

EDUCATIONAL DILEMMA OR QUESTION:

What are threshold concepts and how can they help trainees achieve competency on their emergency medicine rotation?

Reference

Bhat C, Burm S, Mohan T, Chahine S, Goldszmidt M. What trainees grapple with: A study of threshold concepts on the medicine ward. *Medical Education* 2018;52:620-31. Doi:10.1111/medu.13526.

Why Is This Paper Relevant to Emergency Medicine Education?

Emergency physicians must often make diagnostic and management decisions in regard to undifferentiated patients with limited background information and no time for clinical investigations. Certainly, a solid base of medical knowledge is essential to this practice, but experienced physicians also use a clinical gestalt to complement this knowledge; this is something that can only be learned through experience. Threshold concepts offer a framework to help trainees achieve competence in a challenging medical field by developing skills that integrate knowledge into effective clinical practice.

Level of Evidence

Observational study

Level of Learning

Undergraduate and Postgraduate Medical Education

Study Design

This study was conducted in 2 phases. Phase 1 was an observational study based on direct observation of, as well as interviews with, trainees during their internal medicine rotations. Phase 2 involved more detailed interviews with attending physicians. Overall, the methodology for the study was informed by constructivist grounded theory (CGT), a theory frequently employed to study social and social-psychological phenomena in medicine.¹

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Setting

The study took place within the Clinical Teaching Units (CTUs – the name for the internal medicine services offered by teaching hospitals in Canada) of a teaching hospital in Southwestern Ontario, Canada.

Synopsis

The authors recognize that while it is indeed very important for clinical trainees to learn the practical elements of providing patient care, such as diagnostic and management plans, it is equally important that they learn what it means to be a physician. Developing a professional identity is just as important to acquire a solid base of medical knowledge for trainees, but it is often far more difficult to teach. The authors suggest that threshold concepts, which are “transformative and troublesome concepts critical to the transition from trainee to practitioner,”² may offer insight into how a learner successfully develops into a competent physician. Threshold concepts allow trainees to glean previously inaccessible ways of thinking. In order to be labeled a threshold concept, an experience must possess five characteristics³:

1. Transformative – Once trainees encounter and reflect upon a situation, it causes a paradigm shift for the trainee, giving them a new perception of their role as a health care provider.
2. Troublesome – Prior to this experience, trainees lacked a conceptual framework for approaching a certain novel situations and experienced struggle with this.

Synopsis (continued)

3. Irreversible – Once the trainee successfully conquers this situation, their thinking patterns and approach are irreversibly changed.
4. Integrative – Trainees will be able to apply their newly gained thought processes to situations where they previously would not have been able to, and recognize the inter-relatedness of certain concepts that they previously felt were unconnected.
5. Bounded – The concept learned fits only within a certain context and serves a specific and limited purpose. This final characteristic may not be applicable to all threshold concepts.

Nine threshold concepts were identified within three categories during this study. Data was collected through field observations of junior internal medicine trainees completing their daily tasks, as well as through interviews with both trainees and attending physicians. The three categories with their associated threshold concepts are:

1. Developing as a professional
 - a. Active Learner
 - b. Burden of Responsibility
 - c. Plurality of Role
2. Providing Patient Care
 - a. Uncertainty in Medicine
 - b. Purposeful Action
 - c. Contextual Care
 - d. Patient Centredness
3. Working Collectively
 - a. Collective Competence
 - b. Documentation as an Essential Practice

The authors also studied how threshold concepts influence trainees' performance on specific clinical tasks, as well as their overall performance as either a future (senior medical students) or new (junior residents) physician. They found that the mastery of isolated threshold concepts had little effect on a trainee's general competency, though mastery of clusters of threshold concepts had a significant influence on a trainee's practice. Level of training was not correlated with threshold concepts crossed; some residents still struggled with various threshold concepts that some undergraduate learners had already achieved.

Threshold concepts are milestones that trainees must cross in order to become competent physicians. These concepts are experience-based rather than fact-based, often making them more challenging to teach; however, these transformative experiences allow trainees to think in new ways and embody the qualities that competent physicians already possess.

BOTTOM LINE

Clinical rotations are powerful, transformative experiences that are composed of many smaller experiential moments that can be described as threshold concepts. These threshold concepts are not simply medical facts that medical learners must memorize and understand. Instead, they are experiences that trainees must encounter, reflect on, struggle with and overcome in order to develop their own professional identity.

References

1. Watling CJ, Lingard L. Grounded theory in medical education research: AMEE Guide No. 70. *Med Teach*. 2012;34(10):850-861. doi:10.3109/0142159X.2012.704439.
2. Bhat C, Burm S, Mohan T, Chahine S, Goldszmidt M. What trainees grapple with: a study of threshold concepts on the medicine ward. *Med Educ*. 2018;52(6):620-631. doi:10.1111/medu.13526.
3. Meyer JHF, Land R. Threshold concepts and troublesome knowledge: Linkages to ways of thinking and practising within the disciplines. *Improv Student Learn - Ten Years*. January 2003:412-424.