



Guided Mindfulness: Optimizing Experiential Learning of Complex Interpersonal Competencies

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Abstract. This paper presents an artificially intelligent platform designed to enable experiential learning of complex interpersonal competencies. Called Guided Mindfulness, the platform supports learning from on-the-job experiences through guided questioning and reflection. The AI platform is described within the context of a year-long learning cycle. Theories of mindfulness are linked to experiential learning with a specific emphasis on how Guided Mindfulness is an improvement over traditional mindfulness interventions for this type of learning.

Keywords: Guided mindfulness · Mindfulness · Experiential learning
Self-regulation

1 Introduction

The technology of munitions has rapidly advanced over the last half century. Until the 1980s, airborne munitions were comprised largely of unguided gravity bombs. When dropped en masse, these munitions had an impact in the vicinity of a targeted area, but did not offer a high probability hit on a specific target. Thus, to neutralize a specific target, a large number of bombs, and perhaps additional bombing runs, were necessary.

This approach has been replaced with smart munitions. Smart bombs are precision guided, which increases the probability of hitting a desired target. This means fewer bombs, with smaller yields, are needed to achieve mission objectives.

Traditional mindfulness interventions have been under increasing study for adoption in the US military. However, they operate similarly to a dumb bomb approach to learning, where a broad state of mindfulness increases the probability of overall learning, but may miss the targeted learning most valued by the organization.

In this paper we will present a new approach to learning, Guided Mindfulness, which we believe will provide the smart munitions necessary for scalable, adaptable, and personalized development of military personnel in the complex interpersonal competencies necessary for success in the increasingly complex U.S. military milieu.

The United States Military must operate in challenging environments characterized by volatility, ambiguity, and uncertainty. Thus, the military values complex interpersonal skills such as adaptive thinking, adaptive performance [1, 2] and resilience [3].

Complex interpersonal skills can be acquired in the classroom; however, they are better learned through experience [4]. Experiential learning is the process through which knowledge is derived from, and tested through, interactions with the environment. This process relies heavily on reflection and introspection [5]. However, a notable limitation of experiential learning is that it is generally unstructured and therefore idiosyncratic to the learner [6]. To address these learning challenges, we will present the concept of a technology enhanced platform, referred to as Guided Mindfulness (GM), that optimizes experiential learning [7, 8].

The learning needs of people in complex, dynamic (VUCA) organizations can no longer adequately be addressed with standard classroom or even newer online learning techniques [9]. Our objective is to take advantage of new artificially intelligent technologies to enhance real-time learning of complex competencies. While traditional mindfulness has been linked to valued outcomes, the broad focus of the approach may not fit the targeted needs of the military. Instead, GM is narrowly focused on directed, relevant competencies that are driven by the strategic vision and human capital plans of the military training doctrine. While achieving mission related learning outcomes, the GM platform facilitates the second-order goal of strengthening self-regulatory mechanisms that may generalize beyond the focal learning outcomes.

1.1 The Guided Mindfulness AI Platform

The GM platform is a technology-assisted individualized approach to experiential learning that triggers event-based preparation and reflection to increase state mindfulness, train self-regulatory mechanisms, and improve complex skill acquisition. Using an artificially intelligent platform, the learner is directed through the learning experience with prompting questions and activities before, during, and after specific experiential learning events. This just-in-time learning approach involves pre and post assessment, preparation, reflection, and review (see Fig. 1) to facilitate the self-paced directed learning of any interpersonal competency or targeted complex skill. To illustrate how the GM platform will operate, we will present the stages of GM in a 1 year learning cycle characterized by the stages of initial assessment, event based learning, final assessment and review, and final assessment.

Initial Assessment. GM begins with an assessment of the skills that have been targeted for development. A standardized assessment of relevant competencies serves as a baseline that allows the organization to prioritize experiential learning around its talent strategy. This initial assessment is in the form of a customized 360° feedback tool. This 360° feedback provides the learner a baseline from which to understand and leverage strengths and improve upon developmental opportunities [10]. The GM platform incorporates the 360° feedback results and guides the learner through the process of interpreting the results. By accessing a dashboard, the learner can refer to these results throughout the learning cycle. The GM platform will specifically target these competencies and provide data regarding change during the event-based learning phase and final assessment.

Event-Based Learning. Event-based preparation and reflection is the central activity of the GM approach, and is facilitated by an artificially intelligent (AI) platform. In

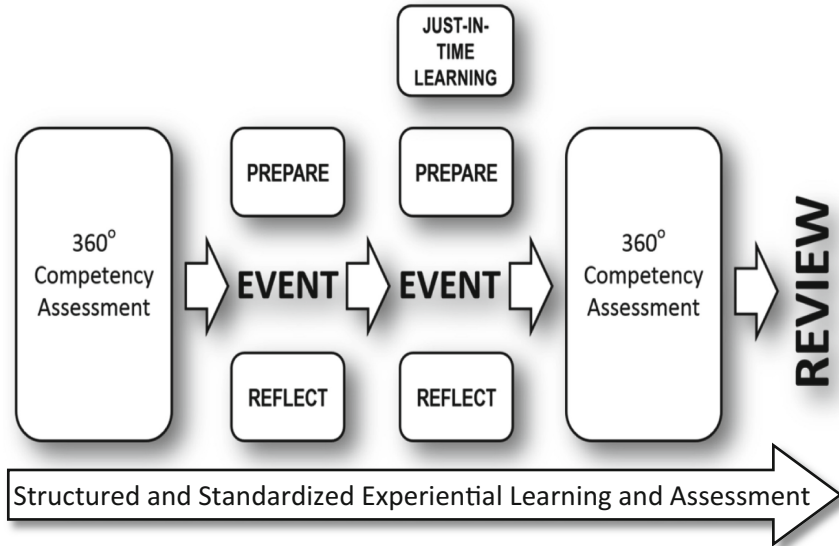


Fig. 1. Guided mindfulness experiential components

practice, the approach is expected to work as follows. The learner first identifies a learning opportunity in an upcoming event. The learner can note this opportunity in their calendar, and “invite” the AI entity to engage in GM related to the event. The GM platform would prompt the learner prior to the scheduled event and instruct her to think about the future event, what competencies are necessary for successful performance, her level of proficiency on those competencies, and possible barriers or roadblocks that may interfere with successful performance. We refer to this stage of the GM process as Prepare (Fig. 2). These questions are both competency-based and event-based and cover sufficient breadth as well as depth for the event. In other words, the questions are similar to the types of questions a coach might ask, thus the GM system is similar to electronic coaching or e-coaching [11]. Through these eliciting questions, the GM system guides the learner through preparation to anticipate and process the actions necessary for success. The learner’s responses are the data that are captured and stored in a database for subsequent review.

Assessment and Review. Following the event, the AI entity would prompt the learner with questions requiring reflection on the event, referred to as Reflect (Fig. 2). The learner may be asked to self-assess performance during the event and indicate how the pre-identified competencies contributed to the outcome. In addition, the GM system may ask the learner to discuss the match between pre-event expectations and post-event insights. These types of questions prompt learners to fine tune their sensemaking and engage in simulation [7], deepening their experiential learning and modifying their mental models. Post-event reflection responses can also be collected and stored. Over time, the system gathers data over multiple events that can be sorted by factors such as

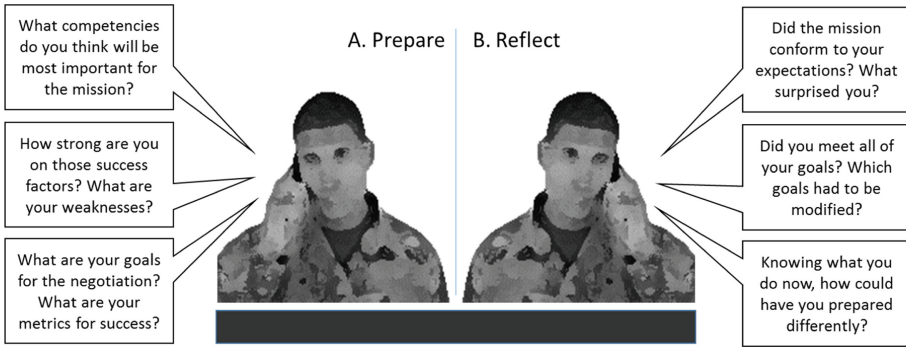


Fig. 2. Illustration of the preparation and reflection stages of guided mindfulness

event, competency, and problems areas. This data can be explored by the learner or aggregated and evaluated at a higher, organizational, level.

Final Assessment. At the end of the yearlong learning cycle, a final 360° feedback assessment is conducted. The GM platform will again compile the results, assist the learner in interpreting the results, and help the learner reflect on improvements as well as continued areas for development.

The combined stages of the GM platform serve to focus attentional resources on the targeted competencies in advance of and after learning opportunities. Thus, “Guided” in this sense does not connote providing a path to general mindfulness. Rather it refers to mindfulness of a specifically defined skillset. This approach differs substantially from traditional mindfulness approaches, which assume that once a state of mindfulness is achieved, the learner maintains a steady state of focused awareness of self and the situation. An implicit assumption is that under these conditions mindfulness generalizes across contexts. We believe this level of mindfulness is not sustainable for learning initiatives, or in some cases desirable in a military context. GM, on the other hand, tightly focuses on organizationally relevant competencies while providing the desirable side effect of strengthening overall self-regulation and thus enhancing other experiential learning opportunities.

1.2 Experiential Learning

Experiential learning is a process through which knowledge is derived from, and tested through, interactions with the environment. This process relies heavily on reflection and introspection [5]. There are many advantages to experiential learning, however, it is generally unstructured and idiosyncratic to the learner [6]. This means that what is learned and how much is learned depends on the individual learner.

Classroom and other types of structured learning often do not provide sufficient opportunities to experience real-world problems and practice the skills needed to navigate complex environments [12]. Therefore, many professionals view experiential learning as the best approach for complex skill acquisition, particularly for developing complex interpersonal and coping skills such as adaptability [2], leadership [5, 13],

cross-cultural competence (e.g. [14]) and resilience [3]. Learning complex skills through experience (rather than a classroom) has several distinct advantages. First, learning is inherently more relevant to the individual because it is based on unique personal experiences rather than generic one-size-fits all instructional materials. Second, learning from experience ensures a correspondence between newly acquired skills and real-world challenges, eliminating the transfer of training problem. Third, experiential learning is more variable than two dimensional training materials, which results in more integrated, generalizable, and permanent skill acquisition [15].

However, simply providing experiences does not guarantee that experiential learning occurs. Much of the effectiveness of experiential learning is dependent on the self-regulatory processes of the learner [16, 17]. Self-regulation, the inhibition or activation of affective, behavioral, and cognitive processes, allows the learner to focus attention, reflect, and achieve goals [4, 13]. However, personnel in extremely dynamic environments often do not have the spare cognitive resources needed for the self-regulatory activities required to produce effective experiential learning [9]. These obstacles to complex skill acquisition are magnified when the immediate needs of task completion in volatile and unpredictable environments overshadow the chance to learn and continuously improve.

What is needed is a solution that enables mobile, adaptive, moment-of-need access to skill development that can seamlessly train and transfer skills through a work unit or agency. Essentially, the GM platform “jumpstarts” the self-regulatory processes that are necessary to gain from experience. By prompting the learner, the platform can initiate meta-cognition that may not have occurred under non-augmented conditions. Based on a self-regulation view of learning, the GM approach integrates mindfulness techniques into individualized, adaptive, artificially intelligent training that should lead to improved learning outcomes over currently used training methods. Self-regulation theory suggests that a limited amount of resources are available in a given moment [18]. GM facilitates the efficient allocation of these resources, and tightly focuses mindful states associated with learning.

1.3 Mindfulness and Experiential Learning

Mindfulness is comprised of awareness and attention [19]. Awareness refers to a broad observation of the environment, letting stimuli flow through conscious awareness. Attention refers to the focus of that awareness on the present and focal target, without judgement or evaluation. In other words, mindfulness is the non-evaluative objective experience of the environment, rather than perceiving the world through the lens of previous experience, heuristics or other self-relevant and cognitive filters. In the workplace, mindfulness is viewed as a self-regulatory mechanism that works through decreasing the automaticity with which we interact with the environment, decoupling the self from events in order to experience them with less emotion, and increasing self-awareness [20]. A state of mindfulness enables an individual to reflect on an event in the here-and-now, without judgement, and integrate it to build increasingly robust and useful schema.

Reflection is a key process in experiential learning [5] and mindful engagement [21]. It is clear that it is not the provision or completion of an experience that matters to

learning but rather how individuals go through those experiences. Most people are action-oriented and accomplishment focused and tend to live their lives moving from one event to another without fully digesting or reflecting on them. The value of mindfulness is that it promotes non-evaluative reflection. There is some evidence that those with higher levels of mindfulness are better at learning and retention of material [22, 23]. Mindful attention may allow learners to not only deploy their current knowledge to an experience, but also to explore new possibilities which should promote greater learning [24]. In these ways mindfulness can have a positive impact on learning.

1.4 GM as an Improvement Over Traditional Mindfulness Interventions

GM directly impacts both awareness and attention. First, the assessment phase, reflective questioning, and improvement in targeted metrics should enhance the self-awareness of the learner. Over time, the learner will be exposed to quantitative and qualitative indicators of performance in the targeted domain. Thus, they will not only become aware of their current level of performance, but also get a sense of their rate of learning, barriers to learning, and potential moderators of outcomes. Second, the competency-based line of inquiry focuses self-regulatory resources on reflection related to the competencies designed in the system rather than on the idiosyncratic choices of the learner. This focused attention is the rationale behind the “Guided” nomenclature of GM.

The GM process of questioning and reflection is targeted to help learners get the most learning benefits for critical competencies from their on-the-job experiences. Therefore, establishing a targeted state of mindfulness at the outset of a learning experience through the GM Prepare phase should promote greater reflection and subsequent learning during the experiential phases. Moreover, ongoing prompts for reflection after a learning event should stimulate continued mindfulness and eventual learning from the experience. GM is targeted and narrow to specific competencies and learning experiences. It focuses attention on a particular stimulus, in this case an experience, as it is and decouples that attention from meta-awareness - the typical self-referenced evaluation and judgement of the situation. This is different from traditional mindfulness interventions that focus attention on a general stimulus such as breathing. These interventions have been used to promote more general health and well-being [25], whereas the GM approach is developed to contribute to unbiased reflection and subsequent learning of specific competencies from on-the-job experiences.

In essence, the GM platform serves as a coach that is aware of your baseline competency level and learning progress. This coach helps you make sense out of potential opportunities, and focus on opportunities to learn, practice and improve critical interpersonal and coping skills. Rather than simply transmit declarative knowledge like a trainer, the GM platforms prompts metacognitive routines such as simulation and reflection which should result in deep learning [26].

1.5 GM and Self-regulation

Mindfulness is theorized to improve learning through the mechanisms of increased attention, greater cognitive capacity and cognitive flexibility, and decreased emotionality [24]. GM is targeted toward specific self-regulated learning opportunities through the identification of relevant learning events, real-time reflection, and event-based probing questions. GM should enhance experiential learning by impacting self-regulatory processes directly relevant to the controlled processing required for skill acquisition in complex environments. Specifically, GM will improve experiential learning through several intervening self-regulatory processes including self-awareness, situational awareness, social awareness, and sensemaking [7].

GM enhances self-awareness by prompting learners to assess their own skills and competencies for the situation at hand via controlled, in-the-moment, non-judgmental processing. Reflection has been linked to a change in self-perspective and sense of self [21]. GM will also reduce automaticity and thereby increase self-knowledge. GM will improve situational awareness and facilitate understanding of the context and environment. Focusing the learner's attention on situational factors will result in better contingency planning and adaptability, as alternatives will be more easily activated. Social awareness refers to the ability to recognize tacit social cues in order to understand individual and group dynamics and interact effectively [27]. GM will promote social awareness through mindful attention and non-emotional processing of the social environment, and thus enable better management of social relationships. Self, situational, and social awareness will enable sense making which is the process by which people infer meaning from an event and decide on a future course of action [28].

The GM mindful preparation and reflection process focuses the learner's attention on the salient features of a situation which will enable self, situational, and social awareness. This focused attention on target competencies will help the learner derive meaning and ultimately incorporate new information into his or her knowledge structures on skills that will have the most impact on performance.

1.6 Implications and Benefits of the Guided Mindfulness Approach

The proposed GM platform is a flexible, agile, and scalable approach for complex skill acquisition that provides a number of benefits to the learner and his or her unit/agency. First, the GM approach is competency neutral, and therefore can be applied to any complex skills domain (e.g. leadership, negotiation, adaptive performance, cross cultural competence, etc.). In addition, if competency models change, a GM system can be easily modified without making drastic changes to its architecture. While content-based approaches to learning (e.g., classroom learning) need regular modifications to remain current, an event-based reflection approach is relatively content free, resulting in less regular instructional design costs. The GM approach will enable learners to get better at what matters to an organization via the competency-based system. This is in contrast to more general mindfulness interventions which may be associated with improvements in well-being but not necessarily the competencies most mission critical.

Second, rather than being restricted to a classroom or schedule, the proposed GM system would be an agile learning platform. The technology underlying the GM system

could be accessed on a PC, tablet, or smartphone though cloud-based technology. Not only does this allow for rapid relevant learning, but it also reduces training hardware and maintenance costs. This approach is also scalable. Learning need not be limited by the restricted number of seats or instructors in formal training situations.

Finally, the GM platform trains learners to think a particular way-to ask questions and reflect on experiences and answers. This should improve learning specific competencies as well as promoting lifelong learning via improved self-regulatory processes. In other words, traditional mindfulness is a likely result of the GM process, along with competency-specific skills.

1.7 Conclusion

Guided Mindfulness is intended to be a flexible, agile, and scalable approach for improving complex skill acquisition that adds structure to the reflection and mindfulness processes critical for experiential learning. We believe Guided Mindfulness can serve as a tool to optimize the experiential learning necessary to hone complex skills like adaptive performance, and will achieve superior results when compared to traditional mindfulness interventions. In sum, GM is more likely to impact the targeted competency in a precision-guided fashion, whereas traditional mindfulness results in broad learning enhancement, but may miss the mark on essential mission critical skills, much like the iron gravity bombs of an earlier age. To develop the agile leaders for tomorrow's complex and volatile environment, U.S. Military must leverage the best training content available - real-world experiences. Furthermore, they must do so in a manner that is flexible, agile, scalable, and leads to long-term change. The concept of Guided Mindfulness meets these requirements.

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