

“Flipped classroom” for academic and career advising: an innovative technique for medical student advising

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Introduction: Career advising for medical students can be challenging for both the student and the adviser. Our objective was to design, implement, and evaluate a “flipped classroom” style advising session.

Methods: We performed a single-center cross-sectional study at an academic medical center, where a novel flipped classroom style student advising model was implemented and evaluated. In this model, students were provided a document to review and fill out prior to their one-on-one advising session.

Results: Ninety-four percent (95% CI, 88%–100%) of the medical students surveyed felt that the advising session was more effective as a result of the outline provided and completed before the session and that the pre-advising document helped them gain a better understanding of the content to be discussed at the session.

Conclusion: Utilization of the flipped classroom style advising document was an engaging advising technique that was well received by students at our institution.

Keywords: flipped classroom, career advising, medical student advising, academic advising

Introduction

Career advising for medical students can be challenging for both the student and the adviser. In order to be effective, a career adviser must establish an advising framework, develop rapport, and educate the advisee. These components can be a challenging task to accomplish, as advisers are often responsible for providing academic advice to hundreds of students. Forward-thinking medical school programs have adopted smaller advising groups, thereby decreasing the student-to-adviser ratio.¹ Despite these efforts, time constraints of the adviser and advisee often remain barriers to optimized advising sessions.

Flipped classroom methodologies, which require students to preview material and prepare for didactic or small group sessions ahead of in-person meetings, have gained traction in teaching institutions and educational settings because they free up classroom time to focus on the application of the information learned prior to the meeting. They have been shown to maximize learning and create a more engaged student experience.² As a result, classroom sessions reinforce and implement the concepts learned outside of the classroom.² Numerous undergraduate and graduate programs have adopted flipped classroom techniques to redesign traditional curricula. To our knowledge, there is no existing research on flipped classroom and medical student career advising.³ Our objective was to design, implement, and evaluate a “flipped classroom” style advising session, where students prepare at home prior to meeting with their advising mentor.

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Methods

Study design and population

We performed a single-center cross-sectional study conducted at an academic medical center. This study was reviewed by the institutional review board (IRB) of University of Arizona College of Medicine and determined to be a quality improvement project that required neither IRB oversight nor informed consent. At our institution, the student body is divided into four longitudinal “houses”, and each house is led by a Dean of Student Affairs who serves as the primary career adviser for the students in their house. This study was performed within one of the four houses. The study participants were 57 medical students (30 first-year students [MS1] and 27 second-year students [MS2]). Participation in the study was voluntary.

Flipped classroom advising

A 1-hour one-on-one student well-being and career advising session was provided to MS1 and MS2 in one of the four medical school houses. Students received a document from their adviser and were asked to read and complete this form prior to their one-on-one advising session (Figures S1 and S2). This document was developed based on the recommendations made by the American Academy of Medical Colleges (AAMC) Careers in Medicine Advising Checklist and edited for content specific to our college of medicine.

Advising document

The advising document used during these sessions addressed a wide range of topics, including students’ self-perceived performance during the academic year, students’ participation with learning specialists in the office of student development, MS1 and MS2 specific summer plans, United States Medical Licensing Examination (USMLE) Step 1 study plans, and any student concerns with the current academic progress.

Evaluation

Medical students’ evaluation of the flipped classroom style advising process and session was conducted using a three-item multiple-choice questionnaire (Figure S3). The email link was sent a total of two times.

Data analyses

All analyses were performed using Stata 11 (StataCorp LP, College Station, TX, USA). Data are presented as percentages with 95% confidence intervals.

Results

A total of 17 (30%) of the 57 students responded and completed all the required questions. Ninety-four percent (95% CI, 88%–100%) of students felt that the advising session was more effective as a result of the pre-meeting advising document received before the session. Ninety-four percent (95% CI, 88%–100%) of students felt that the pre-meeting advising document helped them understand what topics the advising session was going to address. Fifty-nine percent (95% CI, 46%–72%) of students felt that the pre-meeting advising document helped them organize and prepare for the meeting.

Discussion

Flipped classroom techniques are increasingly understood to be an important aspect of modern medical education. Investigations have demonstrated that students who participated in a “flipped classroom” approach were more likely than traditional classroom students to agree that active student engagement was encouraged by the instructor and preparation for class was necessary to be successful.³ Academic and career advising serves as an effective avenue for the flipped classroom approach because it enables students to be more adept at navigating the rocky terrain of university education. When students are given a pre-advising session task, they become proactive in guiding their adviser to assist them in accomplishing their goals. At Kansas State University, Steele³ stated that the implementation of interactive exercises and modules supports the advising process by allowing advisers the ability to evaluate students’ goals, learning, and overall performance. Flipped advising leads to more positive outcomes for students by providing a structured approach for students to hone in on their pursuits, academic progress, and areas of weakness. Additionally, the flipped advising approach changes the relationship between student and adviser, and advising becomes a 24/7 model in which student and mentor work together to help the students’ academic and career goals.⁴

The current dilemma regarding the standard academic advising paradigm is that sessions become inefficient and ineffective at meeting the students where they are at in terms of overcoming obstacles to achieving their aspirations. It is common for students to depend on their advisers to tell them about required courses to meet general education requirements, prerequisites, and possible programs to help academic goals.⁵ Leonard⁶ described that advising must use technology to become effective and efficient at anticipating and managing students’ unique academic portfolios. It is possible that

incorporating technology such as video-recorded lectures would allow an advising session to go beyond the basic interaction of a student and adviser and help transition from “small talk” to developing a comprehensive management plan unique to the student.

In our investigation, the advising document was created as a complement to the advising handouts of the AAMC Careers in Medicine but tailored specifically to our institution. There are certain benefits obtained with creating an institution-specific advising document. Not all students, or class of students, are similar, and individual questions can be tailored to address unique concerns. For example, in a previous year, we noted a large number of students were interested in postponing their first attempt at the USMLE Step 1 examination because of a desire to improve their score. These students had successfully passed practice examinations and were doing well on test prep content scores prior to their desire to postpone. As a result of this trend, the advising document was devised to bring this issue to the attention of the student and the adviser, during subsequent years, so as to mitigate the issue preemptively.

Although we were able to successfully integrate one form of flipped class style education, there are various techniques that should be investigated further. Merlin⁷ had described various flipped class style techniques such as incorporation of screen capture video recordings, podcast, group activity, group question and answer sessions, and many more. Furthermore, Fulton and Gonzalez⁸ had described the benefit of using flipped class education for material that is considered less interesting or typically less engaging. Future iterations of this investigation include the creation and use of existing video tutorials as primers for flipped class model academic and career advising.

The extreme stresses of medical school, along with competition and isolation, are critical factors that weigh heavily on medical students.⁴ Owing to the rigorous demands of medical school education and the possible psychosocial disruption it may cause students, it becomes imperative that mentors and advisers ensure that each individual student's unique needs are met. Mentoring in the medical school setting provides challenges including time constraints for both medical students and their physician mentors who are often working long hours. Establishing medical student academic and career advising using flipped classroom techniques such

as the one described in this study was a logical first step in addressing this issue at our institution.

Limitations

Our study is not without limitations. First, our investigation included only preclinical students. Although the magnitude of effect was large, our sample size was small. The small sample size may be due to the voluntary nature of the study and perhaps that this request was made only one time via email. Furthermore, we did not compare advising techniques, and thus cannot draw relevant conclusions with regard to the superior advising technique. Our advising document and survey instrument were not validated prior to their use in this investigation, and as with any survey, results are vulnerable to response bias. Lastly, we only used one form of flipped classroom style technique; future studies should further investigate the utility of flipped classroom for academic and career advising.

Conclusion

Utilization of the flipped classroom style advising document was an engaging advising technique that was well received by students at our institution.

Disclosure

The authors report no conflicts of interest in this work.

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Supplementary materials

Student Advising MSI UACOM

MS1 Student Name: _____

In order to help our discussions regarding your current and upcoming year, take a moment to fill out this form. Kindly email this document to me prior to our meeting or bring it with you to our scheduled appointment.

First-Year Information:

- How well are you adjusting to the first-year curriculum?
Very Poorly 1---2---3---4---5---6---7---8---9---10 Excellently
- Are you receiving the support you need academically?
Very Poorly 1---2---3---4---5---6---7---8---9---10 Excellently
- How well are you performing academically? Any courses particularly concerning?
- Do you know who Athena and Scott are?

Summer plans and future preparation:

- Which of the following are you planning to do?
 - MSRP (funded research)
 - Global MedCats
 - Other: _____

Lets discuss more at our meeting....

Future plans:

- Have you decided on a specialty of medicine you would like to pursue?
 - Yes
 - No
- Have you shadowed anyone in this specialty?
 - Yes
 - No

If not, start thinking about what skills you have; what you want in your specialty or specialties you are drawn to; and what you need to know to make a decision (lifestyle, salary, patient demographics, etc).
- What interests do you have that make your potential profession a good fit?
- What are top priorities for you in choosing a profession?
- FACT: MS2s who make a study plan for Step 1, set an exam date, and pass the NBME practice exams (after studying) do not score higher on Step 1 when they delay their exam date.
 - Yes
 - No

Figure S1 Advising document (medical student year 1).

Abbreviations: MS, medical student; NBME, National Board of Medical Examiners.

Student Advising MS2 UACOM

MS2 Student Name: _____

In order to help our discussions regarding your current and upcoming year, take a moment to fill out this form. Kindly email this document to me prior to our meeting or bring it with you to our scheduled appointment.

Second-Year Information:

- How well are you adjusting to the second-year curriculum?
Very Poorly 1---2---3---4---5---6---7---8---9---10 Excellently
- Are you receiving the support you need academically?
Very Poorly 1---2---3---4---5---6---7---8---9---10 Excellently
- How well are you performing academically? Any courses particularly concerning?

Summer plans and preparation:

- Do you have a study plan for Step 1?
 - Yes
 - No
 Lets discuss more at our meeting....
- FACT: MS2s who make a study plan for Step 1, set an exam date, and pass the NBME practice exams (after studying) do not score higher on Step 1 when they delay their exam date.
Are you aware of this?
 - Yes
 - No

Third-year plans:

- Have you decided on a specialty of medicine you would like to pursue?
 - Yes
 - No
- Have you shadowed anyone in this specialty?
 - Yes
 - No

If not, start thinking about what skills you have; what you want in your specialty or specialties you are drawn to; and what you need to know to make a decision (lifestyle, salary, patient demographics, etc).
- Have you looked at the average Step 1 score of matched 4th year students in that specialty?
 - Yes
 - No
- What questions or concerns do you have about clinical rotations and scheduling your third year?

Figure S2 Advising document (medical student year 2).

- Do you feel your advising session was more effective as a result of the outline you received before your meeting?
 - Yes
 - No
- Do you feel that the pre-meeting advising document helped you understand what the advising meeting was going to address?
 - Yes
 - No
- Did the pre-meeting advising document help you gather your thoughts and questions for the meeting?
 - Yes
 - No

Figure S3 Survey questions.

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