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## The Six Thinking Hats: A Constructivist's Technique to Facilitate the Transfer and Application of Critical and Creative Thinking

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### **Abstract**

In business, education, and elsewhere, being constructive and creative is more than just desirable—it is essential. Individuals must be skillful communicators and astute problem solvers to succeed in a world marked by rapid growth and accelerating change. The problem in higher education is that students subjected to

traditional institutional teaching methods develop learning patterns that are inadequate and leave them ill-prepared to navigate life's difficult and often unpredictable conditions under which people must exercise their will and judgment. The purpose of this chapter is to describe how de Bono's (1999) *Six Thinking Hats* can serve as a powerful instructional technique that college and university instructors can use in on-ground, online, or hybrid-model courses to engage students actively in critical and creative thinking via a constructivist approach.

## Introduction

One of the foremost goals of education, including adult education, is to develop students' general thinking skills (Van Gelder, 2005). Critical thinking skills in particular are especially challenging to teach (Van Gelder, 2005), yet are vital to students' success in today's competitive workforce. In colleges and universities worldwide, students represent a wide variety of races, religions, cultures, and professional sectors. Instructors have the distinct duty of preparing a diverse body of individuals to be astute problem solvers and effective leaders on local and global levels.

The broad problem is that institutional learning, or learning within formal educational systems, is very often plagued by a traditional institutional learning philosophy, according to which instructors are the disseminators of information or knowledge, and the students are merely the passive recipients (Vaill, 1996). In other words traditional institutional learning can be disempowering for students because it is assumed to occur *offline*, in the confines of a classroom dominated by the beliefs, attitudes, and curriculum shared by an individual deemed to be the subject-matter expert (Vaill, 1996). The more specific problem is that students subjected to traditional institutional teaching methods develop learning patterns that are inadequate and leave them ill-prepared to navigate permanent *white water*, Vaill's (1996) metaphorical term for life's difficult and often unpredictable conditions under which people must exercise their will and judgment.

According to Vaill (1996) traditional institutional learning patterns are inadequate because "neither the philosophy nor the practice of institutional learning was designed for permanent white water—neither in formal educational systems themselves nor in the worlds that learners enter as 'graduates' of those educational systems" (p. 41). To prepare learners to succeed in a world of accelerating change, college and university teaching faculty have to explore instructional methods that empower students to become independent critical thinkers who make sound workplace decisions and clinical judgments, demonstrate effective leadership, achieve professional success, and participate wisely in a democratic society (Yang & Chou, 2007). Teaching about critical thinking is insufficient. For students to internalize critical thinking skills, apply them appropriately, and transfer them to settings outside of the classroom, they must engage in activities that require critical thinking (Van Gelder, 2005). Students are most likely to improve their critical thinking skills with deliberate practice (Van Gelder, 2005). Modeling such skills, while helpful, is insufficient. Instead, "[l]earning must be a way of being" (Vaill, 1996, p. 42), which to Vaill (1996) is "an authentic way of living and working, thinking and feeling, in the world of permanent white water" (p. 42).

It is essential to discuss the process of critical thinking. De Bono's (1999) *Six Thinking Hats* is a proven practice for engaging students in critical thinking, revolutionizes learning in the adult classroom, and promotes learning as a way of being (Vaill, 1996). Instructors implementing *The Six Thinking Hats* technique can effectively challenge students to free themselves of the habitual ways of thinking that often lack creativity and innovation, stifle learning, and inhibit problem solving. Based on the constructivist learning theory and the importance of critical and creative thought, *The Six Thinking Hats* is a technique teaching faculty can use in online, on-ground, or hybrid model classes to broaden students' perspectives, to assist them in developing successful strategies for addressing, interpreting, and applying the core issues presented in class, and to promote skill transference.

## Critical Thinking

Critical thinking is a complex practice because it assumes a variety of definitions, consists of a myriad of elements, and often pairs with other types of thinking. Proficiency in critical thinking, or purposeful thinking (Facione, 1998), is “essential to lifelong learning and to dealing effectively with a world of accelerating change” (Celuch & Slama, 1999, p. 135). More is involved in critical thinking than just the possession of intellect (Bailin, Case, Coombs, & Daniels, 1999; Facione, 1998). Researchers hold different views as to how critical thinking skills develop. A comparison of the varied definitions of critical thinking is necessary to understand the complexity surrounding the development of learners’ critical thinking practices.

Sound critical thinking involves the ability “...to take one’s thinking apart systematically, to analyze each part, assess it for quality and then improve it” (Elder & Paul, 2002, p. 34). Critical thinking first involves a systematic analysis of one’s own thought processes in a given scenario, including the formation of inferences and points of view, the existence of assumptions, and the understanding of information, inferences, concepts, and implications (Elder & Paul, 2002). According to Bailin, Case, Coombs, and Daniels (1999), “Having the intellectual resources necessary for critical thinking does not solely make one a critical thinker” (p. 294). Instead, the processes involved in becoming a skilled critical thinker and the employment of critical thought in today’s world are complex.

Cognitive skills and affective dispositions are crucial to critical thinking (Facione, 1998; Harris, 1998). According to Facione (1998), cognitive skills, such as the ability to interpret, analyze, evaluate, infer, explain, and self-regulate, are just as important to critical thinking as are affective dispositions. The term “critical spirit” (Facione, 1998) reflects the components of Vaill’s (1996) theory on learning as a way of being and suggests the importance of affective dispositions to critical thinking. In contrast to Facione’s (1998) reports, Bailin et al. (1999) do not characterize critical thinkers as possessing skills and abilities; they reported, “Doing so encourages educators to think of the task of developing critical thinking

as simply a matter of teaching students a set of new and discrete skills or abilities” (p. 290). Teaching critical thinking and merely sharing good examples of critical thinking with students is insufficient (Bailin et al., 1999; Vaill, 1996; Van Gelder, 2005). Instead, students must engage in authentic learning experiences and, through such experiences, pursue reflexive learning (Vaill, 1996), which is “a process of becoming a more conscious and reflective learner, more aware of one’s own learning process and how it compares to the learning processes of others (Vaill, 1996, p. 47).

Like Vaill (1996), Kirby and Goodpaster (2002) looked deeply into the concept of thinking and learning. They considered it imperative to understand the extent to which sound critical thinking depends on a number of variables. Among such variables are an awareness of personal barriers, sensing, memory, language, feeling, cognitive organization, logic, scientific thinking, persuasive thinking, problem solving, evaluation, decisive action, and creativity.

Exploring how cognition, logic, and feeling/emotionality (three of the aforementioned variables) relate to one’s ability to think critically is imperative to developing sound critical thinkers in today’s classrooms. Is one element more crucial than another or are all elements equal components of sound critical thinking? Are cognition, logic, and emotionality interdependent?

## Cognition, Logic, and Emotionality

Cognition, as defined in Merriam-Webster’s Pocket Dictionary (1995), is “the act or process of knowing” (p. 64). Developing one’s cognition appears to influence one’s ability to think critically. For example, improved cognitive skills will enable the learner to deal more effectively with the unpleasant state of cognitive dissonance (Kirby & Goodpaster, 2002). Kirby and Goodpaster (2002) explained, “When we find ourselves in a state of cognitive dissonance we will often try to change our thoughts or our behaviors to...reduce tension” (p. 38). However, avoiding instances of cognitive disharmony is unnecessary. Instead, effectively managing cognitive disharmony is ideal. Cognitive discord prompts further

questioning and self-regulation since changing one's thoughts otherwise does not reflect Facione's (1998) idea of sound critical thinking.

In light of Kirby and Goodpaster's (2002) findings, the need to develop cognitively is apparent; doing so will fuel the ability to adjust schemata so that the learner does not negatively "shape, restrict, and stereotype...perceptions and thinking" (Kirby & Goodpaster, 2002, p. 44). An understanding of logic is equally important to the need for cognitive development. Physiologically, one's life is dependent on the function of the heart. If "thinking logically and identifying reasoning fallacies in one's own and in others' thinking is the heart of critical thinking" (Kirby & Goodpaster, 2002, p. 141), then the existence of critical thinking is dependent on the existence of logical reasoning.

Building on this idea, Facione (1998) argued that the ability to identify, interpret, analyze, evaluate, and explain the strengths and limitations of an argument involves a thorough understanding of logic. Elder and Paul (1999) stated, "A habit of consciously working to seek the logic of things is one of the most powerful ideas for the improvement of thinking. It helps generate a life-long habit of seeking clarity, accuracy, precision, depth, breadth, and significance in our thought" (para. 36). If Elder and Paul's (1999) contention holds true, then an individual's commitment to understanding logic reflects an individual's commitment to lifelong learning.

Just as logic relates to critical thinking, so too does emotionality. How, though, do they relate? Emotions influence one's thinking. In support of this notion, Jarrett (1993) explained that emotions "move us to act or to have a disposition to act" (para. 27). Clearly, Jarrett established a cause and effect relationship between emotions and thinking. Schwarz, as cited by Mandel (2003), indicated that an individual's "emotions—positive or negative—...may systematically bias judgment and decision making in a number of ways" (p. 139-140). An individual's emotionality does influence the ability to think critically.

Critical thinking assumes a variety of definitions. The underlying concept, though, is that critical thinking is purposeful thinking (Facione, 1998, p. 3) comprised of specific

elements (Elder, & Paul, 2002; Facione, 1998) and dependent on outside variables and other forms of thinking (Kirby, & Goodpaster, 2002; Vaill, 1996). Factors influencing cognitive thinking include cognition (Elder, & Paul, 2002), logic (Elder, & Paul, 1999; Facione, 1998; Kirby, & Goodpaster, 2002), and emotionality (Jarrett, 1993; Schwarz as cited by Mandell, 2003). Ideas conflict on how to develop and refine students' sound critical thinking practices. However, experts assert that participation in alternate modes of learning fosters critical thought (Harris, 1998; Vaill, 1996), while traditional institutional learning methods do not (Vaill, 1996).

## Creative Thinking

Creative thinking is an evolving construct (Norton, 1994), which involves developing something new—an idea, process, practice, etc.—using the skills of "flexibility, originality, fluency, imagery, associative thinking, attribute listing, metaphorical thinking, and forced relationships" (Edgar, Faulkner, Franklin, Knobloch, & Morgan, 2008, p. 46). A creative thinker engages in four thought processes: fluency, flexibility, originality, and elaboration (Edgar et al., 2008). A fluent thinker is one who generates a plethora of ideas, while a flexible thinker is able to shift viewpoints easily to examine ideas from varied perspectives (Edgar et al., 2008). Originality involves the conception of new ideas or solutions while elaboration involves the ability to expand upon existing ideas (Edgar et al., 2008). Creative thinkers are curious, nonjudgmental, open-minded, persistent, imaginative, and willing to face challenges (Edgar et al., 2008).

Educators are responsible for helping learners develop their creative abilities. However, student creativity is stifled by the traditional structure of the present-day educational system (Edgar et al., 2008). Innovative teaching strategies are essential if instructors want to succeed at challenging students to free themselves of the habitual ways of thinking that often lack innovation, suppress learning, and inhibit problem solving.

## Relationship to Critical Thinking

Supporting Vaill (1996) as well as Kirby and Goodpaster's (2002) insight into critical thinking, Harris (1998) agreed that more is involved in becoming a critical thinker than just perfecting the skills of analysis that are addressed through formal education. He concurred that creative thinking is crucial to successful problem solving and is, therefore, vital to critical thinking. Harris (1998) and Vaill (1996) shared another viewpoint: "Creativity has been suppressed by education" (Harris, 1998, para. 27). Harris (1998) went on to state, "In practice, both kinds of thinking operate together much of the time and are not really independent of each other" (para. 2). If Harris was accurate in asserting that creative and critical thinking are interdependent, then educational institutions relying solely upon traditional teaching methods are suppressing learners' creative thinking and are consequently stifling the development and application of learners' critical thinking practices.

Teaching and learning cannot be limited to preparation courses and formal degree programs (Vaill, 1996). Vaill (1996) explained, "By inadvertently creating meaningless learning experiences, institutional learning exacerbates white water problems and leaves the learner unsure of how he or she is ever going to live effectively in the chaotic organizations of the present and future" (p.43). Educators must integrate the art of critical and creative thinking into student-centered, hands-on, contextual learning experiences representative of practical, real-world circumstances. Through constructivist teaching and learning practices, the aforementioned experiences prepare collaborative learners to apply and transfer such thinking in a world of accelerating change and increased workforce demands.

## Constructivism

Defined as a lasting change in behavior, human learning is an intricate phenomenon that researchers have explored in varied contexts and through a number of theoretical perspectives (Schunk, 2004). Relevant to the development of *The Six Thinking*

*Hats* technique, constructivism is a learning theory founded on the premise that learning should be an active process for students whereby they use their past knowledge to develop, or construct, new ideas or concepts (Brandon & All, 2010). Classified as a social cognitive learning theory, constructivism stresses the notion that human learning occurs in a social environment (Schunk, 2004). Proponents of constructivism stress the importance of observational learning and emphasize the relationship between personal, behavioral, and environmental factors (Schunk, 2004).

Constructivism contrasts significantly with more traditional institutional learning approaches through which instructors rely on textbooks and lectures to impart knowledge to students, the passive recipients of such information. In a constructivist's classroom, students are at the center of all learning experiences while the instructor becomes the facilitator or mediator "who needs to create meaningful zones of proximal development and cognitive bridges through social interactions" (Brandon & All, 2010, p. 90). Students in the constructivist classroom are engaged actively in student-centered learning experiences during which students are responsible for creating their own knowledge, making decisions, solving problems, and sharing diverse perspectives in a collaborative environment (Brandon & All, 2010). *The Six Thinking Hats* (de Bono, 1999) is a powerful instructional technique college and university instructors can use in on-ground, online, or hybrid-model courses to engage students actively in critical and creative thinking via a constructivist approach.

## *The Six Thinking Hats* Technique

Using *The Six Thinking Hats* technique can broaden students' perspectives and assist them in developing successful strategies for interpreting course content while meaningfully applying the core skills within a given curriculum. Instructors implementing *The Six Thinking Hats* technique effectively will challenge students to free themselves of the habitual ways of thinking that often lack creativity, impede learning, and hinder problem solving. The technique is one that instructors can use to promote students' transfer

and application of critical and creative thinking skills to today's competitive workplaces, where collaboration, sound decision-making, innovation, and reflexive learning are essential to their achievement. *The Six Thinking Hats* unleashes the full thinking potential of students and the teams on which they serve (The de Bono Group, LLC, n.d.b). By employing *The Six Thinking Hats* technique, all learners fulfill valuable roles and are equal contributors to the thought process (The de Bono Group, LLC, n.d.b).

Each of the six figurative hats (white, red, yellow, black, green, and blue) represents a different purpose or style of thinking: objective thinking, informed intuition, positive and constructive assessment, negative assessment, creativity and innovation, and process control (de Bono, 1999). By figuratively wearing and switching hats during the critical thinking process, students can become more focused and mindfully involved (The de Bono Group, LLC, n.d.b) as they explore problems from various points of view. Ideally students will make better, more informed decisions (de Bono, 1999). Prior to exploring the application of the technique, a brief description of each of the six hats is necessary to best understand its function.

**The white hat.** Simply put, the white hat calls for an examination of information, either that which is known or needed (The de Bono Group, LLC, n.d.b). When wearing the white hat, the student is exploring only facts (The de Bono Group, LLC, n.d.b). Just as a computer can provide facts and figures objectively, the student wearing a white hat retrieves or identifies facts in a neutral manner and remains objective when presenting factual information (Gross, 1998).

**The red hat.** The red hat symbolizes emotion or feelings and intuition (The de Bono Group, LLC, n.d.b). Unlike when wearing the white hat, students wearing the red hat can share/express their emotions and their feelings and opinions, which may include their likes and dislikes (The de Bono Group, LLC, n.d.b). By wearing a red hat during any thought process, the learner validates emotions as relevant to the overall thinking process (Gross, 1998). According to Gross (1998), when learners wear red hats, they do not need to justify feelings or seek logic to ground them. To think critically

learners must be aware of emotions that may influence their overall thought processes.

**The yellow hat.** Signifying sunshine and brightness, the yellow hat represents optimism (Gross, 1998). When wearing a yellow hat, the learner's task is to conduct a positive and constructive assessment of the given circumstances. Gross (1998) explained, "Effectiveness is the aim of yellow hat constructive thinking" (para. 6), from which "concrete proposals and suggestions result" (para. 6). Yellow hat thinkers explore the value and benefit of any situation (The de Bono Group, LLC, n.d.b).

**The black hat.** Focused on negative assessment, the black hat represents the devil's advocate (The de Bono Group, LLC, n.d.b). When wearing the black hat, students are responsible for forming judgments (The de Bono Group, LLC, n.d.b). In other words black hat wearers have to identify dangers and difficulties as they examine the ways in which things could go awry (The de Bono Group, LLC, n.d.b). The de Bono Group, LLC (n.d.b) cautions that the black hat is the most powerful and possibly the most useful hat yet can be detrimental if overused. Gross (1998) added, "Black hat thinking should not be used to cover negative feelings, which should make use of the red hat. In the case of new ideas, the yellow hat should always be used before the black hat" (para. 7).

**The green hat.** The green hat signifies creativity and innovation (Gross, 1998). When wearing a green hat, the learner generates new ideas and fresh perspectives (Gross, 1998). Green hat thinkers explore possibilities and alternatives to existing concepts (The de Bono Group, LLC, n.d.b). They purposefully express new and perhaps divergent perceptions of a given circumstance (The de Bono Group, LLC, n.d.b).

**The blue hat.** The blue hat thinker is akin to a facilitator. The learner wearing a blue hat manages the thinking process and is responsible for ensuring each participating thinker follows the roles and guidelines involved with *The Six Thinking Hats* technique (The de Bono Group, LLC, n.d.b).

## Practical Application

*The Six Thinking Hats* technique emphasizes a parallel thinking process and is best employed in learning environments where team productivity, communication, problem solving, and both critical and creative thinking are necessary (The de Bono Group, LLC, n.d.b). University instructors can employ *The Six Thinking Hats* technique in large whole-group forums and in smaller team forums. The technique can be very effective and have the greatest instructional impact when instructors first provide students with a practical, problem-based learning (PBL) experience and then challenge teams of students to apply course content and approach the problem collaboratively, with each team member fulfilling the role of one of the six thinking hats. Members on smaller teams can wear multiple hats, provided each team has all colored thinking hats represented. Teams can convene and debrief, thereby ensuring triple-loop learning for all involved parties. The value of discussion questions, case study explorations, and PBL experiences increases with the use of *The Six Thinking Hats* technique because students are challenged to recognize and understand the full complexity of course content and its application to the real world.

**Requisite knowledge for successful application.** To utilize *The Six Thinking Hats* technique effectively, instructors need to model the use of the technique for students and then offer guided practice in either whole group or team settings. Thereafter, instructors need to monitor students' independent application of the technique and be prepared to facilitate the use of the technique by proposing leading questions as necessary. Careful advance planning of problem-based learning experiences related to course content is essential.

**Benefits.** Students who are able to use the technique learn how to examine problems, decisions, and opportunities in a systematic manner (The de Bono Group, LLC, n.d.b). Learning team meetings can be more productive and shorter as a result (The de Bono Group, LLC, n.d.b). Conflict is reduced in learning team and whole-group settings where the participants utilize *The Six Thinking Hats* technique (The de Bono Group, LLC, n.d.b). Learning

team and whole-group meetings become more results oriented, thereby motivating learner participation (The de Bono Group, LLC, n.d.b).

**Limitations and assumptions.** The use of *The Six Thinking Hats* technique has its limitations, and its value is based on a number of basic assumptions. The technique's effectiveness is limited by student attendance and the quality of student participation. The related assumption is that students will be intrinsically motivated, present for, and committed to the collaborative teaming process and the role(s) they serve within it. The length of a course may also serve as a limitation. The related assumption is that the length of any given course will afford instructors the time needed to model the technique and provide students with adequate guided and independent practice in the context of the curriculum.

## Relevance to Higher Education

*The Six Thinking Hats* technique has been utilized in higher education with great success. Colleges and universities nationwide have reported noteworthy advancements in course delivery following the use of *The Six Thinking Hats* technique in their instructional programming. Instructional leaders from varied degree programs, specifically those in business management, are beginning to institute the use of *The Six Thinking Hats* technique as a key component of the curriculum.

For example, instructors teaching courses offered at Luther College in Decorah, Iowa, have incorporated *The Six Thinking Hats* since the late 1990s (de Bono Consulting, n.d.). By 2003, Luther College offered courses in which *The Six Thinking Hats* was part of their core curricula (de Bono Consulting, n.d.). Additional courses offered at Luther College incorporating the technique were offered in 2004 and then again in 2005, signifying the success of the technique's application. According to Dr. Schweizer, professor of Management, Economics, and Business Development at Luther College, instructors who use specific techniques to prompt creativity, such as *The Six Thinking Hats*, position students "to be ready,

willing, and able to learn continually after leaving school” (de Bono Consulting, n.d., para. 5).

Instructors in the Department of Educational Psychology at Texas A&M have also incorporated *The Six Thinking Hats* technique into their instructional programming with great success. Dr. Juntune, professor of graduate-level courses in gifted education and undergraduate courses in creativity and child development at Texas A&M, uses de Bono’s (1999) techniques (including *The Six Thinking Hats*) because she feels the skills gained through their application can be utilized universally across all fields of study at the university level, “including engineering, education, psychology, agriculture, business, and architecture” (de Bono Consulting, n.d., para. 8). Juntune (n.d.) also believes that students gaining experience with *The Six Thinking Hats* technique will experience advantages in the job market because such training will add value to their resumes (de Bono Consulting, n.d.).

In addition Joy Rupp, the executive director of Human Resources Development at Rose State College in Oklahoma “has established an initiative to include critical thinking, via *The Six Thinking Hats*, in every syllabus and workshop” (de Bono Consulting, n.d., para. 11). According to Rupp (n.d.) the use of *The Six Thinking Hats* technique has significantly strengthened communication and has resulted in improved decision making, fewer instances of miscommunication, and more efficient problem solving (de Bono Consulting, n.d.). According to Rupp (n.d.) *The Six Thinking Hats* technique “at Rose State College is as needed as the walls that support the buildings. Without the walls the ceiling would crash down. Thinking of going back to our old ways without de Bono Thinking Systems would feel like the ceiling falling in on us” (para. 14).

### Future Research Directions

Instructors, administrators, or independent researchers seeking opportunities for qualitative study may wish to explore how certain demographics, such as age, cultural diversity, workplace experience, and educational background influence a student’s receptiveness to *The Six Thinking Hats* technique. Quantitative

researchers may wish to examine what correlation, if any, exists between the use of *The Six Thinking Hats* technique and students’ mastery level(s) of course content on varied assessments. The mixed-methods researcher may wish to pursue both avenues of suggested research.

### Conclusion

Past and present, Western culture depends on the use of critical thinking (de Bono Group, LLC, n.d.a). In business, education, and elsewhere, being constructive and creative is more than just desirable—it is essential. Individuals must be skillful communicators and astute problem solvers to succeed in a world marked by rapid growth and accelerating change. By engaging in parallel or constructive thinking whereby each thinker safely and freely shares thoughts in parallel with the thoughts of others (The de Bono Group, LLC, n.d.a), individuals increase their productivity and maximize opportunities for learning. *The Six Thinking Hats* technique is a powerful proven practice for promoting and enhancing students’ use of critical and creative thinking practices. The technique is one that instructors of online, on-ground, and hybrid-model classes can use to maximize learning and collaboration via a constructivist approach.

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