

Fostering Clinical Competence

Learner Self-Efficacy and Transformative Learning Following Initial Assessment
Failure in Healthcare Education

Philosophical & Theoretical Exploration



The Core Problem

Experiences of failure and professional identity formation.



| The Power of Efficacy Beliefs

Efficacy beliefs determine how individuals think, feel, motivate themselves, and behave (*Bandura, 1997*).

Self-efficacy is a significant predictor of academic achievement, clinical competence, and resilience in healthcare learners (*Bandura, 2023*).

Initial failure in simulation-based assessments can reduce confidence unless supported by effective practices.



Visible Learning and Achievement



Visible Learning

Understanding what impacts learner achievement most effectively (*Hattie, 2023*).



Learning Theory

Contemporary theories emphasize the integration of theoretical and clinical knowledge (*Illeris, 2018*).

Philosophical Framework

Interpretivist Position, Constructivist Epistemology, Critical Realist Ontology.



| Experience and Autonomy



Deweyan Experience

Learning is an interpretive and reflective process shaped by prior experiences (*Dewey, 1938/2015*).



World-Centred Ed

Emphasizing learner autonomy, intrinsic motivation, and self-actualization (*Biesta, 2022*).



Educational Research

Maintaining philosophical rigor in research design (*Pring, 2021*).

Researching Post-Critique

Epistemology and methodology must evolve beyond standard critique to understand clinical competence (*Schildermans et al., 2024*).

Learning is viewed as an interpretive process shaped by prior experience and social interaction.

Meanings are socially and individually constructed through reflection and culture.

School, Lisbon, Portugal

ABSTRACT

Background: Concept maps (CMs) visually represent hierarchical connections among related ideas. They foster logical organization and clarify idea relationships, potentially aiding medical students in critical thinking (to think clearly and rationally about what to do or what to believe). However, there are inconsistent claims about the use of CMs in undergraduate medical education. Our three research questions are 1) What studies have been published on concept mapping in undergraduate medical education; 2) What was the impact of CMs on students' critical thinking; 3) How and why have these interventions had an educational impact?

Methods: Eight databases were systematically searched (plus a manual and an additional search were conducted). After eliminating duplicate entries, titles and abstracts and full-texts were independently screened by two authors. Data extraction and quality assessment of the studies were independently performed by two authors. Qualitative and quantitative data were integrated using mixed-methods. The results were reported using the STructured apprOach to the Reporting In healthcare education of Evidence Synthesis statement and BEME guidance.

Results: Thirty-nine studies were included from 26 journals (19 quantitative, 8 qualitative and 12 mixed-methods studies). CMs were considered as a tool to promote critical thinking, both in the perception of students and tutors, as well as in assessing students' knowledge and/or skills. In addition to their role as facilitators of knowledge integration and critical thinking, CMs were considered both a teaching and a learning methods.

Conclusions: CMs are teaching and learning tools which seem to help medical students develop critical thinking. This is due to the flexibility of the tool as a facilitator of knowledge integration, as a learning and teaching method. The wide range of contexts, purposes, and variations in how CMs and instruments to assess critical thinking are used increases our confidence that the positive effects are consistent.

KEYWORDS

Concept map; critical thinking; medical education

Introduction

Medical students need more than just knowledge. To solve clinical problems, such as establishing a diagnosis and managing patients, students need to develop higher-level cognitive skills (Swanwick et al. 2019). Despite the importance of these cognitive skills, the terminology and boundaries between concepts are not clear-cut. Clinical reasoning, critical thinking, decision-making, problem-solving, clinical judgement, and diagnostic reasoning are often used interchange-

Practice points

- Concept maps promote critical thinking skills, stimulate knowledge acquisition, and contribute to better student assessment performance.
- Concept maps can be constructed from scratch individually or in groups, half-filled, or constructed by tutors. Prior training for tutors and students improves their use.
- Concept maps introduced earlier can be revisited

| The Four Sources

Bandura identifies four sources of efficacy development. Initial failure challenges these but also creates opportunities for **transformative growth** (*Bandura, 1997*).

Verbal Persuasion—constructive feedback and clinical supervision—is essential for rebuilding confidence after a failure experience.



Efficacy Development Framework



Mastery

Successful tasks. Failure creates a "mastery dip."



Vicarious

Observing modeling by peers and mentors.



Persuasion

Quality feedback and clinical coaching.



Physiological

Emotional regulation and resilience.

Methodological Approach

Interpretative Phenomenological Analysis (IPA).



| Exploring Lived Experience



IPA Design: Exploration of subjective sense-making (*Smith et al., 2022*).



Naturalistic Inquiry: Understanding contextual influences (*Lincoln & Guba, 1985*).



Thematic Analysis: Identifying patterns of resilience (*Braun & Clarke, 2022*).



Research Design: Qualitative mixed approaches (*Creswell, 2023*).



Qualitative research interview healthcare study

Reference List

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