Commentary

The growth mindset for changing medical education culture

Marie Angele Theard\textsuperscript{a,b,*}, Mollie C. Marr\textsuperscript{b}, Rebecca Harrison\textsuperscript{c}

\textsuperscript{a} School of Medicine, Oregon Health & Science University, Theard 3181 SW Jackson Park Rd, SJH 4125, Portland, OR 97239, United States
\textsuperscript{b} Medical Student, M5, Medical Scientist Training Program, School of Medicine, Oregon Health & Science University, Portland, Oregon 97239, United States
\textsuperscript{c} Department of General Internal Medicine & Geriatrics, Division of Hospital Medicine, Oregon Health & Science University, Portland, OR 97239, United States

A R T I C L E   I N F O

Article History:
Received 23 May 2021
Revised 28 May 2021
Accepted 1 June 2021
Available online xxx

Medical education is exclusionary by design. In the United States, the groundwork for systemic racism in medical education was codified by the Flexner report in 1910 \cite{1}. Despite a call for increased diversity in medicine, inadequate representation of Latino/Hispanic (6\%), African American (7\%), and American Indian/Alaska Natives (0.2\%) continues \cite{2}. Increasing the representation of physicians historically excluded from medicine is imperative. A more diverse workforce is a necessary step for reducing healthcare disparities and meeting a predicted shortfall of 139,000 physicians by 2033 \cite{3}. It is also critical for providing our increasingly diverse patients a similarly representative healthcare workforce and greater access to quality care.

Medical centers must incorporate an understanding of the pervasive influence of racism, white supremacy, health disparities, and systems of oppression into every aspect of education and healthcare. Antiracism programs require that we create environments that support trainees under-represented in medicine (URiM). Many URiM trainees face a lack of mentorship, stereotype threat, and racial bias \cite{4}. Segregated spaces outside and within medical education promote reliance on harmful stereotypes and limit faculty’s understanding of URiM trainees, precluding meaningful relationship building \cite{4}. An antiracist culture requires attention to conscious and unconscious bias, and the ‘hidden curriculum’: unspoken values and norms perpetuated by educators who serve as behavioral models \cite{5}. Unfortunately, physician educators in the US are not explicitly trained in educational theory and often lack the tools for developing pragmatic approaches for learning. While the goals of medical education are clearly defined, the pedagogical standards for training are not. Rather, they are based upon individual instructor preference or biases serving to perpetuate racism in medical education.

A relevant pedagogical framework for changing medical culture is the growth mindset pioneered by Dr. Carol Dweck. Mindset theory holds that our implicit assumptions about the origin of our abilities, intelligence, and talents profoundly affect how we view our mistakes and failures. Applied to the educational context, the growth mindset framework suggests that ability is acquired through effort and that failure is an opportunity for learning and improvement, whereas the more prevalent fixed mindset thinking suggests that intelligence or ability are innate and unchangeable \cite{6}.

One particularly injurious example of the fixed mindset is systemic racism. Characterizations of Black people as less than White people ensured economic benefits to White people derived from the savagery of slavery and laws still in effect today \cite{7}. Medicine was complicit in the creation and maintenance of these systems of oppression, and has a lengthy history of harmful surgeries and the denial of treatment to Black people for the purpose of experimentation \cite{8}. Our current medical culture is almost exclusively characterized by fixed mindset thinking, undermining the growth and development of learners \cite{6}. Fixed mindset thinking maintains systemic racism within medicine by overlooking knowledge gaps, omissions in care, and abusive practices pivotal to understanding health disparities. Bias, resulting from fixed mindset thinking, also plays a role in the barriers faced by URiM trainees, contributing to their low representation.

According to Dr. Dweck, educators who regard members of under-represented groups as fixed or less than decide early who is worthy of advancement and who to dismiss. A study of 150 STEM professors and >15,000 students found that racial achievement gaps in courses taught by fixed mindset faculty were twice as large as those taught by more growth mindset-oriented faculty. Student evaluations in classes taught by fixed mindset faculty indicated a negative educational climate \cite{9}. These adverse learning environments weaken academic performance and increase stress for trainees, potentially contributing to the greater loss of URiM trainees from training programs and academic medicine \cite{4}. In a survey of over 7000 surgical residents in the US, 16.6\% reported experiencing racial discrimination \cite{10}. In contrast, the growth mindset framework creates a more positive learning environment (Fig. 1). Through ongoing intentional practice in educational settings, the growth mindset can be fostered in teachers creating a more inclusive environment supportive of the rigor and potential for all.

While the harm from the fixed mindset is clear, the success of the growth mindset requires an understanding of the varied levels and experiences of our trainees and full engagement from educators \cite{6}. Faculty must start by learning and discussing the impact of systemic racism and white supremacy on health care and education. They must dismantle their assumptions about URiM trainees. Faculty, and the institutions they serve, need to shift from valuing conformity in medicine and recognize differences as strengths. The growth mindset

* Corresponding author.
E-mail address: theard@ohsu.edu (M.A. Theard).

\url{https://doi.org/10.1016/j.eclinm.2021.100972}

\textcopyright{} 2021 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license \url{http://creativecommons.org/licenses/by-nc-nd/4.0/}
Fig. 1. Racism to Anti-racism using a Growth Mindset Framework: Dialogue and actions moving from fixed to growth mindset in medical education fostering an inclusive educational environment.

educator is relational, actively listens, recognizes and values growth and hard work, and collaborates with learners to create an environment that promotes academic success. The power of the growth mindset in improving the educational climate for URiM trainees is one aspect of a multi-factorial approach for change including: education to promote awareness of systemic racism; policies to support equity, justice, and inclusion instituted by educationally-equipped leaders; and institution-wide educational programs incorporating the growth mindset. Expanding programming to incorporate the growth mindset will promote an educational culture necessary for deconstructing systemic racism in academic medicine and foster a culture of inclusion and belonging for all.

Funding source

MM was supported by the National Institute of Mental Health under award number F30 MH118762. The NIMH did not have a role in the writing or submission of this manuscript.

Declaration of competing interest

The authors do not have any conflicts of interest to disclose.

Acknowledgement

The authors would like to acknowledge Thabiti Lewis PhD, Professor of English and Associate Vice Chancellor Academic Affairs, Washington State University, Vancouver for input and review of critical race theory and education.

References

[1] Steinecke A, Terrell C. Progress for whose future? The impact of the Flexner Report on medical education for racial and ethnic minority physicians in the United States. Acad Med 2020;85:236–45. doi:10.1097/ACM.0000000000002830.
[2] AAMC 2019 applicant and matriculant data, Assessed 2020. Tables present data regarding medical school applicants and matriculants. https://www.aamc.org/data-reports/students-residents/interactive-data/2019-facts-applicants-and-matriculants-data
[3] AAMC the complexities of physician supply and demand: projections from 2018 to 2033, June 2020, accessed 2021, https://www.aamc.org/media/45976/download
[4] Diaz T, Navarro JR, Chen EH. An institutional approach to fostering inclusion and addressing racial bias: implications for diversity in academic medicine. Teach Learn Med. 2020;30:110–6. doi:10.1080/10401334.2019.1670665.
[5] Smith B. Mentoring at-risk students through the hidden curriculum of higher education. Lexington Books; 2013.
[6] Dweck CS. Mindset: the new psychology of success. New York: Ballantine Books; 2006.
[7] Marable M. How capitalism underdeveloped black America. MA: South End Press; 2000.
[8] Washington H. Medical apartheid: the dark history of medical experimentation on black Americans from colonial times to the present. New York: Anchor Books, a division of Random House Inc.; 2006.
[9] Canning EA, Mueniks K, Green DJ, et al. STEM faculty who believe ability is fixed have larger racial achievement gaps and inspire less student motivation in their classes. Sci Adv 2019;5:1–7.
[10] Yue-Yung, H., Ellis RJ, Hewitt D.B. et al. Discrimination, abuse, harassment, and burnout in surgical residency training. 2019;381:1741–52.