



The Curious Student: An Evaluation of Triggers of Curiosity in Preclinical Undergraduate Medical Education

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Background and Rationale

- Curiosity has been described as a driving force in medicine to foster lifelong learning, knowledge acquisition, and improve patient care outcomes.
- Medical students tend to have high baseline levels of trait curiosity.
- Curiosity in medicine potentially increases test scores.
- Despite the benefits of curiosity, the impact of medical school curriculum on curiosity has not been explored.

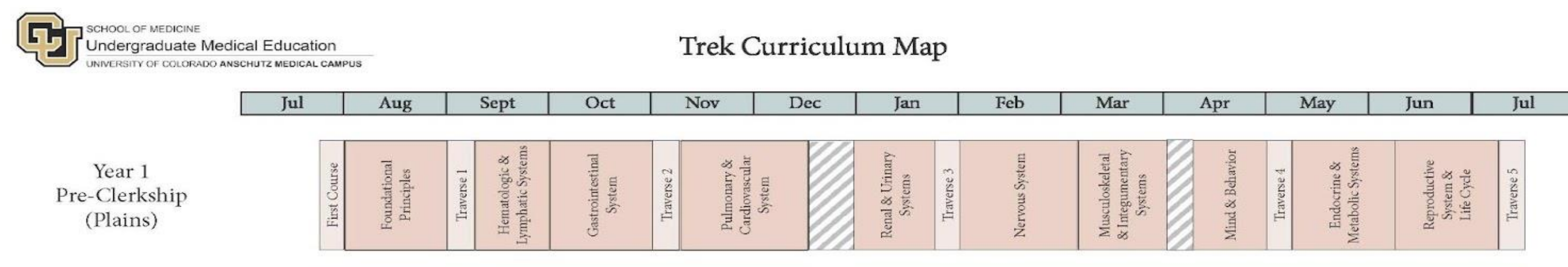
Aim

- Our aim is to describe the elements of the preclinical undergraduate medical curriculum that trigger student curiosity.

Materials and Methods

Setting

- In 2021, the University of Colorado implemented a novel curriculum with a one year integrated organ system based preclinical phase including many basic science disciplines:



Data Collection

- At the end of each course, students completed a required course evaluation with many Likert scale questions about various course elements.
- We added an optional question to all preclinical course evaluations for three consecutive school years about student curiosity:
- “Describe a time during this course when you were curious and motivated to learn more. (What triggered this interest? What questions did you have? How did you or how do you plan to follow up on these topics?”

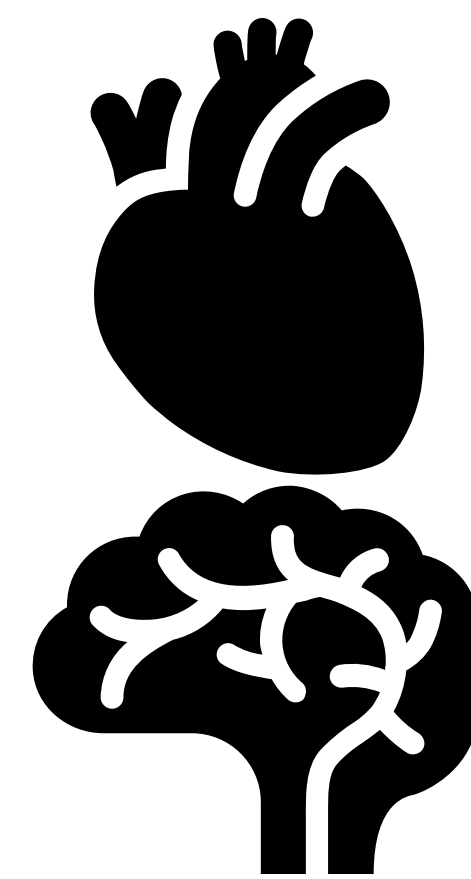
Qualitative analysis

- We employed a thematic analysis to creating open-codes for each response. Each response was analyzed by two researchers to generate final codes and generate themes.
- These themes were analyzed in Dedoose to determine patterns in the student responses.

Results

Thematic Analysis

- 1,172 responses were reviewed from 30 courses over three consecutive years and were organized into five main categories:

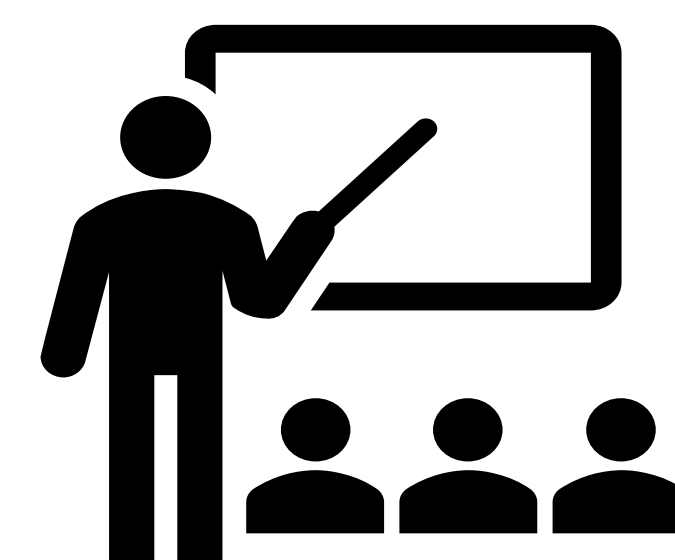


Content: What is being taught?

- Connection of content to patient care or direct clinical application was frequently discussed:
 - “I saw some of the things we covered in the course while on my preceptorship and that made me more interested and motivated to learn the material”
 - “I am a huge fan of Dr. ***’s lectures and want to learn more about immunology which was a topic that prior to med school did not express much curiosity in. I think this was caused by her clear lecturing and very useful and well put together slides.”

Faculty: Who is the teacher?

- Traits of an instructor such as affect or clinical experience were mentioned as their reason for curiosity:
 - “Having engaging professors that love their topics and are great teachers is what made me more curious to learn”

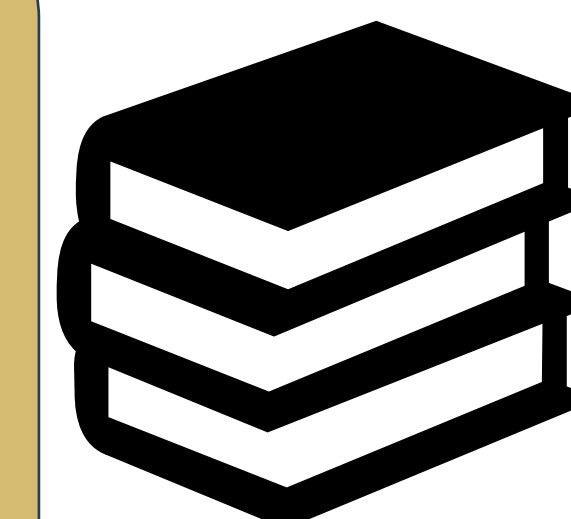


Educational Methods: How is it being taught?

- Students particularly discussed case-based learning as an area that triggered curiosity:
 - “The paper cases. I love getting to actually think about putting everything we are learning together and going through a whole clinical case. I learn so much and am truly able to feel that medicine is exciting “

Action: How does the student respond to curiosity?

- Students describe various ways they acted on their curiosity including independent research or engaging in clinical experiences:
 - “I was really interested to learn about iron deficiency anemia during pregnancy after my sister showed me her CBC. I spent hours on Up To Date researching.”



Student’s Background: Who is the student?

- Many students described personal connection to the content such as exposure to illness or previous research:
 - “I thought the cancer block in particular stimulated my curiosity and motivated me to learn more. My uncle is battling with stage 4 prostate cancer and this played a role in my curiosity”

Conclusions and Significance

- This study identified major areas of the preclinical curriculum that triggered curiosity at a single institution.
- These findings provide practical guidance for educators to emphasize curricular elements to enhance learning and performance.

Guidance for Educators

- Integrate clinical skills with basic science courses.
- Utilize small group active learning sessions.
- Purposefully recruit faculty with passion and enthusiasm for the content area they are instructing.
- Create a platform to broadly solicit information from students who are interested in sharing about personal connections to content areas
- Allow for unstructured space and time in preclinical education to allow for acting on curiosity

Limitations

- This study was conducted at a single institution with a unique curriculum which may limit its generalizability to other medical programs.
- Student responses were self reported and therefore may be biased toward particularly positive or negative perception of the course.
- This study did not investigate the elements of the curriculum that did not trigger curiosity.

Future Directions

- Future research could examine the impact of the clinical medical school curriculum on student curiosity, particularly when directly involved with patient care.
- The influence of faculty curiosity on student curiosity was not investigated but could provide additional insight to how to foster curiosity in instructors and students.