

ADEA Micro-credential: Promoting Critical Thinking

Overall Goal

Explicitly demonstrate the fundamental knowledge, skills and methods needed to teach and assess critical thinking.

Objectives and Outcomes

- Explain a conception of critical thinking in detail.
- Create educational material and/or activities to explicitly teach and apply foundational critical thinking skills.
- Describe how to assess learners' performance in critical thinking.

Rationale and Supporting Research

Critical thinking is emphasized in dental education of North America. In fact, Standard 2-10 by the Commission on Dental Accreditation states that "Graduates must be competent in the use of critical thinking and problem-solving, including their use in the comprehensive care of patients, scientific inquiry and research methodology." More recently, the concept has gained heightened attention due to the introduction of the Integrated National Dental Board Examination (INBDE), which emphasizes dental curricula that promotes understanding concepts as opposed to rote memorization of facts or procedural algorithms.

Facione P. Critical thinking: a statement of expert consensus for purpose of educational assessment and instruction. Research finding and recommendations. Newark: American Philosophical Association, 1990.

Whitney E M, Aleksejuniene J, Walton J N. Critical thinking disposition and skills in dental students: development and relationship to academic outcomes. [J Dent Educ 2016; 80: 948-958.](#)

Johnsen DC, Finkelstein MW, Marshall TA, Chalkley YM. A model for critical thinking measurement of dental school performance. [J Dent Educ 2009; 73\(2\):177-83.](#)

Sample Resources

1. Paul, Richard, Elder, Linda. Critical Thinking: Tools for Taking Charge of Your Learning and Your Life. Rowman & Littlefield.
2. ADEA, Overview of Critical Thinking Skills.
<https://www.adea.org/adeacci/resources/critical-thinking-skills-toolkit/pages/overview-of-critical-thinking-skills.aspx>
3. criticalthinking.org

4. Nosich, Gerald M. Learning to Think Things Through: A Guide to Critical Thinking across the Curriculum. 2014.
5. Ambrose, Susan A. How Learning Works: Seven Research-Based Principles for Smart Teaching. Jossey-Bass, 2010.
6. Nilson, Linda Burzotta. Infusing Critical Thinking Into Your Course: A Concrete, Practical Approach. Stylus Publishing, LLC, 2021.
7. Hendricson, W. et al. Educational strategies associated with development of problem-solving, critical thinking, and self-directed learning. [ADEA Commission on Change and Innovation in Dental Education 2006](#).

Submission Criteria and Evaluation Guidelines

Section 1: Overview Questions (See grading rubric for evaluation criteria.)

1. *Motivation* – Why is the topic of teaching and assessing critical thinking meaningful for you? Please discuss the value this micro-credential has for your professional work and practice. Specifically, explain how teaching and assessing critical thinking supports or enhances your professional development within dental education.

[Your response should be text-based and between 500-750 words.]

2. *Training* – Provide the three (3) most significant or impactful resources used to support your development of relevant knowledge and skills in this area (e.g., activities, training, courses, learning experiences, individual study of important literature or other formal or informal professional development). Describe each activity or resource and explain how it supported your learning in this area. You must include a minimum of three examples and must include citations or links for any resources that you cite. To the extent possible, demonstrate variety in the format or type of learning experiences you discuss.

[Your response must be text-based and between 500-750 words.]

3. *Concept* – What is critical thinking? Describe in detail your conception of critical thinking, and how it would apply to your specific area of dental education.

[Your response must be text-based and between 500-750 words.]

4. *Assessment* – How do you support the current assessment of your learners' critical thinking skills? How do you create assessments that enable an active learning and decision-making environment?

[Your response must be text-based and between 500-750 words.]

5. *Community Engagement* – Provide evidence of community engagement within the area of teaching and assessment of critical thinking. Acceptable evidence may include registration for a relevant workshop and/or conference, or a presentation on critical

thinking teaching and assessment at a relevant workshop and/or conference. The evidence may also include participation in an ADEA Connect discussion board or engagement with a community partner.

[You may include written descriptions and/or links as evidence of your participation in these activities.]

Section 2: Reflection Questions (See grading rubric for evaluation criteria.)

1. *Critical Assessment of Portfolio Work* – Provide a self-assessment of your submitted portfolio artifacts. Address the following aspects:
 - What was your primary purpose or goal in creating these works? Who is the intended audience and what is the intended use or application?
 - How is your work informed by current information, literature and practices in this topic area?
 - How have you been able to or how will you assess the effectiveness or impact of your work?
 - As you reflect on your work, how do you plan to make revisions or change directions?

[Your response must be text-based and between 1,000-1,250 words.]

2. *Relevant Ethical Considerations* – Provide a summary and description of relevant ethical considerations associated with teaching and assessing critical thinking and describe how you might elect to address these ethical challenges. Complex topics with social/ethical relevance in practicing dentistry can be engaging for students, provide a real-world context for learning classroom content and foster critical thinking. You may choose to focus on such examples or any other relevant ethical consideration you deem appropriate for this topic area.

[Your response must be text-based and between 500-750 words.]

3. *Supporting Diversity, Equity and Inclusion* – In what ways can work in this topic area support diversity, equity and inclusion efforts in dental education? How can critical thinking skills help to decrease institutional bias in patient care? Provide specific, actionable suggestions or recommendations. You may choose to focus on application of these efforts toward the following:
 - Patient experience and patient care;
 - Experience of learners in the learning environment;
 - Legislation, policies or practices that directly support diversity, equity and inclusion efforts; or
 - Other relevant applications.

[Your response must be text-based and between 500-750 words.]

Section 3: Portfolio Artifact (See grading rubric for evaluation criteria.)

Submission Criteria: A minimum of three (3) artifacts are needed for submission. The artifacts should support and reflect your previous responses in Sections 1 and 2, and should include the following:

- A. At least two (2) artifacts should be evidence to support the educational material and/or activities you have created to teach foundational critical thinking skills.
- B. At least one (1) artifact should be related to learners' assessments and feedback in critical thinking.

Potential formats for each artifact include:

- Peer-reviewed manuscripts,
- Lesson plans,
- Learning activities,
- Learning session materials (files or recordings),
- Videos,
- Role-play videos and/or scripts,
- Presentation recordings,
- Case studies,
- Case materials for use in educational settings or
- Workshop materials.