Slide 1

JOHNS HOPKINS
M E D I C I N E

IAMSE Winter 2019 Series on the Learning Environment in Health Sciences Education

Session 2: The Learning Environment: An International Perspective

Sean Tackett, MD, MPH

Assistant Professor of Medicine and International Medical Education Director, GIM Division, Johns Hopkins Bayview Medical Center, stacket1@jhmi.edu

1

Slide 2

Financial disclosures

JOHNS HOPKINS
M E D I C I N E

- None

2

Slide 3

JOHNS HOPKINS
M E D I C I N E

Where does this session fit into the series?

- January 10: Defining and measuring the LE
- January 17: Me (international)
- January 24: GME learning environments
- January 31: LEs in nursing, PA, and osteopathic ed
- February 7: Virginia Tech LEAC program

3

Slide 4

Highlights from last week
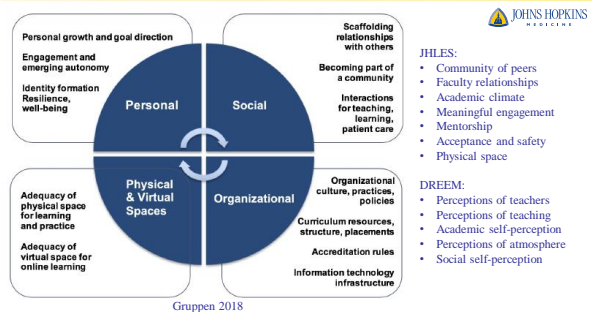
JOHNS HOPKINS
M E D I C I N E

- Learning environment definition:
  – "The learning environment refers to the social interactions, organizational culture and structures, and physical and virtual spaces that surround and shape the learners' experiences, perceptions and learning." (Josiah Macy Jr Conference, 2018)

4

Slide 5

Highlights from last week

JOHNS HOPKINS
M E D I C I N E

- Learning environment definition:
  – "The learning environment refers to the social interactions, organizational culture and structures, and physical and virtual spaces that surround and shape the learners' experiences, perceptions and learning." (Josiah Macy Jr Conference, 2018)
  – What isn't the learning environment?

5

Slide 6

JOHNS HOPKINS
M E D I C I N E

Personal growth and goal direction
Engagement and emerging autonomy
Identity formation
Resilience, well-being
Personal

Scaffolding relationships with others
Becoming part of a community
Interactions for teaching, learning, patient care
Social

Adequacy of physical space for learning and practice
Adequacy of virtual space for online learning
Physical & Virtual Spaces

Organizational culture, practices, policies
Curriculum resources, structure, placements
Accreditation rules
Information technology infrastructure
Organizational

Gruppen 2018

JHLES:
- Community of peers
- Faculty relationships
- Academic climate
- Meaningful engagement
- Mentorship
- Acceptance and safety
- Physical space

DREEM:
- Perceptions of teachers
- Perceptions of teaching
- Academic self-perception
- Perceptions of atmosphere
- Social self-perception

6

Highlights from last week

- Learning environment definition:
  - "The learning environment refers to the social interactions, organizational culture and structures, and physical and virtual spaces that surround and shape the learners' experiences, perceptions and learning."
  - What isn't the learning environment?
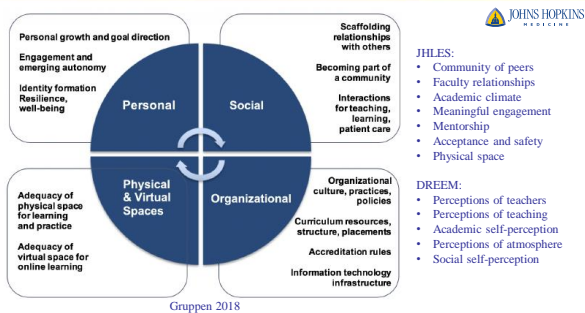- Conclusions: LE is messy, challenging, and important

7

Today's Objectives

- By the end of the session, participants will:
  - Describe at least one individual, institutional, and system-level factor that varies between LEs internationally.
  - Identify studies that have attempted to compare UME LEs across countries.
  - Describe at least one opportunity to advance UME LE research internationally.

8

JHLES:
- Community of peers
- Faculty relationships
- Academic climate
- Meaningful engagement
- Mentorship
- Acceptance and safety
- Physical space

DREEM:
- Perceptions of teachers
- Perceptions of teaching
- Academic self-perception
- Perceptions of atmosphere
- Social self-perception

Gruppen 2018

9

Where are the world's LEs in health sciences?

- >3000 medical schools in 185 countries, >2 million medical students
  - U.S.: 183 schools (147 MD, 35 DO), ~0.09 million students
  - Avg cohort size: India 100/school, China 1000/school
  - Avg cost: U.S. $300k/student, China $14k/student (2010)
- GME – wide variation in structures and regulation
- Nursing program number is indeterminate; nursing students graduating per year estimated to be ~2x med students.

10

11

There are not just more medical schools, but greater national and international networking among schools.

This example is from MEPI (Medical Education Partnership Initiative), which over 2010-2015, partnered 20 U.S. and 30 African organizations (now has become Afrehealth)
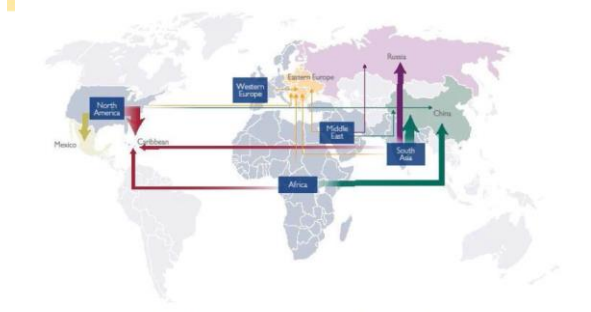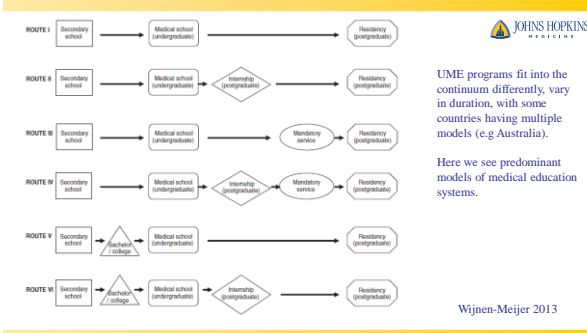
12

2
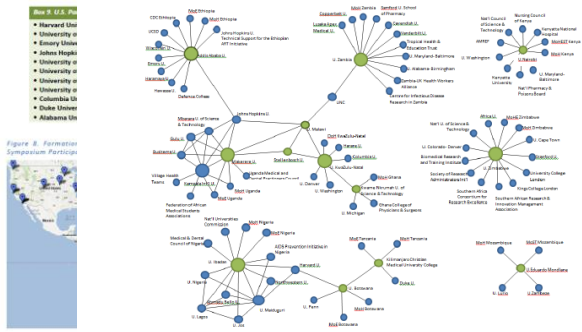
Figure 2: Migration Trends of International Medical Students.   Rizwan 2018

14

ROUTE I — Secondary school → Medical school (undergraduate) → Residency (postgraduate)

ROUTE II — Secondary school → Medical school (undergraduate) → Internship → Residency (postgraduate)

ROUTE III — Secondary school → Medical school (undergraduate) → Mandatory service → Residency (postgraduate)

ROUTE IV — Secondary school → Medical school (undergraduate) → Internship (postgraduate) → Mandatory service → Residency (postgraduate)

ROUTE V — Secondary school → Bachelor / college → Medical school (undergraduate) → Residency (postgraduate)

ROUTE VI — Secondary school → Bachelor / college → Medical school (undergraduate) → Internship (postgraduate) → Residency (postgraduate)
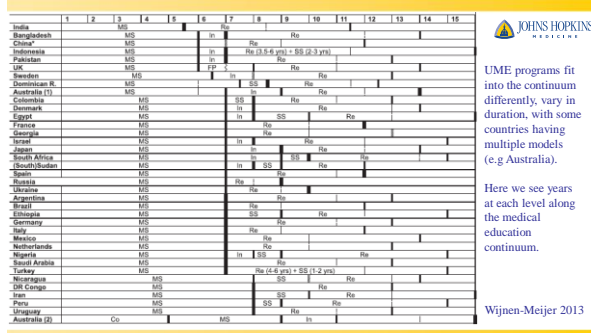
JOHNS HOPKINS

UME programs fit into the continuum differently, vary in duration, with some countries having multiple models (e.g Australia).

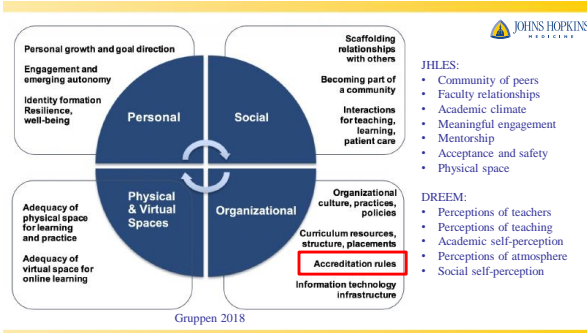Here we see predominant models of medical education systems.

Wijnen-Meijer 2013

15

JOHNS HOPKINS

UME programs fit into the continuum differently, vary in duration, with some countries having multiple models (e.g Australia).

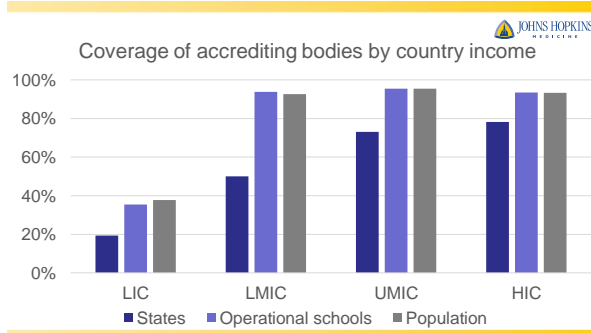Here we see years at each level along the medical education continuum.

Wijnen-Meijer 2013

16

JOHNS HOPKINS

Personal growth and goal direction

Engagement and emerging autonomy

Identity formation Resilience, well-being

Personal | **Social**

Physical & Virtual Spaces | **Organizational**

Adequacy of physical space for learning and practice

Adequacy of virtual space for online learning

Scaffolding relationships with others

Becoming part of a community

Interactions for teaching, learning, patient care

Organizational culture, practices, policies

Curriculum resources, structure, placements

Accreditation rules

Information technology infrastructure

JHLES:
- Community of peers
- Faculty relationships
- Academic climate
- Meaningful engagement
- Mentorship
- Acceptance and safety
- Physical space

DREEM:
- Perceptions of teachers
- Perceptions of teaching
- Academic self-perception
- Perceptions of atmosphere
- Social self-perception

Gruppen 2018

17

JOHNS HOPKINS

Coverage of accrediting bodies by country income

100%
80%
60%
40%
20%
0%

LIC   LMIC   UMIC   HIC

■ States   ■ Operational schools   ■ Population

18

Summing up complexity in international LEs

- Rapidly growing number of medical schools
- Increasing institutional collaborations
- Increasing student migration
- Variation in curricular models by countries
  – And sometimes within countries
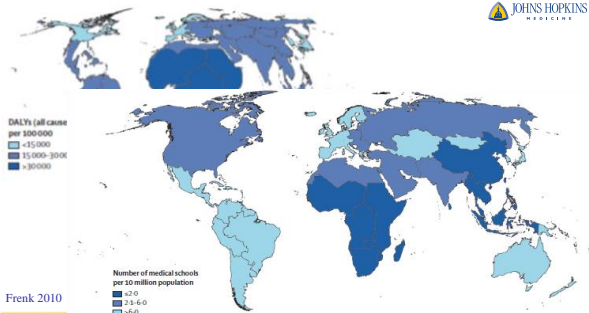- Uneven coverage by accrediting/regulatory authorities

19

B Burden of disease

DALYs (all causes)
per 100000
<15000
15000-30000
>30000

Frenk 2010

20

B Burden of disease

DALYs (all cause
per 100000
<15000
15000-3000
>30000

Number of medical schools
per 10 million population
≤2.0
2.5-6.0
>6.0

Frenk 2010

21

Medical education under attack

Lecturing theatre in Damascus university:

Destruction of Al Hudaydah University, 2015.
Source: https://www.youtube.com/watch?v=kir_
RsTJvhM&feature=youtu.be

Lecturing hall at Damascus University after the February
6th 2015 attacks. Source: Yawmiat Kozifat Hawin team

IFMSA 2018

22

Summing up complexity in international LEs

- Rapidly growing number of medical schools
- Increasing institutional collaborations
- Increasing student migration
- Variation in curricular models by countries
  – And sometimes within countries
- Uneven coverage by accrediting/regulatory authorities
- Uneven resources
  – With some exceptionally challenging circumstances

23

24

4
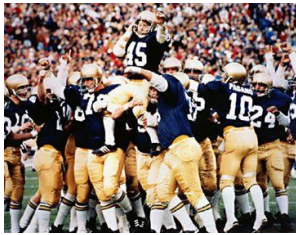
25

26

Where is LE data being generated?

Damiano 2018 bibliometric analysis: All Studies (N = 710)	
Countries (by author's affiliation)	No. Studies
United States	309 (43.5%)
United Kingdom	61 (8.6%)
Canada	39 (5.5%)
Australia	32 (4.5%)
Netherlands	23 (3.2%)

Note: Gruppen's 2018 scoping review found 17 countries included in 47 studies of medical education LEs, 36% from U.S., 5 countries were not HICs (Brazil, China, Indonesia, Malaysia, Thailand)

27

What about international comparisons?

- First, some notable national LE studies:
  - Skochelak 2016: 28 U.S. med schools, describing variation in LE ratings across schools
  - Tempski 2015: 22 Brazilian med schools, finding association between LE rating and quality of life
- Maybe only 2 international studies?
  - Tackett 2015: Comparing 3 schools (1 U.S., 2 Malaysia)
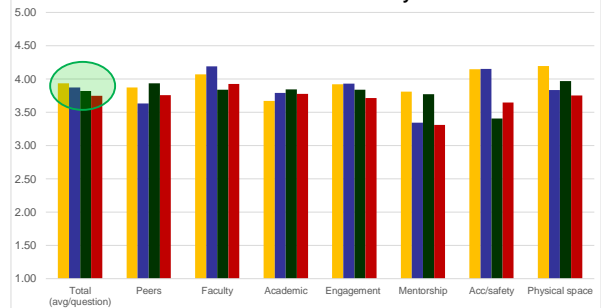 - Tackett 2017: Comparing 3 schools (1 China, 1 Israel, 1 Malaysia)

28

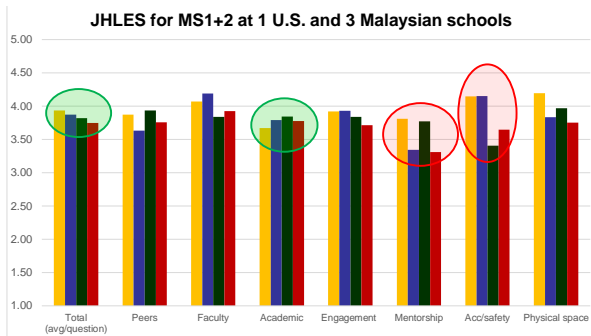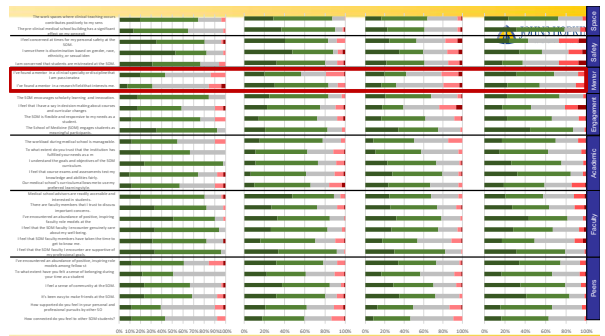JHLES for MS1+2 at 1 U.S. and 3 Malaysian schools

29

JHLES for MS1+2 at 1 U.S. and 3 Malaysian schools

30

5
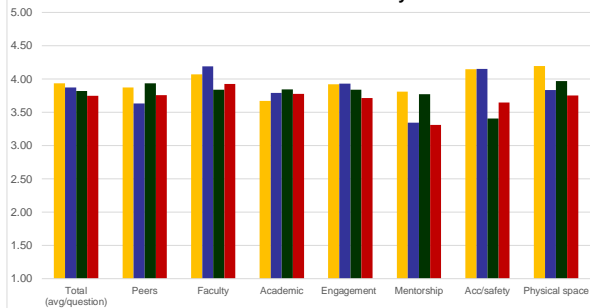
JHLES for MS1+2 at 1 U.S. and 3 Malaysian schools

31

32

Odds ratios for LE vs outcomes across 3 schools (1 China, 1 Israel, 1 Malaysia)

	Quality of life		Exhaustion		Depersonalisation		Empathy	
	Crude	Adjusted	Crude	Adjusted	Crude	Adjusted	Crude	Adjusted
JHLES total	4.4 [2.8–7.0]	3.2 [1.7–5.8]	0.3 [0.2–0.4]	0.3 [0.2–0.5]	0.2 [0.1–0.4]	0.3 [0.2–0.4]	1.7 [1.1–2.6]	1.4 [0.9–2.2]
Peers	3.1 [2.0–4.8]	2.3 [1.4–4.0]	0.3 [0.2–0.5]	0.4 [0.2–0.6]	0.3 [0.2–0.6]	0.4 [0.2–0.8]	1.5 [1.0–2.3]	1.3 [1.0–1.9]
Faculty	1.8 [1.1–2.8]	1.5 [0.7–3.1]	0.5 [0.3–0.8]	0.5 [0.4–0.7]	0.4 [0.2–0.8]	0.5 [0.3–0.7]	1.2 [0.8–1.8]	1.2 [0.8–1.7]
Academic	2.6 [1.7–4.0]	1.8 [0.7–4.5]	0.3 [0.2–0.5]	0.4 [0.3–0.6]	0.1 [0.1–0.3]	0.2 [0.1–0.4]	1.6 [1.0–2.3]	1.3 [0.7–2.3]
Engagement	2.7 [1.8–4.2]	2.3 [0.8–6.4]	0.5 [0.3–0.8]	0.6 [0.3–1.0]	0.3 [0.2–0.6]	0.4 [0.3–0.5]	2.3 [1.5–3.5]	2.1 [1.4–3.1]
Mentorship	3.6 [2.3–5.7]	2.8 [2.0–3.9]	0.7 [0.4–1.0]	0.9 [0.7–1.2]	0.6 [0.3–1.2]	0.9 [0.7–1.1]	1.5 [1.0–2.3]	1.1 [0.6–1.7]
Safety	2.7 [1.7–4.3]	2.1 [0.8–5.7]	0.5 [0.3–0.8]	0.6 [0.4–1.0]	0.3 [0.2–0.6]	0.4 [0.2–0.9]	2.4 [1.5–3.8]	2.2 [1.4–3.4]
Space	1.5 [1.0–2.4]	1.3 [0.7–2.5]	0.7 [0.4–1.0]	0.8 [0.5–1.4]	1.1 [0.6–2.1]	1.3 [0.6–2.9]	1.3 [0.8–1.9]	1.1 [0.2–4.5]

Tackett 2017

33

Concluding thoughts

- LEs are important for learning and personal and professional development.
- Understanding 1 individual's LE is already complex. Complexity increases when measuring at institution, health system, and inter-health system levels.
- International comparison studies seemed to yield meaningful insights.
- Much more needs to be done to strengthen the evidence base (e.g. theory/definitions, study design, research infrastructure (e.g. funding, data warehousing)).

34

References (1)

- Damiano RF, Cruz AO, Oliveira JG, DiLalla LF, Tackett S, Ezequiel OD, Lucchetti G. Mapping the scientific research on the negative aspects of the medical school learning environment. Revista da Associação Médica Brasileira. 2018 Nov;64(11):1050-7.
- Frenk J, Chen L, Bhutta ZA, Cohen J, Crisp N, Evans T, Fineberg H, Garcia P, Ke Y, Kelley P, Kistnasamy B. Health professionals for a new century: transforming education to strengthen health systems in an interdependent world. The lancet. 2010 Dec 4;376(9756):1923-58.
- Gruppen L, Irby DM, Durning SJ, Maggio LA. Interventions Designed to Improve the Learning Environment in the Health Professions: A Scoping Review. MedEdPublish. 2018 Sep 12;7.
- IFMSA. Attacks on medical education. https://ifmsa.org/2018/04/21/medical-education-is-notatarget/
- Rizwan M, Rosson N, Tackett S, Hassoun H. Opportunities and challenges in the current era of global medical education. International journal of medical education. 2018;9:111.
- Skochelak SE, Stansfield RB, Dunham L, Dekhtyar M, Gruppen LD, Christianson C, Filstead W, Quirk M. Medical student perceptions of the learning environment at the end of the first year: A 28-medical school collaborative. Academic Medicine. 2016 Sep 1;91(9):1257-62.

35

References (2)

- Tackett S, Shochet R, Shilkofski NA, Colbert-Getz J, Rampal K, Bakar HA, Wright S. Learning environment assessments of a single curriculum being taught at two medical schools 10,000 miles apart. BMC medical education. 2015 Dec;15(1):105.
- Tackett S, Wright S, Lubin R, Li J, Pan H. International study of medical school learning environments and their relationship with student well-being and empathy. Medical education. 2017 Mar;51(3):280-9.
- Tempski P, Santos IS, Mayer FB, Enns SC, Perotta B, Paro HB, Gannam S, Peleias M, Garcia VL, Baldassin S, Guimaraes KB. Relationship among medical student resilience, educational environment and quality of life. PLoS One. 2015 Jun 29;10(6):e0131535.
- Wijnen-Meijer M, Burdick W, Alofs L, Burgers C, ten Cate O. Stages and transitions in medical education around the world: Clarifying structures and terminology. Medical teacher. 2013 Apr 1;35(4):301-7.

36