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Writing 117: Writing for the Social Sciences

20 May 2019

On the State of Premedical Education and
the Self-Selection Criteria of Premedical Students

Many, aspiring new undergraduate students enter the field of academia with the dream of spring-boarding into the health and medical fields. These ambitious, motivated students want to become the modern world's healers; they want to touch people's lives and fulfill their dreams of becoming doctors. However, many of these students brutally discover that this life-long career choice is both arduous and self-destructive for all but the most dedicated of students. Indeed, the road to doctorhood may be littered with moral pitfalls and the dreams of the super-majority (60%) that fail to make it (Olsen 74). Even so, all of the fault is not on the students, as the current literature shows that colleges and universities do not guide premedical students on the academic, social, and moral battles needed to win entry into medical school.

Freshman who want to pursue health professions already come from high school with serious disadvantages. On average, they enter college with only a fractional idea of what career to pursue, but in the case of premedical students, without a good road map of what to learn and how to learn it. As stated by Arum, a sociology professor at NYU, "Although growing proportions of high school graduates are entering higher education, many are not prepared for college-level work and many others have no clear plan for the future... students proceed to higher education regardless of their academic performance" (Arum and Roska 9). Still, even for those who select premedical as their path and commit to it, the earliest hurdles are introductory chemistry and biochemistry courses. Both of these are difficult not just due to nature of the subjects, but also because they are often taught poorly. Cooper, the Chemistry department head of Michigan State, noted that although premedical students go through almost two and a half years of chemistry, the inter-relationships between the concepts between classes do not form. She argues that a plurality

of these students go through the motions of classes via rote memorization, but come of their time without understanding the applications of chemistry. Instead of building the bonds between the atomic to the biochemical, “Students see each step in the process as separate, and are often tested on them separately so that they do not see their overall purpose or value.... students must have relevant prior knowledge, new material must be explicitly connected to that prior knowledge” (Cooper 821). While this trend of memorizing over synthesizing seems like it might be due to some desire to shortcut the learning routes on behalf of premeds, further literature shows, that, on the contrary, premeds are trying more than others to understand and grasp the ideas.

One study conducted on the motivations of pre-meds was by Horowitz, a former associate professor of chemistry at Brooklyn College. He performed a study via a series of random selections and interviews, selecting only from the 2009 class that had self-indicated as ‘Premed.’ In this, Horowitz found that “Only a small number of students (4 of 31) indicated that grades were all that mattered to them” (Horowitz 227). To the contrary, further surveying found that many of them desired to master hard STEM courses, and saw that “[D]oing well in pre-med courses was not sufficient ... that the real reason for wanting to learn the premed course material was simply in order to do well on the Medical College Admission Test” (Horowitz 230). So even though the research shows a plurality of these students desire to intrinsically understand their course material, the structure and learning objects in place by school administration solidly prevent this. For example, Arum criticizes the over reliance on ‘fact’ based multiple choice exams and notes how short-lived the learning for these exams can be. He calls for a return to emphasis on free response and open ended questions, and that “While [students] may be acquiring subject-specific knowledge ... many students are not improving their skills in critical thinking, complex reasoning, or writing” (Arum and Roska 14). All of Arum’s learning metrics, which universities currently fail to meet, are also the cornerstones of the Medical College Admission Test, or MCAT, the final challenge that colleges also leave their students to fight without guidance.

The MCAT acts as the ultimate dividing line between the upperclassmen who were planning to apply to medical school and the upperclassmen that do apply.

Works Cited

Anaya, Guadalupe. "Correlates of Performance on the MCAT: An Examination of the Influence of College Environments and Experiences on Student Learning". *Advances in Health Sciences Education* 6.3 (2001): pp. 179–191. [Web](#).

Annotation: Anaya performed statistical analysis to see if there was any correlation between MCAT scores and success in Medical Schools. She found, even when controlling for socioeconomic backgrounds, race, and gender, that the perceived rigor of the incoming student's undergraduate school and MCAT scores were the most influential factors for predicting success in Medical School.

Arum, Richard and Josipa Roska. "A Lack Of Rigor Leaves Students 'Adrift' In College". *National Public Radio* (9 Feb. 2011): pp. 1–14. [Web](#).

Annotation: Arum and Roska surveyed tens of thousands of first year and fourth year American college students to measure if college improves writing and critical thinking skills. Arum and Roska found alarming trends that the majority of incoming freshman were not prepared by high school, and that a majority of American undergraduate students leave 'adrift,' that is without purpose or reason for their education.

Cooper, Melanie M. "The New MCAT: An Incentive for Reform or a Lost Opportunity?" *Journal of Chemical Education* 90.7 (2013): pp. 820–822. [Web](#).

Annotation: Cooper argues that the new 2015 revisions to the MCAT call for a system wide overhaul of how introductory and organic chemistry are taught. Cooper argues against following the Medical College Admissions Test learning guidelines, stating that instead the MCAT encourages a broken, mishmashed view of chemistry. Cooper ends on the note that the current circula fails to instill pattern recognition of chemical structures and resultant behaviors, but that catering to the new MCAT's criteria will not fix this problem.

Doering, Alex, et al. "The Undergraduate Hospice Experience: A Way to Teach Pre-Med Students the Importance of Compassionate Patient Care (S725)". *Journal of Pain and Symptom Management* 49.2 (2015): pp. 420. [Web](#).

Annotation: Doering studied and observed the learning experiences of premedical students who worked in hospices, which are end-of-life facilities. Doering noted an incredible growth in both introspection and the ability to empathetically give patient care in these students.

Horowitz, Gail. “It’s Not Always Just About the Grade: Exploring the Achievement Goal Orientations of Pre-Med Students”. *The Journal of Experimental Education* 78.2 (2010): pp. 215–245. [Web](#).

Annotation: Horowitz studied and surveyed several hundred Premedical students at an all male, Jewish college. Horowitz found that while some premedical students were primarily motivated by getting high grades, these students were a minority. A plurality of students were motivated in-part or entirely by a desire to master their classes so as to become better doctors.

Olsen, Lauren D. “‘It’s on the MCAT for a Reason’: Premedical Students and the Perceived Utility of Sociology”. *Teaching Sociology* 44.2 (2016): pp. 72–83. [Web](#).

Annotation: Olsen argues for the continued importance of Sociology classes and the humanities component of the new, 2015 MCAT. Olsen argues that if doctors are trained with only science and reductionist biochemistry, they will be unable to introspect on their societal roles, or worse, be unable to treat their patients with human dignity.

Spencer, Andy, et al. “Cheating At Medical School”. *BMJ: British Medical Journal* 322.7281 (2001): pp. 296–299. [Web](#).

Annotation: The British Medical Journal’s team of editors exposes the rampant cheating in and before medical school, and debates the ramifications and solutions to the underlying problems.