

Medical Education in the Global Arena: The Impact of Cross-cultural Learning

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Abstract

This comprehensive review examines the international literature on global medical education. Specifically, teaching and learning styles, transnational education, and potential challenges that arise with cultural and local differences are evaluated. Global medical education has the potential to serve local needs in resource-limited settings and set international standards for curriculum and accreditation. There are broad differences when comparing teaching styles between countries with a significant narrowing of teaching methods found when examined within a country. Learning styles differ greatly as well, and can be optimized when individual preferences for learning and local cultures are considered. As teachers and learners are increasingly brought together from different cultures, analyzing teaching and learning methods is essential to productive cross cultural medical education.

Keywords: Cross-cultural education; Learning styles; Global health; Medical education; Teaching styles

Case Vignette

A North American Obstetrician speaks through Skype to a classroom in Mbarara, Uganda while simultaneously lecturing in-person to a Boston, USA classroom on the topic of postpartum hemorrhage. The medical students and residents in Mbarara are quietly listening and diligently taking notes. The American-based students do not take notes but occasionally raise their hands to interject and ask questions [1]. The same lecture seems to be received differently from two groups of students and the Boston-based lecturer wonders if these different forms of engagement impact the lessons taught. Are both groups gaining the same level of knowledge from the lecture despite these differences? Why are these differences occurring? Perhaps due to the barriers of distance and Internet, or do cultural differences have implications for the learning.

Introduction

In an era of increasing globalization, migration and connectivity, medical graduate and post-graduate education previously restricted to within country borders, has now become a truly transnational affair. At the undergraduate and graduate level, more than 2.5 million students currently study outside their home countries, and this is projected to rise to over 7 million students by 2020 [2]. Post-graduate medical training has also expanded boundaries; in the last two decades an increasing number of global health academic partnerships have formed between institutions across countries and continents as a way to improve access to specialty and sub-specialty training in regions where such access is limited [3].

This increased cross-cultural milieu for education is cause for optimism. Increased diversity within student bodies at all levels of training implies increased access to education for groups, countries

and regions where access has been poor. Moreover, such diversity creates opportunities for both student and teacher to share multiple perspectives and backgrounds. This hopefully will translate to improved healthcare outcomes for the diverse patient populations we serve. Increased diversity, however, may have implications for education that should not be overlooked. At the core of medicine is the obligation to teach, and to teach well. How we teach, when we teach and whom we teach has been constantly evolving with the ever-present goal of effectively imparting knowledge and skills to the next generation. With increased diversity, educators will face a multicultural student body. Culture, both explicitly and implicitly, can impact how learner and teacher interact and thus the efficacy of each interaction.

Medical education serves the immediate need of training new physicians and the societal need of populating the community with healthcare providers and improving access to medical care. Medical educators can play a role in reducing inequities in global health by addressing the shortages of physicians in resource-limited regions [4]. The hope is that open dialogue on medical education will foster the integration of global health approaches, the promotion of the social mission of medical schools worldwide, and the development of global standards for accreditation of medical education [4].

This review examines the models of medical education, reviews the literature on how culture interacts with learning and teaching styles, and examines the current potential barriers and challenges to medical education in a global arena.

Types of Pedagogy

Traditional medical graduate education combines passive didactic learning in a classroom setting and participatory learning. As advances in the science of teaching have been made, education in the preclinical years has evolved from a purely classroom-based venue to the participatory and group-based learning of Problem-Based Learning (PBL) [5]. PBL fosters understanding, knowledge retention, and social

and group work [6]. Postgraduate medical education traditionally relies on an apprenticeship model of students learning during active participation in medical care. Whether in the classroom or by the bedside, teaching requires interaction between student and teacher; these are often influenced by social norms and relationships that guide behavior. Western post-graduate medical training for example, relies heavily on the Osler-derived model of participatory, service-oriented and work-based learning. A set of both implicit and explicit social relationships between 'master' and 'apprentice' or teacher and learner are required for this model to work. Learners are required to speak up, participate, engage and interact with the teacher. One observational study of clinical medical education identified seven important pedagogical strategies for learning: 1- questions and answers, 2- lecturing, 3- piloting, 4- prompting, 5- supplementing, 6- demonstrating, and 7- intervening [7].

Teaching and Learning Styles

Research on styles of learning has led to an understanding that the teacher is a facilitator of student learning [8]. There is a direct connection between learning objectives and teaching methods. Eleven basic teaching styles have been described and include: command, practice, reciprocal, self-check, inclusion, guided discovery, convergent discovery, divergent production, learner's individual designed program, learner initiated, and self-teaching [9].

There is also wide recognition in the literature of varying learning styles. Learning style pertains to the individual processes used for understanding and retaining information with the result of gaining knowledge and skills [10]. One model describes learners as using either a 'deep approach' or 'surface approach'. In the deep approach, students learn by developing an understanding of meaning and process and by relating new ideas to previous knowledge and personal experiences. In the surface approach, students memorize the salient information and use rote-learning to gain new material [11]. The deep approach to learning includes the following characteristics: active seeking to learn the material, motivated by interest, relating new ideas to previous knowledge, reading and study beyond the course requirements [8]. Characteristics of the superficial approach include taking a narrow view, failing to distinguish principles from examples, and being motivated by a fear of failure. A third approach to learning is the strategic approach where students intend to obtain high grades, organize their time, and ensure that conditions and materials for studying are appropriate [8]. A more successful combination of learning styles is the deep learning and the strategic approach. An analysis of deep and strategic learning styles in Nepali medical students showed that learning styles are associated with the student's understanding and predict success in examinations [12].

The VAK (Visual, Auditory, Kinesthetic) model of learning emphasizes the modality through which learners most effectively acquire new information. Auditory learners learn best through listening, visual learners predominantly with their eyes and kinesthetic learners through moving and touch [13]. A third model of learning styles describes learners as sensory vs. intuitive, visual vs. verbal, active vs. reflective, and sequential vs. global [14]. For instance, an active learner may perform poorly in a static classroom environment and visual learner better motivated with pictures and diagrams rather than descriptive text.

Culture and Learning

Research suggests that approaches to learning are influenced by the social and cultural environment of teaching and upbringing. This is true for both teaching and learning style.

It is important to understand local culture and its impact on learning and teaching to adequately develop a curriculum and effectively deliver it. There are several key issues that must be studied to optimize cultural and learning approaches: 1- past regional experiences of health-related training, 2- the impact of local culture on learning and learning approaches, 3- the impact of external influences on curriculum and 4- the challenges of open and distance learning in a particular geography [15].

There are many reasons why cultural differences may influence this learning environment. For teachers, cultural priorities impact the curricular history in each country and that may influence teacher beliefs and teaching style [9]. There may also be a national curriculum and mandatory assessments that differ with each country. One analysis of 1400 physical education teachers in seven countries found significant differences between countries with respect to teaching styles, beliefs about teaching styles, and the teacher's self-rated ability to use multiple teaching styles [9]. Comparative research on math and science education has also shown that although teaching methods are relatively similar within country, there are significant differences in teaching methods between countries [16]. In this study, teaching diversity was described as the "cultural lesson script" for each country.

At the student level, cultural differences may also impact learning and learning styles. In a cross-cultural comparison of anatomy learning, British students were more comfortable with asking questions in class whereas Chinese students preferred to study in small groups [17]. Interestingly, the Chinese students found studying anatomy from cross-sectional images easier than British students who relied on memorization. This may reflect differences in visual languages between the two cultures. A similar study on the impact of culture on learning anatomy demonstrated differences between Jordanian and Malaysian students; the former had a preference for a more holistic approach (the global learner as described above), whereas Malaysian students preferred studying anatomy piece by piece (the sequential learner) [18]. Cultural differences have also been shown in preference and effectiveness of PBL. In one study comparing medical students across 3 countries, Nepalese were less likely to give favorable reviews compared to American and Norwegian medical students [6]. Within Australia, differences were also seen between dominant and minority cultures in response to PBL. Though indigenous medical students viewed PBL favorably overall, they reported a 'culture shock' in transitioning from a community-oriented setting where speaking up to adults is discouraged, to a more individualistic, self-directed format that requires active participation [19].

Social norms and interactions that are rooted in culture can also play an important role in both teaching and learning. Differences in communication through something as simple as eye contact, willingness to speak up or ask questions can affect student/teacher interactions. In the South Pacific, for example, silent observation, with little or no eye contact, is seen as a sign of respect. Such a student placed in an educational environment where participation is valued may be perceived as uninterested and unmotivated [20]. One report of teaching in Japan, describes greater value given to diligent note taking and less so interactive learning. Thus a teacher more familiar with a participatory culture placed in this context may find verbally engaging

such students challenging [20]. In some cultures gender divisions held strictly for religious or social norms may also influence student/teacher interactions when two cultures with different viewpoints are brought together. In non-western collectivist cultures, conformity and group needs may be given priority, also impacting the format for interaction.

Barriers and Challenges

Barriers and challenges to medical education in resource-limited countries start with the problems of lack of infrastructure. In sub-Saharan Africa, resources to build schools and train educators have been limited due to political upheaval, lack of funding, and a constant loss of medical providers due to emigration, disease, and lack of local medical supplies [4]. Barriers to health-related training in the Pacific Island Countries include: the need to train staff, lack of access to learning resources, lack of funds, language barriers, competing requirements of work, education, and family [15].

For individual students, the barriers to learning can be due to language barriers, family obligations, learning style differences, and cultural differences [15,20]. Other challenges include high student-to-computer ratios, slow or non-existent internet, and gaps in computer literacy [4]. While deep learning is the ideal learning style, superficial learning occurs when students are overburdened with work commitments [10].

Towards Culturally Sensitive Teaching

There is robust literature on learning and teaching styles and their impact on medical education. We now also have a growing understanding of how culture interacts with these styles to produce differences in how educators teach and students learn. With increasing global integration, cross-cultural teaching is one approach to enrich the medical education of students and trainees in resource-limited environments. As this integration evolves, we must acknowledge and respect cultural differences. Only then can we develop educational programs that are culturally sensitive and most effective. Medical teachers should not assume that the same pedagogy for medical knowledge would work in all settings. Teachers in a new setting should be open to asking students which styles work for them. As the literature described demonstrates, some may prefer visual over verbal learning, others a holistic view over fractional teaching. In addition to cultural differences, recognizing barriers to learning that can include isolation, reduced access to electricity, limited infrastructure, no private space, and little or no academic support from the particular institution will also be important in designing curriculum. Culturally sensitive education does not presume that educators know every different type of cultural nuance and its preferred learning/teaching style, but rather, that they recognize that differences can exist and are flexible and open to accommodate such differences.

Conclusion

Transnational medical teaching is an exciting and important resource to foster global relationships, learn about the medical needs of low and middle-income countries, and develop sustainable medical education. An understanding about culture and learning styles is an important initial step to effective cross-cultural education.

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