

Is Medical Education Ready for Generation Z?

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Sig is a 21-year-old who is considering medical school. Accustomed to hard work, he has received all As in college, while majoring in computer engineering. Sig longs to do something meaningful—to make a difference in the lives of others. He feels paralyzed with self-doubt about incurring massive debt associated with medical school. He also dislikes the idea of taking courses that don't seem relevant. Four years of medical school seems like an eternity, and then there is residency. Sig has never faced such a hard decision. It is disrupting his sleep. On one hand, he could make a good living with his bachelor's degree, but will the job be satisfying? On the other hand, he can commit to 7 or more years of medical education, with more debt, but potentially more enjoyable work. Sig has also heard a lot about dissatisfaction and burnout among physicians. Sig talks with his parents, whose advice he values. He will take some time off to make the best decision. He is in no hurry.

Sig represents “Generation Z.” Although members of Generation Z are years away from graduate medical education, experts suggest that it is not too early to start proactively planning for this cohort.^{1,2} Stillman and Stillman² recommended that if educators want to recruit and retain the best and brightest, they will customize experiences to learners’ preferences. Adapting to Generation Z may prove challenging for the medical education community.

Who Is Generation Z?

The terms *Generation Z* and the *iGeneration* are used to describe individuals born roughly between 1995 and 2012.^{2,3} Although it can be problematic to make sweeping statements about groups of people, there is benefit to describing cohorts in order to inform teaching practices.⁴ In terms of life experience, Generation Z was fairly young at the time of 9/11. However, they are well aware of the aftereffects of this terrorist attack and the ongoing wars and international conflicts that seemingly have no end.^{5,6} They are also accustomed to seeing the world as a scary place with frequent natural disasters, school violence, identity theft, online hacking, and bullying.⁵ Generation Z saw their parents go through the Great Recession (2007–2009), when jobs were lost and salaries never recovered.⁶ They are the first generation to have always had the Internet and social networking; technology has been ubiquitous.⁵ At the same time, Generation Z is the most diverse generation in history in terms of race, gender, and sexual orientation.^{2,3,5,6}

Generation Z consists of active problem solvers, independent learners, and advocates for social justice, fairness, equality, and the environment.⁵ This cohort is motivated by a desire to please others and get ahead through hard work.² They were told by their parents that in life there are winners and losers, and winners win as a result of hard work.²

Based on national surveys of 11 million Americans dating back to the 1960s, Twenge³ described Generation Z as being in no hurry to grow up, insecure about financial and physical safety, and more insulated. Compared with previous generations, members of Generation Z have a closer and more trusting relationship with their parents, who have typically given them both positive and negative feedback.² As a result, Generation Z tends to look up to authority figures and want close mentoring relationships.⁵ They expect honesty and will respond well to direction if they feel heard and are engaged.²

The Ubiquitous Internet

Generation Z has spent more time with electronics and on the Internet than any previous generation. A result has been less time socializing face-to-face, with reports showing higher levels of unhappiness.³ The more teens use social media, the more likely they are to report feeling unhappy and lonely, with lower quality of mental health and lower life satisfaction. The incidence of depression and suicidal ideation increases with screen time and social media exposure.³

Stillman and Stillman² noted that Generation Z has a strong fear of missing out. This can lead to depression, anxiety, sleep deprivation, and occasionally extreme feelings of inadequacy. As a result, members of Generation Z have difficulty

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disconnecting from technology.² They may be less emotionally resilient and more insecure than previous generations, and they lack insights into reasons for this.³ Because of their overreliance on adults during their formative years, they may be less well prepared for adulthood.³ Generation Z may be drawn to use electronic communication and social media yet be unaware that this contributes to feeling lonely and isolated.³

“A la Carte” Education

Members of Generation Z expect customization, or an “a la carte” approach to education.⁵ This generation does not see the value in going into excessive debt for a college education, and may view some courses as impractical or irrelevant to their ultimate goals. They expect customized experiences for the best use of their time and resources.² Generation Z also prefers more hands-on experience and on-the-job learning, as well as customized feedback.² They prefer not to spend long periods of time listening to lectures. Instead, they want to know what is needed to succeed *in the moment*,² mirroring their experiences with social media.⁵

Generation Z is hardworking but less self-confident and less likely to ask questions due to insecurity and anxiety.³ They need encouragement to make mistakes and to learn from them.² They are comfortable working independently at their own pace, especially with technology⁵; they also enjoy working in groups, so long as it is applied and involves creativity.⁵

Because Generation Z is accustomed to getting information on demand, they may procrastinate until the last minute to complete assignments and expect instructors to be available 24/7 for questions.⁵ Although they are adept at finding information, they may not analyze it for validity evidence.⁵ They lack skills to critically evaluate information and will require this training via engaging ways (eg, journaling, discussion, reflection).⁵⁻⁷ Educators may need to assist them in finding and evaluating evidence that is accurate, as well as setting milestones for assignment completion.⁵ Regardless of the task, methods should promote engagement and interaction tailored to short attention spans.⁷ One method that appears useful is the flipped classroom.⁵ Here, learners read about a topic before meeting as a group for application of learning through teamwork, debate, problem solving, and reflection.^{4,8,9}

Flexible Workplace

Generation Z believes that, with technology, it is possible to work from anywhere, and thus they do not want to be tied to an office.² Although they prefer

face-to-face communication, they believe Skype works just as well.² Generation Z members tend to have short attention spans,⁶ are prone to multitasking,⁵ and may struggle to manage downtime.²

Generation Z will be attracted to organizations that promote healthy practices, such as offering health club membership, healthy food choices, and a healthy working environment.^{2,5} They may look for organizations without mandates to cover tattoos and body piercings, which they view as self-expression.⁶

Medical Education Considerations

Based on the above profile of Generation Z, educators who will teach this future graduate medical education cohort should consider current use of technology, communication and feedback, educational methods, and wellness (see the TABLE for a summary of examples). It is important to contemplate potential pedagogical changes now, as historically changes in medical education have occurred slowly and frequently are accompanied by conflict.

Technology

First and foremost, this generation will expect up-to-date technology in education and patient care. Learners will want to be able to chart from places other than the hospital or clinic, and educators should consider creative ways to incorporate technology into off-site learning. Hopkins et al⁴ suggested the use of podcasts, websites, simulations, interactive tutorials on YouTube, and Internet-based educational games. Educators may also use social media sites, such as Twitter and Tumblr, for recruitment, communication, and to share learning “pearls.” Facebook can be used to promote educational discussions or post schedule and activities updates.⁴ This may represent a major diversion from traditional methods of teaching and communication. A positive aspect is that Generation Z likely will embrace alternative forms of patient care that do not involve face-to-face contact, such as telehealth. They will bring innovative thinking and a spirit of exploration to organizations willing to test new technology.

Communication

Because Generation Z has spent so much time with electronic communication, this may affect in-person communication skills. Programs should assess learners’ communication skills early in residency and be prepared to work with individuals who struggle with this competency. Role playing, direct observation, and self-reflection may prove useful remediation methods, but immediate feedback on performance will be

TABLE

Common Medical Education Scenarios and Perspectives

Situation	Generation Z Response	Faculty Usual Response	Generation Z Targeted Response
A resident knowledge gap is identified related to a near miss	Pull out cell phone and Google for information Talk with other residents Hide knowledge gaps	Schedule quality time to sit down with the resident Offer guidance and evidence-based literature	Have an electronic meeting if face-to-face can't happen immediately Encourage admission of knowledge gaps Recommend an online video and meet to discuss/reflect
A resident persistently appears distraught and colleagues report concerns about well-being	Spend time on social media connecting with friends Talk to parents Post on Twitter	Schedule time to meet with the learner and provide mental health referrals	Proactively provide wellness activities (eg, mindfulness-based stress reduction programs), training in suicide prevention, and a professional for wellness coaching
Residents are not engaged during lectures	Complain about terrible lectures Give bad evaluations Play on cell phone during the lecture	Meet with residents and review expectations for lecture engagement	Reevaluate teaching methods Replace lectures with flipped classroom Problem-solve (eg, cases) in small resident groups Proactively provide faculty development for new instructional technologies
A resident contacts program director and attendings 24/7 for questions about assignments or work activities	Fail to complete assignments Ask other residents or parents for help Complain about unresponsive program to new applicants	Provide written and online brochure detailing all expectations Schedule a meeting with resident after milestones not achieved or assignments not completed	Make clear when and how faculty can be contacted Provide faculty training to function as coaches Coach resident to create and follow realistic timelines

essential. Generation Z will have poor tolerance for delays in “knowing” how they are doing. Educators will need to provide very clear instructions and not assume that these learners can pick up more subtle forms of feedback, which may have been the mainstay in previous generations.

Communication issues will likely extend beyond patient care. This new generation may expect faculty to be available on demand and to participate in meetings via Skype. They may be afraid to communicate to their teachers and mentors what they do not know. Faculty should be prepared to engage in strong mentoring relationships with clearly discussed expectations regarding boundaries and availability.

Educational Methods

Generation Z will expect flexibility in their education beyond choosing from a set of available electives. They will want to design their experiences and seek programs that allow and encourage plasticity. They may even ask for justification of required rotations or experiences when the immediate benefit is not

obvious. Institutions should be prepared to analyze and explain the rationale for these experiences rather than say, “That’s just the way it is.”

Instead of traditional didactic lectures, programs should accelerate the trend toward active learning methods that incorporate problem solving, such as the flipped classroom. Another example is the group journal club, in which all trainees analyze a part or all of a paper.

There is still a lot of room for innovation in medical education instruction. For Generation Z, creativity should be the norm, with hands-on participation, reflection, and discussion. Faculty will also need to be comfortable using available platforms in social media to disseminate knowledge and facilitate conversations.

Wellness

Generation Z wants to do meaningful work that affects social change, they want to be aligned with socially engaged institutions, and they want to be competitively compensated.² In terms of recruiting,

institutions that partner with communities, advocate for social justice, and incorporate global health may be more attractive to this group. Learners also will be looking for healthy work environments with wellness programs, fitness facilities, and healthy food. In short, they want to work for a health care organization that stands up for health.

Resilience and well-being are currently hot topics in medical education. This upcoming group of learners may pose an even greater challenge for maintaining emotional health. Residency programs should have *authentic* wellness promotion programs in place as well as methods to identify and work with struggling learners.

An Important Pause

Despite these calls for change, Garcia and Philip¹⁰ suggested a pause before a complete reform. While it is important to regularly evaluate teaching methods and learning preferences of students, there are dangers associated with incorporating new technology without a guiding pedagogy and strong evidence base. Technology should enhance education, not detract from the content of instruction.¹⁰ It offers new opportunities in educational settings, but educators must be thoughtful about how it is incorporated.¹⁰ Technology is never a replacement for engaged teachers.¹⁰

For medical education, the question must be, “Do technological advances lead to better patient care, better performance scores, or neither?” Many authors suggest that, rather than just investing in technology, organizations need to invest in faculty development to more effectively use technology.^{6,9} It is naive to believe that technology can help subpar educators become better teachers.¹⁰ Perhaps this is the biggest future challenge, given that faculty have clinical responsibilities that increasingly compete with educational responsibilities. The emergence of Generation Z–associated educational issues will require significant faculty time and creativity, on an ongoing basis.

Good News/Bad News

The good news is that we have a little time to be thoughtful about changing medical education to successfully recruit, train, and retain Generation Z physicians. The bad news is that we have only a little time to make these changes. Historically, medical education has been resistant to reform—and for good reason. At the end of the pathway are patients; we need to find the best teaching tools that promote the

best delivery of care. There is always room for improvement, but change should be guided by theory and not simply tradition. Moreover, until the difficulties that contribute to current career dissatisfaction among physicians are addressed, it is not likely that the highest performers within Generation Z will be recruited and retained.

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