

# Metacognitive Reflection

## The Framework for Facilitating Reflective Practice During the Coast Guard Midgrade Officer and Civilian Transition Course

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### Abstract

Advocates for reflective practice abound. However, there is scant detail in the literature that provides explicit strategies that may help professional military education programs teach and develop reflective practice skills. This article endeavors to provide the reader a transferable and customizable framework containing the explicit strategies and structures used by the U.S. Coast Guard to facilitate metacognitive reflective practice and as a means of teaching and inspiring Coast Guard officers and civilians during the Midgrade Officer and Civilian Transition Course.

Metacognition was initially described by Flavell (1979) as “knowledge and cognition about cognitive phenomena” (p. 906). Today, it is commonly described as “cognition about cognition” or intentionally thinking about our thinking to improve it. The role of metacognition as a skill set and a teaching tool for students at senior-level Marine Corps and Air Force professional military education (PME) schools is explored by Khachadorian et al. (2020). Although their article offers several techniques for planning, enacting, and evaluating course content, it does not address the role played by reflection as a metacognitive strategy.

Reflection is frequently a component of PME programs as it is a critical element of adult education concepts ranging from Kolb’s experiential learning cycle to Schon’s reflective practitioner (Bourner, 2003). Critically, many programs, despite a reputation for rigor and intensity, reserve only a fraction of the time necessary

for reflection (Ben-Hur et al., 2012). Concurrently, it is assumed that students understand what reflective practice is and how it is accomplished. Students are simply directed to “reflect,” and little to no time is spent developing the necessary qualities or specific skills for sound reflection (Fiddler & Marienau, 2008). Furthermore, while there is ample evidence illustrating the value of reflective practice, there is little discussion about how leaders can help students develop and apply reflective practice skills (Russell, 2005).

This article provides a transferrable and customizable framework for facilitating the underlying structures or scaffolding necessary for metacognitive reflection across services in PME or higher education activities. The authors’ interest in metacognitive reflective practice stems from their experiences of teaching Coast Guard officers and equivalent civil service members during their attendance at the Midgrade Officer and Civilian Transition Course-1 (MOCTC-1) at the U.S. Coast Guard’s Leadership Development Center, located in New London, Connecticut. The MOCTC-1 is a 16-week intermediate-level leadership development program designed to draw upon prior learning and life experiences to enhance students’ critical thinking and leadership capacity. The development of mental agility and intellectual curiosity required to meet this outcome is achieved by explicitly introducing reflective practice skills and exercising them during daily guided metacognitive reflection sessions.

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## Reflection and Learning

Reflection can mean many different things, but the concept of reflective practice stems from Dewey's (1933) foundational works on reflective thinking for growth. This concept continues to evolve with the addition of concepts such as Schon's (1983) reflective practitioner engaging in "reflection-on-action" and "reflection-in-action." There are at least four different streams of reflection: content-based reflection—linking experiences to learning objectives and competencies (Hatcher & Bringle, 1997), metacognitive reflection—increasing awareness of and control over one's thinking behavior (Fogarty, 1994), self-authorship reflection—development of one's identity and internal schema (Magolda, 2008), and transformative reflection—the development of independent thinking (Mezirow, 1997).

Most learning programs default to a content-based reflection because their primary outcome is to have students consider past experiences as they relate to particular-learning objectives or competencies (Grossman, 2009). Both content-based and metacognitive reflection is useful in a wide range of disciplines. However, because our focus is the deep learning required for participants to monitor and self-regulate their cognitive processes and improve their leadership, we have chosen to focus on metacognitive reflection.

Metacognitive reflection has two components: intentionally thinking about "what we know" and "how we know," and self-regulation. Self-regulation is defined as managing how we go about leading ourselves and others, the ability to recognize and supervise our thinking processes, and the potential to perceive leadership in new ways (Day et al., 2009). In other words, we see metacognitive reflection as a form of practice. It is a combination of retrieval and elaboration that can invoke imagery and mental rehearsal for leading. The barriers to effective metacognitive reflection are the same as for a content-based reflection but possess an even lower likelihood of actual accomplishment due to the nature of its intentionality. Metacognition requires intentionality as it involves monitoring or awareness of our learning, thinking, and leading processes. It occurs during an experience. This differs from content-based reflection (which some literature argues isn't reflective at all), which occurs after an action. One example is after action reviews.

Few programs have effectively structured or integrated reflective practices to create learning interventions (Astleitner, 2002). However, learning is like breathing; it involves taking in, processing, and expressing what is learned (Kolb & Kolb, 2005). Further, one may be exposed to an event but not be ready to absorb it, or students may be exposed to the same event and formulate entirely different lessons from the experience (Janson, 2008; Olivares, 2011). Nevertheless, many experiences quickly fade from memory, regardless of the nature of the intervention. Instead, what causes a lesson to "stick" is what one makes of the experience (Day et al., 2009). Incorporating reflective practice is essential to create deep, active learning and provoke the

self-examination needed for students to take an active part in their transformative development (Ryan & Ryan, 2011).

## **Philosophy of Teaching—Metacognitive Reflection**

We believe that people do not truly learn something unless they discover it themselves. MOCTC-1 firmly recognizes that students should understand the value of reflective learning and be explicitly trained in the use of metacognitive strategies. As such, our teaching philosophies are founded on constructivism, using socially constructed learning.

Learning can quickly fade from memory because people tend to find and inhabit comfort zones and assimilate new information within their current framework of thinking (Valcea et al., 2011). To counteract this tendency, and to encourage inquiry and reflective thinking, we construct learning environments that place learners in what Dewey (1933) described as a mild state of perplexity, confusion, or doubt.

### ***Praxis in Teaching Metacognitive Reflection***

The daily guided reflection sessions, each 30-60 minutes, were prominently listed in the course syllabus and schedule and arranged to provide a series of well-coordinated activities informed by nine psychological principles (see Table 1).

The students were asked to discuss the topic in relation to past and current experiences and how these may influence their thinking, decision-making, and leading. This process is designed to assist them in adequately reframing and analyzing arguments, recognizing their logical fallacies, discriminating between their warranted and unwarranted positions, identifying their underlying assumptions, and building skills in scientific and socialized analytical reasoning.

Students were provided a packet of preparatory materials to help with their comprehension of reflection dimensions and psychological principles. They were expected to have read the material before class. During the initial session, they were briefed on the structure of the sessions, the content of the preparatory material packet, and the rationale for how the guided reflection sessions would be used to unlock their capacity to monitor and self-regulate their cognitive processes.

In the foundational session, the facilitator modeled reflective practice by thinking aloud so that students could follow metacognitive thinking processes and think and talk about their thinking. The daily sessions continued with a high degree of supervision, but were discursive and exploratory. Students left to their own devices tend to focus on their individual actions rather than those of the social group

(Stacey, 2012) and therefore, conducting reflection as an individual activity was deemphasized. Instead, they were encouraged to interact with others and recognize themes emerging in their dialogue to engage in a sociocognitive learning process (Ryan & Ryan, 2011). As a student talked through the topic, the other students listened and asked questions to clarify thinking and statements.

The facilitator was mindful of the students' first inclination to move immediately to planning and problem-solving, and therefore, sought to gently nudge the exploratory narrative to explore what students have done in the past in order to develop more in-depth insight into how they were thinking, what they have been doing, and why they have been doing it. Increasingly, as the students learned what was and was not reflective, the facilitator reduced his or her own presence and allowed the participants to begin probing, challenging, and even interrogating each other's positions.

**Table 1**  
*Frameworks Psychological Principles*

Introduction to Metacognitive Reflection & Readiness, and Reflexivity Framework
Horizontal vs. Vertical Development
Constructive Development
Performance vs. Learning Orientation
First and Second-Order Reflection
Leadership Development Through Cascading Reflection
Using Systems Thinking in Reflection— The Metaphors of The Galapagos Islands and Costa Rica
Maladaptive and Adaptive Reflections

**Guided Reflection Framework**

What follows is a transferrable and customizable framework for facilitating the underlying structures or scaffolding necessary for metacognitive reflection across services in PME or higher education activities—each titled by its psychological element. An initial session was conducted to introduce the framework and foundational elements. Subsequent sessions were held daily to introduce another psychological aspect. The facilitator used the reflexivity framework and other reflective questions to guide

dialogue as a class or within small groups. The sequence was deliberate, but it was often rearranged to respond to the students' emergent conversations and needs.

## ***Foundational Session—Readiness***

**Facilitation.** The topics of reflective learning, reflexive framework, and readiness are traditionally introduced during the initial guided reflection session. We recognize that desired change is at the heart of individual development (Boyatzis, 2008); therefore, whether the MOCTC experience contributes to developmental growth largely depends on individual student readiness (Avolio & Hannah, 2008). This session addresses the concern that a learner may want to be a leader, but is not ready to invest the personal resources necessary to achieve the required emotional, social, and cognitive competency (Boyatzis, 2008). This view of developmental readiness closely parallels the success of therapy in the clinical literature, which suggests that a patient's readiness to undergo therapy is perhaps of greater importance than the therapist or therapeutic technique (Avolio & Hannah, 2008). In this way, the learner must be receptive to new or conflicting information that may serve as a "tipping point" event (Ibarra, 1999), or a catalyst for change.

The concept of readiness guides each student to accept his or her investment as an active participant. The vertical development element provides clarity to the role of reflection in learning, and the reflexivity framework is the primary model students are coached to use throughout the daily sessions to begin to engage in second-order reflection.

Readiness is enhanced through two approaches. First, influenced by Grossman's work in 2009, we "set the hook" on the need for self-awareness of our thinking process by introducing a constant struggle between thinking and feeling. We did so by asking what the difference is between thinking and feeling. The consequent discussion resulted in the understanding that feelings are sensory. We then asked the students to reflect upon times in their lives when they had become emotionally hijacked and then asked how often they had made decisions or acted spontaneously based upon feelings. The point was to facilitate recognition of the constant tension between emotions and logic and the need to identify when emotions lead the charge. When we can reconcile our feelings with our logic and postpone action until there is alignment, we will make better decisions. Second, to draw out self-awareness of individual readiness, we asked the students to consider four questions designed to reveal personal readiness or coachability from their quantitative scoring on the Leadership Practices Inventory 360 feedback.

**Guided Reflective Questions.** What is one's first reaction when things go wrong? How does one respond? What emotion might influence thinking? What is one's second reaction? What feeling might be affecting individual thinking? What would happen if one went to one's second response first?

## ***Reflexivity Framework***

**Facilitation.** To guide and generate metacognitive reflective practices, students are led by using our reflexivity model, an adapted version of the well-known reflection model developed by Rolfe (2014): What? So What? and Now What? Our reflexivity model is modified to provide 2nd Order reflection, with the additional, intentional, and essential question: What role have I played in this? After this element is introduced, it is utilized as the foundational model to frame all subsequent daily guided reflection sessions.

**Abridged Version of the Preparatory Material.** *What?* This is a “balcony view” of the situation: What do I see, hear, feel, and sense? What message(s) are there? Am I paying attention?

*So What?* What is the importance to others, my unit, myself? Conjecture the “what ifs.” Look inside myself, and ask how the feedback might be different if my behaviors were different.

*Now What?* What actions will I take as a result? How will I do this? When will I have done this?

*What role have/did I play in this?* This additional self-question is an essential and intentional inquiry into the social processes of self-knowing and of the social processes in which we find ourselves. It is noticing and thinking about participation with others in the accomplishment of joint tasks. What is being noticed and thought about? How am I thinking about my engagement in the social processes of communication, power relations, and ideology? It involves asking who we are, what we are doing together, why we are doing it, and how we are thinking about these questions. The focus is on thinking about how we are thinking.

**Guided Reflective Questions.** After its introduction, this model is practiced by the facilitator guiding the class by using it to reflect on a shared experience from the previous day.

## ***Horizontal Versus Vertical Development***

**Facilitation.** To unlock mindsets, we begin with a “balcony view” of vertical development, describing Petrie’s (2015) work on vertical versus horizontal development. Establishing this concept is critical to creating the foundation for students’ understanding of cognitive growth and the intrinsic motivation for active participation in reflective learning activities. This is the first step in building the “bridge” that Grossman (2009) describes as essential for students to create a mental place to stand apart from their current thinking.

**Abridged Version of the Preparatory Material.** Horizontal development is an emphasis on “what you think.” It is the transfer of knowledge or skills from an expert

to a novice. Vertical development emphasizes “how you think.” It is growth in the form rather than the content of understanding and must be earned.

Traditionally, leadership development programs have focused mainly on what leaders need to learn and how to provide them exactly that. However, the limiting factor is not the content (a leader’s knowledge), but instead, it is the “cup.” In other words, traditional training pours content into the cup; vertical learning changes the capacity of the cup (Petrie, 2015). In formulating leader development, the right question is not “what do we need to teach them?” Instead, we must ask, “how do we help leaders learn?” (Hackman & Wageman, 2007)

**Guided Reflective Questions.** Leading others requires the expenditure of enormous amounts of cognitive, emotional, and physical energy. We ask the students: “Are you willing to exert the necessary cognitive, emotional, and physical energies to become the leader you would like to be?”

## ***Constructive Development***

**Facilitation.** Although each stage is stable, each is also malleable, and developmental movement to the next stage may occur in response to external stimuli (Kegan, 1982). Each transformation, evolving from simple to a more sophisticated sense of individual awareness and meaning-making, is called a “developmental movement” (McCauley et al., 2006). Our program’s central goal is for our students to become aware of their meaning-making system in their present stage; they can think critically about it, and what is subjective becomes objective; the individual is then able to reflect and shift to another stage (Story, 2011).

**Abridged Version of the Preparatory Material.** Constructive development theory holds that human development occurs in five measurable, sequential, and hierarchical stages of “orders of consciousness.” In other words, people can progress from a simplistic to a more sophisticated understanding (Strang & Kuhnert, 2009). Stage 1 is concerned with childhood and adolescence; it does not apply to adult development. In Stage 2, the leader sees the world as black and white, win or lose. They are not likely to consider others’ perspectives and view others as simply impediments to their motivations. Ten percent of leaders in organizations today operate at this level (Eigel, 1998; Kegan, 1994). Stage 3 involves movement from narcissism to a consistent demonstration of empathy and the capacity to see past one’s self-interest and understand a context other than one’s own. The opinions of others strongly influence this person. The person’s sense of self is socially determined. What they think and what they say are equally influenced by what they believe others want to hear. Approximately 58-78% of the adult population is at this development level (Kegan & Lahey, 2016).

Stage 4 is the emergence of self-construct and internal values. A person has developed his or her inner compass and can understand his or her values and those of oth-

ers. Outside sources are only one factor in his or her decision-making. This person has an internal voice and can take a stand and set limits according to that inner voice. Research suggests that Stage 4 is where effective leadership begins. Stage 5 occurs when individuals become aware of their ideological self-systems and their limitations. Thus, they can recognize and regard the validity of multiple perspectives simultaneously and compare them, wary of any single ideology (Kegan & Lahey, 2016; Story, 2011). One to eight percent of the adult population is at this level of consciousness.

**Guided Reflective Questions.** While formal individual subject-object interviews to determine student stage development are well beyond the course’s scope, self-diagnostic questions revealing Levels 3 and 4 were provided for students to reflect on critically. See Table 2 for some self-diagnostic statements to generate dialogue with students.

**Maladaptive and Adaptive Reflections**

**Facilitation.** Reflexivity can guide and motivate members to systematically question their practices, learn about their assumptions (Staber & Sydow, 2002), enable

**Table 2**  
*Constructive Development*

<b>Level 3 (I am Subject)</b>
My ideas, norms, and beliefs (what I know to be true) come from other people and systems around me (society, ideology, culture).
I take too much responsibility for how others experience me (impression management).
I look for external validation—I am compelled to ask how well I did.
I find it difficult to answer: “What do I want?” Instead, I tend to parrot what I have heard.
Who I am is cue-dependent.
<b>Level 4 (I am Object)</b>
My thoughts, beliefs, and norms are independent of other people and the systems around me.
I honor my internal commitments.
This is the kind of person I am; this is what I stand for.
I have an internal sense of direction.
I facilitate and seek out a dialogue with opposing views.
I can view myself as an object that can be evaluated, analyzed, and understood.
I am aware of my deep structured identity.

them to learn from mistakes, and illuminate pathways that are likely to lead to positive outcomes (Verplanken et al., 2007). However, while self-critical reflection may be useful and mentally healthy, habitual negative self-reflection may have adverse outcomes. We strive to impart the principle that paying attention to reflection is particularly important for a leader.

**Abridged Version of the Preparatory Material.** *Maladaptive* self-reflection occurs when individuals mull over negative outcomes instead of what is possible and changeable. Furthermore, learning from negative outcomes appears to self-organize, as individuals inclined toward this orientation tend to devote considerable time to mulling over self instead of a task. This attitude may generate destructive emotions that may lead to feelings of anxiety, self-doubt, fear-based actions, and atrophy of identity and commitment, thus preventing people from fully engaging in a developmental event (Avolio & Hannah, 2008).

*Adaptive* self-reflection speaks to constructive, positive outcome reflection grounded in patterns of openness with a learning goal orientation. Openness and positive outcome reflection most readily occur when members are guided, yet feel responsible for their developmental progress (Petrie, 2011). Adaptive reflection facilitates a more profound thought repertoire, recognizes the “art of what is possible,” and unleashes a learning orientation that can enhance further developmental growth. The goal is to encourage us to ask ourselves “why” questions—not only after failed events, but also after successful ones (Ellis & Davidi, 2005).

**Guided Reflective Questions.** Do leaders have a decisive role in the reflective orientation their members adopt? If yes, how might we influence their reflective orientation? What role have I played in this? What role will I play in this?

## ***Performance Versus Learning Orientation***

**Facilitation.** The military presses members to adopt a performance orientation early. A discussion is held to help students identify when they engage in an experience with a performance or learning orientation.

**Abridged Version of the Preparatory Material.** A person’s orientation explains their motivation, approach to learning, goal setting, and self-regulatory processes in numerous ways. Members with a performance orientation tend to seek and demonstrate competence in safe environments and to gain favorable judgment from others. Performance orientation members tend to seek fewer challenging goals and engage in more impression management behaviors. This effort to monitor self-presentation depletes later self-regulatory resources (Vohs et al., 2005).

A learning orientation mindset triggers entirely different streams of thought and action from performance orientations (Brown et al., 2014). It helps members develop competencies by acquiring and mastering new skills, exploring challenges, and mak-

ing errors as instructive in the process. They seek higher goals and direct attention to the task rather than themselves (Brett & VandeWalle, 1999).

**Guided Reflective Questions.** What orientation have I demonstrated here during the course thus far? How might my goal orientation facilitate the development of leadership expertise using self-regulation strategies?

### ***First Order Reflection and Second Order Reflexivity***

**Facilitation.** The necessity of second-order reflection was argued in the context that leadership is a social phenomenon. It is not the logic of mathematics or hard sciences, but rather the logic of social interactions. Thus, there are limitations to our ability to predict, plan, and control social systems' behavior (Sanderson, 2006). Leadership requires creating and developing shared narratives and new social meanings to mobilize the capabilities for developing solutions to a specific challenge (Hobday et al., 2012). Thus, it is important to help students to construct sense-making from multidisciplinary and multi-institutional frames.

**Abridged Version of the Preparatory Material.** People are inevitably reflexive in a first-order sense. Nevertheless, Kegan (1994) argues that deciding *for myself* should not be confused with deciding *by myself*. His argument asserts that no leader outgrows the need for others' perspectives, experiences, and support. Furthermore, few have developed second-order reflexivity capacity—all find it difficult to engage in this activity.

**First Order.** Forming knowledge of ourselves in terms of dependent and independent variables.

**Second Order.** An intentional inquiry into essential social processes of self-knowing and the social processes we find ourselves experiencing. Second-order reflection means noticing and thinking about participation with others in the accomplishment of joint tasks. What is being noticed and thought about? How am I thinking about my engagement in social processes of communication, power relations, and ideology, reflecting choices that produce emergent patterns of action? It involves asking who we are, what we are doing together, why we are doing it, and how we are thinking about all these questions. This requires us to think about how we are thinking.

**Guided Reflective Questions.** There are no specific guided questions utilized, and the facilitator used emergent questioning tailored to students' class experiences.

### ***Leadership Development Through Cascading Reflection***

**Facilitation.** Guided organizational reflexivity directs and motivates members to systematically question their practices and learn about their assumptions (Staber & Sydow, 2002).

**Abridged Version of the Preparatory Material.** The focus of cascading reflection is stimulating metacognitive reflection in others. Ample evidence is available that inquiry in the form of guided reflexivity aids in the construction and reconstruction of meaning and meaning-making processes. Cascading reflection implies a dynamic recursive interplay between members and various levels of leadership within an organization. The senior leader establishes a reflective leadership style that cascades down, resulting in a similar approach conducted in a similar form at lower organizational levels. Cascading reflection also involves energy devoted to guided reflection sessions, which refers to leaders providing both groups and individuals with space for discovery to help them work through the dependent/intervening/moderating variables of the developmental event and to mine their experience, continuously and intensively (Day et al., 2009; Thomas & Cheese, 2005).

**Guided Reflective Questions.** There are no specific guided questions utilized, and the facilitator used emergent questioning tailored to students' class experiences.

## ***Impediments to Critical Thinking***

**Facilitation.** To help learners identify impediments to critical thinking, we discuss obstacles to critical thinking and ask them to reflect and share theirs.

**Abridged Version of the Preparatory Material.** Midgrade leaders need to conduct a comparative analysis and raise the level of complexity to encompass a swirl of social and ideological elements. Thus, while basic logic and reasoning skills are foundationally required, they alone are insufficient. Further, critical thinking does not come naturally, regardless of the context. We are all hardwired to focus on our near-term survival needs (Kahneman, 2011), to “put out fires,” and to focus on “the alligator nearest the boat.” With more variables to consider, these complex problems can often overwhelm more traditional instrumental rationalities.

Smooth sounding buzzwords and vaporous jargon are often challenging to translate into meaningful thoughts (Bateman, 2008). PowerPoint presentations are also often frustrating as they seem full of buzzwords, arranged in bullet points, providing the illusion of logical relationships that may or may not exist (Hammes, 2009). In this context, we may find that our critical thinking is truncated because we seek to determine courses of action before framing the problem and understanding its context. It seems that we continually have a lack of time to imagine different answers to a question. We are surrounded by those who think they know more than they do. Thinking critically requires a questioning mentality and a culture of inquiry.

**Guided Reflective Question.** Do those who have no military experience find it easier to develop critical-thinking skills because their minds are not burdened with tactical thinking and accompanying linear jargon?

## ***Using Systems Thinking in Reflection—The Metaphors of the Galapagos Islands and Costa Rica***

**Facilitation.** We have discovered that people generally do not think in terms of data. Instead, people think in terms of ideas, stories, or images. All these constructs form mental pictures of a given situation, problem, or decision. People generally think in pictures, but they also understand things best as images and stories (Peters, 1987). Therefore, we use the Galapagos Islands and the Costa Rican rainforest ecologies as a metaphor to deepen learning about adaptive systems. We are attracted to the use of metaphor to deepen learning. For instance, in deepening systems thinking perspectives, as a metaphor, we use Resnick's (2003) work and the ecologies of the Galapagos Islands and the Costa Rican rainforest, which provide two examples of varying robustness and the ability to adapt.

**Abridged Version of the Preparatory Material.** The Galapagos Islands, long in relative isolation and protection, did not acquire useful adaptive capabilities and remained vulnerable to invasive species. On the other hand, the Costa Rican rainforest evolved under a constant invasion of new entrants and developed a nearly impenetrable resilience. Similarly, protected Galapagos Island-like organizations that continually seek a high degree of equilibrium cannot survive against rival ecosystems. On the other hand, organizations with the Costa Rican rainforest traits, while having hardy competitors, adapt, dominate, and thrive.

We develop this leadership metaphor further by asking our students to consider an unusual tree found in the Costa Rican rainforest, known as the “walking tree.” The tree changes its location over time. It does so through a process of self-evaluation (or metacognitive reflection). The roots at its base provide a feedback loop as it searches for more fertile soil. When good soil is discovered in one direction, the tree reinforces those roots while allowing the roots that no longer add value to die off. As the roots in the better soil grow and those in the more deficient soil die off, the entire tree gradually moves toward the stronger position. As the movement continues, the roots—or the students—are never in an end state. They continually scan for even better soils, and the action continues in any direction.

**Guided Reflective Questions.** Metaphorically, am I Galapagos or Costa Rica? Am I a complex adaptive system or an equilibrium seeker? Am I resistant to change? Am I adaptive? Is my mental framework that of entities (unit, competencies, qualifications), or do I see things in terms of relationships in which we can co-evolve together? Am I growing? Am I a walking tree or fixed in place? Do I move in a direction that gives me and my organization more options? Am I too controlling?

## **Conclusion**

Learning requires more than telling people to “reflect” and hoping for the best. Learning outcomes are cognitively and emotionally complex and only tem-

porary and casually organized (Olivares, 2011). Making sense of and effectively assimilating learning requires self-awareness and reflection (Bourner, 2003), but the resources of time, development, and intentionality needed to utilize reflective learning are seldom expended. Reflective thinking should be taught using explicit and thoughtful strategies to be effective (Russell, 2005). We believe that any intervention that discounts reflective learning is unlikely to meet its intended effect. Therefore, we urge organizations to consider designing and incorporating methodologies to fully harness reflective learning's transformative power as the mainstay of their leadership development strategy.

For MOCTC-1, we have not only provided dedicated time and attention to reflection but are deliberately seeking to teach a leader how to create organizational space for coherent and meaningful reflection on experiential activities and put in place continued, regular reinforcement cycles that synthesize existential links, providing a cycle of discoveries or epiphanies throughout the organization (Boyatzis, 2006). This critical culture of inquiry demands a reflexive environment, and the MOCTC-1 Guided Reflection framework is our attempt to create one. The daily guided metacognitive reflection activities we have our students engage in seek to develop the adaptive capacity they will need to find success in future roles in a complex world that requires leaders who can deconstruct and reconstruct their thinking to realize alternative meanings.

The lack of specific models for developing reflective practice has led MOCTC-1 to innovate an explicit and thoughtful framework to do so. This unique approach has caused a shake-up in our longstanding pedagogical schemas. By providing this alternative educational opportunity, it has substantially promoted the power of reflective learning among us. We believe that organizations can develop a reflexive institutional environment by offering the same. We wish you the best of luck in adapting your metacognitive reflection framework to your program's needs. We hope to see these developments and results in the literature in the coming months. ☞

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## References

- Astleitner, H. (2002). Teaching critical thinking online. *Journal of Instructional Psychology*, 29(2), 53–76.
- Avolio, B. J., & Hannah, S. T. (2008). Developmental readiness: Accelerating leader development. *Consulting Psychology Journal: Practice and Research*, 60(4), 331–347. <https://doi.org/10.1037/1065-9293.60.4.331>
- Bateman, K. (2008). The war on buzzwords. *Proceedings*, 134(8/1266), 20–28.
- Ben-Hur, S., Jaworski, B. J., & Gray, D. (2012). Re-imagining Crotonville: Epicenter of GE's leadership culture. *Harvard Business Review*, 2, 74–82.

- Bourner, T. (2003). Assessing reflective learning. *Education + Training*, 45(5), 267–272. <https://doi.org/10.1108/00400910310484321>
- Boyatzis, R. E. (2006). An overview of intentional change from a complexity perspective. *Journal of Management Development*, 25(7), 607–623. <https://doi.org/10.1108/02621710610678445>
- Brett, J. F., & VandeWalle, D. (1999). Goal orientation and goal content as predictors of performance in a training program. *Journal of Applied Psychology*, 84(6), 863–873. <https://doi.org/10.1037/0021-9010.84.6.863>
- Brown, P. C., Roediger, H. L., III, & McDaniel, M. A. (2014). *Make it stick*. Harvard University Press.
- Day, D. V., Harrison, M. M., & Halpin, S. M. (2009). *An integrative approach to leader development*. Psychology Press.
- Dewey, J. (1933). *How we think*. Prometheus Books.
- Eigel, K. M. (1998). *Leader effectiveness: A constructive developmental view and investigation* [Doctoral dissertation]. University of Georgia.
- Ellis, S., & Davidi, I. (2005). After-event reviews: Drawing lessons from successful and failed experience. *Journal of Applied Psychology*, 90(5), 857–871. <https://doi.org/10.1037/0021-9010.90.5.857>
- Fiddler, M., & Marienau, C. (2008). Developing habits of reflection for meaningful learning. *New Directions for Adult and Continuing Education*, 2008(118), 75–85. <https://doi.org/10.1002/ace.297>
- Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive-developmental inquiry. *American Psychologist*, 34(10), 906–911. <https://doi.org/10.1037/0003-066X.34.10.906>
- Fogarty, R. (1994). *The mindful school: How to teach for metacognitive reflection*. IRI/Skylight Publishing.
- Grossman, R. (2009). Structures for facilitating student reflection. *College Teaching*, 57(1), 15–22. <https://doi.org/10.3200/CTCH.57.1.15-22>
- Hackman, J. R., & Wageman, R. (2007). Asking the right questions about leadership: Discussion and conclusions. *American Psychologist*, 62(1), 43–47. <https://doi.org/10.1037/0003-066X.62.1.43>
- Hatcher, J. A., & Bringle, R. G. (1997). Reflection: Bridging the gap between service and learning. *College Teaching*, 45(4), 153–158. <https://doi.org/10.1080/87567559709596221>
- Hobday, M., Boddington, A., & Grantham, A. (2012). An innovation perspective on design: Part 2. *Design Issues*, 28(1), 18–29.
- Ibarra, H. (1999). Provisional selves: Experimenting with image and identity in professional adaptation. *Administrative Science Quarterly*, 44(4), 764–791. <https://doi.org/10.2307/2F2667055>
- Janson, A. (2008). Extracting leadership knowledge from formative experiences. *Leadership*, 4(1), 73–94. <https://doi.org/10.1177/2F1742715007085770>
- Kahneman, D. (2011). *Thinking, fast and slow*. Macmillan.
- Kegan, R. (1982). *The evolving self: Problem and process in human development*. Harvard University Press.
- Kegan, R. (1994). *In over our heads: The mental demands of modern life*. Harvard University Press.
- Kegan, R., & Lahey, L. L. (2016). *An everyone culture: Becoming a deliberately developmental organization*. Harvard Business Review Press.
- Khachadorian, A. A., Steen, S. L., & Mackenzie, L. B. (2020). Metacognition and the military student: Pedagogical considerations for teaching senior officers in professional military education. *Journal of Military Learning*, 4(1), 3–18.

- Kolb, A. Y., & Kolb, D. A. (2005). Learning styles and learning spaces: Enhancing experiential learning in higher education. *Academy of Management Learning & Education*, 4(2), 193–212. <https://doi.org/10.5465/amle.2005.17268566>
- Magolda, M. B. B. (2008). Three elements of self-authorship. *Journal of College Student Development*, 49(4), 269–284. <https://doi.org/10.1353/csdc.0.0016>
- McCaughey, C. D., Drath, W. H., Palus, C. J., O'Connor, P. M., & Baker, B. A. (2006). The use of constructive-developmental theory to advance the understanding of leadership. *The Leadership Quarterly*, 17(6), 634–653. <https://doi.org/10.1016/j.leaqua.2006.10.006>
- Mezirow, J. (1997). Transformative learning: Theory to practice. *New Directions for Adult and Continuing Education*, 1997(74), 5–12. <https://doi.org/10.1002/ace.7401>
- Olivares, O. J. (2011). The formative capacity of momentous events and leadership development. *Leadership & Organization Development Journal*, 32(8), 837–853. <https://doi.org/10.1108/01437731111183766>
- Peters, T. (1987). *Thriving on chaos: Handbook for a management revolution*. Alfred A. Knopf.
- Petrie, N. (2011). *Future trends in leadership development*. Center for Creative Leadership. <http://insights.ccl.org/wp-content/uploads/2015/04/futureTrends.pdf>
- Petrie, N. (2015). *Vertical leadership development—Part 1: developing leaders for a complex world*. Center for Creative Leadership.
- Resnick, M. (2003). Thinking like a tree (and other forms of ecological thinking). *International Journal of Computers for Mathematical Learning*, 8(1), 43–62.
- Rolfe, G. (2014). Rethinking reflective education: What would Dewey have done? *Nurse Education Today*, 34(8), 1179–1183. <https://doi.org/10.1016/j.nedt.2014.03.006>
- Russell, T. (2005). Can reflective practice be taught? *Reflective Practice*, 6(2), 199–204. <https://doi.org/10.1080/14623940500105833>
- Ryan, M., & Ryan, M. (2011). Theorising a model for teaching and assessing reflective learning in higher education. *Higher Education Research & Development*, 2(2), 244–257. <https://doi.org/10.1080/07294360.2012.661704>
- Sanderson, I. (2006). Complexity, “practical rationality” and evidence-based policy making. *Policy & Politics*, 34(1), 115–132. <https://doi.org/10.1332/030557306775212188>
- Schon, D. (1983). *The reflective practitioner*. Jossey-Bass.
- Staber, U., & Sydow, J. (2002). Organizational adaptive capacity a structuration perspective. *Journal of Management Inquiry*, 11(4), 408–424. <https://doi.org/10.1177%2F1056492602238848>
- Stacey, R. D. (2012). *Tools and techniques of leadership and management: Meeting the challenge of complexity*. Routledge.
- Story, J. S. (2011). A developmental approach to global leadership. *International Journal of Leadership Studies*, 6(3), 375–389.
- Strang, S. E., & Kuhnert, K. W. (2009). Personality and leadership developmental levels as predictors of leader performance. *The Leadership Quarterly*, 20(3), 421–433. <https://doi.org/10.1016/j.leaqua.2009.03.009>
- Thomas, R. J., & Cheese, P. (2005). Leadership: Experience is the best teacher. *Strategy & Leadership*, 33(3), 24–29.

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- Valcea, S., Hamdani, M. R., Buckley, M. R., & Novicevic, M. M. (2011). Exploring the developmental potential of leader-follower interactions: A constructive-developmental approach. *The Leadership Quarterly*, 22(4), 604–615. <https://doi.org/10.1016/j.leaqua.2011.05.003>
- Verplanken, B., Friborg, O., Wang, C. E., Trafimow, D., & Woolf, K. (2007). Mental habits: Metacognitive reflection on negative self-thinking. *Journal of Personality and Social Psychology*, 92(3), 526–541. <https://doi.org/10.1037/0022-3514.92.3.526>
- Vohs, K. D., Baumeister, R. F., & Ciarocco, N. J. (2005). Self-regulation and self-presentation: Regulatory resource depletion impairs impression management and effortful self-presentation depletes regulatory resources. *Journal of Personality and Social Psychology*, 88(4), 632–657. <https://doi.org/10.1037/0022-3514.88.4.632>