Motivation In Medical Education: A Systematic Review

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Abstract

The purpose of this study was to systematically review the literature on motivation in medical education, with the intention of providing a framework for educators to consider this important dimension of curriculum development. Motivation is the translation of a person’s basic psychological needs and drives, filtered through their view of the world, toward an action with an anticipated result. There is a range of motivational states from intrinsically motivated to immotivated; the types of motivation are not dichotomous, and the model itself is fluid (i.e.: a person can move between different types of motivation depending on the situation). Educators can foster intrinsic motivation by addressing learner’s needs for competence, autonomy, and relatedness. Each need fulfilled on its own promotes intrinsic motivation, however, fulfilling all three needs at once creates a synergistic effect. The need for competence is fulfilled by providing optimal challenge and positive performance feedback, the need for autonomy by providing choice and opportunity for self-direction, and the need for relatedness by providing a sense of belongingness and connection to the medical profession. Motivating the learner may be one of the most important things that an educator does.

Introduction

Modern medical education curricula are based on the premise that students have an inherent desire to become physicians and are motivated by internal rather than external factors (1). We assume that as adult learners, medical students pursue medicine because it is inherently interesting and enjoyable, rather than for obtaining a separable outcome such as monetary reward or status (2). It’s possible that as educators we oversimplify the matter by over emphasizing this aspect of adult education.

As we work to develop teaching techniques that target the internally motivated adult learner, at least some students may continue to behave as externally motivated learners. We all encounter students who are unmotivated in certain courses, are not striving to meet standards, or may feel a difference between the institutions goals and their own (1). There are still a number of aspects of the current medical education programs that push students to behave in externally motivated patterns. It is essential to realize that motivation is a multifaceted concept and we must strive to find new techniques of increasing student’s propensity towards self-directed learning (3). The hope of this type of medical education is to create lifelong learners whom feel a personal responsibility for their own knowledge. In the same way that we recognize that different students may learn in different ways and develop our teaching session with that in mind, consideration of different motivation patterns may result in a curriculum that motivates a greater portion of the class. Perhaps even more important is to become mindful of the characteristics of the curriculum that are robbing our students of the motivation they had.

The purpose of this study is to systematically review the medical education literature with the goal of identifying strategies to motivate medical students.

Methods

A search strategy (Appendix 1) was developed with the help of a professional librarian and run through the Embase (1996-2008), Medline (1996-2008), PsychInfo (1967-2008), and ERIC (2004-2008) databases in June of 2008. The search resulted in 611 potential sources, which were independently reviewed by two reviewers blinded to each other’s assessments. The reviewers screened articles based on their abstracts or, when there was insufficient information for a determination, by reviewing the complete text. We included articles on motivation in education, and we excluded articles that measured or addressed specific motivations to activities or tasks, as well as non-English language articles. Articles were collected for review if either reviewer marked them for inclusion. The result was 10 relevant articles identified for review. The literature on motivation is largely qualitative and does not lend itself to meta-analysis.
Review

One of the early theories of motivation in medical education is that of Adult Education described by Malcolm Knowles (4). Knowles proposed that ‘andragogy’ (adult learning) should be distinct from ‘pedagogy’ (child-learning) because there are fundamental differences between the two groups of learners. The theory has evolved over time and has been based on five fundamental principles, the fifth of which addresses motivation to learn; Knowles proposes that as a person matures, the motivation to learn shifts from external to internal.

As adult learners, medical students are responsible for their own educational paths and life-long learning. Adults are autonomous and self-directed; therefore teaching medical students should focus on facilitating learning while leaving the students free to direct themselves. These principles found application in problem-based and self-directed learning.

Misch has raised concerns about the validity and utility of andragogy in medical education. He argues that separating motivation into intrinsic and extrinsic categories may be over-simplistic as they are not dichotomous, rather they are context dependent, and interrelate with one another in complex ways (3). In medicine, it is impossible to create a solely intrinsically motivating environment because many secondary benefits are related to the medical profession, such as respect, admiration, wealth, etc. Misch states “Rare indeed would be the medical student unaffected by such secondary riches, whose learning was driven solely by the joy of learning and unadulterated altruism” (3). Medical educators must be careful not to establish the theory of andragogy as fact without critically assessing its limitations.

In 2000, Ryan and Deci (5) present a more complex model of motivation, in keeping with developments in cognitive psychology. Self Determination Theory (SDT) is centered on the importance of intrinsic motivation and how it drives human behavior. Many of the studies of motivation in medical education are based on SDT (5-9). Engaging in something because it is inherently interesting or enjoyable is deemed intrinsic motivation, while doing something because it leads to a separable outcome is extrinsic motivation. Their approach focuses on 3 needs; the need for competence, the need for autonomy, and the need for relatedness. SDT recognizes that basic need satisfaction is partly created from engaging in activities that are interesting for the individual. In medical education, providing optimal challenges, positive performance feedback, and freedom from demeaning evaluations can facilitate feelings of competence. However, the need for competence must be accompanied by a sense of autonomy, choice and opportunity for self-direction in order for intrinsic motivation to be maintained or enhanced (5). It is critical to remember that intrinsic motivation will occur only for activities that hold intrinsic interest for an individual. What about material that does not interest the medical student? Some suggest making the values or behavior a part of ones self-identity; internalizing (taking it in), and then integrating it (transforming it into their own). The more one internalizes the reasons for an action and assimilates them to the self, the more ones extrinsically motivated actions become self determined. Internalization is achieved by providing a sense of belongingness and connectedness to the medical profession; this is called relatedness and is the third need in SDT. According to SDT, intrinsic motivation is enhanced when the three needs are fulfilled (5).

A number of papers examine the application of the self-determination theory of motivation (6,7,9,10). A study by Sobral on the importance of autonomy in medical education, determined that “autonomy in the learning environment was highly associated with students perceptions of course quality in terms of the meaningfulness and value of the educational experience” (7). Despite creating a learning environment based on competence and autonomy, it is crucial to realize that extrinsic motivators can undermine intrinsic motivation. Examples of extrinsic motivators are threats, deadlines, and competition pressure because people experience these as controllers of their behavior. The classroom environment, which encompasses goals of the faculty, the attitudes of doctors and lecturers, and student assessments, has a direct influence on competence and autonomy and can either enhance or diminish intrinsic motivation.

Koens et al, has developed a Dimensional Context Model, where context is broken down into categories of Physical Dimension, Semantic/Cognitive Dimension, and the Commitment/Affective Dimension. This model attempted to help educators select appropriate contexts in leading medical students from reduced to enriched learning environments, as well as to provide a framework for further research into context (6). Curry suggests educating medical students about motivation and different learning styles so that students may develop their own learning tactics. Similarity in educational context and learning style.
contributes to academic success (8). In essence, context matters.

Further application of SDT emphasizes the importance of autonomy on the outcome of the action. Increasing internal motivation by providing competence feedback, autonomy, and relatedness not only creates better educational outcomes, but also creates better patient interactions. Williams demonstrated that the values and skills learned in this type of environment created more autonomous students, which then acted in autonomous ways with their patients as they used an autonomy supportive style to motivate their patients. The patients then became more autonomous with respect to their own care and showed improved adherence to a variety of health relevant behaviors (9). In theory, ‘more autonomy-supportive medical education may actually result in more effective health care delivery’ (9).

**Discussion**

Over the past thirty years medical educators have adopted a progressively more complex understanding of the nature of motivation. From Knowles’ assertion that we transition from being externally motivated to internally motivated as we mature from child to adult, to a more complex view where a person’s basic and higher order needs drive multiple motivations that amplify and compete for an action. Motivations differ between individuals, and with-in individuals over very short periods of time. We no longer view internal motivation as an absolute result of adulthood, but as the result of a set of conditions, a situation that can be fostered and encouraged by the educational environment.

The current paradigm of motivation in medical education suggests that components of the learning environment like communication style, curriculum, and assessment methods not only affect how much effort students put forward, but the longer term nature of how they are motivated in their careers. If we continue to create medical school curriculum and assessment tools without improving our understanding of the nature of motivation we have the potential to cause significant detriment to our students. At best, we may be missing an opportunity to significantly enrich their lives.

Motivation should be a measure of the quality of medical education. If we truly value the student who is engaged, who participates, who learns deeply, we value a student who is highly motivated. What is the development of a “life-long-learner” if not a student who is intrinsically motivated? Surely the success of an educational program could be evaluated not only based on knowledge briefly retained or student satisfaction, but on the ongoing desire to understand and learn more.

One of the unspoken premises of current self-determination motivational theory is that internal motivation is superior to external motivation. Before we strive to develop internally motivated students we are obliged to consider the truth in this assertion.

The question would be easy to answer if internal motivation was ‘stronger’ than external, but this is not necessarily the case. A person might be weakly internally motivated toward an action (for example, feeling a little hungry) or very strongly externally motivated (I’ll pay you a million dollars to mow my lawn.) Many of the things we do in the course of a day are externally motivated, and come at the cost of potential activities that are motivated internally. In truth, it is probably best that internal motivations not be the ultimate determination of all of our behavior...we might never get anything useful done.

Perhaps our emphasis on internal motivation is a social value. If internal motivation is actions toward our needs, then external motivation must be action toward someone else’s needs. In what we are proud to think of as a free society where we value individual rights and autonomy, surely internal motivations are preferable those externally imposed.

This may not be the case. Internal motivation depends on the values of the individual – so it would be very possible for someone in a collective society to be internally motivated in a very altruistic manner. Personal values can make us take action in support of another, just as we might have to be externally motivated to act on our own behalf.

The real benefit of internal motivation, particularly over a long period of time, is that it isn’t as susceptible to forgery. Whenever an external reward is offered for a behavior, the motivation is not bound as tightly to the behavior. Instead the behavior is bound to the reward, which is in turn bound to the assessment of the behavior. The externally motivated person is actually driven to create the appearance of the activity. Take for example someone who is getting paid to paint a house, but lacks any internal motivation for the task. The quality of the work is likely to be less than if the house was being painted by the homeowner, or by someone with a deep love of house painting. The quality of the paint job might become even worse if the externally motivated painter discovers that his boss will assess his work only by looking at the face of the

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south wall, and only from a great distance.

If we value internal motivation then significant consideration must be given when designing curriculum, educational climate and assessment methods. Supporting student autonomy, sense of competence and need for relatedness leads to increasingly internally motivated students, but the practical implication of these ideas is quite complex and deserving of study.

In light of how important the role of motivation in education, our review found relatively little published on motivation in medical education. This may be partially explained by the fact that in medical education we often use different terminology to address components of motivation. There is still significant room for improvement, and great potential for future research.

Conclusion(s)

Student motivation is a complex interplay of competing internal and external factors. If we are going to find, explore and expand on each individual student’s drives to become excellent physicians, we need to increase our understanding and consideration of student motivation.

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None

Authors’ Contribution(s)

Ashley Brissette, BSc
Daniel Howes, MD FRCPC

References

Illustrations

Illustration 1

Search Strategy

Appendix 1- Search Strategy

Embase 1996-2008

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