

AMEE GUIDE

Developmental student support in undergraduate medical education: AMEE Guide No. 92

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Abstract

Developmental student support has a focus on developing the whole person, not only academic and clinical competence. The positive and proactive developmental approach is in marked contrast to the deficit and reactive approach to student support which only targets identified students who are considered to be “at risk”. The medical school is a nexus for personal development, combining the personal identity formation journey of early adulthood with the variety of new experiences in medical school. Important aspects of developmental student support are the development of resilience and ensuring reasonable adjustments for students with learning difficulties and disabilities. Careers guidance is an essential aspect of developmental student support, including students with doubts about a career in medicine and who are leaving because of poor performance. Developmental student support requires an organizational culture in which student support is considered as the responsibility of everyone, with further support from named personal tutors.

Introduction

This Guide has a focus on developmental student support in undergraduate medical education, with learners who are mainly in the age group from late adolescence to early adulthood. We describe the approach to developmental student support that has been implemented in the School of Medicine at the University of Leeds and the University of Leicester and, as an example, we hope that all medical educators will find aspects of our approach relevant to their own context, including supporting doctors in training and continuing professional development.

In the UK, The General Medical Council (GMC) (2009) sets standards for undergraduate medical education and clearly states that there should be separate systems for managing student performance issues and providing student support. Student performance issues, such as failing examinations or investigating plagiarism, have immediate relevance to the future assessment of competence to practice but student support has a wider and more developmental perspective that considers how each student can achieve their individual potential, both as a person and as a future healthcare professional. The important dimensions of student support are academic and personal, with a recognition that these dimensions are closely integrated.

The discussions at Leeds and Leicester have focused on a developmental perspective for student support. This perspective has been informed by various theories on student development and also from sociological theories that have a positive approach to diversity. The developmental perspective

Practice points

- Developmental student support has a focus on developing the whole person, not only academic and clinical competence.
- The medical school is a nexus for personal development, combining the personal identity formation journey of early adulthood with the variety of new experiences in medical school.
- Important aspects of developmental student support are the development of resilience and ensuring reasonable adjustments for students with learning difficulties and disabilities.
- Careers guidance is an essential aspect of developmental student support, including students with doubts about a career in medicine and who are leaving because of poor performance.
- Developmental student support requires an organizational culture in which student support is considered as the responsibility of everyone, with further support from named personal tutors.

of student support is to develop the whole person and not merely whether they can acquire a certain standard of academic or clinical competence. An essential aspect of medical school is to ensure that the graduate is fit for practice but there is an essential personal growth aspect that occurs over the life-time of an individual, from “womb to tomb”. The time at medical school, from entry to departure, is only

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a part of this life-long journey, but is a highly significant time for personal development.

The medical school is a nexus for personal development. Students are likely to have to make sense of a wide range of new and different experiences, from new ways of academic study to inter-personal relationships, both within and outside the medical school. These experiences may challenge the existing beliefs and values of the student. It is this challenge that creates the opportunity for personal growth and development but some students may feel overwhelmed and appropriate support is required. There is the developmental phase of personal identity formation that is experienced by all individuals in late adolescence and early adulthood but at the same time there is also intense development of a professional identity. Throughout the time at medical school, students may also have to adjust to a wide range of events that may have occurred before admission or that have occurred during their studies, such as mental health issues or physical disabilities, as well as numerous life events, such as housing or financial problems. All these events can be intense periods of personal growth and development, especially when the challenge is appropriately supported by peers, tutors and the environment of the medical school.

We consider that it is essential to have both a positive and proactive developmental approach to support all students at medical school. The cohort of students that enter medical school are increasingly diverse, with different cultural backgrounds (such as, social class and ethnicity) and disabilities (including physical and psychological), and this is encouraged by various equality and diversity admission policies, as well as the increasing global mobility of students (Cohen et al. 2002). These students will also have many new experiences during their time at medical school, some of which are planned within the curriculum, but other experiences will be unplanned, including peer relationships within and outside their teaching groups, as well as the numerous life-events that can occur, such as mental health issues or physical illness. Research suggests that many medical students are reluctant to seek help, especially for mental health issues (Chew-Graham et al. 2003).

The positive and proactive developmental approach is in marked contrast to the deficit and reactive approach to student support which only targets identified students who are considered to be “at risk” of being unlikely to successfully graduate from the course or are likely to leave the course before graduation (Frost 2000). In these circumstances, student support has a focus on remediation, offering little developmental opportunities for other students, including those who are “high-fliers”. A recent systematic review highlighted the impact of approaches for the remediation of “struggling” students and noted that few had a developmental focus, with most being limited to short interventions to overcome the next hurdle of assessment (Cleland et al. 2013). Of interest is that most students also continued to struggle with other examinations as they progressed through the course.

A deficit approach to student support also tends to classify students into different categories that are based on identified characteristics of groups of students. For example, medical students have been categorized as “struggler throughout”, “pre-clinical struggler”, “clinical struggler” and “health-related

struggler” based on factors that include missed attendance, unsatisfactory attitude or behavior, health problems and social/family problems (Garrud & Yates 2012). However, critical educational theories suggest that labeling students into categories can establish a cycle of failure since the educational system begins to move from trying to understand the underlying causes to concentrating on the outcome behaviors (Fielding & Moss 2011).

The facilitation of student support is an essential aspect of personal development and growth. A person-centred approach is required to allow students to make sense of the thoughts, feelings and actions that are provoked by their experiences (Rogers 1957). This can be facilitated by a tutor, or mentor, who can offer time for a confidential, non-judgmental and non-directive opportunity to be with another (Noe 1988). The approach is based on the recognition that growth requires a fundamental appreciation of the importance of an individual’s unique potential and ability to make the right choices for him or herself, regardless of the tutor’s own values, beliefs and ideas. Information may be offered by the tutor but this is different to telling the student what they should or must do (Daloz 1986).

Overall, developmental student support is a facilitated approach that has a focus on personal and professional growth for all students, irrespective of academic performance, personal characteristics or life events. We have attempted to embrace this philosophy throughout all of our work on student support in Leeds and Leicester.

The following sections of this Guide will discuss how to implement an effective student support service, including the use of student development theories, the principles of mentoring for student support, supporting students by developing resilience, supporting academic and learning development, supporting students through career advice, supporting students with disabilities, supporting, supporting high-flier students and implementing a student support service, including tutor training and change in organizational culture.

Student development theories for student support

Student development theory can help educators understand and more effectively respond to the demands of providing student support. A useful approach to applying theory is to consider that behavior is a function of the dynamic interaction, the so-called “fit”, between the person and their environment (Bronfenbrenner & Evans 2000). To understand the behavior of an individual student so that support can be effectively offered requires an appreciation of how the student is making sense of their various experiences, both personal and academic, and also the important interaction with the range of environmental factors, including the curriculum, their teachers and informal peer networks. The person/environment fit explains why one student may thrive within a particular environment but experiences difficulties when they move to another environment. Similarly, within one environment there are likely to be a range of students, with some experiencing

difficulties and others thriving. Overall, developmental student support has a focus on helping students to achieve their potential by understanding the essential person/environment fit of an individual and making changes to person and/or environment so that there is a more appropriate fit.

The individual

There are numerous theories of student development, most of which have been developed by careful and direct observation of the development of large cohorts of students from late adolescence to early adulthood. The theories can be conveniently classified into three main groups: typological, psychosocial and cognitive-structural (Evans et al. 2009).

Typological theories examine individual differences in how people view and relate to the world. These theories propose that when an individual faces a challenge, such as interacting with a new class of students, they will have a unique, but also habitual, way of behaving. An example is the Myers-Briggs Personality Inventory (Myers 1987). Learning styles have also been considered as an important typological theory since there is an assumption that students will adopt a particular approach to learning, such as Honey and Mumford's (2000) learning theory. There is controversy about the existence of learning styles but they provide a pragmatic understanding of the variety of approaches to learning used by students (Walsh 2007).

Psychosocial theories examine the personal and interpersonal lives of individuals. These theories highlight the important identity issues that people face as their lives progress, such as how to define themselves, their relationships with others and what to do with their lives. Integration of these issues determines the various personal and future professional identities of each individual. Examples include Erikson's (Muuss et al. 1988) and Chickering's (1969) theories of general development, as well as more specific theories related to race, class, gender and sexual orientation.

Cognitive-structural theories examine the changes in the way people think over time. These theories consider that development occurs through a series of phases that have to be negotiated, with growth occurring when each phase has been successfully integrated into the thoughts and behaviors of the student, such as the progressive change in the student's acceptance of different viewpoints of the same event and taking responsibility for their own actions. Examples include Perry's theory of intellectual and ethical development (King 1978) and Kohlberg's theory of moral development (Kohlberg & Hersh 1977).

A useful integrative student development theory is self-authorship theory, which contains many of the essential aspects of the various individual development theories (Magolda 2008). Self-authorship theory highlights the progressive development in three inter-related dimensions: cognitive, intrapersonal and interpersonal. The cognitive dimension is about "how do I know" and is concerned with the nature, limits and certainty of knowledge, with students making a shift from regarding knowledge as being absolute to contested, with many shades of gray. The intrapersonal dimension is about "who am I", with a focus on the individual's sense of

who they are and what they believe, to achieve a clear self-identity and internalized belief system that is not dependent on the views of others. The inter-personal dimension is about "how do I want to construct relationships with others" and is concerned with the recognition of the mutual aspects of relationships and an appreciation of diversity.

The environment

The development ecology model considers the person and the interaction processes within a particular context (Bronfenbrenner & Evans 2000). The individual can have numerous different interactions, such as formal teaching groups in lectures or workshops, informal peer groups and tutors. These interactions occur within a nested series of different contexts, from microsystems to mesosystems and macrosystems. Interactions within academic microsystems may include a variety of face to face meetings, mesosystems include the program or modules in the medical school and macrosystems include the whole medical school. In a similar way, there are also environmental systems that impact on personal development. The ecological model is important for student development and support since it highlights the multiple environmental influences that need to be considered, and possibly modified, to achieve growth, both academic and personal.

Using student development theories in practice

The tutor can facilitate the student to identify their unique concerns and then frame these concerns within one or more of the developmental theories (Evans et al. 2009). This collaborative approach to student development recognizes the importance of the interaction between the individual and the environment, and also their academic and personal development, thereby obtaining a joint and more holistic understanding of how the student is making sense of their life.

Step one

The first step is to collaboratively analyze the relevant student characteristics from the perspective of each of the theories. For example, the student may feel anxious about their academic performance after failing an examination. The student may have a superficial approach to learning and they have a personality style that does not consider persistence as a characteristic. On further discussion, it may become apparent that the student is still in a developmental stage where they are still struggling with taking responsibility and excessively relies on being given direction by others.

Step two

The task is to identify and analyze the relevant characteristics of the academic and personal environment. For example, the student may be in a peer group that has a similar lack of responsibility, with long periods being spent on socialization and playing sport instead of concentrating on academic performance. In addition, there may be an expectation that

their teachers will tell them all the answers but the reality is that the teaching is mainly self-directed.

Step three

The final step is to jointly agree on the findings that have been discussed in the first and second steps. For example, it may be readily apparent that the student is finding difficult to accept that there are no “right answers” and that a more critical thinking approach is required. However, to move forward, the student needs to have a clear sense of taking responsibility for their own learning and that their relationship with tutors is that of having a tutor as a facilitative “guide on the side” instead of a didactic “sage on the stage”. The tutor should now be in a position to challenge and support the student to take a different view of the various dimensions that have an impact on their performance and in their wider life. This “crossroads” opportunity to re-evaluate is essential for future academic and personal development.

In summary, student development theories can offer a useful collaborative approach to identify and understand the fit between the characteristics of the individual student and their environment. An important aspect of this approach is that the insights can inform practical steps to facilitate student academic and personal development.

Developing resilience in undergraduate medical students

The concept of resilience refers to how individuals can positively adapt in the face of challenge (Rutter 1985). Resilience is a dynamic and self-regulatory adaptive response that allows individuals to “bounce back” from challenging situations. These situations can be either actual, such as physical illness, or perceived, such as fear of failure of an impending examination. The self-regulatory aspect of resilience is important since it recognizes that it is an active response by the individual and that it also has the potential to be a key developmental process since a repertoire of coping skills can be developed and selectively chosen when facing future challenges (Aspinwall & Taylor 1997). It is important to remember that how a student copes with challenging situations is highly individualistic, with similar situations provoking different responses. These responses can be adaptive or maladaptive, and often there is a habitual pattern of response to situations.

The importance of resilience is that it is essential for medical student well-being. Many medical students will experience stress, low mood and burnout during their time at medical school, and there is an increased risk of suicidal ideation and behaviors (Guthrie et al. 1998). These threats to well-being increase throughout training and can persist into postgraduate clinical practice. There are major academic and professional consequences of lowered well-being, including failure in examinations, reduced empathy towards others and impaired professional behaviors.

Understanding the concept of resilience can be practically represented as a “coping reservoir” (Dunn et al. 2008). This model describes a repertoire, or reservoir, of

coping skills and the impact on well-being in the face of challenging situations will depend on the active choice of coping skills from the reservoir at the moment when the situation is presented to the student. The composition of the reservoir can be reduced or increased by altering the different inputs, including various individual and environmental factors.

Individual factors that influence the coping reservoir

The type of personality, the development phase of the student and the wide variety of previous life experiences are important and inter-related factors that influence how an individual copes with a challenging situation. For example, medical students tend to be high on personality scores for academic achievement motivation and they usually have experienced continued success in their studies. However, the content and more self-directed aspects of undergraduate medical education can be a challenge for many students since they have often previously experienced a more teacher-lead or didactic approach. A coping response to this challenge may be more difficult if their phase of self-authorship development is located in considering that there is always “a correct answer” and also that they have not yet developed a clearly defined self-identity in which they can tolerate ambiguity. Previous personal experiences of illness and death in family members or friends can be powerful factors that can influence coping responses when faced with clinical situations and an important aspect is to identify maladaptive responses at an early stage.

Environmental factors that influence the coping reservoir

Meaningful relationships with other students and others are important for both good mental health and successful but also for academic performance. These relationships can include formal and informal peer social networks as well as the teacher/student relationship, either one–one or small group. This environment can also be considered as the culture of the learning environment, and may be considered part of the “hidden curriculum”. For students arriving at medical school from a different country the resident culture may appear particularly alien and hence significant academic and social transition may be required to succeed.

An important time for resilience is during transitions (Teunissen & Westerman 2011). The medical student undergraduate curriculum is marked by numerous transitions, from arrival at medical school to frequent changes on clinical placements to the adoption of clinical responsibility for patients. Transitions are often marked by increased anxiety due to the disruption of usual routines and social contacts, as well as a perceived threat to the present situation. For example, moving to a cardiology clinical placement may make a student feel incompetent since they do not have the specialist knowledge or skills. Coping with this situation may be adaptive, using the anxiety as motivation to learn new information, but may be maladaptive, with stress and depression.

Supporting students to develop resilience

The main student support responses to help students enhance their resilience are reactive and proactive (Howe et al. 2012). The reactive approach to student support is the most frequently used and usually provided when the student presents with a maladaptive coping approach to a challenging situation. Helping the student to make sense of their thoughts, feelings and actions in response to the challenging situation can be very helpful. This can be achieved by identifying the unique individual and environment factors, such as personality or previous life experiences that are contributing to their distress. Understanding the influence of these factors can help the student to place their response into context and reassure the student that they are experiencing “normal” reactions to the challenge. Helping students to develop their coping skills is an essential aspect of student support. There are a wide range of different coping skills but the central focus is usually on changing the emotional reaction to a stressful event, such as using relaxation techniques and reducing alcohol intake, and/or altering the thoughts associated with stressful events, such as regular “self-talk” about how the individual has previously overcome stressful events. Enhancing coping skills should begin by the identification and reinforcement of skills that are currently, or have been previously, used as adaptive. The next stage is to propose new coping skills that the student can begin to use. An important aspect is to encourage the student to develop skills that they prefer. For example, some people prefer to participate in exercise to reduce stress instead of using relaxation or meditation skills.

The proactive approach recognizes that medical students are very likely to experience a wide range of different experiences, many of which have a high potential to be a threat to their well-being. Developing coping skills as a proactive approach can be achieved by workshops about resilience and the importance of adaptive responses.

The importance of the wider environment of the medical school has to be recognized and an essential aspect of student support is to create an environment that can provide a structure which minimizes potentially stressful experiences, such as anticipatory training about death in trauma clinics, and early recognition of student distress by all teaching staff so that early intervention to enhance coping skills can be offered.

In summary, resilience is an essential aspect of wellbeing for both medical students and qualified health professionals. The numerous transitions at medical school provide important opportunities for both proactive and reactive student support, with a focus on learning coping skills as an integral part of the student development journey.

Supporting academic and learning development

A major aspect of the student experience in medical school is the assimilation of information that will be required for future professional practice. Many students feel overwhelmed by a combination of different factors, including the large volume of

new information and a different approach to teaching and learning at medical school. The impact of these factors is not only within the early years but also throughout the clinical years. Supporting students in these circumstances is more than identifying “study skills” since important, and interrelated, determinants of academic performance include motivational and environmental factors.

Common problems in academic and learning development

The main problems that medical students request support in their early years are related to preparing for assessments (which are often very different to what they have previously experienced), understanding the large amount of new information that they are given and time management (Paul et al. 2009).

Study skills are essential for effective retention and recall of information (Gettinger & Seibert 2002). The skills include cognitive techniques for note-taking and revision. Some students may find comprehension of University-level academic texts difficult since the information is dense and often lacks cohesion, with poor linkages made between concepts and diagrams or illustrations (McNamara 2010). These reading difficulties can be overcome by specific reading comprehension skills. There are also important social aspects of learning, such as asking tutors to clarify information from presentations and becoming members of peer networks that need to be encouraged by tutors.

There is a large literature about the learning styles of students and the influence of these preferred approaches to information processing and learning (Cassidy 2004). Students may find it useful to know whether they have a particular approach to learning, such as a preference for visual or auditory presentations, or whether they have a preference for reflective or experiential approach to learning.

An increasingly recognized motivational factor is the state of well-being of the learner, with anxiety or depression being powerful influences on both engagement with learning and also knowledge retention and recall (Vermunt 1996). Identification of underlying psycho-social issues, such as financial pressures or relationship problems, is important since the poor academic performance may only be the presenting problem that is the “tip of the iceberg”.

The role of self-regulation in academic performance, called self-regulated learning (SRL), provides both an important theoretical model for understanding academic performance issues but also can inform support interventions (Zimmerman 1990). SRL considers that all learners are active participants in their learning process. Whenever learners are faced with a learning task, they need to actively integrate the “will” and “skill” components that are required for effective learning. The “will” is the essential motivational component and includes attribution and self-efficacy beliefs. The main attribution beliefs about success and failure are related to the learner’s perceived control over their performance. High-performing learners tend to attribute success to factors that the learner can control (such as the study skills that were used), whereas low-performing learners may attribute their lack of success to factors over

which they perceive they have no control (such as the problem was too hard). The main self-efficacy beliefs are associated with personal confidence regarding the success of a learner's approach to learning. High-performing learners take measures to ensure success, such as making the topic personally interesting and relevant. The "skill" component relates to the various strategies or techniques that are used to complete the learning task successfully, such as time management and/or note taking skills. High-performing learners choose strategies that will help them to achieve their intended goals despite poor concentration or stress. These strategies include taking frequent notes and regular checking of their own performance. The continuous and dynamic adjustment of both the "will" and the "skill" to ensure that the learning task is achieved requires meta-cognitive processes to be used by the learner. These processes are at the heart of SRL. Prior to learning, learners need to actively plan and set themselves goals for learning (including both the "will" and the "skill"). High-performing learners set goals that are specific and related to the process of learning, such as deciding to use the study technique of reading each paragraph in turn, compared with low-performing students who set vague outcome goals, such as "to understand the article". During learning, learners need to self-monitor through increasing their awareness of whether they are on track to achieve their intended goal. High-performing learners constantly check their understanding of what they are learning. Checking allows constant adjustments to ensure that their use of "will" and "skill" is effective. After learning, learners need to reflect and consider whether their approach to learning, including the "will" and "skill", needs to be modified for future attempts at learning tasks. High-performing learners actively reflect on their approach to learning, thereby developing as lifelong learners. Research into the active process of the self-regulation of learning has consistently shown that high-performing learners make extensive use of these essential meta-cognitive processes, particularly when compared with lower performing learners.

Environmental factors include the curriculum (which may be at odds with the learning preferences of the student) and the main aspects include the content, approaches to delivery and methods of assessment. The quality of the educational facilities is important, including availability of learning resources and connectivity to the internet.

Specific learning difficulties

Identifying students with specific learning difficulties, such as dyslexia, is important since extra support services can usually be provided, including allowing extra time in examinations, so that they can successfully cope with the academic pressures of medical school (Rosebraugh 2000). The prevalence of learning difficulties in medical students is unknown but it has been estimated that they can affect between 5% and 10% of a given population (Coles 1990). Adult dyslexics have a normal IQ and can read with good comprehension, but they tend to read more slowly than non-dyslexics and perform more poorly at spelling. Dyslexia is the most common learning difficulty, but there is overlap with other neuro-psychological

problems, such as attention-deficit/hyperactivity disorder and math disability. Expert neuro-psychological assessment is required to identify the exact difficulty and, if students are considered to have a "learning disability", there is often a legal obligation of the medical school to provide additional support services to allow the student to attain their potential despite the disability.

Providing support for academic and learning development

Students are likely to benefit from early identification and support of factors that are related to academic performance. Often these factors will become apparent after the first assessment, or after assessments following teaching on previously unfamiliar topics, and we consider that an essential role for all teachers is to meet students at this time to explore how they are approaching learning and to identify any underlying issues that may be interfering with effective learning.

There are many practical resources to help students develop their study skills, including websites and books. Most Universities will have specialist study skills services that can offer a range of useful resources, including online, group and one-to-one.

Understanding the process of learning through a SRL perspective has implications for providing effective educational interventions. These should help learners to develop their SRL approaches and can be achieved by helping the student to become aware of their SRL approach, such as micro-analysis (Cleary et al. 2012). The key aspect in micro-analysis is that students are observed just before, during and right after they are trying to solve a conceptual problem, and not interviewed sometime later. Observed while dealing with a new authentic learning task, a student will reveal the key SRL processes that integrate the use of "will" and "skill" when asked targeted open-ended questions, such as "how do you intend to understand what is written in this article?" or "do you think that you are on the right track to understanding what you are reading?". These insights can be used to provide individualized feedback on what processes are being used, or not used, for learning and also to develop an effective coaching plan to improve performance by engaging learners in deliberate practice of the learning processes that are being underutilized.

Pro-active approaches to help students improve their academic performance and develop essential life-long learning skills include study skills training and "learning to learn" courses. Research suggests that teaching study skills requires the skills to be taught in relation to actual learning, instead of in isolation (Weinstein & Mayer 1986). The use of learning to learn courses with a focus on SRL have recently been shown to be useful for medical students (Sandars 2010).

In summary, support for academic and learning development is an essential aspect of student support services, with both a proactive and reactive approach. Early identification of students with specific learning disabilities is an important aspect of student support.

Developmental mentoring in undergraduate medical education

Developmental mentoring refers to the support given to individuals that helps them find their own solutions to the problems that they face. In mentoring, an individual (the “mentee”) who feels “stuck” with their problem meets a mentor with the purpose of moving from this position of “stuckness” to one in which there is an understanding of the self and/or environment. This understanding empowers the individual to make choices that result in a solution to their problem, either by accepting the situation or by making a change to the situation (Gehrke 1988). The self-development aspect is important since the mentor’s goal is also to develop the mentee’s ability to become self-reliant and discover solutions for problems or opportunities in the future.

Mentoring shares similarities with coaching and supervision since the skills required for all three are generic and share much overlap. Any difference between coaching, supervision and mentoring involves the dynamic of the relationship between two individuals. The difference between developmental mentoring and supervision or coaching is that the mentor–mentee relationship is always equal. Solutions to problems or opportunities emerging from developmental mentoring also emerge from within the mentee rather than from the mentor. In this respect, the mentor is very much a “guide on the side” helping the mentee to discover their own solution. Mentees are not given solutions to problems or opportunity from a mentor, which may be the case in supervision or coaching.

Mentoring skills and models

Mentoring can take place anywhere and take the form of an everyday informal conversation in a corridor or a formal discussion between behind closed doors (Rose et al. 2005). Usually mentors are academic or clinical staff in the medical school but there is increasing interest in the use of peer-mentors (Taylor et al. 2013). Overall, the structure and setting of the mentoring appears to be less important than the process (Sambunjak et al. 2010).

Developmental mentoring relies on skilled questioning (Megginson 2006). The art of skilled questioning relies on the frequent use of probing or open questioning underpinned by active listening. The questions posed by the mentor challenge existing ways of thinking about a problem and in identifying new opportunities for finding a solution to the problem. At the same time, it is essential that the mentor can provide an empathic and supportive approach. This also requires active listening skills.

A model or framework may be used to guide the mentor and they are particularly useful if a problem is complex, since they provide clarity to the conversation in these situations, allowing the mentor or mentee to keep on track (Murray 1991). Using a model or framework during the mentoring conversation is also useful for ensuring that the boundaries for the mentee and mentor are explicit and that there is a

mutual expectation of what process will occur during mentoring.

At the most simplest level, a mentoring conversation may lack formal structure, with the mentee given lots of space to talk while the mentor listens attentively. The skills of active listening (e.g. repeating, paraphrasing and reflecting) are important in this context and the mentee may be able to develop self-understanding and make decisions about how they wish to respond to the problems that they face. This “sounding board” approach is very typical of the Rogerian approach to mentoring and counseling (Rogers 1957).

At the next level, the mentor may use a multi-step technique to scaffold their active listening and provide an action-orientated focus to the mentoring. For example, the GROW model uses a four-stage model for structuring mentoring. Mentees are encouraged to define a Goal, describe their current Reality, consider their potential Options and plan a Way forward using questions that stimulate reflection at each stage (Megginson 2006). The Egan Skilled Helper model is an extension to this approach, but uses nine stages to give more structure to the conversation so that certain aspects of the problem are not overlooked during the mentoring (Wosket 2008). Although there are more stages in this model, mentors and mentees have flexibility to move between stages depending on the flow their conversations.

Providing mentoring for undergraduate medical students

Mentoring can be used for students who struggle at medical school as well as students who are high performing. For students who struggle, mentoring allows the mentor to give truly holistic student-centered support that has a focus on the individual’s agenda rather than that of faculty. Mentoring provides a blame-free way to get the student to take ownership of their problem since the technique is based around stimulating positive self-regulatory behaviors. Furthermore, mentoring hands the initiative to students to generate their own solutions but gives them the confidence that support from the mentor is there as required. Students who enter in difficulty often lack self-awareness skills and this form of developmental mentoring gives framework for challenging self-perceptions and discovering blind spots through skilled questioning.

High-performing medical students can be overlooked in systems where greater attention is placed on students who struggle. Providing mentoring to high-performing students can be a driver to unlocking their true potential. The second stage in the Egan Skilled Helper Model uses skilled questioning to help the mentee explore possibilities they would like to have in an ideal world and it also encourages them to pick potential choices which may become a reality. This technique is particularly useful for high-performing students who often have a limited outlook about their potential futures, with the consequence that they do not seek out or take developmental opportunities.

Mentoring networks

Training and supporting a network of mentors is essential for providing and sustaining quality mentoring. The concept of developmental mentoring challenges some of the pre-existing assumptions that students and faculty possess about the role of support, therefore training is necessary to challenge perceptions prior to providing this form of support. A community of mentors will themselves need support to discuss experiences and share dilemmas, therefore establishing infrastructure to support their community as well as their ongoing development activity is also important. Peer-to-peer support is popular in undergraduate medical education so giving students opportunities to join the wider community of practice is a responsible way for faculty to acknowledge the activity of this informal support provision.

In summary, developmental mentoring has a focus on empowering individuals to make changes to their present situation. This process requires skilful active listening that both supports the individual but also helps to challenge the beliefs and assumptions that are frequently major barriers to making changes. An important aspect of mentoring is the development of skills for the individual, so that they can respond to future problems by themselves.

Supporting students in making career decisions

Careers guidance is moving higher up the agenda within medical schools, partly as a result of students having to make career decisions earlier and earlier. Many medical students, however, find it difficult to navigate an increasingly complex employment market, with a myriad of possible specialty choices. All too often it is difficult to find the time for medical students to reflect on who they are and what career might suit them. This reflective process is also developmental, allowing students to understand themselves and how their potential can be fully realized.

We consider that an essential aspect of careers guidance in medical school is for students who have doubts about medicine is a career and are having doubts about continuing their studies. The provision of exit interviews with a focus on careers guidance is also important for students who are required to leave medical school because of poor performance. These students have not failed as a person, only their performance at medical school, and this failure can be considered as an opportunity for personal growth and development in their life-long journey as a person in society.

Theoretical models of careers guidance

Careers guidance theories can provide structure to a mentoring approach to helping students to make choices about future careers. It is important to remember that many tutors who provide careers guidance are from a medical background and may have significant biases in the advice that they provide,

either promoting a particular career or significantly dissuading students from considering a particular career.

Trait-factor theory

Trait-factor theory goes back as far as the early 1900s, when Parsons (1909) developed the theory that different personalities fit with different jobs. The industrial revolution saw an expansion in the diversity of job roles available, with an influx of people moving to Britain's industrialized cities. The theory concerns itself with person-environment fit and tries to ensure that an individual does not become a square peg in a round hole. Many psychometric tests, such as Myers Briggs (MBTI™, Gainesville, FL) and medically specific tools (such as Sci 59™, London, UK) are based on trait-factor theory. The main implication of this theory for careers guidance is ensuring that students can have the opportunity to reflect on who they are as individuals and compare these insights against the backdrop of real life experience of what specialties are like. Not allowing time for students to develop this self-awareness, only stores up problems for the future since people can very easily find themselves in the wrong job.

Self concept theory

This approach looks at the different roles we play over time (the child, student, leisurite, citizen, worker, spouse, homemaker, parent and pensioner), within different contexts or "theatres" as Super called them (home, community, school/education and the workplace) (Betz 1994). The dominance of these roles and theatres will fluctuate over time, with the consequence that they shape the way we see ourselves and in turn affect our career decision-making. The challenge, viewed from self-concept theory, is to help students plan their careers with a long term perspective. Students are likely to make a decision about specialty choice by the time that they end medical school, and some students have already made a major choice at the end of their first or second year. The big questions to ask are "Are you thinking about specialty choice based upon your life today, or are you thinking about how this may change in the future?"

Opportunity structure

In the 1960s, Ken Roberts challenged the idea that people had complete choice over their career destinies, stating that the reality of the situation was that opportunities available to people are determined by social class, gender, ethnicity and parental position in society. In 2009, Roberts updated his original theory stating "We no longer travel to the mine/factory on public transport. We travel in cars but crucially not everyone has the same engine or fuel supply" (Roberts 2009). Since the 1970s, the UK medical student body has become increasingly diverse when it comes to gender, ethnicity and age. However, these changes have not been mirrored by a similar change in the socio-economic background of medical students. In the 2010/2011 undergraduate intake to UK medical schools, 57% of accepted medical school applicants came from the top three socio-economic classes, but only 7% from the bottom three socio-economic classes.

This represents hardly any improvement from eight years earlier, when the proportions were 62% and 7%, respectively (Milburn 2012). An important role of developmental student support in the early years at medical school is to open the eyes of all medical students to career development opportunities so that all students can consider specialties that they might not have considered, such as joining an undergraduate surgical society in which there is the opportunity to meet experienced surgeons. It is also important that the specialists that students have contact with are from a range of diverse backgrounds, from gender and ethnicity to socio-economic background. Developing confidence and increased understanding of how to become a “player” in an increasingly competitive jobs market is essential if the challenges that structural theory presents are to be overcome.

In summary, an appreciation of careers guidance theories can help medical educators understand the context in which medical students make career decisions and provide appropriate developmental support. A simple approach is to guide students to make a decision, to plan what steps they need to make to achieve their decision goal and to also consider how they can effectively compete (Gilworth 2011).

Supporting students with disabilities

There are increasing numbers of medical students with disabilities and this is a consequence of widening the diversity of medical school admissions. In most countries there is legislation (such as the Equality Act 2010 in the UK) that makes it unlawful for any educational establishment (including medical schools) to discriminate against disabled people without justification, or to treat a disabled person less favorably than others because of their disability. It is essential to remember that this legislation includes the admissions process. The law also requires medical schools to make reasonable adjustments to policies, practices, facilities and procedures to meet the individual requirements of disabled people.

The scope of the term “disability” is wide. For example, in the UK, The Equality Act 2010 (HM Government 2010) defines a disabled person as: “A person (P) has a disability if P has a physical or mental impairment which has a (a) long-term and (b) substantial adverse effect on P’s ability to carry out normal day-to-day activities”. This definition is open to specific legal interpretation but there are key general themes that relate to the duration and impact that can be applied to many situations, from Hepatitis B carrier to obsessive compulsive disorder to muscular dystrophies.

It is useful to remember that any student can become temporarily disabled, such as a leg fracture or a reactive depression, and the same general principles of supporting the student apply in this circumstance.

An essential aspect of student support is to be aware of the relevant legal frameworks about disability and the appropriate policies and procedures that apply in their own context. In UK, the GMC (2012) have issued comprehensive guidance.

Disabled students as medical students

Prior to entry to medical school (and often through Occupational Health Services), all students should be asked to complete a confidential health assessment in which allowing them the opportunity to they can declare any disability so that on entry they can have a comprehensive assessment of how the disability is likely to impact on their studies, both academic and clinical, can be made which then can inform and to plan how the type of reasonable adjustments that may be required can be made. Similarly, it is essential that any deterioration of existing disabilities or the development of new disabilities can be declared and appropriately managed.

Reasonable adjustments will have to be considered for all the wide variety of different teaching and learning events at which students will attend:

- Access and the physical environment, e.g. ramps or large print signage and supportive furniture.
- Teaching – academic, e.g. large print hand-outs or audio-recording of lectures to allow slower review after the lecture.
- Teaching – clinical, e.g. avoidance of immune-suppressed patients if they are Hepatitis B carriers or ensuring appropriate transport is provided for clinical placements.
- Assessments – academic, e.g. allowing a scribe or use of a computer and extra time.
- Assessments – clinical, e.g. providing extra time and allowing use of electronic stethoscopes.

Disabled students as potential doctors

Career guidance is an important issue for disabled medical students, as it is for all students, and there should be a focus on promoting inclusion in the medical workforce, rather than exclusion. An open and frank discussion of the possible impact, including any likely deterioration, should be offered to all disabled students. Their future employer, such as a training provider, is legally obliged to make reasonable adjustments to working and training arrangements. Sometimes students are reluctant to disclose relevant information since they fear that they will be discriminated against and that they will be unable to enter a career of their choice. Students should be encouraged to identify a person in their future employer who has responsibility for supporting disabled staff so that they can have a confidential assessment of their disability and the requirements of the post. Reasonable adjustments to the post has to be made, such as using electronic note taking or directing another healthcare professional in performing a task instead of actually performing the task themselves. Obviously, there will be instances when a reasonable adjustment is not possible for a particular career and there needs to be a realistic appraisal of what is possible or not. The student may find it useful to talk to doctors who are a specialist with a disability and the GMC in the UK has a series of useful videos in which disabled students and doctors talk about their experiences during their medical careers, including reasonable adjustments (<http://www.gmc-uk.org/education/13662.asp>).

Supporting disabled medical students

Developmental student support has a focus on maximizing the potential of each student and this includes all students with disabilities. An important aspect is to support disabled students who are reluctant to declare their disability since without this declaration it may be difficult to quickly make an appropriate reasonable adjustment. This support requires not only counseling skills to facilitate the student's transition from denial to acceptance but also to have an awareness of the services that can provide specialist advice. Once there has been acceptance by the student, ongoing support is required to ensure that the adjustments have been made and that they are appropriate for the needs of the student.

In summary, supporting disabled students is an opportunity for developmental support, with a focus on enabling students to achieve their potential. The key aspects are to ensure that disabled students can come to terms with the nature and impact of their disability, both as a medical student but also for their future career in medicine, and to ensure that relevant and appropriate adjustments have been made in both the academic and clinical aspects of their training.

Organizational aspects of providing developmental student support

We consider that developmental student support is the responsibility of everyone, not just tutors with a special interest. All students will encounter numerous administrative, academic and clinical staff during their time at medical school and on placements. As a minimum, we recommend that all staff who have contact with medical students should be aware of how all students can obtain support from the student support services that are provided by the medical school. These services will vary from school to school and they will also have a variety of names, from student affairs to personal tutoring services to academic and student support. This can be achieved by posters and leaflets, as well as staff training sessions. In the UK, the GMC highlights the importance of ensuring patient safety, requiring that anyone providing support must inform the appropriate person if it is considered that the behavior or health of the student poses a risk to colleagues, patients or the public.

In the UK, the GMC requires that all medical schools have a system for student support that can provide opportunities for all medical students to seek support for any matter before it becomes a fitness to practice concern (GMC 2009). An important recommendation is that anyone who provides support for a student should not be involved in investigating or making decisions that could affect the student's career. This independent role is essential so that students can confidentially discuss issues. The system will vary from school to school, sometimes with a named personal tutor and sometimes with a specific member of the academic staff.

The importance of a personal tutor

We recommend that all students should have a named personal tutor with regular time-tabled meetings, as well as

the opportunity to meet their tutor at other times as required. This approach may be "gold standard" but it allows each student to develop an on-going trusting and confidential relationship. As discussed earlier, the importance of developmental student support is that it moves beyond only responding to issues to a more proactive approach that can facilitate self-growth. Our experience is that there is always an opportunity to explore issues, especially those related to self-authorship and resilience.

Each personal tutor will need to have a range of appropriate skills, including mentoring/non-directive support, information giving and referral to appropriate services, such as counseling and disability services. These skills can be developed through a staff development program, with initial training and on-going workshops to discuss identified issues.

The importance of embedding developmental student support within teaching

There are opportunities to facilitate developmental aspects of self-growth within existing teaching provision, especially at times when students face aspects that create a "cross roads". The concept of "cross roads" has been used in self-authorship approaches to developmental student support and refers to when the student feels that they need to examine their current beliefs about knowledge, their individual identity and their inter-personal relationships.

These beliefs arise from previous experiences with parents, peers and teachers but the student has not yet appropriately developed their own belief systems (Pizzolato 2005). For example, they may consider that all research findings are to be considered absolute truths, that they should never question authority and that they have prejudices against a minority group. The "cross roads" is an opportunity for the student to examine the origins of their beliefs, challenge the extent to which these beliefs fit their current experience and to consider how to approach future situations. This provocative moment is an essential aspect of self-growth and also academic and personal development (Magolda & King 2004). These moments can occur by ensuring that all students face a wide variety of encounters, such as meeting a dying or angry patient, but they can also be more deliberately provided by skilful questioning by a tutor, such as asking "why do you say that?" or "where did you get that idea from?"

The importance of the culture of the medical school

A major determinant of the educational outcome for any student is the educational culture within which they are educated (Smith 2011). This is as equally important in medical education as it is in school education. Research has identified that medical schools can be highly competitive and can have a bullying culture, including academic and gender (Lempp & Seale 2004). In addition, there may be institutional prejudices, both overt and covert, against physical and mental health issues (Roth et al. 2000). Such environments are obviously not conducive to academic or personal development and an essential aspect of developmental student support is to ensure

that there is a change in the medical school culture. The culture of medical education also has a major impact on patient safety, especially when there is consideration of the numerous factors in the medical education journey, such as admissions, teaching and student progress assessment and support (Aron & Headrick 2002).

In summary, the organizational aspects of providing developmental student support are essential to consider if the potential is to be fully realized. Important aspects to consider is that everyone needs to be aware of how student support services can be readily accessed, that a named personal tutor offers a unique opportunity to have an on-going relationship with a mentor and that there is a supportive culture within the medical school.

Conclusions

Developmental student support in undergraduate medical education is an integral aspect of the function of all medical schools. It is not limited to students who struggle but recognizes that all students will have times where their understanding of the world, self and others will be challenged. These moments are opportunities for personal growth and development. The time at medical school, from entry to departure, is only a part of the life-long journey of becoming and being a doctor, but is a highly significant time for personal development, as well as developing the required academic and clinical competences. The personal, or self-growth, aspects of developmental student support is the responsibility of everyone who comes into contact with a medical student, recognizing that their role may also require appropriate referral to more specialist support, including personal tutors. The diversity of the student population in medical schools requires that each student can achieve their own individual potential, whether they have a disability or not. Overall, the potential of developmental student support will only be fully realized if these is an appropriate supportive organization and culture.

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