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# How to Support Student Academic Success

*Priyadarshini Dattathreya*

## Abstract

21st-century medical education is focused on healthcare equity by creating opportunities for students who are from underrepresented minority groups and non-traditional backgrounds to pursue medicine. Institutions that have spearheaded this movement have found a wide variation in the baseline knowledge, skills, and attitudes of their incoming medical students. Ensuring that these students meaningfully transition into and progress through medical school without negatively impacting their performance or wellness is a challenge that needs to be strategically addressed. This chapter will outline the challenges associated with the transition of matriculating medical students, the importance of a curriculum that promotes equity, the role of a developmental learning environment in supporting student academic success, and guidelines to use coaching to enhance student engagement.

**Keywords:** academic support, academic coaching, self-determination, student engagement, equity

## 1. Introduction

21st century medical education is responding to a global call to action against health disparities among racial and ethnic minorities [1]. This movement has highlighted the importance of increasing diversity and representation in the healthcare workforce. Consequently, it has also accentuated the historical underrepresentation of minority groups in medicine. In response, healthcare institutions have made concerted efforts to understand the factors influencing underrepresentation and explore strategies to overcome barriers to healthcare equity [2].

This chapter will outline how this movement has transformed the medical student profile and impacted how we envision student support and the learning environment. The value of providing flexibility and autonomy in the curriculum with opportunities for self-assessment in ensuring meaningful transition and progression of all students will also be emphasized.

## 2. Background

In 1990, the American Association of Medical Colleges (AAMC) initiated Project 3000 by 2000 which involved launching a national campaign to increase the annual matriculation number of underrepresented minority medical students from 1,485 to 3,000 by the year 2000. The goal of this project was to increase diversity

in healthcare in the US and create a culturally competent healthcare workforce that reflects the country's diverse population [3]. The AAMC also proposed a list of core competencies for students prior to entering medical school. This competency framework was intended to inform the medical school admissions processes and to deemphasize the importance of cognitive measures during admissions [4]. Similarly in 2009, the UK Government appointed a task force called the Panel on Fair Access to the Professions. The panel found that the individuals from non-privileged backgrounds had reduced access to various professions including healthcare [5]. This led to a program called Widening Access (WA). Similar to AAMC project, WA also encouraged increasing the fairness of the admissions process and providing more opportunities to students from lower socio-economic backgrounds entering medical school [6]. As a result of these projects, medical schools have witnessed a shift from knowledge-based admissions to holistic review of student applicants. Institutions have changed their admission policies to provide equal emphasis on skills and lived experiences. Measures such as situational judgment tests, multiple mini-interviews, and psychometric tests have been introduced to the admissions process to assess said competencies [7, 8].

These measures have widened the applicant pool which would otherwise have been limited due to grade-based admissions process. This resulted in a slight increase in students from underrepresented minority groups (URM) [9]. This has also opened up more opportunities for students who are non-science majors, have a lapse in education since graduation, or are of a higher age [10]. As more institutions embrace this movement towards widening access, predictably the medical student cohort will no longer be homogenous but would rather be comprise of unique individuals with diverse knowledge, skills, and abilities. As a result, institutions will have to make concerted efforts to support the appropriate progression of their students throughout the continuum of their medical education.

## 3. Supporting transition of matriculating medical students

While great strides have been made to widen access, attrition of URM and their underrepresentation in medical workforce continues to be a challenge [11]. For example, in the UK, ethnic minority medical students as a group on average were found to perform worse when compared to their white colleagues during medical school and training [12]. Similarly, URM students were more likely than non-URM students to experience graduation delays and failure [13]. In addition to the stress associated with adjusting to the rigor of medical school, URM students were more likely to view themselves as "fraud" and doubt their abilities to succeed [14]. This phenomenon has found to be secondary to systemic problems associated with factors such as low socio-economic status or quality of undergraduate studies etc. [15].

Institutions have strived to address these challenges and support meaningful transitions of their medical students. There has been an rise in innovative pipeline programs to increase the academic preparedness of URM students [16]. Academic enrichment programs on science and pre-med courses, and academic support programs have also been introduced to meet the diverse needs of matriculating students and support their transition into medical school [17]. Mentoring programs have been established to provide social support vital to professional identity formation of URM students [18, 19]. Several institutions have introduced pre-matriculation courses to increase student awareness on academic preparedness for medical school. These programs supported student transition by introducing knowledge and skills required for medical school, integrating students into the learning environment and/or helping them immerse into the community [17]. Some institutions

have used these courses to proactively identify students who could potentially be at risk of academic difficulties during medical school [20]. Some have been designed to introduce the students to the rigors of the medical school curriculum. The goal of these programs were to "normalize the playing field" for students with diverse levels of pre-med knowledge and skills [21].

There were also several post matriculation remediation programs that were introduced to identify and support struggling medical students. These programs provided academic and emotional support, the outcomes of which were pre-dominantly context dependent [22]. Due to the varying levels of success of these proactive and reactive approaches to supporting student success, institutions have grappled with the challenging question – how to support student academic success?

According to self-determination theory, student engagement in their own academic success is closely related to three basic psychological needs – autonomy, competence, and relatedness. Students who feel autonomous, competent and have a sense of belonging are typically more intrinsically motivated to maximize their potential [23]. The three psychological needs can be hindered by external pressures such as exceptionally challenging learning tasks, negative and disparaging feed-back, judgments, threats, and punishments [24]. A learning environment that fails to address the three basic psychological needs of students could impact students' internal motivation and engagement in lifelong learning.

Therefore, the learning environment that is inherent to the traditional curriculum and its ability to support the progression of diverse group of students has come under scrutiny.

## 4. Shifting focus from equality to equity

Traditional US medical students have an average age of 24 and enroll in a medical program directly after completing college level pre-medical courses in science and math [25]. Similarly, in the UK, traditional medical students have an average age of 18–19 and have completed their schooling with necessary prerequisites [26]. With the move towards widening access and subsequent admission of non-traditional medical students, researchers have challenged the effectiveness of traditional curriculum to meet the diverse needs of 21st century student cohort [27]. The time-based curriculum assumes that all matriculating medical students have a homogenous level of knowledge, skills, and experiences, and therefore are able to progress through the continuum with a consistent pace. However, with the reforms in the admissions process and the reduced emphasis on standardized exam scores, the assumption of a "level playing field" seems to be no longer valid [28]. There is a greater need to shift from the one-size-fits-all approach of the traditional curriculum to individualization of learning experiences for medical students [29]. Recognition of these needs has led to the popularity of competency-based medical education (CBME).

CBME shifts the focus from knowledge-based standardized exams to holistic development of knowledge, skills and behaviors required to be a competent physician. The core elements of CBME include time variability, focus on outcomes, entrustability and professional identity formation [30]. Although CBME is time and resource intensive, several institutions have recognized the value of using core Entrustable Professional Activities (EPAs) and competency-based milestones in developing competent physicians while also honoring the existing multifariousness of medical student cohorts. In addition to providing tailored learning experiences, the greatest value of CBME lies within the opportunities for individualized formative feedback and real-time remediation for students [31].

Although CBME is a giant step towards equitable medical education, the challenges to its implementation lie in its trivia. Curriculum experts have stressed that there is no universal approach to CBME [32]. Institutions must set competency standards based on their unique contexts and implement their curriculum using several iterative cycles of planning and evaluation. Successful implementation of CBME lies in the ability to track assessment data of individual medical students in order to be able to assess their entrustability and progression. CBME researchers have promoted the use of learning analytics to integrate assessment data from multiple sources and provide visual representations of student progress [33]. Use of artificial intelligence in tracking student progress could be invaluable in providing individualized support to a 21st century medical student.

Therefore, a competency-based curriculum could support students' need for autonomy and competence and promote their progression and success.

## 5. Exploring student academic success factors

The ability to predict academic performance of medical students has been a significant topic of discourse among medical educators. Historically, academic achievements of students prior to medical school such as Medical College Admissions Test (MCAT) and Grade Point Averages (GPA) have been found to predictive of their academic performance and progression [34]. Similarly, the UK Clinical Aptitude Test (UKCAT) has also been found to be a predictor of student academic success [35]. These factors have been used as screening criteria for admissions or for identifying the need for additional academic support. With the introduction of non-cognitive measures in the admissions criteria, institutions began to explore traits or skills associated with motivation, attitude, and mindset as predictors of student academic success. There have been debates around the individual and/or collective roles of factors such as grit, perseverance, self-efficacy, and self-regulation in determining academic success [36]. Researchers have also explored the prospects of using these factors to identify students at-risk of experiencing academic difficulties in medical school [37].

Grit is defined as "perseverance and passion for long-term goals". Consistency of perseverance and effort has been positively related to academic performance and success [38]. This concept was further elaborated by the notion of academic psychological capital (PsyCap) and its impact on academic achievements. In addition to grit, the core constructs of PsyCap include positive psychological resources such as hope, efficacy, resilience, and optimism. All these factors have been shown to impact a student's response to challenges and adversity in pursuit of successful academic outcomes [39].

Metacognition or "thinking about thinking" has been another factor commonly researched as a predictor of high performance. Metacognition involves students' knowledge about cognitive strategies and their regulation of these strategies before, during and after learning events [40]. Researchers have attempted to compare metacognitive skills between high and low performing students to identify patterns that determine success [41]. Furthermore, the influence of self-regulation on learning has also been explored. Self-regulated learning builds on the concept of metacognition and also considers the influence of social and motivational factors on learning [42]. Self-regulated learning is generally described as a cyclical process, often triggered by the formulating of goals and the subsequent employment of strategies to achieve, and monitor advancement towards those goals, followed by engagement in reflection and the formulation of new learning goals. Among medical students a positive correlation has been identified between self-regulated

learning and academic achievement [43]. Additionally, academic self-efficacy which is defined as learner's judgments about their ability to successfully attain educational goals has also been associated with academic performance [44]. Researchers have found associations between academic self-efficacy of students and their ability to self-regulate [45].

Essentially, the above non-cognitive factors have been found to have some degree of relationship with academic performance and success. Medical schools have used self-reported psychometric inventories to assess these factors in students. Some examples of self-reported inventories include Learning and Study Strategies Inventory (LASSI), Motivated Strategies for Learning Questionnaire (MSLQ), Academic Self-Efficacy Scale (AES) etc. [44, 46]. The psychometric data from the inventories have been combined with qualitative data from reflective journals, group discussions and interviews to assess these factors [47]. This data has been typically used to identify students who may be potentially at-risk of poor academic performance either to inform the admissions process or to direct remediation efforts.

However, the utilization of these factors as predictors of success among medical students, could impede the progress towards widening access. The reason for this argument is twofold. Firstly, self-efficacy is impacted by prior knowledge, experiences, and social support systems [48]. A diverse group of medical students with diverse levels of prior knowledge and experiences may not have uniform levels of self-efficacy. Secondly, literature has highlighted the domain-specificity of self-regulation and self-efficacy. Academic self-efficacy levels among students can vary depending on the context. It is found to be directly related to their "need for cognition", i.e., their inclination to enjoy tasks involving higher mental activity [49]. Besides motivation, persistence and effort, academic self-efficacy is also impacted by knowledge and regulation of metacognitive strategies [50]. The ability of students to regulate their own learning is dependent upon the specificity and complexity of the task [51]. Task-specific metacognitive strategies can be developed over time with practice and feedback. Therefore, the challenges to student development and progress could also be secondary to the learning environment including teaching and assessment practices [52]. Furthermore, reactive remediation approaches that are based on identification of "at-risk" students could have a negative impact on students' self-efficacy [53]. A learning environment that scaffolds the development of metacognition and self-regulation into the curriculum is vital to student success.

Therefore, shifting the focus from predicting outcomes to supporting student development might be beneficial in promoting student autonomy and sense of belonging.

## 6. Supporting student development through coaching

The factors associated with academic success of students can be complex and often unique to individual student context. Institutions have attempted to put several measures in place to support academic and psychosocial needs of students. Some examples include mentoring and assigning learning communities, special programs in study skills, academic advising by learning specialists, counseling support etc. There is also growing evidence that coaching practices can foster self-regulation and self-efficacy among medical students [54].

Academic coaching typically uses a different approach from the two common types of academic support namely advising, and mentoring. The most important difference is in the role of a coach when compared to that of an

advisor or mentor. Mentors and advisors are typically subject matter experts and offer expert advice, insights, and directions to students in response to specific questions [55]. A coach on the other hand is not required to have subject matter expertise, but rather be equipped with coaching skills specifically questioning and challenging [56].

Several models of coaching have been highlighted in literature (**Table 1**) [57–59]. However, the fundamental principles to questioning skills in coaching are that of appreciative inquiry (AI) [60]. AI is a strength-based approach to change and development. At the core of AI are the assumptions that individuals are capable of imagining, and creating a desired future through questioning and dialog if change is focused on building on their strengths [61].

Institutions have introduced formal academic coaching to their students to support the development of lifelong learning skills [55]. However, student can also benefit from coaching conversations outside of a formal coaching setting. The following coaching guidelines can be used by clinicians when providing feedback in clinical settings or by mentors and advisors while working with students on an individual basis.

1. Collaboration: Academic coaching can promote accountability when the conversations are collaborative. In a coaching relationship, it is vital to create a space that is devoid of any form of power dynamics or hierarchy to build trust and collaboration [62].

2. Empowerment: Preventive academic coaching shifts the focus from learner remediation to learner empowerment. Coaching conversations when started earlier in a medical student's journey will assist them in proactively identifying threats or concerns that might lead to poor academic performance [63].

3. Student-centric: Academic coaching is a student-centered approach. The coaching conversations are typically based on the consideration that when students are aware of their own strengths and weaknesses, they are more likely to take accountability for their progress [64].

| Coaching models | Stages |
| --- | --- |
| ACHIEVE | Assess current situation |
| | Creative brainstorming of alternative to current situation |
| | Hone goals |
| | Initiate options |
| | Evaluative options |
| | Valid action program design |
| | Encourage momentum. |
| GROW | Goal |
| | Current reality |
| | Options |
| | Wrap up |
| PRACTICE | Problem identification |
| | Realistic, relevant goals developed |
| | Alternative solutions generated |
| | Consideration of consequences |
| | Target most feasible solution(s) |
| | Implementation of chosen solution(s) |
| | Evaluation |

**Table 1.**
*Example of coaching models.*

4. Reflection: Academic coaching takes a non-directive approach to help students set goals and reflect on their progress [65]. Therefore, asking open-ended reflective questions increases students' self-awareness.

5. Goal orientation: Academic coaching is typically a goal-oriented approach that is aimed at producing immediate adjustments that align students' learning to their long-term goals. Effective coaching conversations help individual students articulate their long-term and short-term goals, create action plans, and identify self-monitoring strategies [55].

Academic coaching is a powerful formative approach to provide individualized support to students. Effective and longitudinal coaching when introduced as a part of the curriculum, empowers students to maximize their own potential. Introducing regular non-directive coaching conversations as a part of the student's learning journey could support their autonomy, competence, and relatedness.

## 7. Summary

In summary, the 21st century medical student is less likely to conform to the norms of a typical medical student that institutions have observed in the past. Supporting the academic success of a 21st century medical student will require a paradigm shift in how we envision the curriculum, learning environment and support services. A one size fits all approach with a reactive response to remediation may not cater to the unique needs of a diverse student group.

Solutions might include curriculums that are competency-based, individualized, and time-flexible. Additionally, scaffolding self-regulated learning strategies into regular teaching can enhance student learning and retention. Formative assessments and feedback help student monitor their performance and progression. Feedback should compare their performance to a standard which can be set using competency-based curriculum. Additionally, creating a learning environment that provides longitudinal coaching support increases student self-awareness and empowerment.

## 8. Conclusions

Meaningful transition and progression of a diverse group of medical students is more about helping students set progressive goals for themselves rather than ensuring that everyone progresses at the same pace. If the ultimate goal of 21st century medical education is to provide an equitable learning environment, particular attention must be paid to increasing students' autonomy, competence, and relatedness.

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## Conflict of interest

The author declares no conflict of interest.

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