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Needed: HITS in Teacher Education Programs

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Author's Note

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Abstract

From kindergarten children to graduate-level students, critical thinking is vitally important for personal and academic growth. Because today's world is saturated with all types of information, citizens—young and old—need the tools for determining what is true, “fake,” or biased. Especially needed are teacher education programs that support higher interactive thinking skills (HITS) for undergraduate and graduate students. Whether they are preparing for student teaching or engaged in classroom practice, education majors benefit from gaining insights about critical thinking so they can nurture this growth in the children and adolescents who are entrusted to them. Fortunately, professional literature and evidence-based practices are available that support efforts to understand the critical thinking process and to apply it across content areas, resulting in transfer of learning.

Keywords: critical thinking, teacher education, cultural changes, controversial issues, instructional strategies

The blitz of information during the past several decades, sometimes referred to as *the knowledge explosion*, instigates a call to action to teach critical thinking. Especially needed are teacher education programs that highlight the value of engaging children and adolescents in higher-level thinking. In these programs, undergraduate and graduate students need to develop a profound understanding of the critical-thinking process so they can apply related evidence-based practices to the students who are entrusted to them. Whether they are preparing for student teaching or currently engaged in classroom practice, they are the key players for nurturing critical thinking in their diverse population of K-12 students.

What Is Critical Thinking?

I often refer to critical thinking as higher interactive thinking skills (HITS) because it is hard to imagine deep thinking without engaged communication for processing and interpreting meaning in any venue. At the very least, critical thinking requires an understanding of the nuances of subject matter (Sanacore, 2022) and engagement in reflective thought based on experience (Dewey, 1933, 1938, 1944). The ultimate aim is to encourage thinking that is self-disciplined, self-directed, self-monitored, and self-corrective so that an individual can improve the quality of her or his thinking by skillfully analyzing, assessing, and reconstructing it. The Foundation for Critical Thinking (2019) supports this perspective and its connection to any subject, content, or problem. This connection is essential because efforts to promote critical thinking are most effective when they are linked to content (Willingham, 2019). The content-

based approach generates better outcomes than teaching critical thinking in generic courses that focus on well-intentioned, but limited, efforts that often result in fragmented learning with minimal transfer value to new contexts. According to Willingham (2020):

It is no surprise that programmes in school meant to teach general critical thinking skills have had limited success. Such programmes are usually curricular add-ons, during which students engage in critical thinking activities for perhaps five hours each week over the course of a year or two. Unfortunately, the evaluations of these programmes seldom offer a rigorous test of transfer.

Indeed, increasing the success of transfer necessitates the recognition, use, and application of critical thinking skills that are needed in specific content areas because different curricular content requires different critical thinking skills.

A related issue is college faculty's understanding and use of the critical thinking process. In 1997, Paul, Elder, and Bartell conducted in-depth interviews in 38 public universities and 28 private universities to determine how faculty think about critical thinking and how their thinking influences the structure of their classes. These interviews were intended to provide information on the extent to which California students in teacher-preparation programs were being instructed in approaches that facilitate skill in critical thinking and the ability to teach it to others. The results of the interviews indicated that:

irrespective of the diversity of language used, the central problem is that most faculty have not carefully thought through any concept of critical thinking, have no sense of intellectual standards they can put into words, and are, therefore, by any reasonable interpretation, in no position to foster critical thinking in their own students or to help

them to foster it in their future students—except to inculcate into their students the same vague views that they have.

In 2004, Paul wrote a comprehensive research synthesis titled “The State of Critical Thinking Today.” The study indicated that most college faculty at all levels did not have substantive knowledge of critical thinking, but they believed they understood it and were teaching it. The study also indicated that the norm for college instruction was lecture, rote memorization, and short-term study skills, even though improving the quality and quantity of peer-to-peer and student-to-faculty interactions has been a research and instructional priority for nearly a century (Belcher, Hall, Kelley, & Pressey, 2015).

Has the Culture Changed?

It might be interesting for college faculty to compare the results of Paul’s (2004) study with the current state of critical thinking at their college and to determine if they are accommodating the higher-level learning needs of their usually diverse student body. This comparison should consider the three important aspects of the study with pertinent examples and reflections (see Figure I). Comparing the results of Paul’s synthesis with the current state of critical thinking at colleges might reveal that the current college culture has either changed significantly or moderately or minimally in how faculty meet students’ higher-level learning needs. My assumption is that most faculty are well aware of how their students’ personal and academic cultures have changed, but faculty might not be addressing cohesively the many facets of such change. Because children, adolescents, and college students have an intimate bond with their laptops, iPads, cell phones, and other technological devices, they have easy access to ideas, opinions, and values that agree with their perspectives. As these “ideological bubbles” support people’s comfort zone, they hinder a broader understanding of other viewpoints (Sanacore,

2022). Students benefit from exposure to a variety and diversity of learning experiences as faculty complement lecture and memorization formats with application and transfer of learning opportunities.

Every semester, I survey my undergraduate seniors and graduate students to determine how much they remember from their first-year and sophomore “core” requirements. The results of this survey are mixed, and they suggest that most students were expected to memorize information from textbooks and lectures and to “regurgitate” it on subsequent tests. I then ask them if they remember the “important information” that was tested. Inevitably, they only remember something that appears to be a general outline similar to a table of contents, or they remember a topic in which they were interested. Most couldn’t even remember the title of the required textbook or its author, nor did they demonstrate an interest in taking subsequent electives related to core content. This problem was evident in required courses such as Western Civilization, but history majors who planned on becoming social studies teachers did not have significant memory loss, probably because they were interested in the content of Western Civilization and applied this conceptual knowledge to subsequent history courses. A similar analogy occurred in core courses such as mathematics and science and social science as students who majored in these areas had less memory loss. In contrast, students who did not have a declared major related to core courses remembered less information from those courses. Yet all students were required to memorize the same amount of information for their tests.

As a strong proponent of core requirements, I believe students, regardless of their majors, benefit from a broad foundation in the arts, humanities, social sciences, sciences, mathematics, and other content areas. Exposure to wide and varied content increases opportunities for expanding interests, building prior knowledge, and solving complex academic and societal

problems. Writing in *The American Scholar*, James Heffernan (2021) reminds us that “we need literature and the humanities now more than ever, because they strive to heal, to nurture the most priceless of all our possessions: our humanity.” Over time, however, we all forget information especially if we don’t use it in subsequent courses or in our professions. Moreover, students often resent or see little value in taking required courses that they perceive to have minimal value for their majors or current interests. This is not a new problem, and I remember my friends and I had similar qualms when we were undergraduates.

What Is Needed?

Rather than stressing a plethora of facts to be memorized (that may or may not have long-term value), faculty should consider emphasizing retrieval strategies so students can learn how to access and evaluate important information, when needed. These strategies can be practiced and reinforced in individual and small-group projects as well as in take-home and open-book exams. This direction accommodates a diversity of learning needs and also supports core standards as it encourages greater interest in and exploration of core topics, with the positive side-effect of students (probably) enrolling in subsequent core-related courses.

Students also benefit from engagement in truth-seeking discussions and assignments that highlight thought-provoking topics in their majors, minors, and core courses. One such topic is political rhetoric and its implications for exploiting citizens—older and younger—who desire a better life with their families. Historically and philosophically, Socrates (2018) insisted that he was not a teacher whose traditional role was to “pour” information into the “empty” minds of students; instead, he guided others through skillful questioning to reflect and realize independently what is true and good. Plato posited that there are truths to be realized, and we can apprehend truth when we use our reason correctly (Vaughn, 2017). Aristotle (1924/2011;

Minin-White, 2017) believed that the purpose of rhetorical speech was “to lead to decisions,” but he observed that sophistic rhetoric deliberately used ambiguous language and misleading arguments to deceive listeners. John Stuart Mill (1859/2001) believed the full meaning of many truths can only be understood with personal experience and with an equal understanding of other perspectives. More recently, Nel Noddings and Laurie Brooks (2017) focused on teaching controversial issues as a venue for promoting critical thinking and moral commitment.

HITS and Controversial Issues

Supporting higher interactive thinking skills (HITS) as a response to political rhetoric and other controversial issues is a valuable strategy for nurturing students’ awareness of how words are used to change people’s beliefs for better or for worse. Regrettably, some politicians, teachers, professors, philosophers, religious leaders, neighbors, parents, journalists, news anchors, sales persons, and others have used rhetoric to exploit, lie, exaggerate, bully, and promote bigotry. A related concern is that when teacher educators promote critical discussions, they should be keenly aware of their own biases and should not directly or subtly influence students toward accepting them. Moreover, reflections based on experiences help students to realize that no person or text is neutral and that they need to listen attentively to other viewpoints before articulating their own opinions. As our education majors reflect on this teaching/learning context, they are more likely to become positive role models in their student teaching and classroom practice.

Encouraging immersion in controversial topics, however, can result in frustration. Most exacerbating are social media platforms that provide opportunities for “virtually” anyone to influence public opinion via fake video, audio, and other Artificial Intelligence technologies. Such manipulation of and by the media creates many challenges for students when they attempt

to distinguish credible facts from biased news. Sometimes, these challenges result in continuous frustration, which might cause mistrust in all media sources and might even dissuade our education majors from becoming immersed in the hard work of pursuing the truth. More problematic, these undergraduate and graduate students might believe that pursuing the truth is the impossible dream and that it is a waste of instructional time to focus on critical thinking with the children and adolescents who are entrusted to them.

Critical Thinking from a Teacher Education Perspective

As teacher educators, we have a vitally important responsibility of preparing our education majors to engage in collaborative projects and to plan developmentally appropriate lessons that support higher-level thinking in elementary, middle, and high schools. These efforts include (but are not limited to):

- **Using children’s literature as a foundation for inferential discussions and immersing young children in quality books with rich illustrations, typography, design elements, and other multimodal connections to text:** Children’s books that stimulate inference making include ambiguous texts, such as Emily Gravett’s *Wolves*; didactic texts, including Miriam Schiffer’s *Stella Brings the Family*; and fractured fairy tales like Jon Scieszka’s *The True Story of the Three Little Pigs*. Kelly and Moses’ (2018) research provides valuable suggestions for using children’s literature as an impetus for inferential discussions.
- **Supporting independent reading, vocabulary development, and comprehension with an extensive classroom resource center, including a wide variety of traditional and multimodal materials:** These materials should represent a variety of interest and readability levels, and K-12 students should have opportunities to choose materials in

which they are interested and to read them at their own comfortable—reflective—pace. When student teachers and practicing teachers respect children’s choices, a foundation is set for developing the lifetime literacy habit, for building and activating content knowledge, and for applying newly gained insights to other learning contexts (Sanacore, 2022; Sanacore and Palumbo, 2010).

- **Pairing the concepts and themes of young adult (YA) books with more challenging versions:** For example, pairing Bette Green’s *Summer of My German Soldier* with Anne Frank’s *Diary of a Young Girl* increases motivation for reading serious fiction and nonfiction about World War II and also provides a forum for comparing and contrasting settings, characters, plots, language use, themes, and other elements of narrative and diary/journal writing.
- **Demonstrating respect for graphic books—e.g., fiction, nonfiction, poetry, plays—and asking serious character and plot questions:** For example, “Is the body language of the characters relevant to their personalities, and if so, to what extent?” “Think about working with a partner and creating a story or nonfiction piece that connects both print and graphic text. Feel free to enhance the meaning and enjoyment of your work by combining traditional print, speech and thought balloons, frames, panels, line, color, shading, and other graphic elements” (Stearns, 2020).
- **Engaging in serious reflection as an important aspect of service learning:** When students learn to structure their reflective process, they can integrate classroom theories with community experiences, thereby gaining insights about critical thinking and its application and transfer to civic responsibilities (CCESI, 2020). Through these reflections based on experiences, students can adapt a critical framework for sharing

feelings and reactions with peers, developing personal growth, challenging stereotypes, understanding and correcting faulty assumptions, and learning to become a responsible citizen. Sanacore (2022) noted, “Although this perspective is intended for mature students, it can be applied in developmentally appropriate ways to learners of all ages and grade levels” (p. 48).

- **Solving problems with creativity:** When students bring their unique knowledge base to new contexts, they often demonstrate critical thinking as they engage in the problem-solving process. In his thoughtful essay “Strange Bedfellows: Creativity and Critical Thinking: What You Thought You Knew About Creativity in Critical Thinking,” Christopher Dwyer (2018) reminds us that reflective judgment is needed if new contexts require careful thought, including individuals’ “purposeful, self-regulated consideration and understanding of the nature, limits, and certainty of knowing; how this can affect how they defend their judgments and reasoning in context; and acknowledgement that their views might be falsified by additional evidence obtained at a later time.” One of the many ways of supporting creative thinking and problem solving is to incorporate humor into content area instruction. This approach is effective because it encourages creative risk-taking by giving students permission to express their own unique voice; it models playfulness and curiosity; it develops divergent thinking; it enhances creative problem solving; and it leads to creative fluency (Spencer, 2019).
- **Using graphic organizers to support effective instruction in critical thinking:** These tools are especially effective when applied to challenging vocabulary and concepts, and they include the Semantic Map, Semantic Feature Analysis Grid, Venn Diagram, Structured Hierarchical Overview, Anticipation Guide, Problem and Solution Format,

Causes and Effects Chart, and K-W-L-Y Structure (Know, Want to know, Learned, Yet to learn). Graphic organizers support higher-level thinking when teachers adapt them to the objectives, strategies, resources, and reflections/evaluations of instructional lessons and units. Sanacore (2022) pointed out, “When graphic organizers are connected to meaningful content, these important tools help the human brain to make natural connections to learning, which can clarify and expand rich vocabulary and concept development...” and “this process reinforces the brain’s capacity for understanding and remembering important content, skills, and strategies and then applying them to novel settings, resulting in transfer of learning” (p. 26).

These suggestions represent only a sampling of the many critical thinking practices our education majors can learn to adapt to their K-12 instructional lessons and units.

In Retrospect

Fortunately, there is a plethora of professional literature and evidence-based strategies and activities—too many to mention here—for nurturing growth and development in critical thinking and its application across the curriculum and through the grades, which further supports transfer of learning. Just click **CRITICAL THINKING** on your favorite web browser and discover the many updated approaches to thinking and knowing at higher levels and how education majors can learn and apply these approaches in student teaching and classroom practice. Of course, “buyer beware” advice and critical thinking reflections are needed because some of these websites represent marketing schemes that not only promise more than they deliver but also lack evidence to support their products. That said, when we continuously nurture our students’ critical thinking—via civil discussions and projects that are open-minded, open-ended, and related to substantive topics—we enhance their experiences with accessing and

discerning valuable content from a wide variety of traditional, digital, artistic, and other multimodal sources. As August Heckscher (1920) reminded us, “You will find some things to admire, some to criticize. The more the opinions differ the healthier the discussion, the greater the interest, the more educational the outcome” (p. 1). These experiences increase our education majors’ capacity to be co-inquirers with their elementary, middle, and high school students, as these key players embrace equity and improve the quality of their lives personally and academically. From a societal perspective, supporting the value of higher interactive thinking skills (HITS) is a civic responsibility, which is vitally important for a strong democracy and for the survival of our planet.

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Figure I

A comprehensive, substantive concept of critical thinking fostered across the curriculum

Part one—An Initial Look at the Difference Between a Substantive and Non-Substantive Concept of Critical Thinking

- faculty lack a substantive concept of critical thinking,
- studies reveal that critical thinking is rare in the college classroom,
- [faculty need] a substantive conception of critical thinking,
- what is critical thinking stripped to its essentials?

Part two—A Substantive Concept of Critical Thinking Reveals Common Denominators in All Academic Work

- substantive critical thinking can be cultivated in every academic setting,
- every area or domain of thought must be thought-through to be learned,
- there is a necessary connection between critical thinking and skilled reading and writing

Part three—We Can Get Beyond Non-Substantive Concepts of Critical Thinking

- fragmentation and short-term memorization are predictable outcomes of a non-substantive concept of critical thinking,
- establishing general education courses in critical thinking will not solve the problem,
- establishing general education courses in study skills will not solve the problem,
- a substantive concept of critical thinking leads to deep learning & to the acquisition of substantive knowledge,
- conclusion: take the long view

Note. Adapted from Paul, R. (2004). The state of critical thinking today.

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