The role of self-concept in medical education

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Abstract
Much research has acknowledged the importance of self-concept for adolescents' academic behaviour, motivation, and aspiration, but little is known about the role of self-concept that underpins the motivation and aspiration of higher education students in a specialised field such as medical education. This article draws upon a programme of research over the last three years examining the psychosocial determinants of success for educating home-grown doctors for regional communities. Interviews conducted with Australian medical students found that self-concept is a dynamic and multidimensional phenomenon that emerges through social activity, and plays a crucial role in shaping their motivation and aspirations. For these students in a specialised field in higher education, self-concept not only influences their study performance, but also forms part of their personal and career development. Because of the significant interaction between the self and the social environment, the development of self-concept through a holistic and systemic facilitation of essential psychosocial drivers of success is essential in higher education.

Keywords: self-concept; motivation; medical education; higher education; aspiration

Introduction

Psychological factors such as motivation, self-concept, and persistence in learning and career aspirations have been emphasized as crucial in higher education (Gillory and Wolverton 2008; Ostrove et al. 2011). These factors are important for students' academic achievement and wellbeing irrespective of their background (Ostrove et al. 2011), and are probably equally important for medical students. According to Dyrbye et al. (2006, 354), the goal of medical education is to 'train knowledgeable, competent and professional doctors equipped to care for the nation's sick, advance the science of medicine, and promote public health.' However, the history of medical education research has observed that medical students and doctors experience high rates of psychological morbidity in the process of achieving these goals (Dahlin et al. 2007). Dyrbye et al. (2006, 354) reviewed 40 articles on psychological factors influencing medical students and found that the 'current educational process may have an inadvertent negative effect on students' mental health, with a high frequency of depression, anxiety, and stress among medical students.' Furthermore, Leahy et al. (2010, 611) found that psychological distress in medical students varied between year levels. Year 5 medical students 'had the highest proportion of psychologically distressed.' These negative psychological variables may adversely influence medical students' academic performance

and professional development. It is therefore essential to understand the barriers and facilitating factors that may affect the success of medical education. It is the purpose of the present investigation to identify crucial psychosocial factors that are likely to facilitate the aspiration and wellbeing of pre-service doctors in medical education.

Besides the obvious negative psychological impact medical education may have on medical students (e.g., stress, burnout, depression), some medical education research has focused on psychological variables that may aid in the selection of students, one of which is personality (Plaisant et al. 2011). These more stable, genetic psychological variables are, nevertheless, not seen as ideal targets of intervention due to their overall permanency. Hence the mastery of variables other than personality 'trait' is more likely to benefit medical students.

In medical education, little research has sought to understand the positive impact of psychological variables upon medical education outcomes, especially psychological variables that have been shown to be successful in enhancing student resilience, mental health, and performance in other disciplines (Adcroft 2011; Marsh and Craven 2006; Yeung 2011). For example, missing from medical education research is the identification of psychological variables that may moderate or buffer the effect of stress on academic and clinical performance of medical students. As Hojat et al. (1993, 348) argue, there is a need for:

> A broad research agenda on the possible link between gender, relevant psychosocial attributes and outcome measures… [And this] will produce a vibrant field of inquiry that may ultimately lead to discoveries with important implications in medical students' counselling, and in medical education and medical practice.

Marsh et al. (2004) found that 11 different dimensions of self-concept were significantly and negatively related to psychological stressors in a competitive environment. Their results suggested that targeting relevant psychosocial attributes such as various facets of self-concept for intervention may prove highly adaptive. As such, medical education research may benefit from embracing a multidimensional perspective that has been productive in other areas of psychology. Hence concurring with Hojat et al. (1993) and consistent with Marsh et al. (2004), by broadening the research agenda to enable the understanding of their psychosocial attributes, students will benefit from better medical education and improved psychological wellbeing.

In this article, we report findings from interviews with students from a medical education programme. This programme corresponded to the urgent need for high quality Australian doctors in Greater Western Sydney where 10 out of the 14 local government areas are known to be disadvantaged areas (ABS 2006). This programme aims to produce a new kind of home-grown doctors – those who have clear understanding and empathy for the health challenges facing Australians, particularly those living in disadvantaged and Indigenous communities. The medical school is expected to be a significant boost for the much needed extra GPs and specialists to work across Western Sydney's hospitals and health services to keep pace with a rapidly growing population in these disadvantaged areas (UWS, 2006). The development of the newly introduced programme provides an opportunity to conduct a research project with an aim to identify psychosocial determinants that seed success for educating home-grown doctors for regional communities. Arising from this initiative is the question of how to educate home-grown doctors most effectively to close the shortage gap in disadvantaged areas.

Apart from the programme development, we have been involved in this programme from the perspective of educational psychology research with a focus on self-concept and motivation that are concerned with students' performance and outcomes. In both areas of our work – the concern for medical students' self-concept and its impact on their study performance – we have found ourselves moving to a more holistic and systemic position. In

short, it no longer seems very productive or intellectually defensible to separate out the psychosocial aspects of medical students from their achievement, retention, and commitment to practice in underserved communities. Hence our recent research on medical students includes psychosocial variables as drivers of successful performance.

Why Psychosocial Research

To some researchers, psychology is considered as a broad discipline but 'very fuzzy at the edges where it merges with sociology, biology, brain science and the humanities, and just as much a discursive construction as any other area of knowledge' (Frosh 2003, 1546). In contrast, Lucey et al. (2003, 286) argue that:

> ... along with a growing body of researchers across a number of social science disciplines
> … that to get beyond conscious, rational explanations to a greater understanding of the
> influences and behaviours of ourselves, both the psychic and social processes of how
> they have come about need to be investigated.

Frosh (2003, 1547) sees the psychosocial 'as a seamless entity, as a space in which notions that are conventionally distinguished –"individual" and "society" being the main ones – are instead thought of together, as intimately connected or possibly even the same thing.' The gradual emergence of an approach to social and psychological research termed as *psychosocial studies* has 'created an opportunity for the re-insertion of psychoanalysis into the social sciences' (Frosh and Baraitser 2008, 346-347). Psychosocial study emphasizes the idea that personality is intrinsically social and that individualizing tendencies are influenced by how people relate to others. The concern of psychosocial studies with the interplay between what are conventionally thought of as 'external' social and 'internal' psychic formations might offer convincing explanations of how the 'out-there' gets 'in-here' and vice versa especially through concepts such as self-concept and motivation (Frosh and Baraitser 2008, 347).

However, a psychosocial perspective has remained relatively underdeveloped in the field of medical education (Redman 2005). The dilemma of psychosocial study is where the work lies, from a 'social' or a 'psychological' perspective. Jefferson (2008) reviews previous psychosocial research and comments on where the real issue lies. First, he argues that 'some sociological questions require psychological answers' (Jefferson 2008, 370). It does not make sense to analyze a person separate from social structure, culture, and social behaviour. The individual psychic motivation consideration benefits from the consideration of other factors. Second, the psyche dynamically changes with what society imposes upon it (Jefferson 2008). Psychologically, the development of personality, for example, is the result of a dynamic interplay between conscious and unconscious factors. Sociologically, an individual's behaviour and attitude are determined by how the psyche responds to social pressures, whether these be cultural, economic, or political. Therefore, a 'reciprocal alignment of sociological and psychological analyses requires that they occur at similar levels of abstraction' (Jefferson 2008, 372). This implies that both social and psychological factors should be considered when examining a group of similarly situated individuals. Thus, '[w]hen particular individuals appear as objects of analysis, they usually serve as exemplars of social group characteristics, often in the form of ideal-type constructs that facilitate the larger analysis' (Cavalletto 2007). Hence psychosocial study provides an explanation for the behaviour of the mind of an individual in a particular section of society or in the society as a whole.

Self-concept and Motivation as Influential Psychosocial Variables

Gecas (2003) argues that individuals are products of social and physical forces, and self-concept plays an important role in the construction of individuals and their environments within such forces. Self-concept is both a cause and an effect of achievement, because it influences subsequent achievement beyond the effects of prior achievement (Marsh and

Craven 2006). Self-concept is increasingly important within both psychological and social disciplines. Its importance lies in its role 'both as an outcome and as a mediating variable that helps to explain other outcomes' (Marsh and Craven 2006, 135). It is perceived as 'the cornerstone of both social and emotional development' (Marsh and Craven 2006, 141). Sociology tends to focus on the antecedents of self-concept within patterns of social interaction. Conversely, psychology, tends to focus on the consequences of self-concept, especially related behaviour (Gecas 1982). In a sense, 'sociology and psychology have complementary biases regarding the self-concept' (Gecas 1982, 2). If the 'fundamental attribution bias' of psychologists is an overly 'internal' view of the causes of behaviour, the attribution bias of sociologists is a tendency to look for the causes of behaviour outside the individual such as in culture, social structure, or social situation (Gecas 1982, 2). From a psychosocial perspective, self-concept can be viewed as 'a theory that a person holds about himself as an experiencing, functioning being in interaction with the world' (Gecas 1982, 3). Then self-concept can be conceptualized as 'an organization (structure) of various identities and attributes, and their evaluations, developed out of the individual's reflexive, social, and symbolic activities' (Gecas 1982, 4).

However, there is an extensive component of the self-concept, ranging from source and dimension of self-concept (Bennett 2009; Marsh 2007) to content of self-concept (Guay et al. 2003). Elliott (2001, 13) argues that self-concept is 'the source of personal motivations that exert a powerful influence on social behavior.' Motivation generally refers to 'a goal-driven, purposeful action and behaviour' (Koiranen 2007, 120). It seems to refer to the internal state, condition, or process resulting in behaviour directed toward a specific goal. However, motivation is not synonymous with 'cause' or with 'reasons' for the behaviour because 'identify[ing] the motivation for a particular action is to largely explain why the action occurred' (Gecas 1991, 172).

Self-concept is an appropriate locus for developing motivation because 'the self is a social product, emerging out of and dependent on social interaction' (Gecas 1991, 173). Once the self-concept begins to form and develop, it takes on motivational properties. Having a self-concept, the individual is motivated to maintain and enhance it, to conceive of it as efficacious and consequential, and to experience it as meaningful and real.

Gecas (1991) proposes three major motives associated with self-concept: the motives of self-efficacy, authenticity, and self-esteem. There are positive and negative states associated with each motive. An individual essentially strives to establish or increase the positive condition and avoid the negative condition. Of the various components of self-concept, none is more important than 'people's beliefs in their causative and agentic capabilities, that is, in their self-efficacy' (Gecas 2003, 370).

Self-efficacy is an aspect of self-concept critically relevant to agency and motivation. It refers to 'the perception of oneself as a causal agent in one's environment, as having some control over one's circumstances, and being capable of carrying out actions to produce intended effects' (Gecas 2003, 370). It is consistent with the latest findings of Arens et al. (2011) differentiating the competence and affect components of an individual's self-concept in academic settings, with self-efficacy representing the competence component.

Authenticity refers to 'the motivation to experience oneself as meaningful, real, and true to one's core values and standards' (Gecas 2003, 371). Authenticity emphasizes beliefs about what is real and what is false as perceived by the individual and is used as a basis to strive for meaning, coherence, and understanding about self.

Self-esteem refers to the drive to act in such a way as to maintain and enhance an overall favourable evaluation of oneself (Gecas 2003). It is sometimes referred to as general or global self-concept. In general, people like to feel good and dislike feeling bad about themselves, and are therefore motivated to act to increase the probability of experiencing the

favourable such as pride, and avoid the undesirable such as shame. In essence, in this paper, we have moved research further to investigate distinguishable aspects of self-concept such as sense of competence, authenticity, and self-esteem in relation to medical students' motivation and aspirations.

The Present Investigation

This paper examines the relations of self-concept and motivation with medical students' aspirations in the medical field. Specifically, the research question in relation to medical students' future practice in regional communities is: Do medical students have an established and well-defined multidimensional structure of self-concept and motivation from a psychosocial perspective? Data used in this paper include eleven one to one interviews of medical students from Years 2 to 4 in a School of Medicine in Australia.

Research Methodology

Following university ethics procedures for research with human participants, first, invitation letters were sent to Years 2-4 students enrolled in the participating medical school. These students had experienced the transition from classroom-based learning to practical clinical learning in hospitals. A total of eleven students from Years 2 to 4 (three to four students each) participated in the interviews (seven non-Indigenous and four Indigenous Australian medical students). The semi-structured interviews aimed to explore psychosocial factors that may have influenced the medical students' performance, motivation, and self-perceptions. Signed active consent was obtained from the participants before they answered questions related to:

- motivation for becoming a doctor;
- individual perspectives on educational outcomes;
- commitment to practice in disadvantaged and underserved regions; and
- self-concept of their competence and skills over time.

These interviews were audio-recorded, transcribed, and then coded using the computer software QSR NVivo. The analysis was conducted through coding — 'the process of defining what the data are all about' (Charmaz 1995, 37). The goal of coding was to fracture the data and rearrange them into categories for facilitating comparison between elements in the same category (Miles and Huberman 1994). First, open coding transformed the data into evidentiary constructs. This stage of data analysis involved breaking down, examining, comparing, conceptualizing, and categorizing data in terms of properties and dimensions. This process generated 51 codes related to medical students' perspectives of study goals, motivations, self-concept, association with other students, and the medical school environment. The second stage was focused coding – filling in or bridging codes in the analytical structure (Miles and Huberman 1994). Focused coding was more abstract, general, and incisive for the identification of the motivational components in the process of self-concept formation. The data analysis had two focuses. One was to search for the evidence of motivational components for being a doctor and the other was to examine the process of self-concept development. The evidence of motivational components was categorised as self-efficacy, authenticity, and self-esteem as described by the participants (Table 1). Then the dimensions of the psychosocial nature of self-concept were identified in terms of how they were being disseminated. The multidimensional psychosocial structure includes three dimensions: the first dimension refers to individual agency in choosing valued goals in a specific context. The second dimension focuses on how an individual interacts with and supports each other in the environment. The third dimension is to assess the opportunities offered by the learning environment for an individual's growth and achievement. For the second focus, self-concept development was examined from a psychosocial perspective in terms of the medical students' 'being' and 'doing' (see Table 2) as they reported their self-

concept of academic outcomes, practice skills, and relationships with other students and colleagues.

Table 1. *Multidimensional Psychosocial Structure of Motivational Components of Self-concept*

Motivations for being a doctor	Motivational component of self-concept	multidimensional psychosocial structure		
		Individual agency	interaction	Environment support
be interested in health, body	Self-efficacy	✔		
take challenge		✔		
be different			✔	
enjoy communicating and work with people			✔	
help family member from disease			✔	
lack of medical facility in country			✔	
prestige of being doctor			✔	
help people	Authenticity		✔	
improve indigenous health			✔	
reward to community			✔	✔
being meaningful			✔	
continue learning from previous knowledge	Self-esteem	✔		

Results and Discussion
The analysis yielded three major findings. Because the patterns found in different year groups were very similar, they are reported together and described below.
Motivational Components in the Process of Self-concept Formation
Table 1 shows the list of medical students' motivation for being a doctor in terms of self-concept and its psychosocial structure in relation to individual and social levels. Data show that seven response items fall into the 'self-efficacy' category which indicates a sense of competence is a critical aspect relevant to medical students' motivation for being a doctor. Such sense of competence reflects the degree of how medical students think of themselves as competent, effective, and able to control their environment in carrying out actions and produce intended effects. It is well acknowledged that a sense of competence is a strong indicator influencing one's ability to pursue goals that are valued.

The interviewees primarily showed their sense of self-efficacy in what they were able to do, and their self-perception of what they were interested in. For example, students said:

> I am fascinated with the human body, different processes of how the body works…
> stemming from my background as well, indigenous background, helping the gap that exists
> between indigenous and non-indigenous as well (Student 1);
>
> I wanted the challenge of being a little bit more broad with my career (Student 2).

From the interviews, the motivational component of self seemed to facilitate students' learning and aspiration to accomplish disciplinary goals. The students, as capable agents, enjoyed activities for pleasure and satisfaction derived from it. Together with a sense of competence involving an estimation of what they can do and the likelihood of successful performance, the affective element seems to have a strong motivational force driving the students to become doctors:

> I previously had done a medical science degree, I really loved that. I've got a real keen
> interest for health and I do really enjoy communicating with people as well and working
> with people. I guess that's why I became a doctor (Student 2).

In terms of competence, students' self-perceptions may develop gradually through continual successes and accomplishments. For example, one student was quite confident about his interpersonal skills and professional knowledge but still thought about developing his empathy for patients as a qualified doctor. Conversely, another student showed a lack of confidence in being a doctor. She realized the need for effort to overcome her negative self-perceptions. The evidence also showed that medical students may benefit from evaluating their own attributes in relation to their work:

> I feel confident that my personal skills and communication skills are fairly well
> compared to... It can be adequate for medical practice. I think that in that term I would
> be, hopefully in the future and if I retain these skills, I will be an empathetic and caring
> and compassionate doctor (Student 3).

> Sometimes I am lack confidence in myself. I'm my own worst critic. But I have a lot of
> support. Especially last year, it's all new and hard to get into. But I think with one year
> under my belt I am a little bit more confident (Student 9).

One's sense of competence contributes to one's agency through the choices made and the actions pursued. Nevertheless, circumstances beyond their own control can aid or hinder their functioning as an achiever of the goals. As such, medical students' sense of competence is established as a result of a negotiation between themselves and the environment in which they are embedded:

> I think specifically in my own family, I've seen a lot of ill health; particularly diabetes.
> My mother and three sisters and a niece all have diabetes (Student 2).

> I'm from the country, so I grew up in a small town - Lightning Ridge - that had no
> hospital until about five or six years ago (Student 1).

> Job security and a fairly stable income, that was important as well (Student 10).

The above comments indicate it is important to emphasize the influence of situation and context upon competence beliefs. An individual's sense of competence is built upon the effective participation and successful interaction with people significant to them. These students choose to be a doctor for a range of reasons including those related to their family, community, or partly due to the prestige of the job. Their sense of competence makes medical students more effective in shaping their circumstances and their lives in their intended direction.

As illustrated in Table 1, authenticity is also important in the process of medical students' self-concept formation. Gecas (2003) argues that authenticity, as a motivational component, lies in the fact that the individual tends to maximize meaningfulness in the relations with others and minimize meaninglessness of self. For example, a medical student chose to be a doctor to: 'achieve something meaningful in my life' (Student 4).

Furthermore, authenticity addresses systems of beliefs and values when it deals with matters of reality and meaning for the individual. Authenticity is most likely to be considered when a society's or a group's norm and beliefs are the main focus of attention (Gecas 2003). Commitment to communities within which they are embedded leads to a sense of people's authenticity. For our sample, data analysis indicates that helping people gives more credit to being a doctor due to the help they offer:

> in poorer countries (Student 4), or
> giv[ing] them a second chance at life that's really important (Student 3), or
> help people 'in disadvantaged areas (Student 5),
> or helping the gap that exists between indigenous and non-indigenous (Student 1).

These students integrated social values as a meaningful choice for pursuing a desired goal. In this way, authenticity pertains to the sphere of what 'ought' to be, and helps to frame desired states of being that constitute standards or criteria for making decisions and for justifying behaviour.

Data from Table 1 show that self-esteem does not seem to be as strong a motivational factor as self-efficacy and authenticity. Self-esteem is 'a personal judgement of worthiness that is expressed into the attitude the individual holds toward himself' (Earl 2006, 19). Data analysis shows that medical students have not considered self-worth or how good they feel overall when they were asked about the motivation of being a doctor. Only one student commented: 'I previously had done a medical science degree' (Student 6), which indicates that he may think of himself as suitable to undertake medical study. It seems that self-esteem is the least motivating factor contributing to these medical students' choice of being a doctor. Such result is consistent with Marsh and Craven's (2006) research findings which were based on their reciprocal-effects model (REM). They suggest that 'academic achievement is substantially related to academic self-concept, but nearly unrelated to self-esteem' (Marsh and Craven 2006, 133). Apparently, self-esteem, as an over-generic perception of the self, does not function as a strong predictor of the more specific aspiration of being a medical doctor.

So far, we may draw a preliminary conclusion that a sense of competence and feelings of authenticity, but not self-esteem, play important roles in the process of self-concept formation for medical students. According to the interview analysis, these future doctors' senses of competence and authenticity are consistent with other research in motivation and self-concept which has shown that competence and affect factors should be treated as separate, although interrelated, components, which may influence an individual in different ways (Arens et al. 2011, 978).

Interaction between Self-concept and Social Factors

Table 1 shows that 9 out of 12 motivation factors are related to an interaction with the social context, which implies that people, and their motivation, may be better understood within a social structure. The data show the diversity of social contexts in which medical students were motivated to pursue being a doctor. Family as well as communities, peer groups, and schooling are especially important developmental contexts for the medical students' self-concept development. Initially, the family is likely to be the most important context for self-concept development. Knowledge and competencies in many aspects of life develop from the family experiences such as knowledge of the physical and social worlds, the rules and values of family and how to live by them:

> I think communicating with family and friends; has been a real reality check because particularly my parents, they told me, you don't have to know everything before you finish. You don't have to have the type of knowledge that you think that you must have because I guess I'm comparing myself to doctors (Student 7).

Parental support and encouragement with the use of inductive control is most conducive to the development of young adults' self-concept of being a doctor. In this study,

especially, parents' expectation of their children becoming a medical doctor affects individual behaviour and action in predictable ways. The following is from a medical student who is also a father of three children:

> I look in the context of my family. To my boys I'm their role model and so what I do is going to influence them and they look to me as someone to guide them and so in the context of medicine in different scenarios (Student 7).

The feedback or appraisal parents give their children regarding their mastery attempts can build the children's competence beliefs and confidence in further mastery attempts. Next to the family, interaction with peers is also an important context for the development of the medical students' self-concept.

> I think having good relationships with other students is very beneficial towards my medical studies, because you have a base and a network to go and shoot ideas off, or learn off, or share with (Student 6).

Peer interactions in this study provided a wide range of positive consequences for medical students' self-concept formation. Friends may extend support in learning, as noted by a medical student:

> It's good to study with, people can motivate you and help you out when you're stuck (Student 1).

Another student indicated the benefit from peer influence as:

> The way I look at it is that you are continually learning as a doctor and developing and progressing, learning new skills and refining procedures and techniques (Student 7).

Peer groups seemed to be an influential context for mastering necessary knowledge and skills, and particularly for overcoming the stress faced by students. School is the important institution providing favourable circumstances for the emergence of peer groups. It is the setting where knowledge and thinking abilities are constantly tested, evaluated, and compared with other students and where medical students develop a sense of their intellectual self-concept. Many school activities have implications for their self-concept. One of the most important is the evaluation of their academic performance. The medical students established a sensible self-concept through evaluation against their previous performance or on the basis of cooperative activities, rather than simply against their classmates, as they would in high school settings:

> It's not the number, it's more the amount of knowledge and I think that's a lot more important. So whilst comparing test scores might be all fun and well like it's a number and it's exciting to score high. The reality is that it's our depth of knowledge that we can pull out of our brains when we see a patient and when we are quizzed by doctors and when we are talking to our fellows (Student 3).

> I'm not here to compare myself with others. I'm very much on my own goals of what I want to achieve. I think the best assessment of a person is how they are with people in the hospital. How they are with patients (Student 7).

In the School of Medicine, the processes of individual comparison and reflected appraisals do affect self-concept, but mostly in a positive way. Medical students' judgment of how they compared to others was based on some previous knowledge or practical skills such as clinical practice. Their self-concept is mostly built upon perceptions about themselves rather than evaluating against others.

Beyond the peer group and school, community is also an important source of information that influences self-concept through conformity to community norms, values, ideals. That is, an individual's preferences which bear on social choice may adapt to the conditions in which they live. When medical students establish their self-concept of being a doctor, they link it with the opportunity to contribute to the public good such as:

> helping people (Student 4), or
> bridging the gap of health between urban and rural areas (Student 1), or for

job security and a fairly stable income (Student 3).

These social values play an important role in informing medical students what to do and guiding them to make decisions among various choices. Their sense of competence and authenticity together may lead medical students to endorse a wide range of skills because 'different persons may have very different ways of interpreting ethical ideas including those of social justice, and they may even be far from certain about how to organise their thoughts about it' (Sen 1999, 261).

Self-concept is the Process of Development in its Social Context

The self cannot be understood apart from the activities of people within specific contexts (Raeff 2010). There is also an increasing trend towards analyzing selves in social and cultural contexts. That is, attention is focused on how ways of representing oneself are constructed through interactions with others in the context of specific social practices (Raeff 2010). The analysis above has indicated that the formation of self-concept involves a combination of recognizing and controlling one's inner state and an external state, desired or expected, in order to produce a presentation that is considered appropriate in a given social context.

Table 2. *Medical Students' Self-concept in Terms of 'Being' and 'Doing'*

being		doing	
positive	negative	positive	negative
good at basic physiology	lack of communication	working in a team	not good in written exam
good at communication	less confident	strength in clinical practice	
good at people skills	fear	answering random questions	
hard working	worry		
confident about knowledge			
integrity about medicine			

Here, we argue that the formation of self-concept is a developmental process that is intertwined with a range of environmental influences. In Table 2, self-concept was analyzed by exploring how the medical students recognized valuable ways of being and doing as a student-doctor in previous and current study contexts. 'Being' is the attributes which make students become intellectual, capable of critical thinking, and committed to the medical profession. 'Doing' refers to the medicine-related activities. Medical students' thinking about their behaviour, perspectives, experiences, and characteristics may involve remembering past events (being a student-doctor), and it may also involve considering future possibilities (being a doctor).

Table 2 presents how self-concept affects medical student's overall sense of being a medical student now and a doctor later on. They have a thorough and specific perception of themselves in terms of professional skills and competencies from both positive and negative aspects. We have observed that self-constructing activities may include talking to others about oneself, and positioning oneself in relation to others. For example,

> I have some med friends who go and ask the most random of questions and if I can answer sometimes that question, I guess that I know that I'm on my way, I'm progressing okay (Student 6).

> During PBL [problem-based learning] I feel like if I'm doing good, I'm talking, I'm not relying on my notes and I'm making the links (Student 10).

The evidence shows that the development of self-concept is social because interactions with others provide individuals with opportunities to practise professional modes of activity. In the meantime, these medical students realized the weakness of their beings and doings for becoming a doctor. As such, they reflected during their study and acknowledged that the more they learned, the more ignorant they felt. Therefore, the self-concept development processes also included an individuals' ability to direct and improve aspects of their own behaviour.

> I guess it's a reflection of how you are in the hospital. I think that for me is the biggest area where you know how well you're going and where you've got gaps in your learning (Student 7).

> With knowledge, I feel like the more you learn the more you find out that there is so much else to learn (Student 11).

> So even though I've physically learnt more in an absolute sense, in a relative sense I think I know less and less (Student 8).

Reflection seems to play an important role in self-concept formation and development. It enables the individuals to construct coherent changes of themselves over time. In addition to constructing oneself as continuous with the past and current, there is also the construction of possible self functions to establish a sense of continuity with the future. The evidence indicates that the construction of the future or possible self involves constructing representations of what one wants and does not want to be and to do in the future. This is consistent with the finding of Ostrove et al. (2011) showing the strong association among factors such as sense of belonging, self-concept, and career aspirations. A future-oriented self-concept functions to provide a motivational framework for setting goals and working towards achieving them. The ongoing self-concept enables people to distance themselves from aspects of their past so as to create new selves. Self-concept development is therefore a dynamic process through which the self is not perceived merely as a concept, or as an object of self-evaluation, but 'as the process of assimilation and integration into a group's culture by learning and internalizing the group's values, norms, roles, beliefs, and ways of life' (Ryan and Brown 2003, 71). Thus, in this view, self-concept is both an inherent tendency and a dynamic, synthetic process, which is observable in our sample of medical students.

Conclusion

Whereas much impressive self-concept research has focused on teenagers and has emphasized the relations between self-concept and achievement scores in a quantitative sense (Marsh and Craven 2006; Yeung 2011), our study here on medical students' self-concept has gone beyond teenage samples and is not confined to quantitative achievement outcomes. The study has explored the motivational components of self-concept and examined medical students' various reasons for being a doctor from a qualitative research perspective. Their self-concept is conceptualized here as a dynamic and multidimensional phenomenon that emerges through social activity. It is suggested that the self-concept cannot be understood apart from the activities of people within specific social contexts. Focusing more specifically on self-concept formation and development activities can provide a way to consider some of the complexities of how medical students go about construing and representing their lives, experiences, perspectives, behaviours, and characteristics to themselves and to others. By

understanding how medical students have their self-concept formed and how it influences their aspiration and behaviour, we may be able to master better medical education strategies to benefit future doctors and the communities in which they serve. This knowledge may shed light on how other disciplines may enhance the wellbeing of higher education students. It may also shed light on improving medical services in some underserved areas such as Western Sydney where this study was conducted.

Limitations

It is important to note some of the limitations in this study. First, the specific context within which the findings were interpreted needs to be considered. The dataset is small and is derived from one medical education degree. As such, the insights cannot be readily generalized to all medical students in the programme investigated or to other programmes. Further research on a larger sample would be useful for explicating the role of self-concept in the medical school contexts and in the context of other disciplines for positive academic performance. Second, the participants in this study were drawn from a 'home-grown' doctor training programme which aims to build the capability of student doctors to practise in their own underserved communities. Hence the sample for the present investigation is not likely to be representative of medical students who may hold other motivations for undertaking a medical degree. Despite these limitations, our findings may serve as a starting point for further research on how to enhance the wellbeing of higher education students by considering their self-concept.

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