accept that they don't need to know it or it's not as important, so they'll just leave it to the side, brush it under the carpet and they won't get that knowledge. I always have to think of the long-term end goal, a competent doctor. You want to pass but it's not just passing, it's a competent doctor so if you don't get the knowledge you won't be able to build on it. Even if I don't ask a question in a lecture I'll ask in a break or at the end' (M5, Interview 2) (10.36.40)

M5 realised that whilst he still had some fears over asking questions in front of the group he understood the implications of not having a good understanding, and he managed this by asking his questions one-to-one. This illustrates the importance of allowing students time for individual questions immediately after teaching sessions, possibly building this in to timetabled sessions. The insightful observation about the need for future competence

rather than just the need to absorb facts illustrates a level of maturity and the development of professional responsibility. M5 clearly understood the implications around being fearful of asking questions and admitting to a lack of knowledge when in an unfamiliar group;

'It will yes because when we enter into Foundation years you're going to be in a ward environment with lots of different professionals, you'll have to ask questions to be able to progress because you are only a junior doctor. It is going to be similar to the medical school experience but you're not in a lecture hall, it's a ward with a 'lecture hall' full of people, so you need to have the confidence to ask questions there' (M5, Interview 2) (10,22,36,40)

Student F2 (previously discussed in Theme 1) also talked about the security of speaking up when learning in a group, but she felt differently to M5. F2 said she felt able to ask a question and would not be judged by the cohort for it, but that her own self-confidence would probably hold her back;

'I am quite shy so while I know the cohort wouldn't judge me for asking a question I just don't generally like in life speaking out in front of a large group of people so I wouldn't ask a question. I have asked questions in tutorial groups but that was stressful!! That's just me it's not because I think anyone would judge me, that's just me!' (F2, Interview 1) (1,5,10,16)

Fear of ridicule was not what seemed to hold F2 back as she did go on to say that she was happier asking questions in smaller groups, but she also said she felt that competition increased with smaller groups, whereas M5 felt the opposite occurred.

'I think maybe the smaller it gets the more competitive it gets because obviously you're with only about 4 or 5 people. Things like when you are taking blood, if other people have managed to do it then it's a bit more pressure on you. I do think it gets a bit more tense. When you're going through the motions of what to do for an examination, if you forget something I don't think people are happy but they are pleased that you've done something wrong' (F2, Interview 1) (5,16,21,30,32)

F2 clarified the behaviour of other group members a little further, suggesting that she felt criticism from peers was offered constructively;

'Well, not pleased but they like to tell you what you've done wrong, not in a malicious way but I think it's good for you and they want you to know that you've done it wrong. It's not one-upmanship at all, I'm making it sound completely wrong, I don't think they're doing it to be cruel at all but there is a level of....not satisfaction..... it's just a bit more obvious when you make a mistake because you're with your people and it has to be brought up because you need to know that you're doing it wrong' (F2, Interview 1) (13,16,21)

F2 appeared to be suggesting that when learning tasks in smaller groups it feels secure enough to offer constrictive criticism to peers, and this suggests a similar feeling to that expressed by M5 who said he felt safe enough to ask questions in smaller groups.

In her second interview F2 had changed her opinion around asking questions in larger groups (the second interview took place in the early part of year 2) and realised that this

was because her own self-confidence had improved which she attributed to knowing her peers better;

'So this year because I've been more comfortable with everyone in our year, I've actually been offering answers in lectures and I've got it wrong. So every time I've done it, I got it wrong! But then in that same lecture I've answered something right but I don't think that's the reason why I keep doing it, because I've got a rush from getting the right answer. I think I just don't really mind getting it wrong because I know the cohort better. So I think a massive part of answering in lectures is knowing your cohort' (F2, Interview 2) (1,2,16,19,21,36)

F2 identified a key point – knowing her peers better made her feel more secure in answering questions, even if she was not correct. This is an important point because it confirms that social interaction and the formation of friendship networks creates an environment conducive to learning where it is safe to make mistakes and admit knowledge gaps. F2 also acknowledged that tutors played an essential part in creating the safe space for students to try out their knowledge in a safe space;

'I never feel judged by members of staff personally. I don't know if that's a thing but they always say "offer any answer, even if you don't know if it's right". I always feel that is definitely ok, they're fine with you offering any answer even if it's wrong' (F2, Interview 2) (1,21,36,43)

This is a second key point – the responsibility for creating that safe space sits predominantly with the tutor to ensure that students are not isolated, made to feel awkward, or belittled. Tutors have to consider the delivery of their teaching sessions and where possible (and

appropriate) move away from the didactic, formalised styles of delivery towards active engagement and interaction, and be mindful of using strategies which involve 'risk taking' or exposure of vulnerability (such as with role play) once the cohort have established trust.

6.8.1 Theme 6 Summary

Creative and productive learning emerges from a learning environment where students feel able to take risks with asking questions and demonstrating their level of knowledge, and this can only occur where students feel secure enough emotionally with each other and the tutor. Any risk of ridicule creates fear, frequently preventing students asking questions and highlighting where their knowledge is lacking. Students who do not feel this security may hide their errors and become isolated, in the short term resulting in lack of understanding and poorer assessment performance. For medical students this often results in exam failure and the requirement to leave the programme, but those who do progress may develop a mindset of hiding errors and an inability to admit to knowledge gaps, both of which have potentially serious detrimental effects on patient care and also on the public perception of the medical profession, as well as the risk of loss of professional registration (Mendonca et al, 2019).

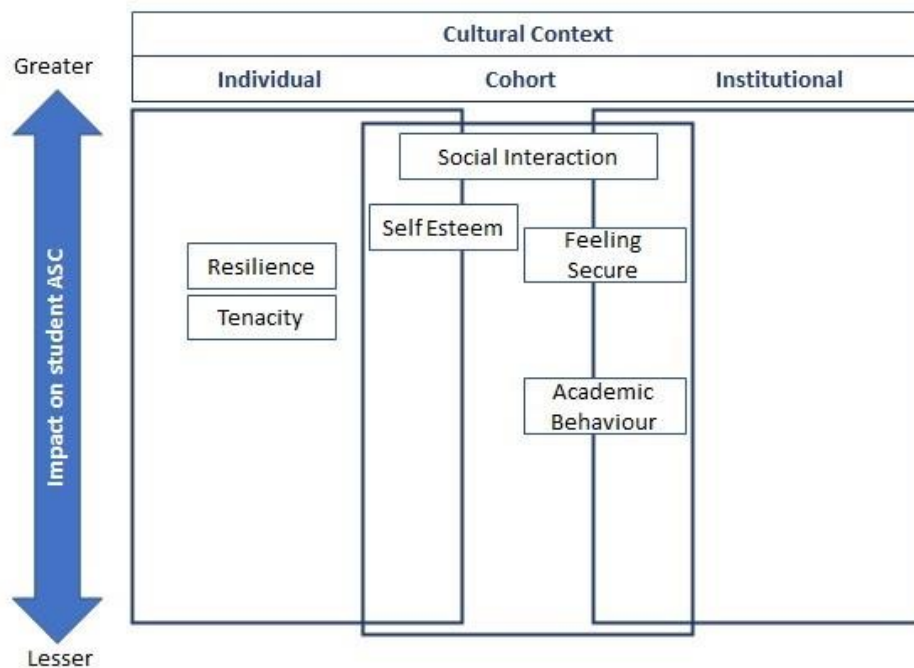
Students M5 and F2 both talked about their worry and fear of asking/answering questions in front of a large group, and both said that where friendships and social links had been created this fear was reduced – there was safety in being surrounded by friends with a common goal. Learning should be a social activity which sometimes exposes vulnerability when learning new material, but if a group learning together can provide emotional support so that there is no fear of ridicule (which M5 described as 'the look') then the culture of

'cover-up' may not become established early on. When students know it is fine to make a mistake in a safe space it creates a learning opportunity for the cohort, something which is essential in a medical programme.

9.9 Outcome Space

Chapter 3, section 3.5 discussed the concept of the outcome space and this is a key feature of phenomenographic analysis (Cousin, 2009) consisting of inter-related categories illustrating an aspect of the phenomenon under investigation. In the context of this study the outcome space illustrates the relationship between the six main themes discussed throughout this chapter and academic self-concept, sited within individual, cohort, and institutional perspectives. Figure 39 visually represents this outcome space, and whilst not a classic linear hierarchy often seen with phenomenographical outcomes spaces it reflects a combination of a logical structure emerging from the data with the judgement of the researcher (Akerlind, 2005).

Figure 39. Outcome space.



There is a hierarchy across the six themes in relation to the level of impact they may have on ASC but this is not linear and Figure 39 attempts to illustrate the inter-relational nature of the themes. From the interview data it appears that social interaction plays a significant part in how participants felt, and is influential on an individual’s own culture, the culture of the cohort around them, and the wider institutional culture. The nearer the top of the graphic the theme is situated, the greater the level of influence it appears to have on ASC, conversely the theme lowest down has a relatively lesser impact on ASC. However it is important to understand that this does not mean lower-placed themes have no impact, more that influence appears to be relatively less ‘strong’ compared to those above it. In the graphic academic behaviour is the lowest of the themes and if taken in isolation is less likely to be significantly influential on ASC, but in the presence of other themes the combined influence would be greater. Some of the themes span two cultural contexts, and this indicates that they are influential to both, e.g feeling secure relies on the behaviour and

attitudes of others in the cohort as well as the wider institutional culture which includes teaching and faculty staff, whereas self-esteem relies on an individual and how they feel about themselves within their social group/cohort.

The two themes that sit completely within one context represent personal qualities and are reliant upon an individual's view of themselves rather than what others think. However, it is important to remember that each of the themes is influential on the others, either directly or indirectly, so any positive or negative influences on any theme will have an impact on ASC, either increasing it or decreasing it to some extent. This is represented by Figure 40.

Figure 40. The STAIRS cog-wheel



Activity in any of the themes will impact on the others, directly or indirectly. The direction of movement of each cog will influence the direction of adjacent cogs, ultimately influencing the overall situation of the individual. Together they have the potential to have a positive or negative influence on ASC.

6.10 Chapter Summary

The interview data provided insight into the student's experiences across year 1 and year 2 of a five-year under-graduate medical programme. Twelve students participated, six males and six females, with an age range of 18-24 years at the first set of interviews and from a range of previous schooling and academic backgrounds (Table 12). Each student participated in three individual interviews which were digitally recorded and transcribed verbatim.

Six themes emerged from the data which described characteristics and behaviour that could impact on student perception and experience – academic self-esteem, tenacity, academic behaviour, interaction, resilience, and security - each theme then being allocated a letter to produce the acronym 'STAIRS'. The themes were explored using participants experiences to illustrate positive and negative experiences, and to suggest areas for further exploration.

The themes provide an important guide to the aspects of student experience that can create positive and negative situations and how they can influence student perception of themselves and others (Figure 39). Students can use the STAIRS to move up towards positive self- regard and good experiences, or down towards negative ones and lowered self-worth, with the associated changes to ASC (Figure 40). The STAIRS themes will be discussed individually in the following chapter where the relationships between them will be explored further.

Chapter 7: Exploring the Themes

7.1 Introduction

This chapter will further explore the six themes identified from the interview data and described in Chapter 6 - self-esteem, tenacity, academic behaviour, interaction, resilience, and security – creating the ‘STAIRS’. Table 17 provides the main themes - whilst each theme will be discussed separately there will inevitable be over-lap, and this will be highlighted where it occurs.

Table 17. Main Interview Themes.

Feeling secure (S)	Tenacity (T)	Academic behaviour (A)	Social Interaction (I)	Resilience (R)	Academic Self-esteem /Worthiness (S)
<ul style="list-style-type: none"> • Fear of being wrong • Social exposure • Trusting colleagues • Emotional security • Fear of ridicule • Confidence in asking questions • Hiding in the group • Self-protection • Confident in helping colleagues • Friends for life/shared experience 	<ul style="list-style-type: none"> • Pressure to stay at the top • Motivation to improve • Not giving in • Gone too far to stop now 	<ul style="list-style-type: none"> • Supporting each other • Sharing • With-holding information • Competition • Dishonest about working • Arrogance • Bragging • Covert behaviour • Gamesmanship • Jealousy • Social superiority of being a medical student • Intellectual intimidation 	<ul style="list-style-type: none"> • Cohort mutual support • ‘All in it together’ • Social exclusion • Friendship groups • Like having a new family • Respect amongst peers • Supporting colleagues • Empathy for others • Pressure to disclose performance • Lack of empathy • Pastoral support • Social isolation when struggling 	<ul style="list-style-type: none"> • Disappointment with performance and self • Common sense vs academic ability • Pressure to perform well from family/friends/self • Coping with disappointing results • Self-reliance 	<ul style="list-style-type: none"> • Positive affirmation of own learning • Passing exams/confirmation • Not being worthy • Self-doubt/self-belief • Pride in performing • False pretences • Feeling guilty when doing better than others • Importance of what other’s think of you

7.2 Tenacity

Tenacity is defined as having the determination and approach not to give up easily on a task or situation. It is frequently used in academic discussion and seen as an essential contributing factor in those students who are academically successful. People who are tenacious have a mindset where there is a belief in their own ability to succeed, and that persistence pays off. Mindset also appears to be a strong influence on a student's belief about their own academic ability (their academic self-concept), and there is clear research which indicates that the belief in the ability to learn and perform well is a strong predictor of academic performance (Bandura, 1997).

Lucas & Spencer (2018) describe tenacious students as being learning orientated rather than performance orientated and are motivated by their need to improve rather than the need to show they are good at something. Carole Dweck et al (2014) further defined academic tenacity;

“at its most basic level, academic tenacity is about working hard, and working smart, for a long time” (Dweck, Walton & Cohen, 2014, pp4).

Students with this ability are able to see past short-term problems and issues, and manage to deal with setbacks and difficulties as they maintain their sights on a long-term goal.

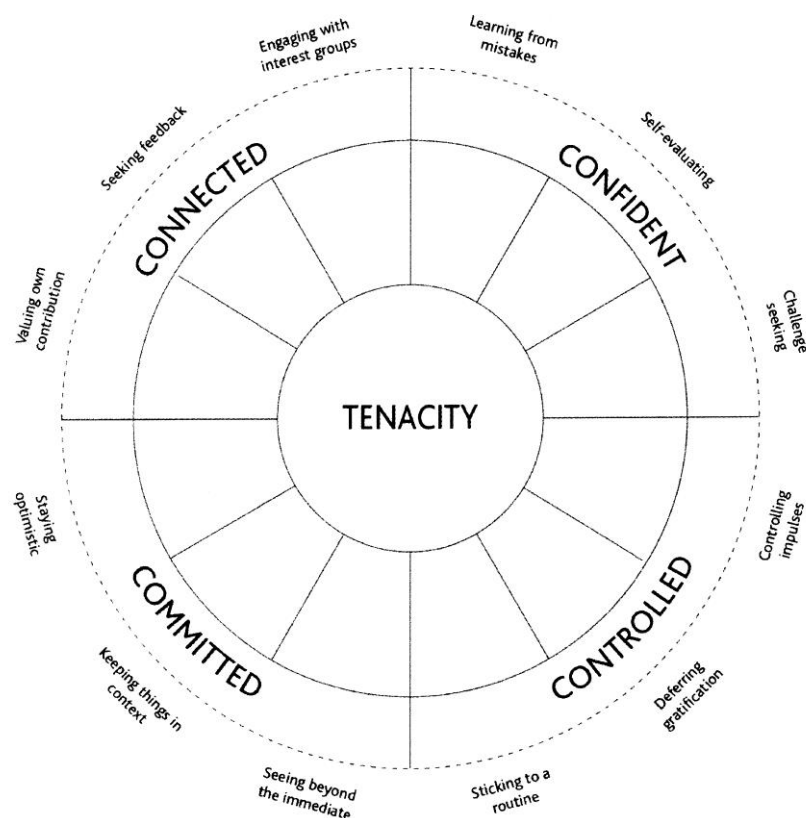
Dweck et al (2014) described a list of characteristics and behaviours displayed by tenacious students:

1. They believe that they belong both socially and academically;
2. They see education as relevant for their future development;

3. They are engaged in learning and have self-discipline to study, and they challenge themselves academically;
4. They do not allow difficulties to stop them progressing, they view setbacks as opportunities to learn;
5. They know that they need to stay engaged for an extended period, and are not distracted.

Lucas & Spencer (2018) created a framework illustrating habits of tenacity, and these interlink well with those on the Dweck et al list (Figure 41):

Figure 41. Lucas & Spencer Framework



(Lucas & Spencer, 2018, pp26).

In this framework tenacious students show four key behaviours; they are confident, connected, committed, and controlled. Confident students have or develop a 'growth mindset' (the psychological theory that intelligence is not fixed but can be developed, Mueller & Dweck, 1998). They are not overly concerned about looking clever, but seek out situations where they can learn and reflect on their learning, and then plan how to make things better. They use previous experience to help them decide how to move forward, and will step outside their comfort zone in order to keep learning. Connected students realise that engaging with others can help develop their own learning, especially if they engage with 'skilled' others. They seek out peers who have the same approach but have more advanced knowledge and skills, and enjoy collaborative learning. They understand that their own contribution to learning for others is also important.

Committed students understand that set-backs can occur, but are not discouraged. They realise that over-coming a problem is also a learning experience, and see problem-solving as an important part of learning, but they also know when to stop trying to do something rather than persist unproductively. They can put success and failure into equal contexts and realise the equal value of both. Controlled students manage themselves effectively and have the self-discipline to work even though there are distractions. They are seen as diligent, and can plan constructively to make sure they maintain the best opportunities for learning. They are able to see the merit in spending time on less interesting tasks if this means that they develop a sound understanding for future learning.

The commonalities between the list of Dweck et al and Lucas & Spencer's framework are about self-discipline and the ability to see the long-term goal, without being discouraged or put-off when things do not go according to plan. A further important aspect in both models is the 'social-ness' of learning, and the importance of learning with others who have a similar approach. This becomes particularly important for students in Higher Education who are following the same degree programme where collaborative learning and problem-based teaching underpin the curriculum. Students who do not actively engage with the social interaction aspect of learning find it difficult to perform well, and may find themselves socially excluded, and this may impact not only on their overall academic performance but also on their academic self-concept and their view of their own ability. Tenacious students will try and maintain good social contact with peers, whereas those lacking in tenacity can become disheartened if they have difficulty in forming strong social links, and are unable to overcome social barriers and difficulties.

Tenacity is closely associated with a number of personality traits such as 'grit' and conscientiousness, two traits which are not the same but are often assumed to be. Grit, whilst not a recent idea, has been more recently described as a combination of perseverance and the consistency of maintaining a long-term goal (Duckworth, et al, 2007). It links with the growth mindset concept of Dweck (Hinton & Hendrick, 2015 pp4), and was described by Duckworth:

"One way to think about grit is to consider what grit isn't. Grit isn't luck. Grit isn't how intensely... you want something. Instead, grit is about having what some researchers call an 'ultimate concern' – a goal you care about so much that is

organises and gives meaning to almost everything you do.”

[\(https://angeladuckworth.com/ga/](https://angeladuckworth.com/ga/) accessed 30.7.2018)

The second associated trait is conscientiousness, one of the Big Five personality traits, alongside openness to new experience, agreeableness, extraversion, and neuroticism (Digman, 1990). It refers to the ability to be self-disciplined and dutiful, relating to how individuals control and regulate their impulses. When viewed in this context it can be seen that conscientiousness and grit are not the same but as both are important for self-regulation and self-discipline and are determinants of success, they contribute to tenacity through slightly different mechanisms. Mindset appears to be a strong influence on tenacity as well as a student's belief about their own academic ability (their academic self-concept), and there is clear research which indicates that the belief in the ability to learn and perform well is a strong predictor of academic performance (Bandura, 1997).

7.3 Resilience

Resilience in its original sense refers to an elastic material and the property of recoil, but in relation to personality and behaviour it has a different sense, albeit in two meanings. It can mean the ability to resist damage and trauma, but can also mean the ability to recover from these. Resilient individuals have the mental ability to recover quickly from difficult situations and have a mental aspect relating to attitude as well as a physical one relating to behaviour (Lucas & Spencer, 2018). This means that resilience can be seen as a trait, and/or a process (Hans et al, 2018) which allows someone to adapt and develop following adversity. When a student has resilience they believe they can accept criticism and help as they realise these

are aimed at helping them improve, they understand that they may not always grasp ideas and concepts straight away and are not put off by this.

In McIntosh & Shaw's 2017 paper, 'Student Resilience, Exploring the case for resilience', they conclude that resilience plays an important part in student mental health, that the social environment is significant, greater resilience results in greater life satisfaction, and that peer support networks help create greater resilience. The term is also used interchangeably with 'grit', and both are beginning to be seen as key in relation to student success. McIntosh & Shaw state:

"The Resilient Student, as defined by our analysis, is therefore one who embodies a set of identified characteristics, referred to here as "internal factors", and makes use of them in order to bounce back from setbacks and difficult situations. Importantly, in order to maintain resilience, certain environmental or external protective conditions also need to be present." (McIntosh & Shaw, 2017, pp8)

Working within this definition, resilient students will demonstrate a number of internal and external factors:

Internal

- ability to self-manage, set goals and be persistent;
- ability not to over-react and to keep problems in perspective;
- a growth mindset and learned optimism;

External;

- ability to socially integrate into university life;
- develop formal and informal support networks;
- create healthy social relationships;

The integration of these external and internal factors contributes to the development of resilience in the individual. As with tenacity, the importance of social interaction is again a key factor, as is the development of a growth mindset. Dweck (2014) theorised that students who had a fixed mindset believed that their ability was fixed and there was nothing that could change this, no matter how hard they worked, whereas students who had a growth mindset believed that they could affect their success by diligence and perseverance, and could tolerate ambiguity. These students will make the most of their situation and understand that it may take time to achieve a goal, again closely related to having grit and tenacity. Learned optimism sits alongside this as optimism is not seen as a fixed trait. Seligman (2006) demonstrated that by challenging negative self-talk students could develop an optimistic outlook to help deal with adversity. He identified differences between optimistic and pessimistic students, and these related to permanence, pervasiveness, and personalisation. Students who believed that setbacks were temporary and were able to take a wider view of failure could be more objective and see there was potential for a positive future outcome. Resilience is usually seen as an asset that will impact positively on student performance as well as their health and wellbeing, and research has demonstrated that resilience is a significant predictor of coping with university and has a positive correlation with academic achievement (McLafferty et al, 2012).

7.4 Self-Esteem & Worthiness

Self-esteem is important because it illustrates how we view ourselves and informs our sense of personal value, affecting the way we interact with others and where we see our place in society.

Self-esteem has been briefly discussed in Chapter 2 in the context of differentiating it from ASC, but it will be explored in more detail here. Carl Rogers (1902 – 1987), one of the originators of the humanistic approach to psychology, suggested that a lack of self-esteem was at the root of many people's problems. He felt that all people deserved to be offered positive regard, and without exception all people were worthy of unconditional respect as an inalienable right.

José-Vicente Bonet summed this up by saying:

“Every human being, with no exception for the mere fact to be it, is worthy of unconditional respect of everybody else; he deserves to esteem himself and to be esteemed” (Bonet, 1997).

The original concept of self-esteem was developed by psychologist William James in 1892.

His work provided a clear definition of the 'self', and described how people's views of themselves came from their interactions with others. James suggested there were different dimensions of the self – the 'I-self' which is the processes of knowing, and the 'Me-self', which is the resulting knowledge. James said that the I-self process created three categories of knowledge – the material self, the spiritual self, and the social self. Together these create the Me-self. Self-esteem most closely associates with the social self, whereas material self encompasses the body and possessions and spiritual self being the evaluation of the self. Since James' original work self-esteem has continued to play a central role in psychology research, and in 1943 Abraham Maslow included self-esteem as a basic human need in his original five-stage hierarchy of human needs (Figure 42).

Figure 42. Maslow's hierarchy of needs.



Maslow stated that all basic needs must be met (food, shelter, warmth, clothing, etc) before individuals could be motivated to achieve higher needs such as status and recognition. The first four levels can be referred to as the D-needs (deficiency needs) with the highest level being the growth or being needs (B-needs). Originally Maslow said that all lower level needs must be met before the individual can move on towards the next level of need;

"It is quite true that man lives by bread alone — when there is no bread. But what happens to man's desires when there is plenty of bread and when his belly is chronically filled? At once other (and "higher") needs emerge and these, rather than physiological hungers, dominate the organism. And when these in turn are satisfied, again new (and still "higher") needs emerge and so on. This is what we mean by saying that the basic human needs are organized into a hierarchy of relative prepotency" (Maslow, 1943, pp375).

In a later paper he suggested that 100% fulfilment was not always necessary before moving up to the next level, and that the process was more fluid. He stated that once a need was

almost fulfilled that need disappears and the individual looks towards the next level of need that is unsatisfied (McLeod, 2017). The five-stage model was further developed in the 1970's and became an eight-stage model, although the extra three levels (cognitive needs, aesthetic needs, and transcendence) all came above the level of esteem in the original model.

There has been criticism of the Maslow model, although mainly on methodological grounds in that he based a significant amount of the research on his subjective view of what he felt the characteristics were of self-actualised individuals, based on his observations of a small number of individuals who he perceived as self-actualised, such as Abraham Lincoln, Albert Einstein, and Beethoven, most of whom were deceased (apart from Einstein) some time prior to the development of his model. He looked at the biographies and writings of eighteen individuals, mainly white, educated males, and from this he created his list of characteristics. This introduced significant subjectivity and personal bias into his work and as such reduces the validity of the data. In addition, his lack of inclusion of a significant number of females and those from lower social classes or different ethnicities introduces a significant population bias. Whilst this does not mean that his conclusions and model should be discarded, it is important to have an understanding of the context in which they were created.

More recent research supported the view that Maslow was correct in identifying universal human needs, but questioned the ordering and hierarchy of them;

“We also observed that the needs tend to be achieved in a certain order but that the order in which they are achieved does not strongly influence their effects on SWB (subjective wellbeing). Motivational prepotency does not mean that fulfilling needs “out of order” is necessarily less fulfilling. Thus, humans can derive “happiness” from simultaneously working on a number of needs regardless of the fulfillment of other needs. This might be why people in impoverished nations, with only modest control over whether their basic needs are fulfilled, can nevertheless find a measure of wellbeing through social relationships and other psychological needs over which they have more control.” (Tay & Diener, 2011 pp364)

Tay & Diener surveyed over 60,000 individuals across 123 countries over a five-year period, asking about six needs that were similar to Maslow's, one of which was about being respected and having a sense of pride (self-esteem). They concluded that universal needs existed across all cultures and that wellbeing did not rely on the needs being met in a particular order, but that having respect and a sense of pride was important for feelings of wellbeing and positivity. This seems to support the view of Maslow that esteem is an important factor in self-worth.

Esteem appears near the top of Maslow's hierarchy, and he described two forms: self-esteem (dignity, self-confidence, self-love), and the esteem of others (prestige, status, recognition, success). He also ranked the two, with respect from others as the lower of the two. Without self-esteem an individual would actively seek ways to achieve it, and this was especially the case in children and young adults;

“Maslow indicated that the need for respect or reputation is most important for children and adolescents and precedes real self-esteem or dignity” (McLeod, 2017 pp3).

Amirkhani et al (2018) describe self-esteem as the sense of value, self-acceptance and self-worth that a person feels towards themselves, derived from social interaction with family, peers and friends throughout all stages in life.

“Self-esteem is derived from social life and its values and presents itself in all stages of everyday life activities, that’s why it is considered as one of the important aspects of human personality and a determinant of behavioural traits. Since self-esteem is the most important factor in the process of psychological growth and has remarkable effect on thoughts, feelings, desires, values, and goals. The more an individual fails in gaining self-esteem, the more they are likely to undergo feelings of anxiety, mental instability and suspicion about themselves, truth avoidance, and the sense of inadequacy” (Amirkhana et al, 2018 pp747).

Self-esteem begins to develop in childhood and is significantly influenced by parents. Where children experience unconditional love they develop a sense of being cared for, which later impacts on the development of self-esteem (Isberg et al, 1989). In supportive parenting styles where children are listened to, spoken to respectfully, and have achievements recognised and valued, children tend to have higher self-esteem, whereas situations where there has been constant criticism, physical or emotional abuse, being ignored or teased, leads to lower self-esteem (Raboteg-Saric & Sakic, 2014).

Once at school self-esteem is influenced by academic achievement, and there is clear evidence that high self-esteem correlates with academic achievement (Mirzaee et al, 2018, Amirkhana et al, 2018)). Continuous success or continuous failure will have a lasting impact on self-esteem, as does the social environment within the school. During this time, students begin to compare themselves to others and assess their own performance next to classmates. Peer influence becomes greater during adolescence, and relationships with friends are significant – successful friendships support high self-esteem, and social acceptance from peers underpins this. Students with few or no friends or who are lonely often doubt themselves and their self-esteem drops (Erol & Oth, 2011). Self-esteem continues to increase through to young adulthood and middle age, but then begins to decrease (although to what extent is not confirmed), and it is suggested that this occurs due to changes in health, status, economics, and personal relationships, (Oth & Robbins, 2014). There appears to be no difference in self-esteem development between females and males, changes in self-esteem across the lifespan are relatively stable between differing generations, and societal changes and social media do not affect self-esteem levels (Oth & Robbins, 2014). The personality traits which are linked with higher self-esteem include extroversion, emotional stability, friendliness, and conscientiousness - some of the Big Five personality factors (Digman, 1990), and so the inference is that self-esteem has similar trait-like properties as intelligence and personality.

Feelings of worthiness are affected by the level of self-esteem, and in this study it was demonstrated when participants talked about whether they deserved their place on the programme and their feelings of self-doubt. Some participants talked about being on the

programme under 'false pretences', displaying symptoms of Imposter Syndrome by expressing thoughts that they would be 'found out' as not being good enough, and that any accomplishments were through luck rather than ability despite evidence proving the contrary. Clance defined it as the "*internal experience of intellectual phoniness*" (Matthews & Clance, 1985, pp 71), believing that;

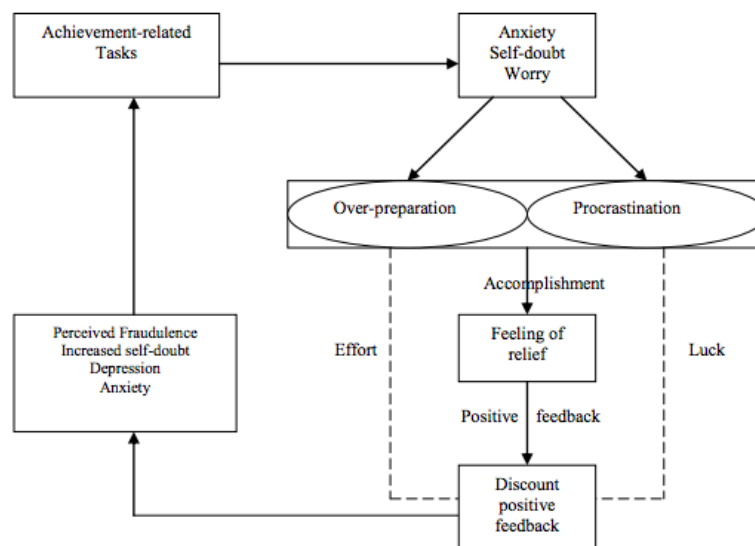
"The Impostor Phenomenon is not "a pathological disease that is inherently self-damaging or self-destructive", rather, it interferes with the psychological well-being of a person." (Salkulku & Alexander, 2011).

It is estimated that approximately 70% of people will experience some aspect of imposter syndrome at some point (Sakulku & Alexander, 2011), usually when experiencing a new setting or educational environment, and it has been particularly noted amongst medical students (Henning, Ey & Shaw, 1998). The idea of this phenomenon was first introduced by Clance & Imes in 1978 who looked at 150 highly-achieving woman recognised by colleagues for their professional ability and excellence. The women attributed their success to luck and consistently underestimated their own ability even when provided with evidence to contradicted this. The researchers stated that these women displayed low self-confidence, higher levels of anxiety, and low self-esteem (Clance & Imes, 1978), and suggested that this was due to social stereotyping, culture, and early social influences. Clance & Imes originally said that imposter syndrome was not as prevalent in men, although they did say that more research was needed to confirm this. Clance (1985) later determined that there were six dimensions which characterised imposter syndrome, and the presence of at least two was necessary for an individual to be said to have imposter syndrome: the Impostor Cycle; the

need to be special or to be the very best; Superman/Superwoman aspects; fear of failure; denial of competence and discounting praise; fear and guilt about success.

The Impostor Cycle - This is seen as one of the most important characteristics of imposter syndrome and begins when an achievement-related task is given. The individual reacts to this with anxiety, self-doubt, or procrastination, often followed by intense and panicked preparation (Thompson et al., 2000). Once the task is complete the individual feels relieved and has a sense of accomplishment, but this does not last long. Successful completion is not attributed to their own ability and any positive feedback about their performance is ignored (Clance, 1985). When a new task is given, the self-doubt begins again and creates more anxiety, and the cycle repeats (Figure 43).

Figure 43. Diagram illustrating the Impostor Cycle, based on Clance (1985).



The need to be special or the best - Individuals with imposter syndrome feel the need to be the best compared to their peers or colleagues. During school years they may have been the best in the class, but problems arise when they move into a different educational

environment where they encounter other very able and successful students (BFLPE). In this situation, these individuals realise that they are not special and can underestimate their own skills and abilities, concluding that they are stupid because they are not the best in the group (Clance, 1985).

Superwoman/Superman aspects - these are thought to be closely linked with the need to be special or the best (as described above), and these individuals exhibit perfectionist tendencies in their need to complete tasks flawlessly. This often means that they set very high standards for themselves which can be impossible to achieve, leading to feelings of disappointment if they cannot complete the task (Imes & Clance, 1984), and subsequently the generalisation of themselves as a failure.

Fear of failure – the fear of failure creates significant anxiety when there is a task to be completed because of the risk of non-achievement, therefore the options are either not to complete the task, or to over work to ensure that it is completed over and above the level required. This fear of failure is seen as the underlying factor in the majority of individuals with imposter syndrome (Clance & O’Toole, 1988).

Denial of competence and discounting praise – success in a task is seen as being related to external factors rather than accepting it is due to an individual’s ability and performance. This means that positive feedback is frequently discounted and may even create a narrative to argue that the praise and credit is undeserved (Thompson et al, 1988).

Fear and guilt about success – this is one of the sub-themes listed in Table 18 earlier in this chapter. Individuals with imposter syndrome feel guilty when they perform better than peers or colleagues and worry about any possible negative consequences this may create. They may also begin to worry that their good performance leads them to being asked to take on higher levels of work with the attendant increased expectation of them, leading to a reluctance to take on extra responsibility (Clance, 1985), and the feeling that they will be ‘found out’.

Clance’s definition and description is widely accepted, but other models have also been proposed. Harvey & Katz (1985) referred to Imposter Phenomenon and defined it as:

“a psychological pattern rooted in intense, concealed feelings of fraudulence when faced with achievement tasks” (Hellman & Caselman, 2004, p. 161).

They also estimated that 70% of people had work-related Imposter Phenomenon at some point during their career and suggested that there were three factors to it:

1. Belief that other people have been fooled or are mistaken;
2. The fear of being exposed;
3. Being unable to attribute success to personal skills and internal qualities.

Whilst Clance stated that two of the six criteria were required, Harvey and Krantz said that all three of their criteria were required to be met for an individual to have Imposter Phenomenon. In reality, there is considerable over-lap between the two models but the

basic premise is that the individual does not believe they deserve success because they are not worthy, they are only pretending and at some point they will be found out and exposed.

A slightly different perspective comes from Kolligian & Sternberg (1991) who use different terminology – ‘perceived fraudulence’ – to differentiate between those who have an unjustified fear (imposter syndrome) and those who are actively fraudulent. Perceived fraudulence is the self-perception rather than the actual intent to deceive of the true imposter, and Kolligian & Sternberg suggest that this avoids misinterpretation of imposter syndrome as a mental illness or personality disorder (Kolligian & Sternberg, 1991). However, as with the Harvey & Krantz model, Kolligian & Sternberg’s model still has overlap with Clance in the description of self-criticism, fraudulent ideation, low self-worth, and fear of failure.

7.5 Social Interaction & Support

Social interaction is part of everyday life whether at home, work or school/university. Society revolves around the interaction between people and the skills needed for this begin to develop from birth – it could be argued that they never stop developing. This is a huge subject area and can be examined in many contexts so it is important to focus on the specific context of this study. In the context of this study, social interaction refers to the learning relationships students have with their peers and how these impact on their performance and understanding of how they learn.

When students first begin a university programme they undergo a significant change to their social situation which requires constant adjustment, and some students will find this challenging. Some students may have recently left mainstream education and still be living with parents whilst others may be mature students who have been living independently, but for both there are challenges in adjusting to the new situation. All students will face the academic challenges of starting a new programme, but added to this is the independence of living away from home (although not the case for all students) and the autonomy that comes with lessened parental influence (again not the case for all). But, for all students there is the need to form new friendships and alliances, the challenge of seeking acceptance from peers, and dealing with the expectations of tutors and the institution. This is stressful and can adversely affect student performance if not handled well, therefore it is important to understand the impact of social interaction and support on student experience (Baqutayan, 2011).

These students grew up in a digital age where digital communication and technology was significantly embedded into daily life even though their parents had not grown up with it in the same way. As children and young adults these students were able to instantly communicate with people at a global level with access to highly sophisticated technologies from early childhood, making them completely comfortable in their use. This makes these students very different from their parents and from their university tutors, who have had to adopt and adapt to this technology rather than knowing nothing else so there is a clear difference in the digital experience between the generations and it is important to understand the distinction between them. Whilst it is accepted that the millennial

generation of students have some unique characteristics, they are learning in an environment mainly controlled by previous generations who may not fully appreciate these generational features, and therefore there may be situations where these differences in communication and socialisation preferences may create stressful situations.

Social support is an important part of life, either in the traditional form of direct contact or in a virtual environment, and as university students it is essential that they feel a supportive network around them. Social support comprises both the social and psychological factors found in the individual's environment such as care, respect, and friendship, and this can be 'actual' in terms of the support received by a student and also 'perceived' – the understanding that support is available if needed (Li et al, 2018), and it is suggested that perceived social support is more predictive of academic success (Cohen & Wills, 1985; Helgeson, 1993).

A good social support network can give a feeling of security when students first start at university, allowing them to compare experiences with others in the same situation and reassure themselves that everything is 'normal' with a shared sense of identity as a student. This aligns with social capital theory which suggests that social relationships are resources people use to create stability and security (whether psychologically or physically). Where there is a stronger supportive network and students are socially integrated they are more likely to perform better academically (Li et al, 2018).

Social interaction and support also affect self-esteem, particularly during adolescence (Harter, 1993), and this relationship has been documented many times. Rueger et al (2016) suggest that individuals have increased levels of self-worth when they have good social support, and in turn this leads to higher self-esteem. Li et al (2018) conclude;

“We suggest that social support is positively related to self-esteem. High self-esteem reflects individuals’ positive evaluations of their self-worth and competence and is beneficial for personal development. In a type of self-fulfilling prophecy, students will study harder if they believe they can achieve. In other words, students’ self-esteem can act as a motivator to achieve their academic goals. Moreover, students with higher levels of self-esteem might have higher aspirations and goals. They may have more confidence in tackling difficulties and be less likely to surrender to feelings of self-doubt. Accordingly, they are more likely to get good grades”. (Li et al, 2018, pp4).

It is critical to understand the part social interaction and support plays in helping students to settle into university life and study. Having empathetic and supportive friends who have a shared understanding of the different culture and academic challenges can reduce the emotional impact these may have, especially for students who may be struggling with workload or lower grades. Providing social support when students doubt their ability and competency also falls within the remit of tutors, and whilst socialising with students may not be the mechanism for this, tutors can create opportunities for interaction that are friendly and informal.

7.6 Feeling Secure

Learning works better in an environment where it feels safe to make mistakes without fear of ridicule or criticism (Clapper, 2010). For adolescents and adult learners there may be the fear of being judged and if this is not addressed at an early stage these students are more likely to dis-engage from the learning and hide their mistakes (Dweck, 2008). Creating a psychologically secure learning environment allows students to make errors, ask for help, and learn from their mistakes;

“...learners will benefit from opportunities to learn in psychologically safe learning environments. Changing what a person knows requires critical reflection. In turn, critical reflection requires a trustful atmosphere where people can make mistakes without worrying about suffering negative consequences”. (Clapper, 2010 pp2)

In most university situations learning is still a social activity that involves other people, whether numbering hundreds in a traditional lecture theatre or less than ten in a problem-based learning session. The aim of the experience is to support the increase of knowledge and there is an implicit understanding that students are starting from a point of little or no knowledge, so it is unlikely that there will be others in the class/group who bring a significantly higher level understanding of the topic. The ideal is for students to feel confident enough to ask questions or make constructive comments, the whole group benefitting from the sharing of different opinions. Additionally, students need to understand that making a mistake is not a problem but can be seen as a positive learning opportunity if managed correctly.

A phenomenon which can occur if people do not feel able to express their opinion is 'groupthink'. This is where the desire for conformity or harmony within a group means that no one is willing to express a different opinion or disagree with general opinion, often leading to poor decision-making. If no-one is willing to risk saying something controversial or getting something wrong, then the benefit that comes to learning from challenging and questioning knowledge is lost. This partially overlaps with imposter syndrome (discussed earlier in this chapter), where someone does not want to make a comment or challenge an opinion as they feel they don't really belong in the group or their opinion is not worthy. Creating the secure and non-judgemental learning space will help reduce the effect of groupthink, and eventually as a group learns to work together and trust each other it should disappear completely.

When trying to define what a supportive and secure learning environment is, perhaps it is important to think about what effect a threatening learning environment would have. In this situation the student becomes aware of the need to protect themselves from embarrassment and ridicule, preventing them from completely engaging in the learning activity. They may choose to stay silent rather than ask a question to clarify a point, or decide not to ask the tutor for help. This need for psychological safety in the classroom increases as student's progress through higher levels of learning (Clapper, 2010).

Responsibility for creating the optimum environment sits with the tutor who must ensure that students are not isolated, or made to feel awkward. This means that tutors must think about how they deliver teaching sessions, maybe moving away from traditional, passive

learning towards an active engagement style where students frequently interact with each other and the tutor, but still taking care not to use strategies that involve some 'risk taking' from the students (such as role play) until the group culture is established and students are happy to do so. In doing so, the tutor moves away from the traditional role of 'knowledge giver' to one of facilitator. Underpinning all of this is the implicit understanding by the group of accepted behaviour and communication styles, and these need to be modelled consistently by the tutor/facilitator so that students see that the 'rules' apply to everyone;

"A teacher has the ability to create the best or the worst memories of learning, and shape the direction that the learner may take as they take on formal and informal learning opportunities..... Modelling the positive behaviours and communications is contagious and will expedite the process, but understand that this will need to be ongoing if we are to change the culture that may exist. Let's get it right and play it safe from the beginning" (Clapper, 2010, pp6).

7.7 Academic Behaviour

Of the six themes emerging from the semi-structured interview data and discussed in Chapter 6, student-reported academic behaviour is perhaps the least researched and understood. In the context of this study it refers to how much the students support each other and share information and learning (or not), as well as behaviours such as dishonesty about the amount of studying, covert activity such as hiding core textbooks in the library, or actively not returning library books so as to prevent others from accessing them. Medicine is a very competitive programme, and the requirement for students to be ranked on their

performance at the end of their studies means that peers are also competitors, therefore individual self-interest may sometimes take over.

Academic dishonesty was discussed in Chapter 2, and depends on how a student attributes their success or failure. It does sit within the theme of academic behaviour, but dishonesty and the willingness to cheat was not actively explored during the interviews, neither was it something suggested or described by the participants. The consequences of dishonesty, whether in personal or academic life, are significant therefore it is highly unlikely that any of the interviewees would either admit to it or allege it in others. As discussed in Chapter 6, research into cheating amongst high ability students is sparse, but considering the high stakes and heavy workload of a medical programme, the suggestion is that it would be unrealistic to expect that no academic dishonesty occurs.

What does seem to occur is the willingness of students to be less than honest about the amount of study being done, and this seems to be polarised into either claiming they do very little, or actively demonstrating/talk about how much they do. In Chapter 6 this latter was described as academic virtue signalling and emerged from the interview data in the form of 'library behaviour'. Being overtly visible to peers was seen as indicative of studying hard, and therefore signalled good student behaviour, and although exploring this further was not the aim of the study it does create the opportunity to carry out further research to investigate this further.

Students who claim the opposite – doing very little work – may be exhibiting competitive behaviour involving being unwilling to share knowledge or support peers in consolidation of their knowledge. Medicine is a highly competitive programme, and as described in Chapter 1, involves student rankings as a way of students applying for their Foundation post after they graduate. Their performance across the five years of the programme results in a ranking into deciles, providing marks that contribute to the Foundation application process and hence has a strong influence on where they are offered a job, higher ranked students being afforded a wider choice of jobs. This specific process was introduced in 2013 and so applies to the participants in this study, previous to that students were ranked into one of four bands which then provided marks. This competition begins from year 1 in medicine as end of year rankings are collated and provide a final rank, meaning that from the start students are competing against each other to get the highest rank. Competition does not necessarily create collaborative behaviour, providing opportunity for students to be strategic in choosing which knowledge they share or withhold.

Competition may also come in the form of ‘showing off’ during learning activities, possibly another form of academic virtue signalling. In Chapter 6 students reported feeling intimidated when other students seemed to know all the answers to tutor’s questions, or who ‘spouted off’ information in front of the group to demonstrate their (apparent) superior knowledge. This could create feelings of lowered self-esteem or lack of confidence in some students, impacting on their self-belief and their academic self-concept.

As mentioned earlier in the discussion of this theme, academic behaviour of students can create both positive and negative feelings in others. These behaviours are not new and have been observed in many forms so it should be unsurprising that where the stakes are high and consequences of failure are significant, students will engage in these behaviours. It is difficult to say whether this is done consciously or unconsciously, but the fact remains that this behaviour exists and can be detrimental. This can be challenging to explore because of the lack of a formalised definition and possibly a lack of perception/recognition amongst educationalists. Creating a supportive and effective learning environment is the responsibility of both tutors and students, but until detrimental academic behaviour is recognised and addressed and positive academic behaviour modelled and encouraged, a space remains into which vulnerable students could fall.

7.8 Chapter Summary

This chapter has further explored the STAIRS themes raised from the interview data and discussed how they may impact on student behaviour, confidence, and academic success. The majority of the themes have been extensively researched over many decades, but the theme of academic behaviour as an explicit notion is new, and merits further exploration. The interview data suggest that the six themes are clearly inter-connected and inter-dependent, and the following chapter will further discuss their links with academic self-concept.

Chapter 8. Further Discussion & Conclusions

8.1 Introduction

The purpose of this study was to explore changes in Academic Self Concept (ASC) during the early stages of a student's time at medical school, identify any factors which may influence ASC, and attempt to explain if these factors impact on ASC in either a positive or negative manner, expressed in two research questions:

1. Does ASC change during the first two years of an under-graduate medicine programme?
2. What are the factors that may influence ASC?

The chapter will present further discussion and conclusions, drawing together the answers to these questions and providing recommendations for how the thesis findings could be implemented to support student achievement and wellbeing.

From the literature review it was clear there was little understanding of how ASC changes during the early years of medical education, and additionally the generational context of the participant group had not been explicitly considered. Using a constructivist, interpretive, phenomenographical viewpoint, the mixed methods research (MMR) approach allowed the combination of qualitative and quantitative forms of research during data collection and analysis, increasing the overall strength of a study to more than could be achieved using either of these methods alone. The data from both arms of the study was collected at the same time but independently of each other, undergoing separate analyses. Chapter 5 presented the data and discussion of the ASC questionnaires relating to the whole

participant cohort, whilst Chapter 6 presented the data and discussion of the semi-structured interviews from twelve students across the first two years of their programme. This chapter merges these data to provide an interpretation that allows a richer and more relevant understanding of the experiences and perceptions of students who are living the reality of studying under-graduate medicine, and whilst the participant cohort were within a single UK medical school it is not unreasonable to suggest that these experiences may be relatable across similar student populations (and not necessarily just medicine) in other institutions. An understanding of what happens in one population should contribute to the development of a greater understanding of some of the issues faced by high achieving students in high-stress learning environments, subsequently informing both future curriculum development and institutional cultural attitude.

8.2 Research question 1: Does ASC change during the first two years of an under-graduate medicine programme?

Academic self-concept scores were measured in the year 1 cohort at four data collection points across an 18-month period, the first score to be used as a baseline, with the subsequent three collected after each major summative episode. Analysis of the ASC score data included the use of inferential statistical analysis using a paired t-test. The results showed an increase that was statistically significant between each pair of scores – MS SDQ1 & 2, MS SDQ2 & 3, MS SDQ3 & 4, and MS SDQ1 & 4 (Chapter 6, Tables 9-12). This allows a direct answer to the first research question of yes, the ASC score did change during this time frame. This is the opposite to the findings of Jackman et al (2011) who stated that ASC scores did not change, and Jackman et al's is the only other study with a similar cohort.

In this current study the mean ASC score of the cohort was higher at the fourth data point than at the first, indicating that the academic self-concept of the students increased during their time on the programme. It is interesting to note that the highest mean ASC score was at data collection point 3, which was after the summer examination period in year 1, but this is likely to be reflective of these students successfully passing their first year on the programme and progressing to year 2. The slightly lower mean score at the fourth collection point can be accounted for by understanding that this took place before their final year 2 summer exams, so it is not unreasonable to assume some degree of anxiety and apprehension may have contributed to this. If it had been possible to collect scores after completion of year 2 then it is highly likely that the mean score would have risen again, but this was outside the capability of this study as the students transitioned to another institution and therefore were no longer available.

Also, of interest is the convergence of the scores for female students across the data collection period, whereas there is divergence in those of male students, and generally males had higher scores than females. Previous studies have given mixed reports in that some show females to have higher scores than males (Matovu, 2012), whilst others said males had higher scores than females (Marsh, 1989; Harter, 1999; Kling et al, 1999), and a further study suggested there was no difference (Hossaini, 2002), suggesting that there is still some scope for further research into the role of gender in ASC. The divergence/convergence finding can perhaps be explained by considering the influence of social comparison, with previous research indicating females are more influenced by social

interaction than males (Guimond et al, 2007; Wehrens et al, 2010; Plieninger & Dickhäuser, 2015).

An important point to note is that those students who were unsuccessful in completing year 1, even after a re-sit attempt, were required to withdraw from the programme and therefore there are no scores from collection points 3 and 4 for these students. This means that only successful student scores were included in the final analyses. The research question asked if ASC increased during the first two years of the programme therefore it is reasonable to accept that only successful students are included in the full analyses.

In summary, the answer to research question 1 is yes, ASC does change during the first two years of an under-graduate medicine programme.

8.3 Research question 2: What are the factors that may influence ASC?

The data to help answer this question was collected from twelve students each who participated in four semi-structured interviews, interviews occurring shortly after each of the four MS SDQ questionnaires was completed.

8.3.1 What is the influence of cohort rank?

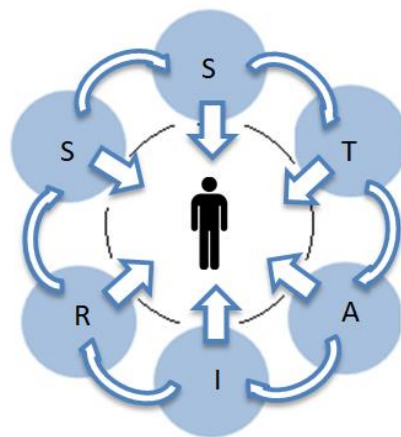
The cohort rank position of each of these students was also recorded at each interview point. From the results in Tables 13 & 15 in Chapter 6, it can be seen that there is no consistent correlation between ASC score and cohort ranking for these students, therefore in this study it would appear that the cohort rank position does not influence the ASC score.

There has been shown to be a difference in ASC across the early years of the programme, therefore other possible influences on ASC should be explored.

8.3.2 The influence of the STAIRS

Six themes emerged from the interview data, describing characteristics and behaviour that could impact on student perception and experience – academic **S**elf-esteem, **T**enacity, **A**cademic behaviour, **S**ocial Interaction, **R**esilience, and **S**ecurity, forming the acronym ‘**STAIRS**’, which provides a framework which may provide a foundation from which to identify support and development needs for students (Figure 44).

Figure 44. The STAIRS Framework



Academic **S**elf-esteem – Our level of self-esteem illustrates how we view ourselves and informs our sense of personal value, affecting the way we interact with others and where we see our place in society, and academic self-esteem put this in the context of our academic ability and academic interactions. Whilst it was not the remit of this study to formally measure academic self-esteem levels, the participants did not appear to exhibit consistently high or low levels of academic self-esteem across the board, but whilst there was variation in the group it was apparent that students with lower ASC scores appeared to

display lowered levels of academic self-esteem (Students M1 and F2). Academic success does appear to positively influence ASC, as demonstrated by the mean increase in ASC scores across the whole study cohort, and previous research suggests that academic self-esteem increases with academic success, and that academic success has a positive impact on ASC (Amirkhani et al, 2018; Skaalvik & Skaalvik, 2002), therefore the inference from this would be that the students in this study increased their academic self-esteem (and hence their ASC) with success in the summative assessments.

Tenacity – This is defined as having the determination not to give up easily on a task or situation, and is frequently seen as an essential contributing factor in those students who are academically successful. Tenacious students have the mindset of a belief in their own ability to succeed, mindset also being influential on academic ability and performance (Bandura, 1997; Dweck et al, 2014), and hence on ASC. All of the students showed tenacity, not only in gaining a place on the medicine programme, but in being successful in dealing with the heavy workload and succeeding in the assessments. The term ‘tenacity’ was not used specifically by any of the interviewees but they talked about knowing that they needed to consistently work hard in order to reach their goals. A good example of this was Student F6, who was consistently at the top of the cohort rankings but understood the need to continue to work hard to maintain her position, showing commitment, confidence, control, and connection, all given in Lucas & Spencer’s 2018 framework as behaviours of tenacious students. If these behaviours are influential on tenacity and the belief in academic ability, then it would follow that tenacity is influential in ASC, the belief in the ability to learn and perform being a strong predictor of academic success.

Academic Behaviour – This theme has no formal definition in the literature, therefore this study defined it as the behaviours students exhibit towards each other in terms of competitiveness, willingness to work collaboratively, and academic virtue signaling. This study does not claim to have discovered these behaviours but it is perhaps amongst the first to formalise them as a cluster in terms of their influence on student behaviour, and academic dishonesty could also be included in this cluster. This study did not uncover any evidence of academic dishonesty but neither did it specifically set out to discover it. The expected professional behaviour of medical students could be assumed to preclude this due to the serious implications of its discovery, but it cannot be discounted. What was more obvious in the cohort was the level of competitive behaviour with almost all students indicating they had witnessed examples of this, and it appears to be both acceptable and accepted.

A further behaviour which emerged was academic virtue signaling, the visible demonstration of behaviours that students think indicates their dedication and ‘cleverness’ and to be seen by others as a good student. Student M3 talked about others ‘showing off’ their level of knowledge whilst Students F4 and M2 talked about individuals who were conspicuously visible in the library. Academic virtue signaling may also be indicative of other behaviours (eg, extraversion, conscientiousness, agreeableness), but as yet there is no indication that it correlates with academic performance, so significant further research would be needed to confirm any potential relationships. In relation to its influence on ASC, as yet there is no evidence to support this, but perhaps the influence is more subtle. Unhealthy competition and students perceiving themselves as being less hard-working than

peers who seem to know all the answers may impact on academic self-esteem or levels of social interaction, and as both of these influence ASC it may be that the relationship is indirect.

Social Interaction - In the context of this study the exploration of social interaction related to the relationships students had with their peers and how these impacted on their performance and understanding of how they learn. The majority of the students in this study had moved away from home for the first time and were experiencing independent living, albeit within the slightly protected environment of a university college, something which Student F3 talked about as helping them to be collaborative and supportive. They had to form new friendships and develop social support networks that would help them create emotional stability and security, both of which are known to increase the chances of improved academic performance (Li et al, 2018). Social interaction is known to be important in the learning process, and Students F3, M6, M3, and F6 all described how they benefitted from having friends to learn with, even if those friends were not part of the medicine programme. Having a supportive friendship network encourages higher levels of academic self-esteem (Li et al, 2018; Harter, 1993), and interestingly when Student M1 appeared to have low levels of academic self-esteem during Interview 1, he talked about isolating himself from the cohort and avoiding social activities. Higher levels of academic self-esteem are associated with improved academic success, which in turn has a positive impact on ASC, therefore it follows that social interaction is influential on ASC.

Resilience – Resilient students are able to deal with difficult situations and criticism, and are not put off when faced with challenges. It plays a role in student mental health (McIntosh & Shaw, 2017), influenced by the ability to self-manage, maintain perspective, and be optimistic, and also linked with the presence of a fixed or growth mindset (Dweck, 2014). Resilience is closely associated with tenacity and academic self-esteem, resilient students being tenacious with higher academic self-esteem, and the interview participants showed different levels of resilience. Greater resilience also correlates with a positive social environment so social interaction and friendships are important. Students F3 and F4 both relied on their social networks to help keep things in perspective, whereas M1 withdrew socially from the cohort when things were difficult. Positive social interaction influences academic self-esteem, and higher academic self-esteem contributes to resilient behaviour as well as academic success, therefore it follows that ASC will also be dependent upon levels of resilience.

Feeling Secure - Creating a psychologically secure learning environment which allows students to make errors, ask for help, and learn from their mistakes without fear of judgement or ridicule helps students to maintain engagement (Dweck, 2008; Clapper, 2010). The risk when students do not feel secure is that they may be tempted to hide mistakes and disengage, both of which may have catastrophic consequences for medical students and also in their subsequent professional career (Mendonca et al, 2019). Learning new material in a competitive environment creates vulnerability and students who may have less resilience or lower academic self-esteem may find it difficult to admit to gaps in their knowledge, not being willing to risk exposing this by asking for clarification or help.

Students F2 and M5 both highlighted this, but they also expressed that the fear reduced if they were with supportive friends, so the role of social interaction is again important.

The role of tutors is influential in creating a secure learning environment so a tutor should review how teaching is delivered in relation to the maturity of the social interaction within the group, i.e. consideration in the timing of use of strategies such as ice-breakers for new groups, or activities which rely on trust/self-disclosure being reserved for when a group has been together longer and are more comfortable with each other. New groups may take time to relax with each other and strategies involving significant interaction may be more challenging but once friendships and a supportive group culture has developed this becomes less so. The foundation of this must be the tacit understanding of accepted behaviour and communication styles within the group and these need to be modelled consistently by the tutor/facilitator so that students see that the 'rules' apply to everyone.

Social interaction, academic self-esteem, and resilience are important in creating secure and productive learning spaces, and the influence of these on ASC has been previously stated, therefore ASC will be influenced by how emotionally secure a student feels in their learning environment.

In summary, the answer to research question 2 is that there is no consistent correlation between cohort rank position and ASC, therefore rank does not appear to influence ASC. However, the six themes of academic self-esteem, tenacity, academic behaviour, social interaction, resilience, and feeling secure, are all influential on ASC whether directly or

indirectly, and they are inter-connected and inter-related. These themes provide a framework on which strategies for student support and curriculum development can be founded so that positive student experience is encouraged. Using the STAIRS to initially identify a student's perspective on their situation sheds light on the areas where they may require support and guidance, and this may be addressed either by the student individually, or by the institution in the creation of a cohesive and supportive organisational culture.

8.4 What is the impact of being a Millennial on ASC?

The participants in this study ranged in age from 18 – 28 years during the data collection period (2012-2014), placing the participants clearly in the generation known as Millennials, born in the 1980s and 1990s (Lexico.com, 2019). As with each generation, the typical characteristics of individuals in that generation will be different to those of other generations, as do their perceptions about the self, society, and the world. The results of the study need to be viewed through this generational lens because that is the context of the participants. Recommendations from this study may be embedded in future curriculum development therefore an understanding of the generational context is essential, which should continue as newer generations start to enter higher education.

These individuals are very digitally literate and connected, having never experienced life without the internet or computers. The internet is their main source of information and they are comfortable using hand-held smart devices to store and retrieve data. Social media is their main form of social interaction. They are assertive and hold strong views about what is right, they are socially responsible, and feel their opinions are important and should be

listened to. They like to work with others but understand that work has a purpose rather than being the focus of their life. They enjoy working in relaxed situations and need regular affirmation and celebration of success (Evans et al 2016).

This study did not collect ASC data on other cohorts or individuals so there is no opportunity to make a direct comparison between ASC in Millennials and individuals from other generations. Perhaps what can be explored is the generational influence on the STAIRS characteristics as the results from this research suggest they do impact on ASC. In relation to general self-esteem, Millennials have been taught by their parents that they are 'special' and so the inference would be that they have higher levels of self-esteem, supported by evidence in the literature but this also sits alongside increasing levels of self-confidence, possibly linked to their optimistic outlook (Lyons & Kuron, 2014; Ng & Johnson, 2015; Nichols, 2015). Higher levels of self-esteem lead to increased levels of academic success, which is known to increase ASC, so generally it could be assumed that the generally higher self-esteem in Millennials helps to improve their ASC. In terms of tenacity, they are achievement focused and willing to expend effort to be successful, (Kaifi et al, 2012; Haww & Vos, 2010), but they have been under pressure to achieve from an early age. They are used to having to work hard although they need to understand the relevance of what they are doing, otherwise they may consider it as meaningless, and this was something that was talked about in the participant interviews for this research.

Academic behaviour in Millennials is more difficult to define from the literature, but as this research identified academic behavior in a cohort of Millennials then perhaps that is the

best evidence to use. They recognised competitive behaviour in others and did not appear to consider it problematic, but maybe this is as a result of them being pushed to succeed from an early age so it has become the norm. The academic virtue signalling about 'good' student behaviour again may not be viewed by them as problematic because of their familiarity with social media. The classic virtue signalling seen daily on social media sites such as Facebook and Instagram perhaps means that Millennials do not notice it, perhaps a lack of cynicism and an optimistic viewpoint makes them less aware of this (Nichols, 2015). As discussed earlier in this chapter, the influence of academic behaviour on ASC is likely to be subtle and indirect, and more investigation is required before any conclusions can be drawn around its influence in the Millennial student.

In terms of social interaction and feeling secure, Millennials present a dichotomy. They are comfortable being on their own physically, whilst simultaneously interacting virtually with multiple others. They are happy to work alone or in small groups, and from the evidence of this research, they feel more secure and less fearful when they are not learning in a large traditional lecture. Using social media as part of their learning is the only way they know, therefore being interactive is embedded in their nature. The assumption would be that this familiarity with social media automatically creates an ease with social interaction, but this is not necessarily the case – social media does not need the physical presence of others and so Millennials may have more difficulty with basic social skills (Aviles & Eastman, 2012). This may become problematic for students learning via collaborative working, such as with a PBL-based curriculum, and for those on vocational programmes such as medicine where human interaction will underpin their working lives.

Finally, the question can be asked 'are Millennials resilient?' Gray (2015) suggested that millennial students could not cope with what they perceived to be poor performance, and that levels of mental illness and anxiety were much higher in students than in previous years. Evidence confirms the increase in mental health issues in this age group over the last 15 years (Mental Health Foundation, 2021). Gray suggested that students were afraid to take risks as they needed to be certain of success, and teaching staff felt compelled to offer greater levels of support than previously, resulting in the labelling of 'needy' students;

'Failure and struggle need to be normalized. Students are very uncomfortable in not being right. They want to re-do papers to undo their earlier mistakes. We have to normalize being wrong and learning from one's errors..... Faculty members, individually and as a group, are conflicted about how much "handholding" they should be doing' (Gray, 2015 <https://www.psychologytoday.com/us/blog/freedom-learn/201509/declining-student-resilience-serious-problem-colleges> accessed 20.2.20)

This also links with the theme of Feeling Secure, and as mentioned earlier in this chapter, the competitive nature of the medical programme combined with the amount of new material to be learned will create anxiety and vulnerability. Perhaps of all the themes resilience is the one most lacking in the Millennial generation, but it is beyond the scope of this study to provide an explanation as to why this may be so.

8.5 Institutions, pedagogic frailty, and the STAIRS

As mentioned above, institutions play a key role in creating supportive learning environments, necessitating the creation of robust processes that are effectively integrated, coupled with the commitment and support of staff. Institutions where there is a weakness or lack in any of these areas are said to be pedagogically frail. Pedagogic frailty is a concept introduced within the last few years (Kinchin, 2015) and describes the interaction between an institution, its systems, and the individual working within these. It can create a reluctance to innovate or to do anything different, creating a kind of inability to move forward because of fear of what consequences might arise. In essence this means that if things (such as policies, pedagogical theory, and philosophical viewpoints) are not joined up and aligned properly in relation to how the institution works, how teachers teach, how teaching and research interact, and who 'controls' the teaching, then it becomes impossible to adapt to change, resulting in ineffective teaching and poor student experience. Pedagogic frailty will exist where there is the inability to respond to the need for change and development in teaching practice, and where the interaction between all the elements of the environment becomes disjointed, but can also create discomfort and unease, as Kinchin (2017) noted:

'...engagement with the concept of pedagogic frailty may require academics to engage with a period of discomfort to encourage the generation of new perspectives' (Kinchin, 2017 pp4).

This potential of discomfort and challenge in relation to being critical of pedagogical review was recognised some time ago;

‘A pedagogy of discomfort begins by inviting educators to engage in critical enquiry regarding values and cherished beliefs, and to examine constructed self-images’

(Boler, 1999, pp176)

Kinchin et al (2016) defined frailty in the context of pedagogy as the inability to adapt to change, which could be in relation to the wider government agenda, or focused on the changing needs of students. This lack of resilience in dealing with change can lead to an institutional vulnerability:

“The ability to capitalise on new initiatives or structures as a source of creativity and development requires resilience; this may be on the level of the organisation, or of the individual. Conversely, pedagogic frailty can lead individuals and/or institutions to lack resilience to deal with change, resulting in risk averse behaviour”

(Whinstone, 2017, pp34).

The situation where there is no joined up approach to teaching, assessment, feedback, or use of technology-enhanced learning results in students being ‘academically adrift’ (Kinchin et al, 2016), but how universities address this to ensure they are not pedagogically frail is still under discussion - there is currently no agreement on how to avoid it, or to measure it, if indeed it can be measured. The STAIRS model may offer the beginnings of a solution as its themes relate to concepts that can be applied at both the individual (in both students and

academic staff) and the institutional context. The individual level has been discussed earlier in this chapter, but at an institutional level the context could be:

Academic Self-esteem – is the institution confident in its ability to recognise the need for change and acknowledge this openly? This could be around recognising non-effective teaching strategies, the non-engagement with technology enhanced learning, or the need to review assessment processes.

Tenacity – is the institution willing to see the change process through, subsequently reviewing and changing again if needed? The development of a credible and robust plan to manage the change within a realistic timescale would be a positive indication of institutional tenacity

Academic Behaviour – is the institutional culture conducive to responding positively to change? This could show as willingness of staff in accepting the need for change and to actively engage in it, including the identification of training needs.

Social Interaction – are the lines of communication clear, encouraging feedback from all levels both upwards and downwards? This would be reflected in a communication strategy which allowed everyone to have an equal voice, with the university executive using these strategies to welcome input as well as provide regular, meaningful updates on change progress.

Resilience – can the institution respond positively to constructive criticism, and be reflective in dealing with setbacks? If the institution is resilient, negative feedback will not be ignored but used to identify the need for change without causing a loss of institutional motivation and impetus.

Feeling Secure – is the institution able to acknowledge where mistakes have been made without apportioning blame? Secure institutions are able to recognise where things do not work and search for a constructive way forward, they do not single individuals out for blame, and they encourage an open and honest culture.

Current ways of measuring institutional culture may be one way of identifying pedagogic frailty, so the use of engagement surveys, climate and culture surveys, and pulse checks are popular approaches. But these are specifically designed to look at organizational culture and have generally been developed for non-academic institutions so they do not address the factors which contribute to pedagogic frailty. The STAIRS model brings together influences that are more likely to impact on this and provides an initial starting point for an institution to begin the process of identifying the need for cultural change. As with the individual context, an institution could use the STAIRS themes to identify areas for improvement so in terms of pedagogic frailty the institution could carry out a STAIRS 'audit' to identify areas of frailty, and then use that information to implement any identified need for change. In this sense, STAIRS offers a framework to support institutions in identifying and making change and can be applied at either a macro (institutional) or micro (departmental/academic staff) level.

8.6 How could the model be applied?

The STAIRS model is a new framework and as such needs further development to create a tool which can be used to 'measure' or identify a student's position in relation to each of the themes. Tools already exist to measure self-esteem (e.g. Self-Esteem Stability Scale,

Rosenberg's Self-Esteem Scale), tenacity (e.g. Duckworth Grit Survey, CAQ Motivation/Persistence & Study Habits subscales), resilience (eg, Nicolson McBride Resilience Questionnaire, Connor-Davidson Resilience Scale), which are generally well-accepted and have shown reasonable levels of reliability so it would seem appropriate to consider using combinations of these to address these three themes. However there would need to be the development of new tools to explore the remaining three themes – social interaction, feeling secure, academic behaviour – and this will be included in the following recommendations section.

8.7 Where this study sits with the existing literature on ASC, BFLPE, and medical students.

Rosman et al (2018) carried out a similarly-structured study to the current one with multiple data collection periods over an extended period of time but the Rosman study failed to find the BFLPE whereas the current study identified the BFLPE as present. Jackman et al (2011) also failed to find a BFLPE, and whilst the Rosman study did identify a change in ASC, the Jackman study said that ASC was unchanged. This current study contradicts both Rosman and Jackman in finding an observable BFLPE, and perhaps this is reflective of the different study design – no semi-structured interviews were carried out in either of the two studies, the only qualitative data collection was via focus groups in the Rosman study, with both researchers mainly relying on quantitative data from questionnaires. The lack of qualitative data from individuals highlights the difficulty in drawing conclusions on how participants feel when relying on questionnaires which do not allow the researcher to probe more deeply into responses. The extensive use of semi-structured interviews in this current

study allowed the views of the participants to be explored in greater depth, promoting a more nuanced interpretation of the data.

Litmanen et al (2014) looked more specifically at learning environment rather than specifically on ASC and demonstrated the importance of the learning environment and levels of stress. This is a similar approach to the current study in that there is a recognition that learning culture and social interaction are important issues, and both studies identify the need for institutions to develop support strategies. Litmanen et al also make a clear link between the structure of the curriculum and levels of stress, but the current study did not make such a direct link. Where there is a similarity is in the recognition of social interaction as part of the learning process in the current study, so where the Litmanen study found that PBL students were more worried when PBL was new to them, the current study recognised the impact of a high workload on levels of stress. Abdalla et al in their 2019 study were able to identify increased ASC in students on a PBL curriculum and they related this to the socially interactive nature of PBL, and this again confirms the importance of social interaction in the learning environment. Together these previous studies and the current study highlight the importance in recognition of the multiple factors contributing to ASC, and that social interaction is possibly one of the most significant. This resonates with Schone et al (2002) and their view that social ASC underpinned BFLPE (see section 2.6).

This current study overlaps with aspects of each of the studies discussed in this section, but where it is unique is in its methodological approach which allows it to explore ASC as a phenomenon in relation to inter-related influencing factors. The use of the semi-structured

interviews carried out over an extended time period allowed the understanding of how participant's thoughts and feelings developed over that 18 months rather than the snapshot view of the other studies. This helped in exploring the synergy between the emerging themes which allowed a unique insight into the experiences of the participants, something which none of the previous studies were able to present.

8.8 Limitations of the study

This study is subject to several limitations:

- Students who were unsuccessful in summative assessments left the programme, and therefore their subsequent ASC scores could not be collected (see sections 4.15 and sections 5.2). The inference is that unsuccessful students may have lowered ASC scores but these are not included in the data analysis so it is possible these may have impacted in the overall mean ASC scores for the cohort. Only a small number of students left the cohort due to assessment failure and therefore inclusion of those scores may have had minimal overall impact on the mean, but it remains that these scores were absent. The solution to this would be to continue to include those participants which would entail maintaining contact with them over an extended period of time, but in this study that was not possible.
- Data collection was limited to when participants were available, usually within university term time. This was not an issue for data collection immediately after in-term assessments, but where assessments took place at the end of term and participants left campus over the summer months, data collection could not occur until students returned in the Autumn. The meant that an extended period of time

elapsed between one summative assessment period and the next data collection episode; it is difficult to determine the effect this may have had on the relevant ASC score or interview data, and no previous studies exist which may have dealt with a similar situation. In future the study plan may need to be considered to avoid a significant delay in data collection at relevant points.

- The participant cohort was multi-cultural, but there is no evidence that the questionnaire used was validated cross-culturally. Cross-cultural validation refers to whether a measure which was created using a single culture is equally meaningful and applicable to other cultures (Matsumoto, 2003; Huang & Wong, 2014). This is likely a reflection of when the original tool (the SDQ III) was developed, but no culturally-validated ASC measurement tool is currently available so a pragmatic decision was made to use a widely-accepted and well-validated tool. As with the two previous limitations the impact of this cannot be measured nor can the experience of previous studies help, but in future studies the issue of cultural differences in relation to the STAIRS themes should be explored.

These limitations have helped to inform the development of a number of recommendations from this study, given in the next section.

8.9 Recommendations

The following recommendations are made:

1. The collection of ASC scores at entry on under-graduate medical programmes, and at the end of each academic year to help identify and monitor students who require

support. A reduction in a student's score may be an indicator that they are struggling with an aspect of their study, and act as a red flag to initiate referral to support processes. In this study students with lower ASC scores often experienced issues with academic performance, self-esteem, or confidence, so based on this the identification of lowered ASC scores could provide a safety net to identify students in need of extra support.

2. The development of new tools to measure levels of academic behaviour, social interaction, and feelings of emotional security within the learning environment. It is envisaged that this would lead to the creation of a 6-part STAIRS score for an individual, plotted on a 6-point radar chart to provide a graphical representation of the individual's STAIRS position. Depending on the shape of the chart areas where support or development may be required can be identified, and a personal development plan can be created and monitored.
3. Leading on from recommendations 1 & 2, The STAIRS model is introduced into under-graduate medical education to provide a framework for the development of supportive learning environments and to enhance student experience.
4. Consider the use of ASC scores and the STAIRS model to identify and monitor the need for support in courses other than under-graduate medicine as it is likely the results from this study are applicable across different types of programme, institution, and study level.
5. Institutions consider using the STAIRS approach as an audit tool to identify areas for improvement to help reduce the risk of pedagogical frailty. The model can be applied in different contexts and whilst this was not specifically demonstrated in this study,

the application of the themes in an institutional context provides an opportunity to identify a new perspective on institutional culture and values.

8.10 Opportunities for further research

A number of possible opportunities for future research arose from interpretation of the data. The most obvious opportunity would be to repeat the research with extended data collection to cover the whole five years of an under-graduate medical programme. This would allow a more granular, detailed view of student perceptions as well as more ASC score data collection points, perhaps allowing the identification of specific trends in relation to the STAIRS themes, and extended research may also allow additional themes to emerge which could provide more detailed understanding of influences on ASC. A further benefit of this would be to allow the exploration of whether the change in ASC scores correlates with data already collected on the Conscientious Index (CI) in under-graduate medical students (McLachlan et al, 2009). CI in medical school has been shown to be predictive of future professional behaviour in doctors therefore if there is correlation between ASC and CI, then it may prove possible for ASC to predict future professional behaviour.

A second opportunity relates to the students who were unsuccessful in progressing to year 2. They were required to withdraw from the programme and therefore not able to provide four ASC scores across the study time frame. The assumption is that failure of the programme would lead to a lowered ASC in these students but this cannot be confirmed from the current research data, therefore future research across the five years of the programme should also include the unsuccessful students. There may be challenges with

this in terms on maintaining contact with those students, but inclusion of an explicit strategy for this in future research design would address this.

An area discussed in section 8.2 earlier in this chapter is the influence of gender on ASC, and previous studies do not consistently agree whether females have higher scores than males (Matovu, 2012), or whether males had higher scores than females (Marsh, 1989; Harter, 1999; Kling et al, 1999). This research study did indicate that the ASC scores in males were generally higher than those in females (Chapter 5, Table 6, Figure 13), but the specific influences of gender and binary/non-binary were not explored. Neither was the influence of differing cultural perspectives so whilst ethnicity was recorded no specific analysis of the data was carried out. Further research should include exploration of the influences of gender and cultural perspectives, additionally the data collection tools should be reviewed in relation to their cross-cultural validity.

Academic virtue signaling was discussed in Chapter 6, and whilst it was not within the remit of this study to investigate this to any significant depth, it remains an area where very little research has been carried out, creating a significant opportunity to explore a new area of research, either as a part of a larger study or as a phenomenon on its own.

Section 5.5 discussed the two student outliers who consistently had the highest ASC scores whilst being amongst the poorest academic performers. The issue of self-awareness was raised as a possible explanation, but this was not explored during this study. This raises the question around levels of self-awareness in medical students, and this would be an

interesting area to research further, particularly in relation to other concepts such as the Conscientiousness Index.

The final opportunity for further research relates to the identification of academic virtue signaling and competitive academic behaviours emerging from the interview data. This behaviour is not new but research into this phenomenon in university students appears to be non-existent, an ideal opportunity arises to explore this more specifically in relation to what behaviours are actually displayed and the impact they have on student perception, ASC, and wellbeing. This study identified that specific behaviours were observed (both positive and negative) and that some were accepted as the norm, raising the question of whether this type of behaviour is problematic. Acceptance of negative types of behaviour may be reflective of the competitive nature of the programme, but as this has not yet been explored in any detail, nor in other disciplines, this offers an interesting opportunity for future research.

8.11 Final Thoughts

This study has established that ASC increases as students progress through the early years of their under-graduate medical programme, and it has also established that the BFLPE does exist in this same group of students. The former of these should be unsurprising, and feels intuitively correct – the American athlete Mia Ham coined the phrase ‘success breeds success’, which is true in all walks of life. Students who achieve academic success have been given positive affirmation of their learning, increasing confidence and self-esteem and providing the encouragement to continue learning.

The second of these, the BFLPE, has the potential to have the opposite effect, creating self-doubt and the fear of failure. Having been a Big Fish at school, new medical students suddenly are the same size as everyone else and in a bigger pond, them being 'special' is no longer the case. Institutions need to recognize the dilemma and distress this creates for some students and consider strategies to help these students as they transition to a new academic culture, encouraging them to realise that being the biggest fish is not their focus after all – safety, security, and sociality comes with being part of the shoal.

As a final thought, UK medical students embark on a complex, difficult, and intense course of study that does not end with graduation, continuous learning will extend throughout their professional lives, they will deal with difficult and traumatic emotional situations almost on a daily basis, and have to make decisions which at times will be truly life and death. To be able to do this they need to be consistently tenacious even when things go wrong, and perhaps this is the key to being a successful medical student and a good doctor;

"If your determination is fixed, I do not counsel you to despair. Few things are impossible to diligence and skill. Great works are performed not by strength, but perseverance."

Samuel Johnson, 1709-1784.

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Appendices.

Appendix 1. Ethical approval confirmation



Durham University

Memorandum

School of Education

From:	To: Member of the Ethics Committee
Date: 22/10/13	
Re: Ethical approval: Judith Barbaro Brown	

FULL APPROVAL FOR FUNDED, NON-FUNDED AND STUDENT RESEARCH PROJECTS

Please can you have a look at this application for ethical approval and let me have your comments as soon as possible.

Please indicate your recommendation below by ticking one of the boxes

- Approval not required
- Approved
- Request more information from the applicant (see below)

- The application should be further reviewed by another member of committee.
- Refer the application to the full committee.

Signature..... Date...22 October 2013.....

Appendix 2. Consent Form (ASC Questionnaire)



Title of Project: Being a Big Fish with other Big Fish: Does Academic Self Concept (ASC) influence achievement in groups of high-ability students?

The participant should complete the whole of this form himself/herself.

- (Please delete as necessary)
1. I have read the Participant Information Sheet. YES / NO
 2. I have been given the opportunity to ask questions and discuss this study. YES / NO
 3. I have received satisfactory responses to all of my questions. YES / NO
 4. I have received enough information about this study. YES / NO
 5. I have been able to discuss this study with (insert name)
.....
 6. I understand that by taking part in this research I may be invited to be part of a focus group, or be interviewed, and I agree that the focus group and /or interview can be audio recorded. YES / NO
 7. I agree to the use of my anonymised quotes if this research is published. YES / NO
 8. I understand that I am free to withdraw from this study at any point, and do not have to give a reason for withdrawing, and that it will not affect my position or progression within the University. YES / NO
 9. I consent to take part in this study. YES / NO

Your name

Signed Date

Thank you for taking the time to complete this form. Your contribution to this study is greatly appreciated.

Appendix 3.



Participant Information Sheet

Title of Project: What are the influences on Academic Self Concept (ASC) in groups of high-ability students?

You have been invited to participate in a study to explore how students feel about their academic abilities and skills – something known as Academic Self Concept (ASC). Research suggests that this is important for how students perform, but very little work has been carried out in students on programmes such as Medicine. This study will look at levels of ASC in your cohort and explore how this might be affected by different experiences during the Phase 1 Medicine course, with a view to developing processes which enhance learning support mechanisms for medicine students.

If you agree to take part, you will be asked to complete the same questionnaire on four separate occasions over a period of 18 months. The questionnaires will each provide an ASC value, and these will be compared with each other, although not with the values of other students – this study is not about comparing students with their colleagues. You will be allowed to know your values each time you complete the questionnaire.

There will also be the opportunity for you to take part in a focus group, and/or interviews, but this is on a completely voluntary basis, and anything you say in either of these situations will be anonymised when the study report is written.

If you are happy to take part in the questionnaire part of this study, you will be asked to fill in a consent form before you complete the first questionnaire, but you will not need to do this again for the subsequent questionnaires.

If you would be interested in taking part in the focus group and/or the interviews, you can indicate this on the questionnaire, and you may also be asked to complete a further consent form prior to your taking part in the focus group.

Many thanks for taking the time to read this information, and if you agree to take part in any aspect of this study, your time and help is greatly appreciated.

If you have any questions, queries, or concerns relating to this study, in the first instance please contact the lead researcher, who is :

Judith Barbaro-Brown.

Email : j.a.barbaro-brown@durham.ac.uk

Tel: 0191 3340331

Room C142, Holliday Building, Queens Campus, Durham University.

Appendix 4. Consent Form (Interviews)



Title of Project: Being a Big Fish with other Big Fish: Does Academic Self Concept (ASC) influence achievement in groups of high-ability students?

The participant should complete the whole of this form himself/herself.

- (Please delete as necessary)
1. I have read the Participant Information Sheet. YES / NO
 2. I have been given the opportunity to ask questions and discuss this study. YES / NO
 3. I have received satisfactory responses to all of my questions. YES / NO
 4. I have received enough information about this study. YES / NO
 5. I have been able to discuss this study with (insert name)
.....
 6. I understand that by taking part in this research I will be invited to participate in a number of interviews in the first two years of my programme, and I agree that the interviews can be digitally recorded. YES / NO
 7. I agree to the use of my anonymised quotes if this research is published. YES / NO
 8. I understand that I am free to withdraw from this study at any point, and do not have to give a reason for withdrawing, and that it will not affect my position or progression within the University. YES / NO
 9. I consent to take part in this study. YES / NO

Your name

Signed Date

Thank you for taking the time to complete this form. Your contribution to this study is greatly appreciated.

Medical Student Self-Concept Questionnaire (MS-SDQ)

The purpose of this survey is to gain better insights into the current study experience of medical undergraduates in order to improve their experience in the longer term. Your candid viewpoints will be of invaluable help in this regard. Please note that this is not a test, and there are no right or wrong answers - everyone will have different answers. Some of the questions might appear to be very similar, but this type of survey needs to ask questions in slightly different ways. Please try and answer the questions in a way that shows what you really think. Please note also that it is essential for the data analysis that you do not leave any questions unanswered, as this may invalidate your response.

It is also very important for us to be able to discuss students' current study experience in more depth through a focus group session and/or interview. If you are willing to be contacted to participate in this way, this would be greatly appreciated. Please circle yes or no.

Focus group YES NO Interview YES NO

Section 1. Background Information

Your name :	Your age (in years) :
Male Female	(please circle)

Please circle to indicate on which stage of the Phase 1 Medicine programme are you currently registered?	
Stage 1	Stage 2
Is this your first attempt at this stage? Yes No	
If you answered No, please indicate the most appropriate explanation from the list below.	
<input type="checkbox"/> Re-sitting the stage	
<input type="checkbox"/> Re-starting the stage due to illness/other circumstances	
<input type="checkbox"/> Other (please state):	

Previous to registering on the Phase 1 Medicine programme, have you completed any other higher education programme?			
Yes	No		
If you answered yes, please circle all levels of study at which you studied.			
Bachelor's degree	Master's degree	PhD/Doctoral	Other (please state)

Thinking about the students in your cohort, how would you rate yourself within the group?
<input type="checkbox"/> Poor (I am one of the bottom students in my year)
<input type="checkbox"/> Not very good (I am not as good a student as most other students in my year)
<input type="checkbox"/> Good (I am as good as most other students in my year)
<input type="checkbox"/> Very good (I am a better student than most students in my year)
<input type="checkbox"/> Excellent – (I am one of the top students in my year)

Thinking about the teaching staff on your programme, how do you think they rate you as a student?

- Poor (Most staff think I am one of the bottom students in my year)
- Not very good (Most staff think I am not as good a student as most other students in my year)
- Good (Most staff think I am as good as most other students in my year)
- Very good (Most staff think I am a better student than most students in my year)
- Excellent – (Most staff think I am one of the top students in my year)

Strongly disagree	Disagree	More disagree than agree	Neither agree nor disagree	More agree than disagree	Agree	Strongly agree
1	2	3	4	5	6	7

In the box provided, write the number that best corresponds to your response to each question below.

1. I am good at caring for patients	
2. I usually receive positive feedback from peers on my course	
3. I do not really like being a student doctor	
4. I can easily get my colleagues to work happily with me	
5. Leadership in medicine is easy for me	
6. I enjoy undertaking a leadership role in medicine	
7. I can often see better ways of tackling a medical problem	
8. I get along well with other health colleagues as a member of a team	
9. I am a good student doctor	
10. I usually receive positive feedback about my medical knowledge from my teachers	
11. Thanks to my resourcefulness, I know how to handle unforeseen situations	
12. I have many good attributes as a student doctor	
13. I like being a student doctor	
14. I am confident about my ability to care for patients	
15. When I am working or studying, I tend to be a very nervous person	
16. I look forward to working with other health colleagues	

17. In terms of my medical work, I'd call myself a worrier	
18. I worry about my work as a student doctor	
19. I am interested in caring for patients.	
20. I like to work in a team with other health colleagues	
21. I know a lot about medicine	
22. Being a student doctor gives me great enjoyment	
23. I enjoy working out new ways of solving a medical problem	
24. I do not like to take a leadership role in medicine	
25. I am good at combining medical ideas in ways that others have not tried	
26. I get along well with other health colleagues	
27. I am usually pretty calm and relaxed in my work and study	
28. I can easily relate to the other students on my course	
29. I can solve most problems if I invest the necessary effort	
30. I have a lot of confidence in my knowledge of medicine	
31. I confidently approach medical leadership tasks	
32. I know how to care for my patients	
33. Undertaking a leadership role in medicine is interesting for me	
34. Being able to care for my patients makes me feel good about myself as a student doctor	
35. I find new medical knowledge stimulating	
36. When important medical tasks are coming up, I worry a lot	
37. I can often see better ways of tackling a health issue	
38. I can lead a medical team	
39. I am anxious much of the time when I am working and studying	
40. I enjoy caring for patients	
41. If I am in trouble, I can usually think of a solution	
42. Caring for patients is an enjoyable component of my work as a student doctor	
43. When I am confronted with a problem, I can usually find several solutions	
44. I look forward to further study to improve my knowledge about medicine	
45. I'm good at bouncing back from a poor mark at university	

46. I work well with my colleagues	
47. A low mark in an assignment can upset my confidence	
48. If I don't understand something, I don't usually worry very much	
49. I like caring for patients	
50. I have the skills to care for my patients	
51. I am unable to think up answers to problems that have not been figured out within my medical knowledge	
52. I like to talk to my patients	
53. I enjoy working as a member of a health team	
54. I am constantly incorporating new medical knowledge into my patient care strategies	
55. I am good at listening to patients when communicating with them	
56. I am inclined towards being an optimist when I am working or studying	
57. I do not like working with other people	
58. When I am confronted with a problem, I can usually find several solutions	
59. I have the ability to make my point effectively with colleagues	
60. I don't let a bad mark affect my confidence	
61. I am good at talking to colleagues	
62. I enjoy caring for my patients	
63. I have a good working relationship with other health colleagues	
64. I get a lot of pleasure out of learning new medical knowledge	
65. I'm good at dealing with setbacks in my university studies (e.g. bad mark, negative feedback on my work)	
66. I do not work well with other people	
67. I am good at looking after my patients' needs	
68. I hardly ever feel depressed when I am working or studying	

69. I am good at verbally communicating my views with patients	
70. I am not very original in my ideas, thoughts and actions when solving a health problem	
71. I feel most successful in medical work when I reach personal goals	
72. I get a lot of pleasure listening to patients so that I understand them better	
73. I am good at understanding my patients' viewpoints	
74. I am able to master new knowledge about medicine	
75. I have always done well in most academic subjects	
76. I feel most successful in medical work when I really improve	
77. I am happy most of the time when I am working or studying	
78. I am happy to hear my patients talk so that I understand their needs better	
79. I feel most successful in medical work when I reach a goal or target	
80. I am good at communicating with colleagues when I talk to them	
81. I look forward to talking to patients	
82. I am good at communicating with patients when I talk to them	
83. Compared to others my age I am good at most academic subjects	
84. I am hopeless when it comes to most academic subjects	
85. I get good marks in most academic subjects	
86. Work in most academic subjects is easy for me	
87. I enjoy learning new medical knowledge	
88. I learn things quickly in most academic subjects	
89. I have the ability to make sense of what my colleagues say	
90. I am interested in discussing my ideas with my colleagues	

Thank you for taking the time to complete this survey, your help is greatly appreciated.

Appendix 6. Sample of scored MS SDQ Questionnaire.

Strongly disagree	Disagree	More disagree than agree	Neither agree nor disagree	More agree than disagree	Agree	Strongly agree
1	2	3	4	5	6	7

In the box provided, write the number that best corresponds to your response to each question below.

1. I am good at caring for patients	4
2. I usually receive positive feedback from peers on my course	2
3. I do not really like being a student doctor	2
4. I can easily get my colleagues to work happily with me	5
5. Leadership in medicine is easy for me	3
6. I enjoy undertaking a leadership role in medicine	4
7. I can often see better ways of tackling a medical problem	4
8. I get along well with other health colleagues as a member of a team	6
9. I am a good student doctor	5
10. I usually receive positive feedback about my medical knowledge from my teachers	2
11. Thanks to my resourcefulness, I know how to handle unforeseen situations	2
12. I have many good attributes as a student doctor	4
13. I like being a student doctor	6
14. I am confident about my ability to care for patients	1
15. When I am working or studying, I tend to be a very nervous person	5
16. I look forward to working with other health colleagues	7
17. In terms of my medical work, I'd call myself a worrier	2
18. I worry about my work as a student doctor	2
19. I am interested in caring for patients.	6
20. I like to work in a team with other health colleagues	6
21. I know a lot about medicine	1
22. Being a student doctor gives me great enjoyment	5
23. I enjoy working out new ways of solving a medical problem	5
24. I do not like to take a leadership role in medicine	3
25. I am good at combining medical ideas in ways that others have not tried	4
26. I get along well with other health colleagues	5
27. I am usually pretty calm and relaxed in my work and study	7
28. I can easily relate to the other students on my course	4
29. I can solve most problems if I invest the necessary effort	6
30. I have a lot of confidence in my knowledge of medicine	1
31. I confidently approach medical leadership tasks	4
32. I know how to care for my patients	2
33. Undertaking a leadership role in medicine is interesting for me	5
34. Being able to care for my patients makes me feel good about myself as a student doctor	4

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35. I find new medical knowledge stimulating	6
36. When important medical tasks are coming up, I worry a lot	3
37. I can often see better ways of tackling a health issue	2
38. I can lead a medical team	4
39. I am anxious much of the time when I am working and studying	3
40. I enjoy caring for patients	5
41. If I am in trouble, I can usually think of a solution	4
42. Caring for patients is an enjoyable component of my work as a student doctor	6
43. When I am confronted with a problem, I can usually find several solutions	4
44. I look forward to further study to improve my knowledge about medicine	6
45. I'm good at bouncing back from a poor mark at university	5
46. I work well with my colleagues	6
47. A low mark in an assignment can upset my confidence	2
48. If I don't understand something, I don't usually worry very much	6
49. I like caring for patients	6
50. I have the skills to care for my patients	2
51. I am unable to think up answers to problems that have not been figured out within my medical knowledge	4
52. I like to talk to my patients	6
53. I enjoy working as a member of a health team	6
54. I am constantly incorporating new medical knowledge into my patient care strategies	2
55. I am good at listening to patients when communicating with them	7
56. I am inclined towards being an optimist when I am working or studying	5
57. I do not like working with other people	1
58. When I am confronted with a problem, I can usually find several solutions	4
59. I have the ability to make my point effectively with colleagues	3
60. I don't let a bad mark affect my confidence	5
61. I am good at talking to colleagues	5
62. I enjoy caring for my patients	6
63. I have a good working relationship with other health colleagues	5
64. I get a lot of pleasure out of learning new medical knowledge	5
65. I'm good at dealing with setbacks in my university studies (e.g. bad mark, negative feedback on my work)	5
66. I do not work well with other people	2
67. I am good at looking after my patients' needs	4
68. I hardly ever feel depressed when I am working or studying	3
69. I am good at verbally communicating my views with patients	4
70. I am not very original in my ideas, thoughts and actions when solving a health problem	5
71. I feel most successful in medical work when I reach personal goals	6

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72. I get a lot of pleasure listening to patients so that I understand them better	6
73. I am good at understanding my patients' viewpoints	6
74. I am able to master new knowledge about medicine	3
75. I have always done well in most academic subjects	6
76. I feel most successful in medical work when I really improve	7
77. I am happy most of the time when I am working or studying	4
78. I am happy to hear my patients talk so that I understand their needs better	6
79. I feel most successful in medical work when I reach a goal or target	76
80. I am good at communicating with colleagues when I talk to them	5
81. I look forward to talking to patients	7
82. I am good at communicating with patients when I talk to them	4
83. Compared to others my age I am good at most academic subjects	76
84. I am hopeless when it comes to most academic subjects	2
85. I get good marks in most academic subjects	6
86. Work in most academic subjects is easy for me	6
87. I enjoy learning new medical knowledge	6
88. I learn things quickly in most academic subjects	4
89. I have the ability to make sense of what my colleagues say	4
90. I am interested in discussing my ideas with my colleagues	5

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Thank you for taking the time to complete this survey, your help is greatly appreciated.

