

The Contribution of Basic Science Education to the Professional Identity Development of Medical Learners

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DISCLOSURES

The presenters have no actual or potential conflicts of interest in relation to this presentation and workshop.

BEING AND BELONGING: PERSONAL AND PROFESSIONAL IDENTITIES

Contribution of Basic Science Education to the Professional Identity Development of Medical Learners: A Critical Scoping Review

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CUNY School of Medicine



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of New York



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PATHOLOGISTS



university of
 groningen

university college
 groningen



Universidade do Minho

Objectives

By the end of the session, participants will be able to:



Identify three key insights about the connection between basic science education and professional identity development.



Explain how these insights could influence their practices.



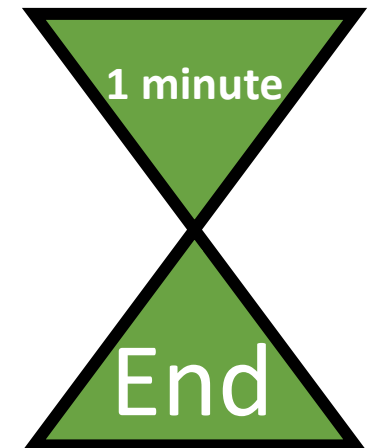
Discuss their understanding through various reflective questions.

Chat Question: Please choose one to answer.

1. What are your thoughts on the role of basic science in forming the professional identity of medical learners?
2. How do you think it influences their development as future healthcare providers?

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A key differentiator
between physician training
and that of other
healthcare providers



A tool to advance medical
practice and for the
professionalization of
medicine



Prepare students for their
board exams (e.g., USMLE
Step 1 and COMLEX 1)

Flexner A. Medical education in the United States and Canada. From the Carnegie Foundation for the Advancement of Teaching, Bulletin Number Four, 1910. Carnegie Foundation for the Advancement of Teaching Bulletin. 1910;xvii

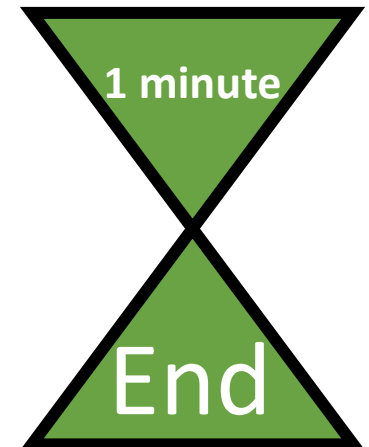
Finnerty EP, Chauvin S, Bonaminio G, Andrews M, Carroll RG, Pangaro LN. Flexner revisited: the role and value of the basic sciences in medical education. Acad Med. Feb 2010;85(2):349-55. doi:10.1097/ACM.0b013e3181c88b09

Norman G. The basic role of basic science. Adv Health Sci Educ Theory Pract. Oct 2012;17(4):453-6. doi:10.1007/s10459-012-9394-8

Sibbald M, Neville A. A hundred years of basic science in medical education. Perspect Med Educ. Jun 2016;5(3):136-7. doi:10.1007/s40037-016-0269-1

Chat Question:

What is the purpose of basic science in medical education?



2020: Initiated
a systematic
scoping
review to
answer the
question:

How, if at all, does the **basic* science**
component of medical education contribute
to the **professional identity development** of
medical learners?

*basic and foundational are used interchangeably in this presentation

Professional Identity

Mount, Kahlke, Melton & Varpio (2022)

The cognition, activities, and values members of a profession come to embrace.

Professional Identity Development (PID) or Professional Identity Formation (PIF)

“think, act, and feel like a physician ”



AI generated

Theoretical framework

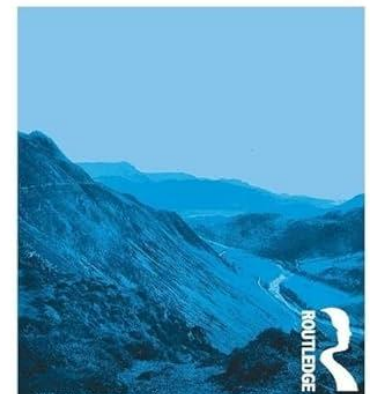
Landscapes of Practice



Learning in Landscapes of Practice

BOUNDARIES, IDENTITY, AND KNOWLEDGEABILITY
IN PRACTICE-BASED LEARNING

Edited by ETIENNE WENGER-TRAYNER, MARK FENTON-O'CREEVY,
STEVEN HUTCHINSON, CHRIS KUBIAK, and BEVERLY WENGER-TRAYNER



<https://www.wenger-trayner.com/about-be/>

Sojourners



AI-generated

Tourists



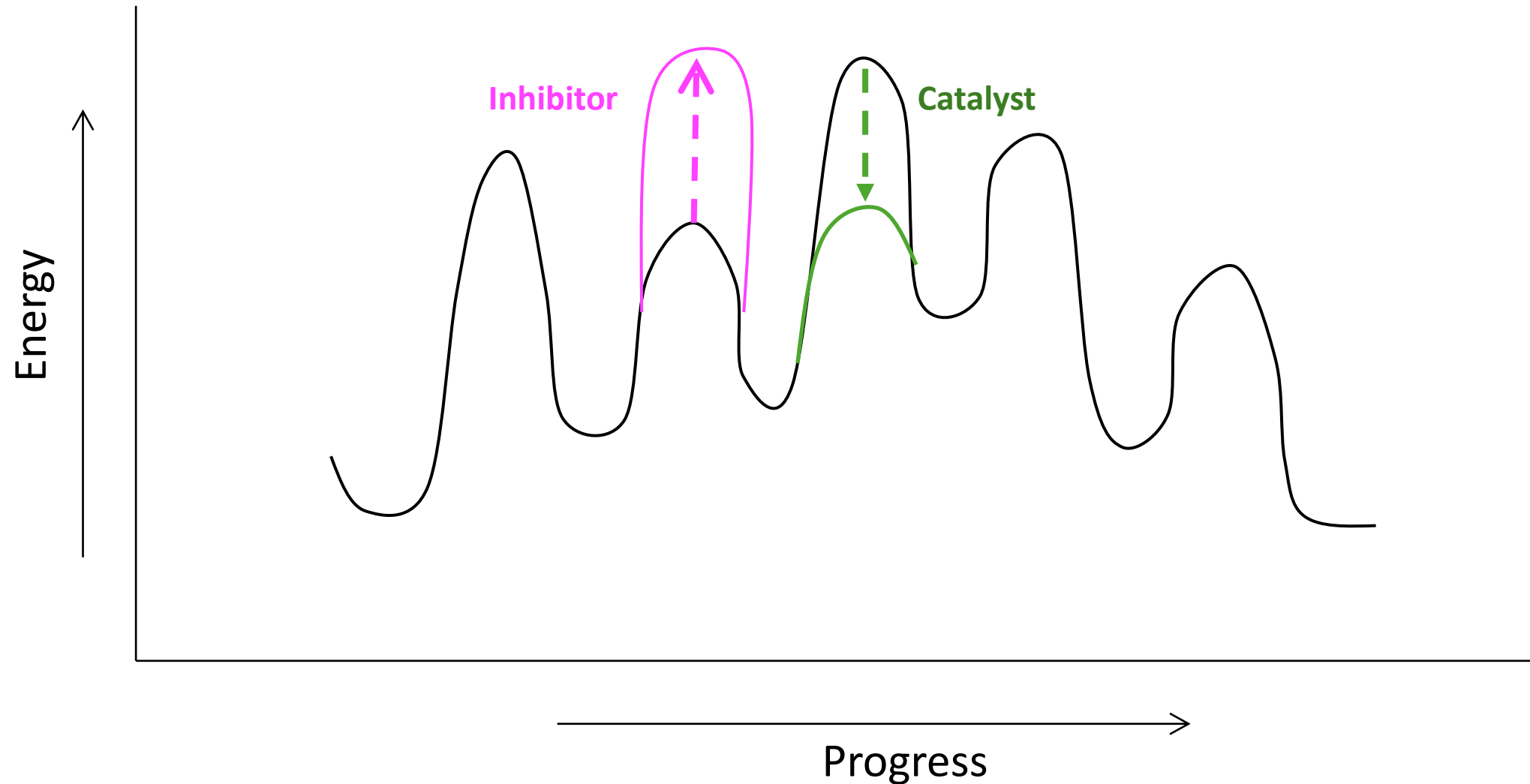
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Challenges



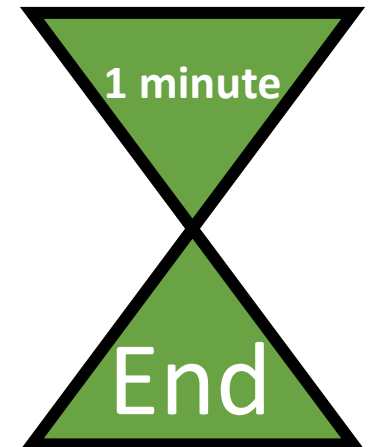
AI-generated

Education as Transformation



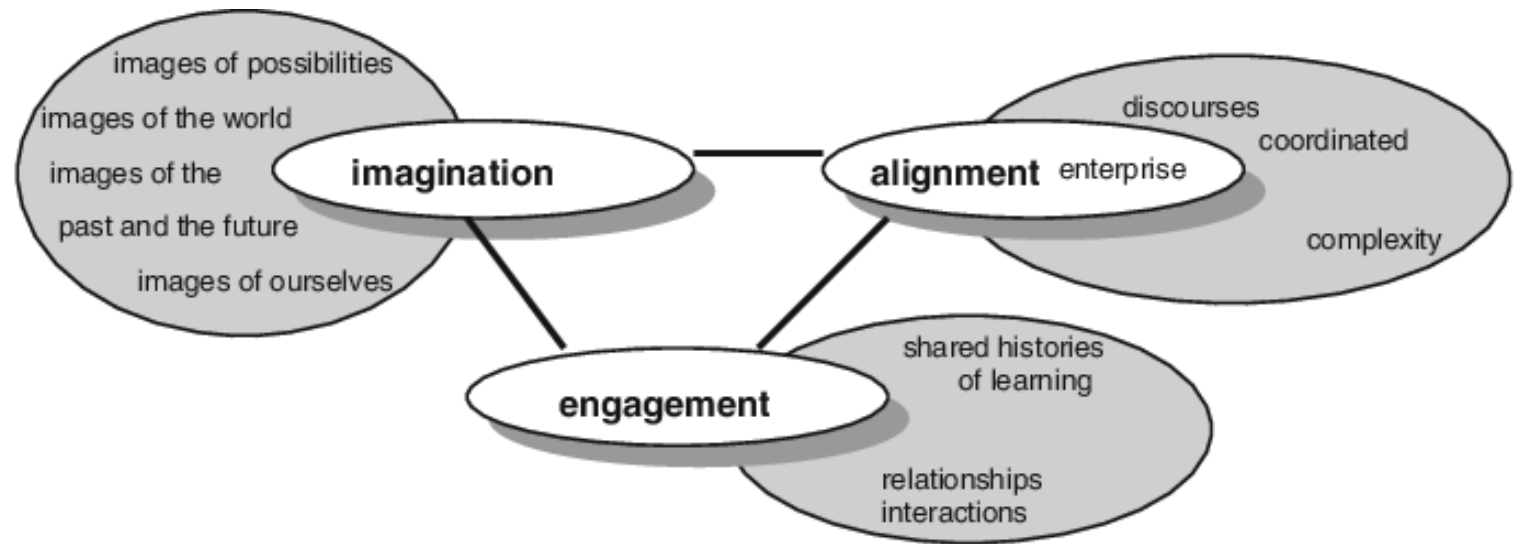
Chat Question:

Can you think of a time you were a sojourner or a tourist?

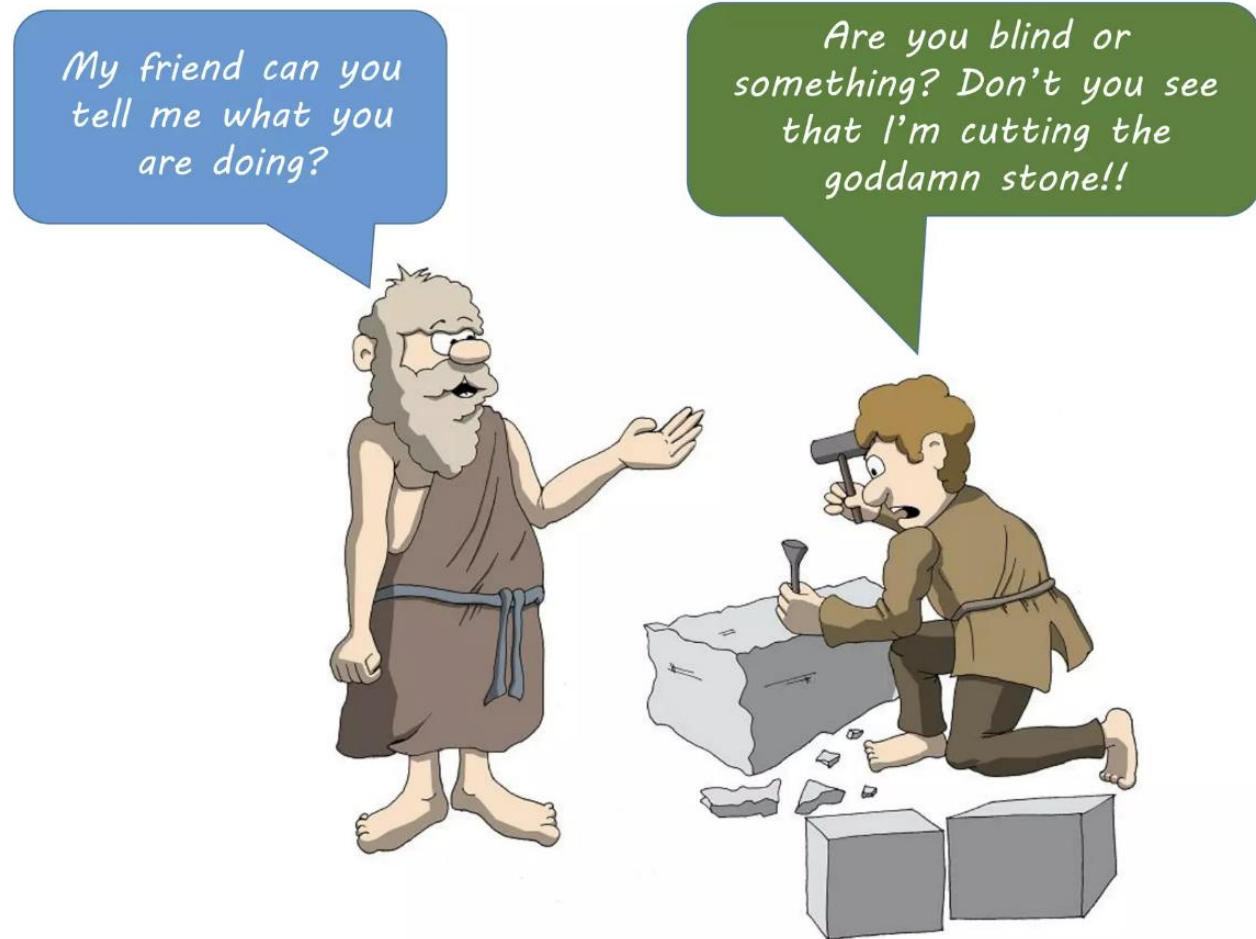


Modes of Belonging (Identifying) According to Wenger

Modes of belonging from Wenger (1998, p. 174)



Engagement



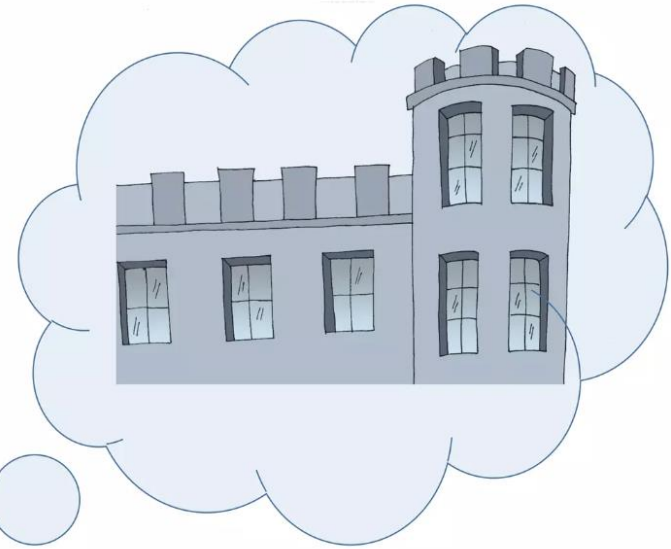
Alignment

Oh, I'm cutting these stones. Look at these stones, aren't they the most perfectly cut stones you have seen? You see, I intend to become the best stonecutter in town!!



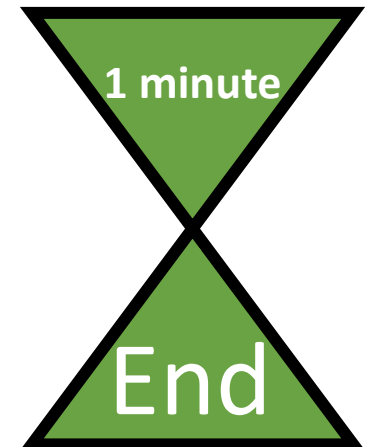
Imagination

*Oh I'm glad you asked.
You see, I'm making a
castle. I visualize every
stone I cut to be part of
this beautiful castle.*



Chat Question:

Which perspective resonates most with you, and why. How do your choices reflect your students' professional identity and approach to learning?

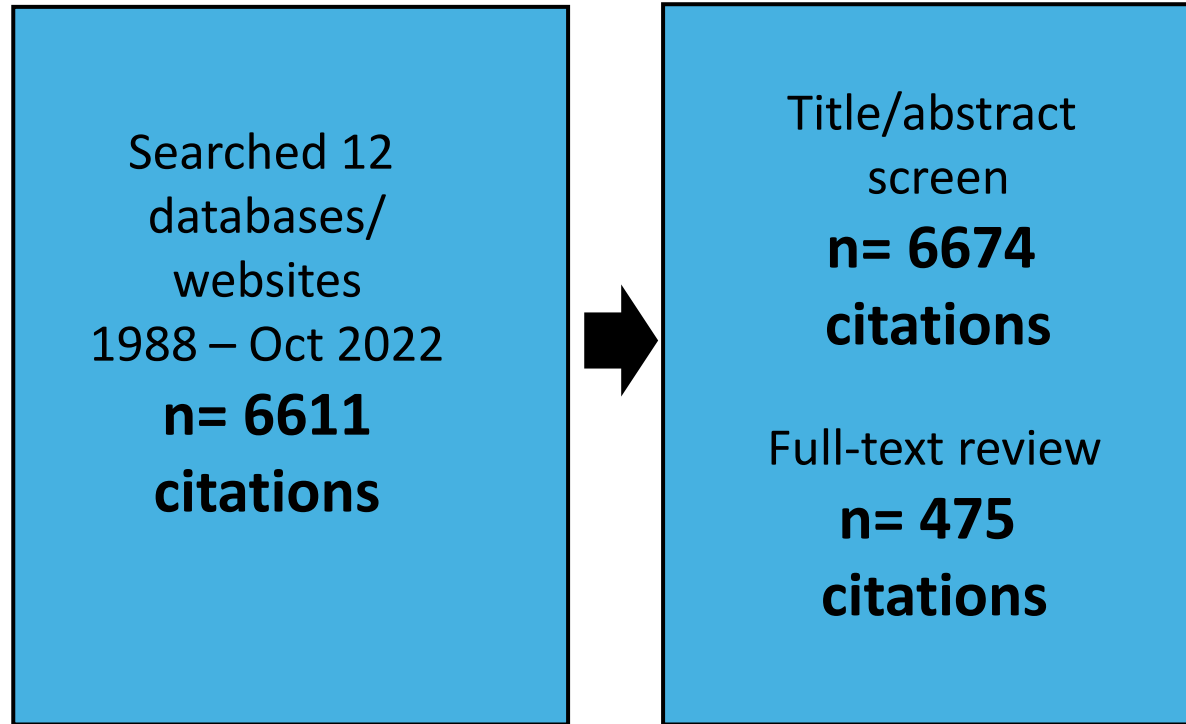


Study design

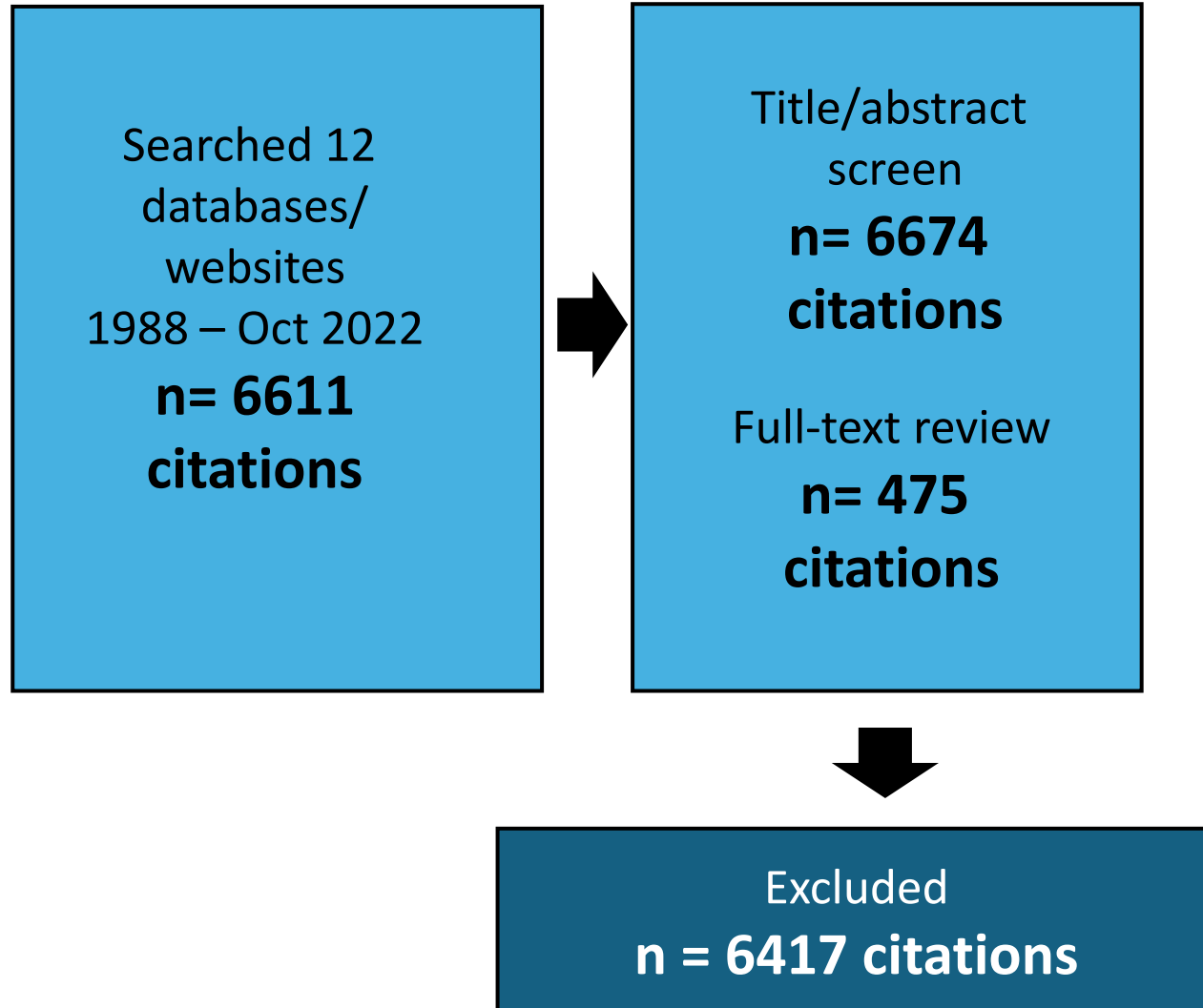
Study design

Searched 12
databases/
websites
1988 – Oct 2022
n= 6611
citations

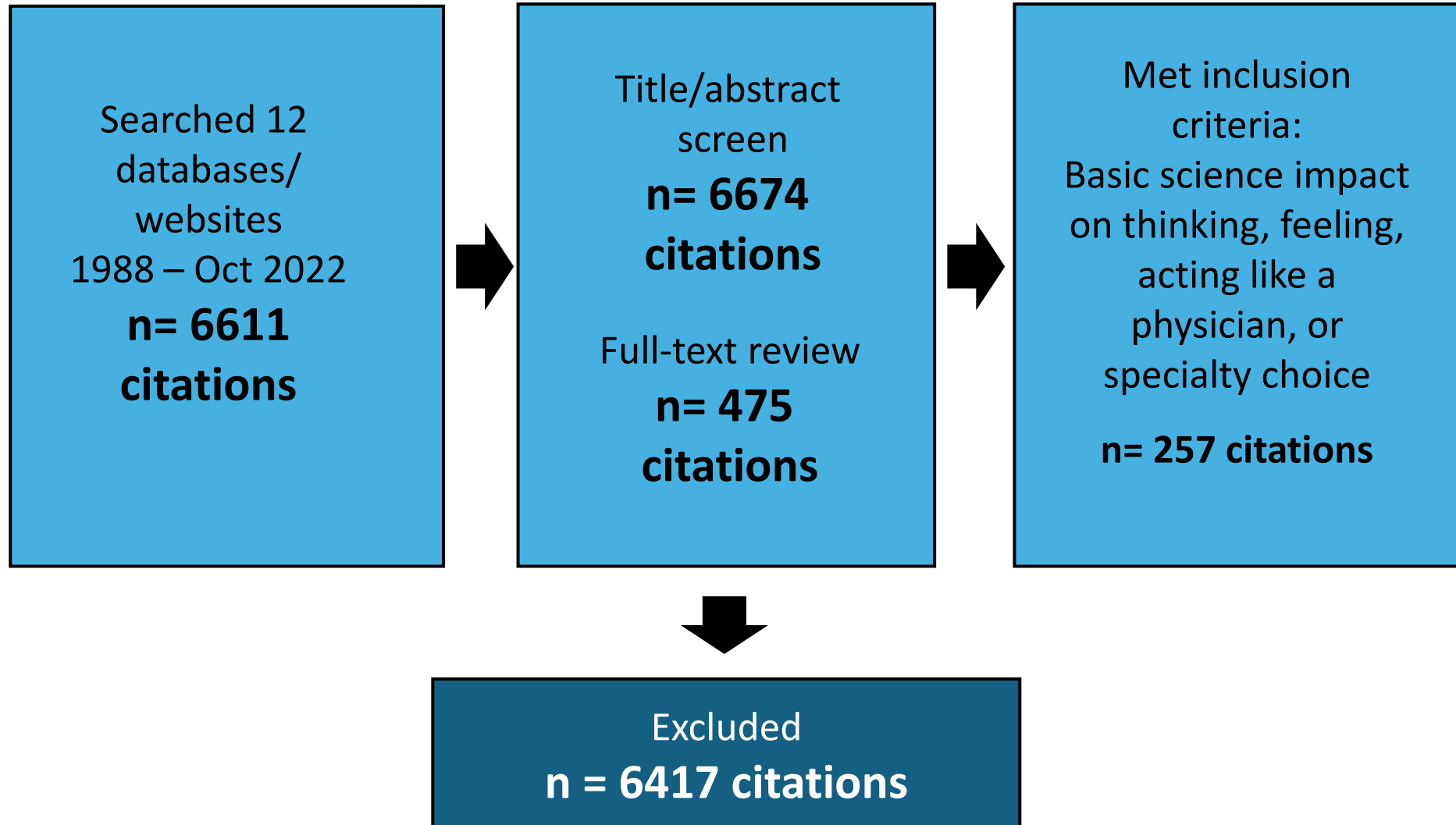
Study design



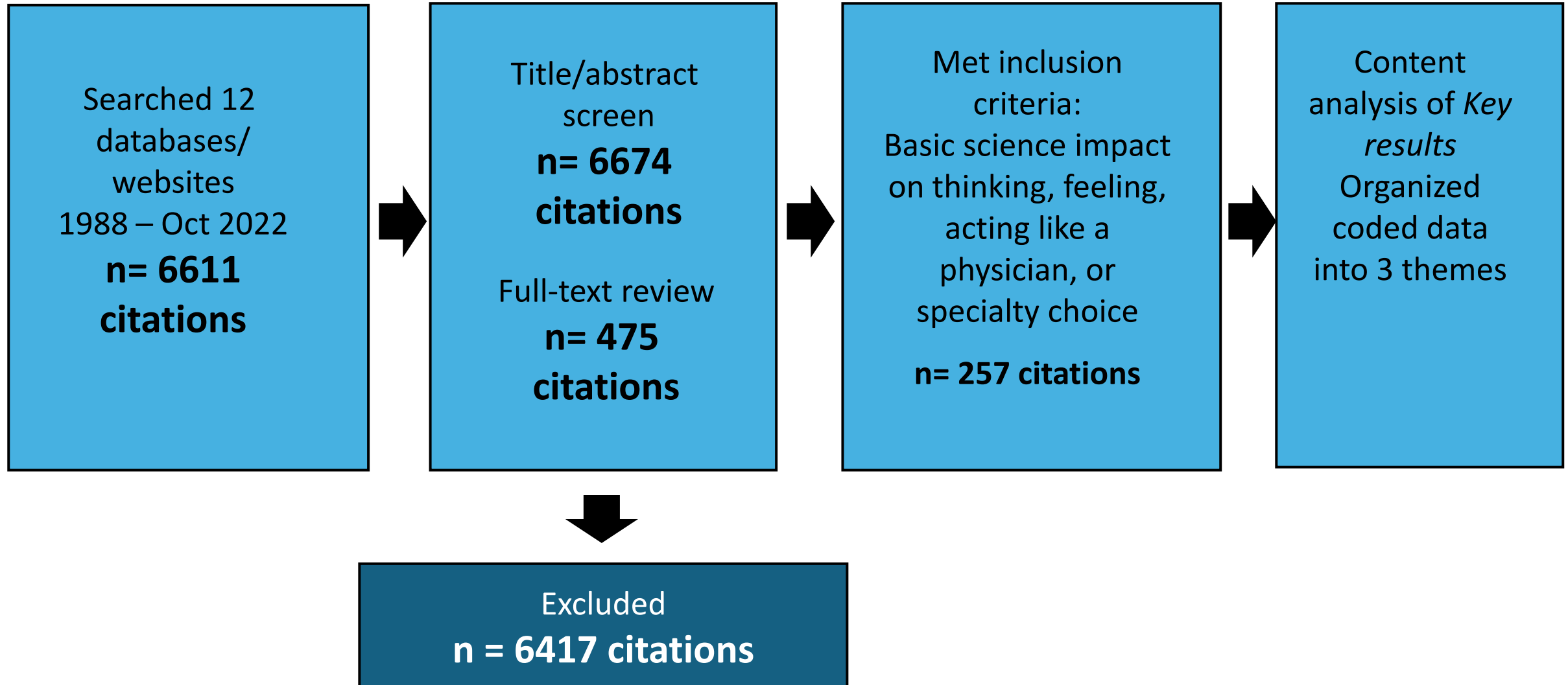
Study design



Study design



Study design



Findings about how basic science affects the mode of belonging

- Themes aligned with:

Engagement

- Engaging in the work of a physician

Alignment

- Aligning with practices and expectations of a medical community or specialty

Imagination

- Imagining oneself becoming a 'good' doctor

Engagement

Engagement

Engaging in the work of a physician

Catalysts

Knowledge base and
analytic reasoning

Contribute to and evaluate
medical advancements

Confidently answer patient
questions and dismantle
myths

Inhibitors

Engagement

Engaging in the work of a physician

Catalysts

**Knowledge base and
analytic reasoning**

Contribute to and evaluate
medical advancements

Confidently answer patient
questions and dismantle
myths

Inhibitors

Engagement

Engaging in the work of a physician

Catalysts	Inhibitors
Knowledge base and analytic reasoning	Excessive and irrelevant content
Contribute to and evaluate medical advancements	Diminish respect for other healthcare professionals
Confidently answer patient questions and dismantle myths	Mind-body dualism and reductive thinking

Engagement

Engaging in the work of a physician

Catalysts	Inhibitors
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Confidently answer patient questions and dismantle myths	Mind-body dualism and reductive thinking

Alignment

Alignment

**Aligning with practices and expectations of
a medical community or specialty**

Catalysts	Inhibitors
Attraction to specialty	

Alignment

**Aligning with practices and expectations of
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Catalysts

**Attraction to
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Inhibitors

Alignment

Aligning with practices and expectations of a medical community or specialty

Catalysts

Attraction to specialty

Inhibitors

Reluctance to practice certain specialties or in certain locations

Racism/homophobia in medicine rooted in biomedical science explanations of disease

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Imagination

Imagination

Imagining oneself becoming a 'good' doctor

Catalysts

Science as a state of mind; curiosity

Increase empathy and emotional development

Physicians should understand how the body works

Inhibitors

Imagination

Imagining oneself becoming a 'good' doctor

Catalysts

Science as a state of
mind; curiosity

**Increase empathy and
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Physicians should
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Inhibitors

Imagination

Imagining oneself becoming a 'good' doctor

Catalysts	Inhibitors
Science as a state of mind; curiosity	Scientists think differently than physicians
Increase empathy and emotional development	Decrease empathy and emotional development
Physicians should understand how the body works	

Imagination

Imagining oneself becoming a 'good' doctor

Catalysts

Science as a state of mind; curiosity

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Physicians should understand how the body works

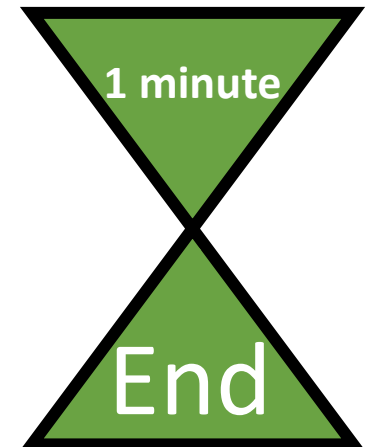
Inhibitors

Scientists think differently than physicians

Decrease empathy and emotional development

Chat Question:

Were there any findings that surprised you? What aspects of the research did you find particularly insightful, and why?



Examples



CUNY School of Medicine



The City College
of New York

Problem:

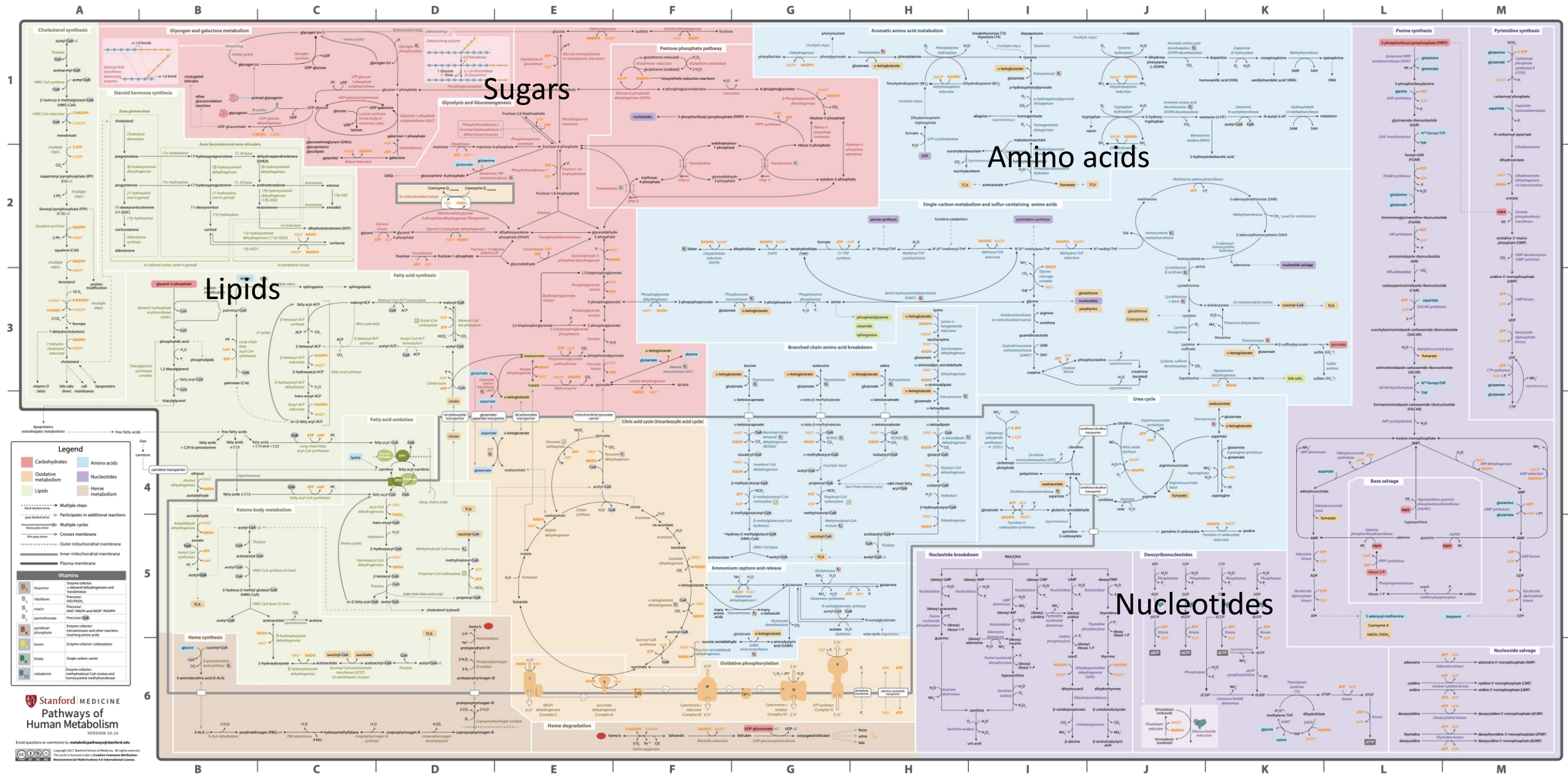
Meaningfully teach metabolism
in 3 hours

Problem:

~~Meaningfully teach metabolism in 3 hours~~

Guide students to engage, imagine,
and/or align with metabolic
physicians to catalyze their learning
of metabolism

Pathways of Human Metabolism



A patient diagnosis 'treasure hunt'





medical education



REALLY GOOD STUFF |  **Free Access**

Humanising anatomy education with narrative medicine

Ide Kafexhiu, Johanna Tamoka, Augustin Abreu, Samantha Barrick 

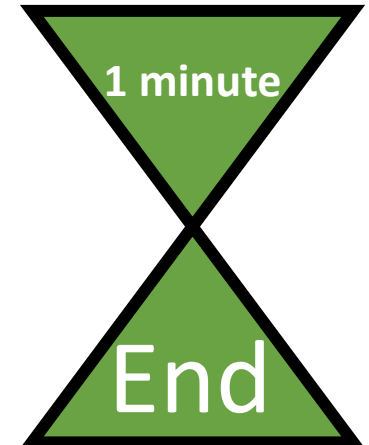
First published: 01 September 2024 | <https://doi.org/10.1111/medu.15524>

Peer-Assisted Learning: Democratizing Medical Education

- Medical education is evolving, but not everyone has equal access to costly study resources like UWorld, AMBOSS, and Sketchy. At CUNY School of Medicine, this disparity led to academic challenges - especially in complex subjects like cardiology.
-  **The Solution?** Students launched a **Peer-Assisted Learning (PAL)** initiative, forming study groups that blended diverse learning methods and materials. Supported by faculty, this approach fostered collaborative knowledge-building, ensuring more equitable access to study resources.
-  **The Impact?** PAL helped students feel more exam-ready, introduced them to new study techniques, and cultivated a supportive, knowledge-sharing community. By leveraging peer learning, we can **bridge resource gaps and democratize medical education**

Chat Question:

What is one key idea from today's presentation that resonated most with you and why?



Summary

Basic science education can (and should) catalyze the professional identity development of medical learners:

- Guide students through interfaces of science and medicine
 - Engage them in thinking like scientists
 - Help them imagine how developing skills will be useful as doctors
 - Demonstrate alignment with medical specialties
- Delivering a mandatory curriculum \neq positive impact on professional identity

Thank you!

We have time to take a few questions using the Chat.