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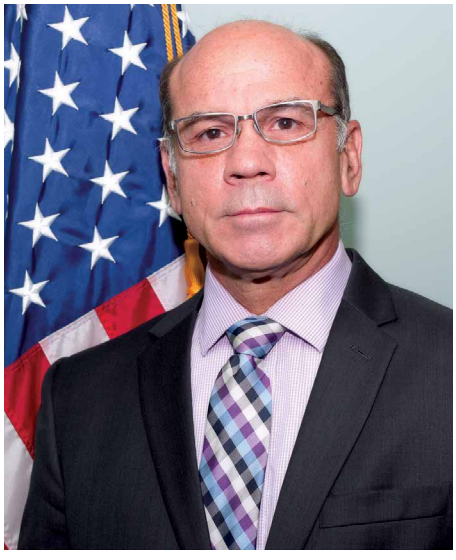
Army University Press

Welcome to the October 2020 edition of the *Journal of Military Learning* (*JML*). I am the new and third editor of the journal, and I am humbled to be trusted with its stewardship for the next three years. I would like to take the opportunity to thank Col. Paul Berg for his leadership while serving as the previous editor. Paul took over for the second publishing of the *JML* in October 2017 and successfully established it as an Army University institution. I would also like to recognize charter members on the editorial board Dr. Jay Brimston and Dr. David Quisenberry, and associate editors Dr. John Persyn and Pamela Hicks for their continuing dedication to the journal. There have been a host of other board members and associate editors as well as the professionals of the Army University Press production staff that make the publication of this journal possible.

This edition of the *JML* has been a unique challenge because of the pandemic. Special thanks to the authors of the articles who persevered in order to contribute to the profession. This edition of the *JML* includes three peer-reviewed articles, two articles of interest, and two special topic articles that specifically focus on innovations driven by the pandemic.

The *JML* brings current adult-learning discussions and educational research from the military and civilian fields for continuous improvements in learning. Only through critical thinking and challenging our education paradigms can we as a learning organization fully reexamine and assess opportunities to improve our military education.

A detailed call for papers and the submission guidelines can be found at https://www.armyupress.army.mil/Journals/Journal-of-Military-Learning.



Dr. Keith R. Beurskens
Journal of Military Learning
Editor in Chief

Peer Reviewed

Student-Veteran Perceptions of Combat Experience Integration in the Classroom

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Abstract

This qualitative case study explores the perceptions of student-veterans enrolled in graduate-level courses on the role their combat experiences played in their learning. Danish educator Knud Illeris's learning concept provides the lens for the study's exploration of how combat experiences supported or hindered classroom learning within the three dimensions of cognition, incentive, and social interactions. Participants were surveyed on how they believed their combat experiences influenced learning in the classroom. Responses were analyzed for recurring themes and reported in tabular form with example quotes. The resulting 18 themes support the theoretical model. The study conclusion describes how the study outcomes should influence actions by higher learning instructors to improve student-veteran outcomes in the classroom.

A significant number of U.S. service members deployed during the conflicts in Afghanistan and Iraq were exposed to trauma of some form (Thomas et al., 2010). Many of those returning veterans exhibited symptoms of posttraumatic stress disorder (PTSD) or severe depression, which can affect classroom activities and learning processes (DiRamio et al., 2008; Ellison et al., 2012; Tanielian & Jaycox, 2008). These student-veterans contribute to classroom learning activities, but they can also be hindered in their learning if they had been exposed to combat (Spurlin, 2014). Because adult learning models emphasize the recall and use of learner experiences as a means of facilitating adult learning, postsecondary classrooms might not truly support adult learning for this group (DiRamio et al., 2008; Merriam & Bierema, 2013; Spurlin, 2014).

According to Knud Illeris's (2007) learning theory, learning occurs through interactions within three dimensions. The cognitive dimension emphasizes the content of the

curriculum and the ability of the learner to mentally interact with the curriculum. The emotive dimension emphasizes incentive and both intrinsic and extrinsic motivation to learn the curriculum. The social dimension emphasizes interactions with faculty and other learners within the learning environment and considers the value society at large places on the material to be learned (Illeris, 2007, 2010; Merriam & Bierema, 2013). The learning theory also includes the concept of learning barriers in the three dimensions, and any one of those barriers can impair or misdirect learning (Illeris, 2007). This learning theory therefore includes elements of both cognitive constructive and social constructive learning theories with the added component of learning barriers. Illeris's theory provides a more complete description of how adult learners interact with the curriculum and other learners during the learning process (Merriam & Bierema, 2013; Spurlin, 2014). Illeris's learning theory therefore offers a more comprehensive lens to analyzing learning activities in the classroom than other theories.

Dale Spurlin (2014) conducted a qualitative study of student-veterans and concluded that graduate-level student-veterans in both civilian and military institutions of higher learning who had been in combat experienced benefits and hindrances to learning in the three dimensions of Illeris's theory. The study results were consistent with prior research in that traumatic combat experiences could significantly impair or block learning, especially when instructors or the curriculum prompt a recall of those experiences (Glover-Graf et al., 2010). Furthermore, the study indicated that many instructors were unaware of how specific practices or activities within the learning environment could either foster or impair learning among student-veterans (Shea & Fishback, 2012; Spurlin, 2014). This article describes the 2016 study that extended Spurlin's (2014) initial study by increasing the number of participants to better define the practices in the classroom related to the integration of the combat experiences of this specific group of learners that either support or hinder learning among student-veterans.

The students attending the U.S. Army's Command and General Staff Officer Course (CGSOC) provided an eclectic blend of Department of Defense officers with varying types and numbers of combat deployments (U.S. Army Command and General Staff School [CGSS], 2013). These students complete a 10-month curriculum accredited through the North Central Association of Colleges and Schools to deliver and confer a graduate degree (U.S. Army Combined Arms Center, 2016). Furthermore, a large percentage of students attending the CGSOC had completed

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or were in the process of earning a graduate degree from a civilian institution of higher learning (U.S. Army CGSS, 2013). Finally, the Command and General Staff College (CGSC) was an appropriate site for the study because the CGSC curriculum consistently uses an experiential learning model based on David Kolb's (1984) experiential learning theory (Thomas & Gentzler, 2013). Kolb's experiential learning theory structures lessons through a concrete experience shared by learners, a period of learner reflection on the shared experience, learner conceptualization of themes or principles within the experience, and finally an application event where learners apply new formulated concepts (Kolb & Kolb, 2018). CGSC curriculum designers and instructors incorporated learners' prior experiences throughout this experiential learning model in the classroom (Thomas & Gentzler, 2013; U.S. Army Command and General Staff College [CGSC], 2005). The combination of the same students within a classroom over an extended period of instruction, a mix of combat experiences, and a curriculum design that encouraged combat-related experiences as anecdotes in content delivery made this population well-suited to study the effects of combat experiences across all three learning dimensions.

Problem Statement

The research problem presented itself when instructors could either support or hinder student learning. Some classroom activities integrated potentially triggering experiences for student-veterans without instructor awareness of any past trauma, and some instructors were unaware of the possible negative effects certain instructional techniques might have on student-veterans (Spurlin, 2014). While integrating prior experiences into the curriculum is a tenet of adult learning theories, some experiences can actually dissuade learners from interacting with the content of the curriculum or with other learners (Brookfield, 1986; Illeris, 2007, 2009; Merriam & Bierema, 2013; Sitler, 2009). Instructors might also be unaware of how physical and psychological trauma can affect student-veterans in all three dimensions (Burriss et al., 2008; Polusny et al., 2011; Sitler, 2009; Zinger & Cohen, 2010). Without a better appreciation of how instructors create supportive or hindering learning conditions within the classroom for student-veterans, adult learning theory expectations in curriculum design and instructional practice could lead to academic underachievement by student-veterans (Spurlin, 2014).

Purpose and Design of the Study

The purpose of this qualitative case study was to explore how classroom practices support or hinder learning for graduate-level student-veterans within the content of

the curriculum, the learners' incentive to learn the curriculum, and the social interactions between learners concerning the curriculum. Considerations for the study were to explore student-veteran learning from their perspectives and report the outcomes in their own words (Patton, 2002; van Manen, 1990).

This study employed a survey with open-ended questions for students at the CGSOC to solicit their observations about integrating combat experiences in graduate-level classrooms. The questions addressed each of Illeris's (2007) three learning dimensions with individual questions within each dimension addressing ways combat experiences supported or hindered learning. Because students at the CGSOC receive a curriculum based on experiential learning and have a high percentage of combat veterans, the survey was more likely to achieve data saturation by sampling this population at the CGSOC (Thomas & Gentzler, 2013; U.S. Army CGSC, 2005; U.S. Army CGSS, 2013).

Research Questions

The qualitative study explored how student-veterans perceived and processed their combat experiences within the graduate-level classroom (Moustakas, 1994). Consistent with Yin's (2014) case study design, research questions were developed that included how to establish propositions within participant data. The study explored the following research questions modified from Spurlin (2014):

Q1. How do combat experiences support or hinder learning curriculum content for graduate-level student-veterans?

Q2. How do combat experiences support or hinder an incentive to learn curriculum content for graduate-level student-veterans?

Q3. How do combat experiences support or hinder social interaction related to curriculum content within the learning environment for graduate-level student-veterans?

Definition of Key Terms

Content

As a dimension of learning within Illeris's model, content describes the knowledge, understanding, and skills within a curriculum and a learner's abilities, insight, and understanding related to the curriculum. Content therefore encompasses the object of learning and the learner's cognitive approach toward the object of learning (Illeris, 2007).

Incentive

As a descriptor for the emotive dimension of Illeris's model for learning, incentive is the emotional disposition of a learner toward a curriculum, including the learner's motivation and volition to engage with the curriculum content. Incentive describes the manner in which and the amount of mental energy a learner commits to learning the curriculum (Illeris, 2007).

Social Interaction

As a dimension of Illeris's learning model, social interaction is the external exchange between the learner and peers or instructors within the classroom. Social interaction also acknowledges the influence of greater society that establishes the value of the curriculum for the learner. Interaction includes communication and cooperative activities within the learning environment (Illeris, 2007).

Student-Veteran

A student-veteran is a combat veteran enrolled in a postsecondary learning institution subsequent to the combat veteran's wartime service (DiRamio et al., 2008). The length or nature of the wartime service is not considered when establishing student-veteran status because exposure to combat stress in any degree has an effect on all individuals (Vasterling et al., 2006).

Experiential Learning

Learning that is facilitated by references to prior experiences and to new experiences within a classroom is fundamental in many adult learning theories (Beckett, 2010; Brookfield, 1986; Illeris, 2007; Merriam, 2010; Merriam & Bierema, 2013). Educators influence student learning through learning contexts. The applied contexts have been created in the classroom by learning activities and curriculum design, as well as by encouraged classroom interactions (Beckett, 2010). Consistent with Illeris's (2007) model, learning occurs when students interact with the curriculum and when students interact with others within a learning environment (Beckett, 2010; Merriam, 2010).

Jean Piaget (1952) theorized that humans learn through comparing experiences with previous knowledge or perceptions of previous events. The outcome of this comparison results in one of two ways for this study. Either the learner will assimilate the classroom event into his or her mental framework because of similarities between the

experience and the learner's existing knowledge and understanding, or the learner's mental framework will accommodate the dissimilar experience and form a new, better knowledge or perception (Merriam & Bierema, 2013). Emotion and incentive to learn the curriculum influence the degree and manner with which a learner approaches the curriculum (Illeris, 2007, 2010; Merriam, 2010). Adults, in particular, find greater incentive to learn material that is meaningful to them (Brookfield, 1986; Merriam, 2010; Wlodkowski & Ginsberg, 2017). Learner-centered experiences are therefore important in facilitating adult learning in the classroom (Dunst et al., 2010; George, 2009).

Effective educators know their students and are sensitive to the mental models those students hold in order to structure learning experiences that will facilitate learning (Apte, 2009; Kegan, 2009). Social interactions and influences have long been theorized to influence the nature and method of learning (Vygotsky, 2011). Educators should create safe, trusting learning environments that promote incentive to learn and to challenge personal mental models (Nemec, 2012; Spurlin, 2014). Instructors who integrate disorienting experiences, traumatic recollections, or experiences that directly confront mental models without an appreciation of learner readiness for those experiences will not facilitate learning (Nemec, 2012; Pearse, 2009; Spurlin, 2014). However, experiential learning is necessary to achieve higher order learning within adults (Alic, 2008).

Combat Experiences and Curriculum Content

Combat-related stress and trauma can have significant impacts on cognitive processes including learning (Ackerman et al., 2009; Shea & Fishback, 2012). Soldiers returning from combat duty have been found to have a significant level of anxiety, depression, and symptoms related to PTSD (Hoge, Auchterlonie, & Milliken, 2006; Hoge, Castro, Messer, et al., 2004; Institute of Medicine, 2013; Tanielian & Jaycox, 2008; Thomas et al., 2010; Vasterling et al., 2006). PTSD and related symptoms can have a significant effect on memory, attention span, and vocabulary processing (Burriss et al., 2008; Vasterling et al., 2006). Neural imaging also indicated that stress affects areas of the brain associated with language, spatial orientation, memory, and attention maintenance (Dörfel et al., 2010; Vasterling, 2002).

Concussion and mild traumatic brain injuries were common during the conflicts in Afghanistan and Iraq (Taneilian & Jaycox, 2008) and can have significant effects on cognitive functions. The Defense and Veterans Brain Injury Center (2020) reported that physical symptoms for individuals diagnosed with mild traumatic brain injury included cognitive impairments such as difficulty concentrating, difficulty with memory recall, and difficulty with communication skills. Problems with balance, concentration, and social interactions were also prevalent in veterans exposed to concussions (Polusny et al., 2011).

Stress from previous experiences and current activities can adversely affect cognitive performance as well (LeBlanc, 2009). The effects of stress on cognitive activities can be long lasting (Tollenaar et al., 2008). While stress can improve performance in some cases, negative stress consistently results in lower cognitive outcomes (LeBlanc, 2009). Positive outcomes in these studies were due invariably to stress created by the learning activity and reinforced earlier success in the activity learned—not from external sources or unrelated experiences (DeMaria et al., 2010; LeBlanc, 2009). PTSD responses in the classroom can impair cognitive functions by causing a student to experience physical hyperarousal, mentally check out, or pass out based on how the student reacted to the original trauma (Schauer & Elbert, 2010). Furthermore, to avoid a PTSD response, student-veterans with PTSD symptoms might actively avoid classroom experiences or subjects that might trigger a recall of a former trauma (Wald et al., 2010).

Combat Experiences and Learner Incentive

Learning has an emotional component closely linked to cognitive functions based in theory and in brain science; intrinsic motivation is a key component in adult learning (Banich et al., 2009; Dahl & Smimou, 2011; Illeris, 2009; Immordino-Yang, 2011; Merriam, 2010). Learners with an intrinsic desire or motivation to learn outperformed those motivated extrinsically or not motivated at all (Kember et al., 2008; Scager et al., 2012). A lack of motivation has been associated with academic failure (Vanthournout et al., 2012). Therefore, educators should improve the learning environment for students by improving the emotional context for learning (Dahl & Smimou, 2011; Wlodkowski, 1999; Wlodkowski & Ginsberg, 2017).

Another means of improving student incentive toward the curriculum content is applying lesson material to a student's needs and real requirements (Errington, 2009; Kember et al, 2008; Partin et al., 2011; Wlodkowski & Ginsberg, 2017). Authentic learning experiences generate learner motivation toward the subject and reinforce the value of the educational outcomes (Lave, 2009; Wenger, 2009). Enhancing student self-efficacy in learning the material is coupled with improving student incentive (Bandura, 2012; Partin et al., 2011). Therefore, positive learning environments support the learner's cognitive appeal of the curriculum and reinforce personal motivation and self-efficacy in learning it (Cherubini, 2009; Griffard, 2010). Concurrent with this focus is an instructor awareness of the negative influences in students' lives in order to tailor learning activities to overcome or circumvent student disinterest in the curriculum (Cherubini, 2009; Dirkx, 2008; Sitler, 2009). Consistent with Illeris's (2010) model, barriers in the emotive dimension of learning include activities wherein the learner lacks control over the activity, and also classroom experiences that encourage a personal change in the learner that is at odds with his or her prior experiences. Knowing students—especially student-veterans—is critical to effective instruction (Branker, 2009; Uomoto & Williams, 2009).

Combat Experiences and Social Interaction

Social interaction is inherent in adult learning because learners use social context to compare and contrast new information during the learning process (Brookfield, 1986; Lave, 2009; Merriam & Bierema, 2013; Wenger, 2009). Cooperative learning has been prevalent in educational settings for decades, emphasizing the necessity for group interaction and learning from one another (Johnson & Johnson, 2009). It follows then that student challenges with social interaction and communication will adversely affect individual student learning outcomes and those of the rest of the group participating in a cooperative learning activity. This was demonstrated in online learning programs as well as resident programs (Ruey, 2010; Wells & Dellinger, 2011). Negative feedback from fellow learners or the lack of social support in the educational setting can result in academic failure (Johnson & Johnson, 2009).

Learners imitate peers and instructors during classroom social interactions (Immordino-Yang, 2008). They also modify personal values and behavior based on social feedback (Bowman & Dodge, 2011). An inability to follow the social discourse or to interact with fellow learners therefore impairs learning (Spurlin, 2014). Symptoms of traumatic brain injury, stress, and PTSD include difficulty in social interactions and communication skills (DiRamio et al., 2008; Douglas, 2010). This difficulty is despite evidence that traumatized learners might be more socially active than their nontraumatized peers; more interaction is not always a sign of effective interaction (Frazier et al., 2013).

Poor interactions with instructors also adversely affect learning outcomes (Barnard-Brak et al., 2011). David Vacchi (2012) called on educators to foster positive interactions with student-veterans by avoiding discussions that would counter the values and experiences of veterans. Lesley Scanlon (2009) warned that students who have poor interactions with instructors are likely to physically leave the classroom. Graduate-level students are more likely to remain physically in order to complete their degree requirements, but they mentally check out (Spurlin, 2014). Ineffective relationships between student-veterans and instructors can also result from the student-veterans acculturated with self-sufficiency who fail to seek advice or assistance when they struggle academically (Lighthall, 2012). As in the other two learning dimensions, educator awareness of student-veteran experiences and issues is necessary for promoting a positive social learning environment (Spurlin, 2014).

Materials and Methods

A qualitative case study was selected in order to capture richer and deeper participant perceptions than those that might be missed in a quantitative study with prepared responses to the research questions. Furthermore, the use of open-ended questions reduced researcher bias toward the potential outcomes of the data by

relying completely on the statements of participants in the study. This case study followed Yin's (2014) methodology to determine why student-veterans experienced academic support or hindrance related to their combat experiences when those experiences were integrated into the classroom. Yin's (2014) methodology requires establishing the case study's research questions, the use of how and why questions to identify propositions, clearly establishing the unit of analysis, logically linking propositions to the research data, and establishing the criteria for findings. This case study was bounded as the academic environment for the resident CGSOC AY2016 class. The unit of analysis was the individual student-veteran.

Population and Sample

The population (N = 1307) for the proposed study was the resident CGSOC class for AY2016. This group included 1,289 students from the U.S. Armed Forces. Within the U.S. military students, 524 (40%) started the course having already obtained or initiated a graduate degree. The population also included 109 international students and nine civilian U.S. government agency students. Of the 1,027 Army component students, 899 (88%) had previously identified as having combat experience. Combat data for other services was not available.

While qualitative studies cannot generalize to the population due to their reliance on nonstatistical analysis (Merriam & Tisdell, 2015), sampling in size and demographics should represent the population as part of a sound research design (Onwuegbuzie & Leech, 2007). One method of determining qualitative sample size is to have a minimum of three participants per theoretical construct (Onwuegbuzie & Leech, 2007). Spurlin (2014) identified 17 themes associated with student-veterans in Illeris's dimensions of learning. While the intent of the proposed study was not to validate Spurlin's findings, Onwuegbuzie and Leech's (2007) approach justified requiring 51 descriptive textual responses for each question to ensure saturation. A minimum of 10% of the valid responses for any given question above 51 was established as a benchmark to support a common theme for it to be reported (Yin, 2014). This study surveyed the entire student body based on historic CGSC survey response rates and the inability to identify combat veterans in advance of administering the surveys.

Instrument

Data collection for the study was through the use of a survey administered through the CGSC's Verint survey system. The survey questions were adapted from Spurlin (2014). The surveys began with informed consent information describing the nature of the study and the requirements of the participant (Department of Defense

[DOD], 2011; Wright, 2012). Consent to participate was inferred when the participant continued with the survey. Participants could opt out of the survey by simply closing their browser window or they could skip any question without penalty.

The first section of the survey collected demographic information (DOD, 2011). A question regarding combat participation differentiated between students with no combat experience and student-veterans. The body of the survey was composed of open-ended questions that addressed each learning dimension and how integrated combat experiences in the classroom supported or hindered learning. A final question was for participants to share any other thoughts they had on the topic of the study.

Data Collection, Processing, and Analysis

The Verint survey system assigned a control number to each respondent to protect identity; the researcher did not have access to the identities of any respondents. Upon receiving the data, the researcher manually coded the responses for each question and each group using pattern matching of related text against the theoretical constructs of Illeris's model (Yin, 2009). The number of occurrences for each theme for each population group were then tabulated and the themes rank-ordered based on frequency. The results were a finite set of themes for each survey question. The researcher then compared and contrasted the resultant themes with theoretical expectations for the questions.

The resultant themes were reported in relation to each research question with representative comments provided by participants that illuminated the themes' content and influence on student-veteran learning. Negative themes and cases that disagreed with the majority were also reported with participant comments to explore potential issues with the theoretical model and to identify areas where the data contradicts past research.

Assumptions

One assumption was that participants would respond truthfully because there was no compensation or potential for personal gain by misrepresenting themselves in their responses. Based on Spurlin (2014), there was an assumption that participants would identify how combat experiences could both support and hinder learning for student-veterans. The nature of a survey permits time for reflection prior to answering a question; the researcher assumed that participants would be reflective of how combat experiences influenced learning within their classroom activities. A final assumption was that student-veterans with severe traumatic experiences would elect not to participate or would avoid answering a question that could cause them emotional harm.

Limitations and Delimitations

The survey design of the study limited the depth of responses and the potential for the researcher to follow on specific details of an individual response. The actual number and depth of the responses could not be anticipated even with open-ended questions. While the population of the CGSOC provided a dense population for data collection, the transferability of findings from the study might be limited due to the military focus of the population and the curriculum. This limitation was offset by an expectation that some of the participants report experiences within civilian educational institutions. There was no attempt to control or screen the type and duration of combat experience for student-veteran participants. Each response was analyzed horizontally with all responses having equal merit (Moustakas, 1994).

Results

The survey was sent to the 1,307 students in the CGSOC class for AY2016. There were 85 responses from students with combat experiences that included comments in response to at least one question. The researcher looked for patterns in the use of terms and text strings in resulting themes for each question (Fielding & Lee, 1998). Not all comments provided material for analysis. For example, responses of "Yes it helped" were not included in the analysis. The analysis for each question is provided in the following tables and discussion.

Cognitive Dimension

"How have your combat experiences supported your learning the content or material of the curriculum in the classroom?" Eighty responses provided usable feedback to this question and fell within three general themes: context for content, cognitive processes and mental constructs, and no effect (see Table 1, page 14). Six responses were negative. Those responses indicated that biases students or instructors introduced to the class or any classroom PTSD triggers had a negative effect on their learning.

The predominant influence of combat experiences on student-veterans' learning was discovered through context. Students described how their combat experiences provided either a contextual explanation for past experiences or an historical context for learning new concepts in the classroom. The second theme indicated combat experiences also enhanced cognitive skills such as critical thinking, cultural awareness, problem solving, mental toughness in an academic environment, and the use of mental constructs to better understand the material. Decision-making and actions in high-stress combat situations appeared to help students analyze the

Table 1.

Support to Cognition

Theme	Frequency	Example responses
Context for content	36	"I was able to relate my experience to the content of entire books that we actually read." "It gave me a real-world view of the concepts that were being taught in the classroom. I could easily relate to the information being taught, because some of the ideas or concepts are things that I have personally experienced." "Provided me background and a desire to learn more about why things occurred the way they did. I wanted to learn the process to see where in the chain events could be changed but that can only be done by learning the process." "It also allowed me to compare how well I was educated and trained for combat."
Cognitive processes and mental constructs	21	"Reflecting on my combat experiences in conjunction with course material provided me an opportunity to better analyze the situation." "By providing me with perspective that included a reference point to connect doctrine to experience, which allowed me to see how far from doctrine my experiences had strayed." "I used my combat experiences to argue in support of creative solutions to problems that may not directly align with the doctrinally correct solution." "Surviving combat gives you a new perspective on life and suddenly things like stressing out over class deadlines isn't such a big deal anymore."
No effect	14	"Not much at all. The College focus is on Strategic level work and in my experiences I worked at the [battalion] level and below or at the [Joint Task Force] level."
Negative effect	6	"There is probably a fine line between practical experience and educational/academic understanding and room for both, but as often as not individual experiences detracted from the latter."

Note: Themes, frequency of theme within 80 responses, and representative response statements for the question, "How have your combat experiences supported your learning the content or material of the curriculum in the classroom?" Table by author.

curriculum content, appreciate differing viewpoints, and assess their own personal bias toward a topic—especially when the curriculum was dissonant from their combat experiences. Responses that described this effect both in military colleges and in civilian academic settings were noteworthy. Respondents also shared how combat stress put academic stress in graduate programs in perspective, because it allowed students to prioritize and navigate course requirements more easily. These results were consistent with Spurlin's (2014) results.

In contrast, some respondents indicated that their combat experiences had no influence on their learning. As indicated in Table 1, a common trend in these responses was that respondents' experiences did not provide specific examples relative to the classroom content. They did not see indirect benefits of combat as other respondents had identified. Negative effects of soliciting combat experiences in the classroom will be addressed in the section on hindrances to cognition.

The next survey question asked, "How have your combat experiences hindered your learning the content or material of the curriculum in the classroom?" This question sought to identify the barriers that students perceived resulted from their combat experiences. Thematic results for this question are in Table 2 (on page 16).

Most respondents who found that their combat experiences hindered their cognition expressed it in one of two ways: either there was dissonance between the curriculum content and their experiences, or they recognized student-veteran bias toward the curriculum. Dissonance was indicated by comments that described how the outcome or interpretation of personal combat experiences contradicted the content of the curriculum as presented in lesson materials or as expressed by the instructor. Another form of dissonance was that the intended importance of the curriculum material contradicted the way the learner perceived the importance of it. In one response, a student described an occasion where a faculty member without combat experience appeared to favor a book answer over the expressed experiences from students who had combat experience, which caused some students to discredit the curriculum content. The comment "Combat experiences do not align well with the doctrinal solution to a problem" indicated how the theoretical and practical collide in the classroom; the collision forced students to reconcile their perceived differences.

The second most common theme was the observation that combat experiences biased student-veterans against the content of the curriculum. Similar to the dissonance described above, some respondents recognized the disagreement between the content and their experiences but were able to proceed with courseware. They also observed bias in other students if they did not believe they had it themselves. This theme reflected the negative effects described in the first question responses. However, more than half of the respondents to this question stated that their combat experiences did not hinder their ability to cognitively appreciate the content of the curriculum.

Table 2.
Hindrance to Cognition

Theme	Frequency	Example responses
Dissonance	16	"The theory appears to be outdated at times." "The instructors are going to pretend to care but they discourage the students from challenging doctrine and group think." "The material in the classroom is mostly doctrine-based, and unfortunately it is not reality when the rubber hits the road in a combat environment." "If the discussion or material does not relate to my experience, it can cause some confusion especially if the instructor does not have the operational experience to bridge the gap and discuss all aspects of the material and how it might apply on all levels."
Bias	12	"Bias is the big blocker. Learning how to do things the right way doctrinally was challenging." "I feel that my combat experiences have broadened my world view, but I also need to remain cognizant of avoiding having an emotional attachment to things I hold true simply because I fought for them." "I do believe that combat experiences created a frame with I needed to breakthrough to better understand the learned material."
No hindrance	41	"As long as I kept an open mind to perspectives of other people, [my experiences] didn't."

Note: Themes, frequency of theme within 79 responses, and representative response statements for the question, "How have your combat experiences hindered your learning the content or material of the curriculum in the classroom?" Table by author.

Emotive Dimension

The second pair of questions addressed the emotional dimension within Illeris's learning theory to assess how combat experiences influenced the student-veteran's incentive to engage with the curriculum. Fifty-six students responded to the question that read, "How have your combat experiences supported your incentive or motivation to learn the content of the curriculum in the classroom?" The major themes in response to this question included relevance to the future, alignment of experi-

Table 3.
Support to Motivation

Theme	Frequency	Example responses
Relevance for the future	12	"As an individual, my experiences told me what I needed to learn so that I didn't make the same mistakes going forward." "I know the measure of a decision. I know I have gaps in knowledge or understanding and I know the future positions of increased responsibility the very best of Soldiers will feel the weight of my failures." "My experiences really made it more than a professional duty but a moral imperative." "My experiences motivate me to learn more because I understand that getting them wrong will impact many others in a potentially severe way."
Alignment of experiences	10	"They've helped ground subject matter by moving it from a purely academic discussion to real world application." "Wanted to learn the right way and try to see different perspectives and the doctrinal way of doing things. I felt some of my experiences were not the right way even though they worked for me at the time." "Being able to tie real world experiences into an academic setting places lessons into context and really helps me internalize them." "We often see things that contradict our doctrines, our oath and even the humanity. Getting back to the classroom is a good place to realign our understanding and the real world."
Providing a perspective	6	"Made me think more critically about some wartime theories." "Combat experiences are an important part to acknowledge the appearance of biases and fallacies. In combination with the learning objectives, the student will be aware of these aspects in the future. It is like a learning reflective model. This means, the student will be much more adaptable and flexible in future."
No effect	17	"There is nothing specific about my combat experiences that has supported my incentive or motivation to learn in the classroom. It was always there before combat experience, and is likely to remain with me for many years into the future."

Note: Themes, frequency of theme within 56 responses, and representative response statements for the question, "How have your combat experiences supported your incentive or motivation to learn the content of the curriculum in the classroom?" Table by author.

ences, and providing a perspective. Nearly a third of the respondents indicated that their combat experiences had no effect on their incentive to learn in the classroom. The reportable themes are indicated in Table 3 (on page 17).

The most common positive response indicated an incentive to learn when the content of the lesson had a clear relationship with and relevance to any future usage. This response was similar to findings in Spurlin (2014) where student-veterans found motivation to learn for personal growth in a particular area. Some students found incentives to learn when the material clearly represented knowledge or skills that would likely be needed in their chosen career field.

Some student-veterans found incentives to align their past experiences with doctrine or theory. Although successful in their combat experiences, student-veterans wanted to better understand their successes or failures in actions or policies by studying the doctrine or theory behind those actions or policies. Their incentive to learn was increased when the lesson material aligned with their past experiences. Respondents felt drawn to the curriculum when it had the potential to explain their past experiences.

Another incentive to learn was when student combat experiences applied a different perspective to students' appreciation of the curriculum. The contrast between the classroom and the combat zone offered different perspectives for these students on a variety of subjects. This contrast in turn challenged students to question the ways personal values and biases influenced their learning.

Surprisingly, only one respondent found an incentive simply from the perspective of lifelong learning and two found incentives in trying to explain or rationalize past mistakes in a combat zone. Adult learning theory includes the idea that adults are lifelong learners who frequently find incentives to learn (Brookfield, 1986). The few corresponding responses from this question were insufficient to support that tenet of adult learning theory.

The next question addressed whether emotional barriers existed for learning among student-veterans. Out of the 68 respondents to the question, "How have your combat experiences hindered your incentive or motivation to learn the content of the curriculum in the classroom?," the majority indicated there was no barrier from their combat experiences. Only the theme of emotional dissonance emerged. Table 4 (on page 19) provides the results from this question.

Students indicated that their incentives to learn were restricted by the dissonance between their combat experiences and their classroom experiences. The emotional bias associated with their combat experiences hindered or prevented their acceptance of the new material. The emotional charge of combat associated with past learning anchored their perspective to the past and challenged their acceptance of material that disagreed with their experiences. The incompatibility between past experiences and the curriculum hindered their incentive to learn. In these responses, student-veterans discounted the classroom material or found it difficult to reconcile

Table 4.
Hindrance to Motivation

Theme	Frequency	Example responses
Emotional dissonance	14	"Biased perspective on flaws of the strategies and processes." "I needed to break the 'paradigm' and look at my experience in a different way." "Experience can bias you. Students must guard against the idea of I've been there and done that so I don't need to learn about it." "Difficult to use theory to merge practical experiences." "I think sometimes the things taught are contradictory to experiences, and experiences are a stronger teacher." "I struggled in brigade and below exercises and lessons because they felt like old hat, and did not line up with my personal goals."
No hindrance	47	"No hindering in my learning. I was able to absorb and use what I learned."

Note: Themes, frequency of theme within 68 responses, and representative response statements for the question, "How have your combat experiences hindered your incentive or motivation to learn the content of the curriculum in the classroom?" Table by author.

the differences between doctrine and experience. As one student indicated, "Experiences are a stronger teacher." However, the majority of respondents did not believe their combat experiences hindered their incentive to learn.

Social Dimension

The third dimension of Illeris's (2009) learning theory incorporates the social interactions of learners to construct and reinforce ideas. The next survey question asked, "How have your combat experiences supported your social interactions while learning the content of the curriculum?" Of the 51 responses, two supporting themes and a theme of no effect emerged. Four respondents replied that there was a negative effect, but that result will be addressed in the hindrance version for this question. Table 5 (on page 20) provides the outcomes from this question.

Table 5.
Support to Social Interaction

Theme	Frequency	Example responses
Common culture	20	"There exists a sense of brotherhood between those with common experiences, so that helps." "Combat experiences have made it easier to relate to people of similar background or those who have gone through high stress situations." "Shared experiences with classmates made the social interactions easier." "Knowing of shared experiences enables interaction between peers." "Other students provide lessons or experiences from their combat events that help to reinforce learning."
Credibility	10	"Combat experiences are important for credibility and as a means to identify similarities between classmates." "It gave me legitimacy to speak up at certain moments." "It helped validate me to my fellow classmates."
No effect	10	"I see those as two independent variables, not dependent."

Note: Themes, frequency of theme within 51 responses, and representative response statements for the question, "How have your combat experiences supported your social interactions while learning the content of the curriculum?" Table by author.

The largest response indicated the presence of a common culture in the classroom among those with combat experiences. Regardless of the area of deployment or extent of combat operations, student-veterans felt more comfortable interacting with other veterans. The common culture made sharing experiences and opinions about military operations easier and more productive regardless of the topic. As one respondent noted, combat experiences established a "brotherhood" that supported social interactions during learning activities.

Similarly, combat experiences appeared to have supported a perception of credibility in some respondents. Beyond the perceived brotherhood of veterans, these individuals expected others to value their combat experience or their standing as knowledgeable students prior to contributing to classroom discussions. The percep-

tion of combat veterans appeared to be that those without combat experiences were not affirmed or included in some learning activities. One respondent referenced the work of Sebastian Junger on combat veterans in society and the concept of an "exclusionary affiliation" where those with combat experience bond with each other but also exclude those without similar experiences. Spurlin (2014) also described how some students with actual combat experience (compared to those deployed but not actually in combat) were exclusionary in their interactions with other students and did not give credibility to learners or instructors without similar experiences. Nearly a fifth of respondents did not believe their combat experiences supported their learning.

The final question asked, "How have your combat experiences hindered your social interactions while learning the content of the curriculum?" Of the 55 responses, the majority indicated that their combat experiences did not hinder their learning. Only seven responses indicated that combat experience limited their interactions in the classroom. Common to these responses were descriptions of withdrawal from social interactions or an inability to accept contrary positions when combat experiences reinforced a student's perception in a discussion. The results and representative responses to this question are in Table 6 (on page 22).

Assessment

It is important to relate classroom content to personal experiences to improve learning consistent with adult learning theory (Brookfield, 1986; Merriam & Bierema, 2013). In the cognitive dimension, respondents indicated that their combat experiences provided a context for the curriculum in the classroom. Combat experiences supported their cognitive strategies in learning, too. While the former is typically considered a component of adult learning theory, it is not commonly understood that prior combat experiences also help adult learners frame problems, mitigate stress, or improve study habits so they are better prepared to learn the curriculum content (Illeris, 2007; Spurlin, 2014). The most common barriers in the cognitive dimension were differences between experiences and curriculum content, which led to either dissonance that could not be overcome or to bias that made accepting curriculum content difficult.

In the emotive dimension, responses indicated combat experiences provided motivation to learn material by generating a link to the past, present, and future of the learner. These student-veterans found motivation to learn material that they perceived had value for future use based on their past combat experiences. In the present, combat experiences motivated students to value different perspectives on issues and curriculum content and to recognize the potential for bias in their own perceptions. Looking to the past, student-veterans found incentive to align their classroom experiences with past experiences both as revelation and as resolution for actions

Table 6.
Hindrance to Social Interaction

Theme	Frequency	Example responses
Division and avoidance	7	"There are times where veterans get emotionally wed to their ideas because they fought and bled for them, so any disagreement can lead to a visceral reaction." "I find it hard to talk to people that haven't had the same experiences (e.g., have been wounded)." "I am more anti-social than ever." "I have gone from extroverted to introverted because sharing combat experiences doesn't help social interactions."
No hindrance	41	

Note: Themes, frequency of theme within 55 responses, and representative response statements for the question, "How have your combat experiences hindered your social interactions while learning the content of the curriculum?" Table by author.

taken while in combat. The most common barrier to motivation was the bias of some learners who did not want to learn material that contradicted their combat experiences. This disagreement between what they experienced in combat and the content of the curriculum dissuaded them from learning the classroom material.

In the social dimension, student-veterans identified the bond of veterans and the credibility of the veteran when discussing military topics as the most significant ways combat experiences supported learning. Students shared a closer camaraderie with other veterans that made interactions in the classroom smoother. Similarly, combat experiences provided immediate credibility to students and faculty. However, students with combat experiences alienated those without as noted vis-à-vis distant social relationships or devaluation of nonveteran input to the classroom. This alienation was more apparent in the barriers to social interaction that manifested in divisions within learner groups over combat experience or the type of combat experience. Individually, student-veterans might withdraw from social interactions with any group due to the side effects of trauma experienced in combat.

There are several implications of this study for instructors of student-veterans. Instructors should be aware of how students' prior combat experiences might individually affect their learning in a classroom. Care should be taken to know the

students on a personal level to appreciate the degree that student experiences will affect their learning (Sitler, 2009). Presenting material that contradicts student experiences will require additional instructor effort to avoid student bias. Framing the material in the context of knowledge or skills required in the future or exploring how practical application does not always agree with theory might help students recontextualize the material. Otherwise, student-veterans can easily dismiss instruction dissonant from their experiences.

In addition to instructors getting to know their students, instructors could create opportunities for students to learn more about each other in a social setting. Because one barrier to student-veteran learning is a perceived lack of credibility in those lacking combat experiences, fostering personal interactions outside the classroom might encourage student-veterans to be more accepting of the opinions and experiences of their peers without combat experience. The camaraderie of the classroom should extend beyond those with combat experience.

This qualitative study supported Illeris's theory that learning occurs in multiple dimensions and that barriers to learning also exist in those three dimensions (Illeris 2007, 2010). The results of this study were consistent with adult learning theory concepts described by Sharan Merriam and Laura Bierema (2013), Stephen Brookfield (1986), and other adult education practitioners. The implications for the adult classroom are that the combat experiences of student-veterans will reinforce learning in the classroom but can also hinder student learning—typically by biasing student-veterans' value of the curriculum and the ideas of non-veterans in the classroom.

The findings and recommendations of this study are those of the author alone and do not necessarily reflect the position of the U.S. Department of Defense or the U.S. Army. The author is employed by the U.S. Army but conducted this study as an independent researcher for academic purposes without direct compensation to conduct this study. There is no potential conflict of interest.

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The Group Psychology of Red Teaming

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Abstract

Red teams are supposed to be a commander's go-to option to not only understand the mindset of the enemy at hand but also offer objective reviews of friendly forces tactical and strategic plans. The size of the red team and novel nature of the information it presents can be negatively influenced by intergroup dynamics. The following research considers the probability of a group member discussing information is one minus the probability no one mentions the information. Despite the best intentions of the commander and his or her leadership team, red teams can become marginalized or rendered ineffective by psychological aspects of intergroup dynamics and social identity conflicts. Statistically, the red team is at a psychological disadvantage. The research proposes three thematic practices commanders can use to gain the most from their red teams. First, formulate the red team as soon as possible. Second, overcome the natural categorical factors influenced by social identity. Lastly, empower a leader who can manage the multitude of influences wrought by the conflicts from hybrid and dual identity memberships.

That which cannot be believed will not be seen.

—Sydney Dekker (2011, p. 97)

In an operational military environment, it may seem trivial to consider an individual's perception or the greater influence of group dynamics and identity. Decisions and plans often need to be articulated quickly and modified as battles ensue. Cohesive teams work well to produce detailed plans with minimal delays; an individual or dissenting perception/idea may disrupt the flow and organization of such planning. Such a disruption can even be detrimental to overall unit cohesion.

However, it is imperative for a military leader to understand the perceptions of all individuals in an operational environment. Additionally, knowing why some information has been left out can offer significant insights into the intergroup dynamics of a leader's unit or organization. The withholding of information may create an intelligence

gap, especially novel information. To overcome this potential gap in intelligence and planning, leaders will often turn to red teams with hopes of uncovering "black swans," unanticipated events with severe consequences. Unfortunately, leaders often end up with a sounding board of other planning sections or staff sections within the unit. Red teams are a significant tool of adversarial analysis, and analysts can benefit from the inclusion of psychologically based approaches to both threat-scaping and red team formation activities (Heuer, 1999; Matherly, 2013). Firsthand observations of forming a red team expands on the application of social identity theory to encompass a unit's collective judgment and problem-solving abilities; reveals how well information is handled, including hidden profiles; exposes homogeneity amongst groups; and shows how the majority of the unit responds to the minority input of the red team.

A red team is defined by the U.S. Army's University of Foreign Military and Cultural Studies as a "flexible cognitive approach to thinking and planning" (U.S. Army Training and Doctrine Command [TRADOC], 2018). Often, red teams are a selection of individuals tasked with employing special analytical methodologies to either challenge established plans or attempt to determine an adversary's course of action.

A red team has two goals: to anticipate the adversaries' future moves and to root out bias within their unit's planning (Matherly, 2013; TRADOC, 2018). In any large military planning organization, whether a combined air operations center, a joint operations center, or a corps planning team, different staff sections and teams work with similar information to create part of the same plan.

Research has demonstrated that groups that actively value novel or solitary inputs are most likely to see more success over time than homogenous groups (Kolb & van Swol, 2018). Homogeneous groups fail to recognize the importance of novel information following principals of the hidden profile paradigm through group-think bias (Rapport, 2020). The successful groups, however, reject synchronous orientations (group think) in favor of considering all information available to them. In a study that used a fictitious murder mystery with a hidden profile, separatist groups accurately selected the culprit 61% of the time, versus a 38% success rate for synchronous groups (Kolb & van Swol, 2018). More so than just ignoring information the researchers have shown that there is a significant social price to advocating for unique or novel information. Individuals in possession of novel information that conflicts with or contradicts what is accepted as fact within homogenous groups would either

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disregard it immediately in favor of prevailing information or voice it and be actively alienated by the rest of the group (Stasser & Titus, 1987). In the experiment above, groups were given profiles and scenarios in the fictitious crime. Most of the data provided to members within the teams was complementary. However, one member of each team was given data that did not coincide with the rest of the team's data; this asynchronous data is considered novel information.

According to the hidden profile paradigm, the more novel the information, the less likely it will be shared. The hidden profile paradigm states describe this cognitive barrier in information sharing. The more people who share the same information, the higher the probability that information will be accepted as fact and the less likely more remote knowledge will be deliberated or even discussed (Stasser & Titus, 1985). Research has shown that the probability of a group member discussing such novel information is one minus the probability no one mentions the information, which can be expressed mathematically as the conditional probability equation ($p(D) = 1-[1-p(M)]^n$) (Stasser & Titus, 1987). The probability of the novel information being shared within the group ($p(D)$) is equal to one minus the probability ($p(M)$) that no one in the group (n for the number of group members) mentions the information. This equation should sound alarm bells in the minds of leaders who employ red teams. Why? Psychologically speaking, red teams are at an inherent disadvantage providing the novel insights they are charged with gathering. Given the mathematical probability that novel information is likely to be lost within teams possessing corroborating information, red teaming is an insightful tool that can help leaders and commanders overcome the psychological limitation of social desirability.

Unfortunately, not understanding how the hidden paradigm influences teams can have a negative impact on a red team's stated objective. A key underpinning to understanding the intergroup dynamics at play is how the individual defines themselves at the most basic level. We turn to social identity theory as a lens through which intergroup and interpersonal conflict can be observed, recognized, and ultimately overcome. What follows is a theory-to-practice discussion based on direct observations of a military unit's (referenced as the unit) attempt to employ a red team during a brief training deployment abroad. The goal of this research is to introduce leaders to and inform them of basic psychological processes that may negatively influence red team employment.

Social Identity Theory

Social identity theory is arguably one of the core theories underpinning social psychology. This theory articulates how individuals not only define their introspective identities but also what groups they may join and why (Trepte & Loy, 2017). Additionally, the theory goes on to postulate that these attributes of belonging and self-identification also lay the groundwork for intergroup conflict (Bochatay et al., 2019). When one considers

the potential for conflict amongst groups advocating for novel information, there is little surprise that unproductive competition may arise. Psychologically speaking, intergroup dynamics have significant effects on how red teams interact with other groups. The following is an overview of important intergroup dynamics applicable to this research.

Group Problem-Solving

As groups continue to define themselves into self-identified subgroups, the potential for negative performance increases (Martin, 2016). The minimal group paradigm demonstrates that groups of people will divide themselves into competitive subgroups regardless of resource or realistic threat. Said subgroups will automatically compete with one another for resources, status, or simple bragging rights (Otten, 2016). The competitiveness between subgroups is not necessarily hostile and will manifest in intensity depending on the resources at stake and the general social climate. Social identity theory explains that as these divisions occur, group members will identify with common traits of their selected in-group. The deeper and more frequent (shared) the implicit and explicit attitudes of the group members are, the more bound in a shared mental model the group will be (Bagci et al., 2018). This can lead to not only increased performance of the specific in-group but also to increased conflict between the groups.

Group Socialization

In social psychology, there are five basic phases to group membership: investigation, socialization, maintenance, resocialization, and remembrance (Meeussen et al., 2014). These phases transition via specific actions: entry, acceptance, divergence, and exit. For groups to successfully achieve normalization, individual members must balance self-esteem, identity, attitudinal functions, and emotions to match that of the group as a whole while navigating the five phases (Swann et al., 2012; Tekleab & Quigley, 2014). Social identity theory describes a foundational process in which teams evolve and form through social categorization (Swann et al., 2012).

Group Influence on Attitudes

Groups influence how individuals perceive themselves and others. The social groups in which individuals find themselves play a significant role in the formation and development of their own attitudes. These norms provide the functioning dogma of a group and, according to social identity theory, individuals will then categorize themselves in accordance with the dogmatic practices they identify with most. Social groups will de-

fine salient behaviors and attitudes that then form the basis of that social group (Ajzen & Fishbein, 2005). A further implication of this process of social categorization and shared salient attitudes is the perception of threat to a group. The minimal group paradigm expands on social identity theory to describe that groups will perceive threat to one group based on differences in salient attitudes regardless of their applicability to any real or perceived resources (Janneck et al., 2013). This shapes the overarching concept of intergroup threat and the negative attitudes associated with it. The identification of a threatening out-group can be established on something as simple as unshared information. The hidden profile test demonstrated how singular groups could drift into separate ones based simply on available information (Stasser & Titus, 1987). When a group collectively identifies another group as a threat, regardless of available facts or information, the attitude of the threatened group turns against the out-group (Otten & Moskowitz, 2000). This attitude can become systemic and is eventually shared by members of the in-group who have had no interaction or exposure to the out-group.

Self-Concept and the Group

As groups form through normalization of interactions, individuals will derive their self-concept from membership in the group. Normalization occurs during the maintenance and resocialization phase of the group lifecycle (Meeussen et al., 2014). During this process, groups establish their internal culture, and perspectives dictate group interactions. An individual's self-concept is partly based on this normalization and is reflective of the group's world view. Both the individual and group self-concepts can reflect a positive outlook if the assigned group reflects not only their perceived internal social identities but also holds status within the larger cultural or societal context (Cheng & Guo, 2015).

Majority versus Minority Dynamics

In nearly all social settings, there is a distinguishable majority and minority. This divergence in statuses can come in nearly any combination and is situation-dependent. Social identity theory describes how individuals will subdivide into groups in which membership aligns with regards to individual identity (Trepte & Loy, 2017). The minimal group paradigm shows how these groups can be arbitrarily formed (Otten, 2016). It is important to note this interaction because whenever groups are formed, there will always be a majority and a minority.

Self-attention theory furthers understanding of minority-majority intergroup dynamics. The theory addresses how individuals act when they focus inward on their own salient traits in comparison to that of a majority (Scheier & Carver, 1983). The intro-

spective process creates cognitive dissonance in individuals of minority group membership. As a result, the individuals attempt to project more salient behaviors they perceive as desirable from the majority (Mullen & Baumeister, 1987).

Collaboration and Conflict

Collaboration is the ability of a group or groups to share information and ideas in pursuit of common goals (Patel et al., 2002). As straightforward as this may sound, groups often encounter significant shortcomings that hinder productivity. Sadly, when a group's actual productivity is compared to that of an idealized state, it often falls short of even a reasonable productivity baseline (Kerr & Tindale, 2004). Several factors can affect a group's collaboration. These can include group size, task difficulty, and even resource management. Group size and difficulty of a task are inversely proportional to effectivity and efficiency of the group. One of the major failures of group productivity (performance) comes from a group's inability to identify and harness potential resources at its disposal (Kerr & Tindale, 2004).

The following research is grounded on the application of psychological theory to the intergroup dynamics of the observed unit. Other theories are introduced and discussed throughout the results section to support this central concept. This research will address two specific questions. First, how did group and intraindividual processes shape the roles and effectiveness of red teaming over the course of the situation outlined below? And how can group and intraindividual processes aid in overcoming these limits?

Methodology

The research conducted herein is ethnographic in nature, employing a participant observation-like methodology. The research is based on archival observations and notes taken by the researcher during a deployment originally for purposes other than this research. The methodology resembled participant observation and produced qualitative data through the author's direct observation of the unit's major staff sections and its red team as groups along with observations of these teams' individual members. These observations resulted in data on intergroup and interpersonal interactions.

Initial data collection occurred throughout the unit's 30-day deployment abroad. Data collection was limited to direct observation of the actions within individual staff sections and interactions amongst staff sections. Of particular interest were actions or interactions involving the red team. Prior to the deployment and formation of the red team, the unit was functioning smoothly. An established battle rhythm had been adopted, and many of the staff sections freely shared ideas and information amongst their staffs at both intergroup and interpersonal levels. The high level of

interdepartmental and interpersonal information flow was designated as the ideal benchmark for effectiveness of the red team.

Specific metrics observed included the themes relevant to social identity theory and group conflict: group problem-solving, group socialization, group influence on attitudes, self-concept and the group, majority versus minority dynamics, and collaboration and conflict. A positive integrative effort would be seen by staff sections freely sharing ideas and incorporating feedback form the red team without command intervention. A poor integrative effort would be seen if the red team and its members were isolated from other staff sections and left in an information vacuum.

Following the deployment, a review of all interactions leading to or contributing to intergroup conflict was conducted. This review focused on identifying elements related to intergroup dynamics as discussed addressed in the sections about group psychology above. The elements were then reviewed for general themes and trends. These themes and trends were identified as the final results, are addressed in the results section below, and are critical to intergroup performance of red teams. These themes and trends were then compared to the principles of social identity theory in an attempt to understand why the problems occurred and to offer diagnostic remedies to prevent their reoccurrence in future events.

The identified thematic areas are addressed in the results section using a broad psychological approach that applies numerous theories, each worthy of research in its own right. The intent is to introduce the reader to a basic working knowledge of social psychology, specifically social identity theory, on intergroup dynamics unique to red team employment in a military organization.

The results section will introduce and analyze each of the thematic trends noted. The author then introduces and demonstrate the applicability of social identity theory that coincides with each thematic result. In some cases, additional social theories are presented to further explain or characterize interpersonal and intergroup behaviors. Applications of both the thematic trends and psychological theory for resolution are saved for the analysis section.

Situation

The unit this research focuses on was a very rank-conscious, high-tempo, corps-level unit. Overall, it consisted of tens of thousands of troops whose ranks ranged from general officers with decades of service down to privates with only weeks in the military. The portion of the unit observed consisted of approximately 200 staff troops. The unit divided its wartime planning and execution manpower amongst six staff sections with specific titles that provide services that range from kinetic operations (e.g., operations, fires) to legal and humanitarian operations (e.g., special staff, civil and military logistics). Each staff section contained a diverse mix of

individuals and ranks, and each staff section was led by a colonel. Each staff section maintained cyclical daily and weekly battle rhythms synchronized with unit operations and command-led battle rhythm events (personal observation, June 2016).

The unit received notification of the exercise it would participate in 24 months prior to execution. The exercise included multiple services and nations with the expressed goal of furthering international and joint relations amongst the agencies. All of the staff sections detailed above began collaborating and working on processes through working groups and information-sharing methods during this phase. By execution of the event, these teams had spent a significant amount of time working together. The extensive time spent working together on a unified problem set normalized the relationships within each team and achieved a heightened level of cultural normalization between the staff sections. As a result, offices were synchronized in an efficient manner both internally and externally with positive working relationships throughout.

The exercise began 24 months after the first order was received. As with most exercises, this one was designed to stress the flexibility of an operational plan. First contact exploited several areas of ambiguity and weaknesses of this plan. In an attempt to consider additional options and circumvent group-think as well as other potential biases, the unit commander appointed a colonel to assemble and chair a red team.

The red team was constructed at first by soliciting volunteers from all of the existing staff sections to meet for one hour daily. After receiving marginal volunteer support from the established staff sections, a command order tasked each staff section to allocate two individuals with the additional duty of being a "red teamer." The final membership count of the team including the team chair was 13. Whenever the team met, approximately 75% of the members were present. Furthermore, the red team served in an additional duty for team members charged with reporting their findings directly to and advising the unit's commander during weekly planning briefs. The red team conducted analysis of plans made by current and future operations teams through applied methodologies found in the U.S. Army's University of Foreign Military and Cultural Studies *Red Team Handbook*.

Results

Following the deployment, the use of the red team offered a few positive findings for the unit as a whole. Unfortunately, the overall employment of the red team was hampered by poor integration amongst the other staff sections down to the interpersonal level. The postdeployment analysis highlighted indicators within each of the six themes relating to failures surrounding the red team's employment. In order of presentation below, the thematic areas include group socialization, group influence on attitudes, self-concept and the group, collaboration and conflict, majority and mi-

nority conflict, and group problem-solving. Each of these thematic areas are below in terms of how each applied to the unit's attempt to employ a red team.

Group Socialization

When the red team was formed, there were already a number of teams operating at the maintenance and resocialization loop of the process. When these teams contributed their respective members to the red team, each member came to the new group equipped with the culture and socialized tasks that allowed that member to operate within his or her original group. The new group and its members were forced to exchange ideas and nuances relative to their personal values and expectations as they existed in their respective original groups (Meeussen et al., 2014). This exchange of attitudes caused a lengthy investigation and socialization period as the group attempted to feel out each participant and identify that person's role in the group.

The conflicts that began to arise came from conflicting individual membership roles between the original group and the red team. The normalized behaviors each member had established with his or her original group were at odds with those of the newly formed red team and its conglomerate of members. In one aspect of membership, members were asked to contribute to and build a plan of action to advance the evolution of the unit's involvement in and command of the assigned mission. This is an interesting to discuss because the members of the red team were involuntarily placed into a newly forming group whose goal is contradictory to their host groups (Ryan & Bogart, 1997). In this unique case, the red team can be viewed as an out-group in comparison to its membership, each still holding identity and affiliation to their original groups.

Red teams are formed as a subcultural group with the expressed intent of questioning normalcy in the larger group (Zenko, 2015). On the surface and to any red teamer, this seems simple and appropriate enough. However, in practice, this singular purpose of a red team can be its own downfall. Understanding how a team forms and the significant importance communication and emotion play in this development is critical to a well-incorporated red team.

Group Influence on Attitudes

This is an important attribute for red teams to remember. The tendency for a team to favor the in-group is high, but that does not mean that members will favor their assigned group. An in-group is any group that the individual feels is their rightful group, regardless of membership. Being a member of what is perceived as an out-group can lead to negative self and group evaluations. Often, red team members are chosen as representatives from various parts of a planning staff and only come together on occasion.

When groups are formed in a hasty or ill-defined manner, the likelihood that individuals will not positively identify with the group is high. As a consequence of this evaluation, not only would the individual's self-evaluation suffer, but motivation for success of the group would be negatively affected. The lack of consistent contact between members combined with differing perspectives and normalized behaviors along with principles of alternative analysis attempting to identify novel information can further influence the occurrence of minimal group paradigm, placing the red team as an out-group by its own members. As a result, social comparison will occur.

Self-Concept and the Group

The social identity of self-concept is a critical aspect of achieving normalcy in any team, especially a red team. This emphasizes categorization of other individuals and group traits by the observer. The observer then identifies what social grouping best represents the self in which they identify and strives to become a member of that group (Morran & Stockton, 1980). An individual can identify membership in many social groups; as a result, their self-concept is shaped by the categorical attributes of each group.

As was mentioned earlier, the red team was hastily formed, and membership was comprised of random individuals from various staff sections that have worked together for a considerable amount of time. Applying the model of social identity to self-concept shows how individuals will harbor loyalty to their indigenous group. The individual has come to identify a part of his or her self-concept as tied to the success or failure of his or her initial performance group.

The individual who works in the G-5 staff section (responsible for developing operational plans and contingencies) who is attached to the red team is likely to consider any product from this staff section as a good or sound plan. If it were not viewed as such then their self-concept would be in conflict—especially if they had a hand in its initial development. This friction point can cause issues not just for the red team as a whole but also with how the individual is accepted back in his or her original team. The individual's self-concept, which identifies with the G-5, is challenged when the red team analyzes G-5's plan. Worse yet, the group's perception of the individual's membership as a trustworthy member is also challenged—by both teams. The individual now finds themselves in a dilemma where they no longer feel welcomed by their original group and betrayed by the red team.

Majority versus Minority Dynamics

Three main categorical distinctions that place the red team in the minority of all the other functional groups in our the unit are (1) longevity, (2) favoritism, and

(3) unity. Each of these place the red team as a minority population within the larger group. Longevity describes the length of time that the group has existed. Compared to all the other groups within the unit (intelligence, plans, fires, civil and military logistics, etc.), which have functioned together as a group for up to a year prior, the unit's red team had only come together at the beginning of an event. Under these ad hoc conditions, the red team is unrecognized by other teams as a legitimate organ that supports the overall unit. However, a perceived favoritism by leadership can be inferred. This new group receives special attention and time from leadership who values the conclusions of a relatively small team in contrast to the combined conclusion of a larger group. Both of these factors can feed into a lack of unity among the groups, but the red team specifically will be marginalized as a minority for its analyses alone. While the majority of the unit's staff works together to develop a common plan, the red team analyzes that plan for potential shortcomings including bias, assumptions, and a misunderstanding of enemy motivations.

Collaboration and Conflict

As is in the case of the unit's particular red team, there is a marked failure in its ability to not only use but also identify resources. One of the major resources the red team had at its disposal was expertise. The team, being constructed of representatives from each of the other staff sections within the unit, had a sampling of expertise from across the unit's functioning disciplines. This resource, however, went unrealized owing to individual interests and motives amongst the group members.

Considering the individual perspectives of the red team members, each member felt as if his or her interests rested with his or her original group. The core social motivators and social identity theory have explained why red team members' allegiances are aligned in this way. As a result, the immediate loyalty felt to their original group outweighs the possible benefits of the new group. Collaboration within a group can be observed from the social judgment scheme model that governs consensus processes. This model considers individual preferences weighted in an exponential function amongst group members (Demont et al., 2013). As a result, the moderate consensus of the group becomes the predominant pathway for group interactions. Much like the majority of teams that reject a hidden profile in favor of group consensus, the red team follows the consensus of the members' collective perspectives as out-group members (Lu et al., 2012).

This divergence in group consensus is a vital attribute in the failure of the unit's red team. It highlights a criticality in forming efficient and successful groups—resource management. In this case, the resource is information or knowledge provided to the group in the form of a diversified membership. However, owing to each mem-

ber's own interest based on his or her social identities, the potential for productive impact on the larger organization (the unit) is lost.

Group Problem-Solving

As a result, the red team finds itself at a crossroads between the two approaches to cognitive decision-making, each producing valid yet potentially contradictory results. When one is closer to the subjective end of the spectrum, one will find selection versus rating tasks, and at the objective end, there will be intellective versus judgmental tasks (Mohammed & Ringseis, 2001). Simply put, the former comprises decisions that are based more on individual preferences and requires, at the very least, a degree of rating. This requires individuals to take stock of the options at hand and resolve one of them based on a mutual conclusion. The latter article of cognitive decision-making, intellectual versus judgmental tasks, is more grounded. These tasks have right and wrong answers that can be demonstrated (Mohammed & Ringseis, 2001). The red team attempts to understand and articulate intellective versus judgmental type tasks—what an adversary will do or how a friendly plan will execute. Red teams often find themselves attempting to employ selection versus rating methodology to address what are largely intellective versus judgmental questions.

Collective judgment is a concept that can be surmised through the idea of schisms (Mohammed & Ringseis, 2001). A schism is the tendency for groups of people to strengthen general tendencies of opinions within the group. There are several conditions that can cause this polarization, but in the context of red teams, social comparison might be one of the primary motivators. In this context, social comparison theory explains how an individual's perceptions in a group setting will gradually grow from relatively moderate to extreme based on the viewpoints of other group members (Gerber et al., 2018). In other words, the desire to belong and self-enhance ends up influencing individuals to take on opinions different from their own in order to maintain membership (Matherly, 2018). This alteration of an individual's identity traces back to social identity theory, which describes how individuals will form groups aligned with common desirable traits, which are expressed as a collective identity that is further motivated by the core social need to belong (Trepte & Loy, 2017). This motivation can create tight intragroup bonds that cause conflict between groups with opposing views. Red teams in an organizational environment often make proposals that are counterintuitive or directly challenge the findings of other groups (TRADOC, 2018). When one considers the cognitive processes discussed above, it is of little surprise that such recommendations could be met with hostility.

Observations fell into one of six categories relevant to social identity theory and group conflict: group problem-solving, group socialization, group influence on attitudes, self-concept and the group, majority versus minority dynamics, and

collaboration and conflict. The observations noted trends of significant issues related to intergroup conflict and group formation. The observations made above are analyzed in the following section.

Analysis

Analysis of the observations revealed three themes relating to the unit's experience with its red team. Two of these themes contributed to negative aspects of employment, and one theme worked to the team's and unit's benefit. The negatively contributing trends included formation of the red team during mission execution rather than early in mission planning phases. Secondly, little was done to help team members disassociate with their current analytical thinking and associate to counter-cultural, or out of the box, thinking. Lastly, the unit selected a very strong leader whose leadership talents were instrumental in the successes the team did bring to the unit.

Many group loyalties and identities are based on the prestige, status, and power as well as the benefits such attributes bring with membership. Groups within an organization thrive on these benefits throughout intricate networks supported by the organizational structure either explicitly or implicitly. As has been discussed through this research, social identity theory rests on intergroup social comparisons and on the categorical outcomes made by individuals within each of the competing groups (Hogg & Terry, 2000). This in-group/out-group evaluative process is fueled by the need for positive self-efficacy (Mazziotta et al., 2011).

Differences between groups can be easily interpreted as threats to the in-group members. The in-group/out-group distinctiveness promotes a positive in-group outlook that often results in a negative or indifferent out-group perception. This dynamic is often seen with immigrants who do not fully integrate into their host country's culture. This outward representative of an out-group is regarded as potentially threatening (Esses et al., 2001). The evaluative in-group/out-group process is an iterative process that is applicable for the members of the red team who viewed the red team itself as an entity (out-group) that threatened the success, prestige, power, and status of their originating groups.

The conflicts that began to arise came from membership responsibilities between the original group and the red team. The culture each member had established with their current group was at odds with that of the red team. In one aspect of membership, members were asked to contribute to and build a plan of action to advance the evolution of the unit's involvement with and command of the assigned mission. An interesting attribute to discuss is that the members of the red team are being involuntarily placed a newly forming group whose goal is contradictory to their host groups (Jacoby-Senghor et al., 2015). In this case, the red team can be viewed as an out-group in comparison to its membership, each still holding identity and affiliation to their original groups.

One observation worthy of specific note regards an individual working in the G-5 staff section, who was responsible for developing operational plans and contingencies for the unit, and who was also attached to the red team. This individual considered any product from this staff section as a good or sound plan. Psychologically speaking, if he or she viewed the plan differently, their self-concept would be in conflict—especially since they had a hand in the product's initial development. This friction point can cause issues not just for the red team as a whole but also for how the individual is accepted back into his or her original team. The individual's self-concept, which identifies with G-5, is challenged when the red team analyzes the G-5's plan. Worse yet, the group's perception of the individual's membership as a trustworthy member is also challenged by both teams. The individual is now caught in a dilemma where he or she no longer feels welcomed by the original group and betrayed by the red team.

Based on the research, there are three main categorical distinctions that place the red team in the minority of all the other functional groups within the unit: (1) longevity, (2) favoritism, and (3) unity. Each of these place the red team as a minority population within the larger group. Longevity describes the length of time that the group has existed. Compared to all the other groups within the unit that have functioned together as a group for up to a year prior, the red team has only come together at the beginning of the event. In these terms, the red team is unrecognized by other teams as a legitimate organ that supports the overall unit. To complicate matters, a perceived favoritism by leadership can be easily inferred. The new red team receives special attention and time from leadership who values the conclusions of a relatively small team in contrast to the combined conclusion of the larger, established group. Both of these factors can feed into a lack of unity amongst the groups, but the red team specifically will be marginalized as a minority for its analyses alone. While the majority of the unit's staffs work together to develop a common plan, the red team is analyzing that plan for potential shortcomings including bias, assumptions, and a misunderstanding of enemy motivations.

Compared to other social motivation theories that pertain to intergroup dynamics, self-attention theory accurately describes processes occurring within the membership of red team and their original staff sections. The red team members have not fully identified each other as members of an in-group and still view other groups as their primary social group. As a result, the red team members attempt to resolve their dissonance by minimizing salient behavior associated with the red team and maximizing behaviors associated with their original staff sections (Mullen & Baumeister, 1987).

The nature of the red team is to challenge accepted assumptions or perceptions, so a synergistic effect amongst team members is critical. The members must have a shared social identity that holds value in the goals of the red team and, ultimately, the success of the unit as a whole (Tanis & Postmes, 2005). Otherwise, the team will continue down a divided path in favor of the assumptions and biases of its parent teams within the organization. The problem set for the leader is

unique and requires a particular mix of attributes from both the leader and the team itself. Despite these intricacies, the leader offers the most practical solution in bridging the social identity gap.

It can be easy to view a leader as a unifying or motivational force that is responsible for any success or failure that befalls a team. This, however, is only half of the equation, and by implication, a team consists of more than one person. A leader-follower relationship is a reciprocal one in which a leader is granted an authoritative, influential opportunity over a given group. As such, leaders can be chosen or appointed; in a military setting, leaders are often appointed based on rank, as was the case with the red team. A colonel was appointed to lead the red team. This individual outranked all members anywhere from one to 10 pay grades.

In summation, each of these individual factors amplify and cause increasing strain on intergroup relationships that negatively impact the ability of an organization to effectively employ a red team to problem solve. Not only does this alienate red team members from the rest of the organization, but it also drains vital resources needed for the institution's growth.

Based on the preceding anecdote and corresponding notes discussed above, the subsequent analysis yielded three practices for successful red team employment. First, establish and staff the red team as soon as possible. Second, overcome the natural categorical factors influenced by social identity. And lastly, empower a leader who can manage the multitude of influences wrought by the conflicts from hybrid and dual identity memberships.

Red teams should be formed early in the planning phase. The longer other teams are able to function and normalize operations, the further behind the red team will be in its eventual startup. If this task is either impractical or impossible, leveraging the latter approaches will aid in red team production through an expedited assumption of individual group identity. Just as social identity has framed the basis of the group dysfunction, it also allows for insight into harmonizing the multigroup identity dilemma encountered by the team members. These underlying solutions involve an exploitation of in-group preferences through targeting in-group boundaries and norms (Esses et al., 2001).

The latter finding, however, requires a more detailed exploration and is discussed in the following sections. The data is presented in a manner that addresses theoretical underpinnings, and when applied, it will allow individuals to overcome limitations noted when a red team must be formed in an ad hoc manner.

The ways individuals form meaningful relationships within groups is a learned behavior reinforced by self-enhancing membership rewards from all the groups the individual has been a part of to that point (Smith & Tyler, 1997). Overcoming these learned behavioral attributes will be the leader's biggest task when producing an effective and productive team. What follows is a discussion on how a leader can overcome these learned behaviors and their underlying psychological processes.

Overcoming Social Identity

Self-identity and categorical processes inform individual and group behaviors within organizations. Harnessing these processes are essential to bridging the social gaps created by competing groups and identities that plagued the red team. One of the most effective methodologies for reducing intergroup bias targets the premise of out-group membership by reducing the salience of in-group exclusion. Participants with strongly based competitive and zero-sum impressions of immigrants were given literature to read that discussed salient group traits in a neutral, pro-in-group (or anti-out-group) orientation. Individuals reading the material with a strong pro-in-group outlook were more likely to hold fewer discriminatory attitudes toward immigrants than individuals in the other two conditions (Esses et al., 2001). The pro-in-group material enhanced the salience of shared group attributes within the in- and out-groups. Simply attempting to improve the perception of general attributes of the out-group generally resulted in strengthened or increased negative perceptions. The emphasis of commonalities in the pro-in-group articles directly manipulated the intergroup boundaries by increasing common group identity attributes (Esses et al., 2001). This approach is one that could be of benefit to a unit's red team. Literature that articulates similarities of the red team to the other divisions within the unit could proffer this hyphenated identity.

The conclusion of this research is that the critical node that can offer this vital oversight is a leader from within the red team. A leader is not particularly an individual who has practical knowledge of the integrative processes or psychological theory. In addition to Army leadership attributes, a successful red team leader is one who can, either implicitly or explicitly, exercise the principles of intergroup integration and recognize what constitutes motivation and integrative behavior amongst all teams within a unit.

The Leader

Leadership is a critical attribute for any successful team. It can be noted as one of the few guaranteed lynchpins for either success or failure of any team (Bird, 1977). Of all the theoretical underpinnings discussed the leader is the sole individual who can sway a group either toward or away from pitfalls.

The military is generally very good about training its members in myriad leadership qualities and techniques. As discussed, red teams are unique to the traditional military construct of leader/follower relationships of intergroup dynamics. The leader needs to understand the purpose and function of the team's members. A keen understanding of the psychology underlying intergroup conflict as presented in this research is imperative.

Perception of a leader is paramount. The team must be able to view the leader as an individual worthy of following, one who transforms a goal into something worthwhile. A successful navigation of this process can be viewed through a connectionist model. This approach involves a moldable schema of interconnected attributes and behaviors that combine under the influence of a given set of contextual constraints (Monroe et al., 2017). The interaction of the leader's schema and a context will determine how successful, or not, the leader is. The context is defined by environmental factors surrounding the team. These can include culture, perceptions, values, and norms. As these contexts change, successful leaders can adapt their behaviors to match the demands of the environment (Pech, 2003).

As an appointed leader in a military environment, it is easy to force productivity from a group with direct orders and control. However, such an approach will only create the appearance of effectiveness and lower the quality of any product the team members produce (Bar-El, 2009). The problem faced with this form of leadership is a shared identity amongst group members that includes value in the assigned or needed task. This is the problem set the red team's leader needed to address, a non-existent social identity. By understanding the reciprocal nature of his or her influence over not just the red team but the unit as a whole, the leader can be a unifying force. The contextual issue of a fractured social identity presents the appointed leader with the opportunity to create the shared social identity needed to realize the full potential of the red team. To be successful, the red team's leader had to effectively establish and deliver a vision, exert positive influence, manage resources, mentor, and be accountable to both the team members and organizational leaders (Small, 2011). Chief amongst these attributes is the ability to establish and deliver a vision for the organization. If the leader does not embrace the value of the team, no one else will, including the team members themselves. This is the crossroads to which social identity theory had brought the team. It was now the responsibility of the team's leader to contend with and overcome this shortfall.

Conclusion

In this context, the findings of the red team are not received as constructive or as an alternative analysis of facts; rather, they are received as a direct attack on the identity of each group member in other groups. Whenever possible, a commander should strive to have an active and ongoing red team within the organization, not just when a specific operational need is identified. A perpetual red team offers the unit the ability to train a multitude of members on analytical techniques used by such teams; it also eliminates the need to form a red team early in the military decision-making process since they will already exist. Red teams can offer organizations running analyses of programs, processes, training, security, and other aspects of organizational management (TRADOC, 2018).

Leaders should be keenly aware of the emotional processes that are ongoing during a group's formation. If expressive or instrumental tasks are misidentified and handled inappropriately, the productivity of the entire unit is at risk. Conflict will happen at both the emotional and functional levels of the group as it analyzes scenarios. The biggest influence a military environment will have on the individual is the expectation of a "military bearing." This is an unemotional state where the individual executes orders given from an appointed leader. When conducting red team analysis, this state should be avoided as it unnaturally deflects both macro- and micro-expressive group development and will result in a frozen instrumental process, rendering the red team ineffective.

Many of the members had formed alliances and shared identities with the groups in which they originally belonged. Their contributions to the larger organization were internalized though these individual groups, each forming its own culture of norms and expectations where the members knew their roles and what contributions were expected of them. Being placed on an additional team with others who held conflicting organizational goals and being asked to expressly identify and challenge these norms, biases, and assumptions created a multitude of organizational issues for the team members. It also formed the groundwork for an ineffective team. Social identity theory has demonstrated the theoretical basis and offers fixes for this dilemma and the leader as the key in bridging shortfalls in perception and integration amongst the team members.

This research has discussed a theoretical framework of applied social psychology to an observed team formation. The recommendations given are based purely on this analysis. Future research can offer definitive articulation on their applicability and effectiveness. Measures of effectiveness can be drawn on how quickly and accurately team members recognize the resources at their disposal as well as the number of and frequency of intergroup and intragroup altercations. With no ethical concerns identified, the findings could also be tested in a laboratory setting designed to test social categorization of defined groups.

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Adapting the Art of Design

A PME Game Design Framework

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Abstract

Matrix games are becoming increasingly popular in professional military education (PME). Jesse Schell's (2020) *The Art of Game Design: A Book of Lenses* provides a proven framework for designing and evaluating matrix games in PME. I adapt this framework to examine three matrix games used at the U.S. Army War College to develop warfighting skills. These matrix games can be effective methods to assess student learning and develop student skills if properly designed and executed, whether in residence or online.

The use of matrix games in professional military education (PME) as a form of experiential learning can provide an effective way to help students "develop practical warfighting skills," which is one of the critical tasks listed in the recent PME guidance *Developing Today's Joint Officers for Tomorrow's Ways of War: The Joint Chiefs of Staff Vision and Guidance for Professional Military Education & Talent Management* (Joint Chiefs of Staff, 2020).

> PME schools must incorporate active and experiential learning to develop the practical and critical thinking skills our warfighters require. These methodologies include use of case studies grounded in history to help students develop judgment, analysis, and problem-solving skills, which can then be applied to contemporary challenges, including war, deterrence, and measures short of armed conflict. Curricula should leverage live, virtual, constructive, and gaming methodologies with wargames and exercises involving multiple sets and repetitions to develop deeper insight and ingenuity. We must resource and develop a library of case studies, colloquia, games, and exercises for use across the PME enterprise and incentivize collaboration and synergy between schools. (Joint Chiefs of Staff, 2020, p. 6)

The use of wargames goes back at least to the 19th century and the Prussian *Kriegsspiel* (Curry, 2020, p. 34). In wargames, the "sequence of events affects and is, in turn, affected by the decisions made by the players representing the opposing sides" (Perla, 1990, p. 263). Matrix games, originally developed by Chris Engel, are a type of wargame that is facilitated, uses role playing, and relies primarily on player arguments and an element of chance to "determine the success or failure of player actions" (Bae et al., 2019, p. xxv). Matrix games are flexible, scalable, and adaptable, characteristics that provide advantages within the PME environment.

Matrix games are used to develop warfighting skills at the U.S. Army War College (USAWC) in three very different approaches: small scale (seminars of 16 students), large scale (multiple seminars), and large scale (online). I provide a matrix game design framework that can create a more immersive learning experience and better develop those practical warfighting skills called for by the Joint Chiefs of Staff.

A Framework for Designing and Evaluating Matrix Games

In his award-winning book *The Art of Game Design: A Book of Lenses,* Jesse Schell (2020), a game designer and distinguished professor at Carnegie Mellon's Entertainment Technology Center, described four basic elements of a game: story, aesthetics, technology, and mechanics. The first three elements have been adapted for application in designing matrix games for PME: scenario (for story), experience (for aesthetics), and resources (for technology). The following sections further clarify the adaptation of Schell's elements for this framework.

Scenario

Scenarios provide the warfighting context for the game. For most matrix games, this means a narrative scenario describing a region, problem set, or set of players in the strategic, operational, or tactical environment. The scenario can be fictional or historical and can be rooted in the past, present, or future. Because students at USAWC are mostly senior military leaders, they are often skeptical of games if the scenario is not believable or does not resonate with their experiences or studies.

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Well-designed games often generate changes to the scenario through player interactions that add to game dynamics and opportunities for cooperation and conflict. This adds to the immersive experience of the player.

Experience

The most critical aspect of gaming in the PME context is the learning experience and how effective it is in developing warfighting skills. Skillful game design within PME combines immersive aesthetic aspects with equal considerations of effective learning methodologies.

For Schell, aesthetics refers to atmosphere, or how the game "looks, sounds, smells, tastes and feels" (Schell, 2020, p. 54). Aesthetics can draw a player into a game, create realism in the game, and enhance the player experience (Schell, 2020, pp. 10, 429). Creating a realistic, competitive learning experience along with a believable scenario can also assuage the skepticism military students can have of games and make the student take the game more seriously.

According to educational theorists Alice and David Kolb (2009), experiential learning is a "process whereby knowledge is created through the transformation of experience" (p. 298). Games provide an experience in which students hone their warfighting skills. Games involve "human players or actors making decisions in an artificial environment and then living with the consequences" (Bae et al., 2019, p. 5). Some scholars claim that games can "engage players in higher order cognitive learning outcomes such as problem solving, analysis, and decision-making" (Dabbagh et al., 2019, p. 66); these are the very skills sought after by the Joint Chiefs of Staff.

Resources

In Schell's (2020) game design construct, "the technology is essentially the medium in which the aesthetics take place" (p. 54). Within PME, it is important to consider all resource requirements to include technology. One resource consideration for matrix games is the physical and/or online environment. Matrix games may require a space that can be secured from interruption with nearby breakout rooms where teams can go to develop strategy and negotiate. The physical medium itself can be as simple as a game board on a table with dice, playing pieces, and scorecards.

Online environment considerations include the ability to facilitate asynchronous learning of information needed to play the game and synchronous interactions to form teams and strategize or negotiate with other players and teams. Screen and video sharing may be required to facilitate game play in a live, virtual environment. The medium for matrix games may even include highly interactive,

online environments and various automated tools. Faculty skills are required so they are expert in all areas of the game, the assessment procedures, and even troubleshooting in the online delivery platforms.

Mechanics

The immersive warfighting environment of PME matrix games pushes the mechanics of how the game is played closer to experiencing real-world rules of engagement. This builds on Schell's (2020) concept for designing a game where "you have to choose the mechanics that will both strengthen that story and let that story emerge" (p. 54).

Game mechanics refer to "the procedures and rules [of] your game. Mechanics describe the goal of your game, how the players can and cannot try to achieve it, and what happens when they try" (Schell, 2020, p. 53). Developing effective game mechanics requires a balance between accuracy and complexity. The basic elements of mechanics (Schell, 2020, pp. 165–210) include space (discrete or continuous), time (discrete or continuous), objects (items in the space), actions (what players can do), rules (how the previous items interact), skills required (physical, mental, or social), and chance (role of uncertainty).

How well the game is facilitated is a critical learning experience factor that takes matrix game design beyond game mechanics to a more immersive, credible warfighting context. A skilled facilitator prompts the players to sharpen their arguments, clearly articulate their objectives, and reflect on their actions. Whether to include a role-playing element, which can force students to view an issue from multiple frames of reference, is another consideration.

The following section looks at the use of matrix games under three conditions: small scale (seminar), large scale (multiple seminars), and large scale (online). The article reviews each game using the four elements of this PME Game Design Framework: (1) scenario, (2) experience, (3) resources, and (4) mechanics. Additional analysis is provided on student assessment and evaluation methods for each game.

Kaliningrad Game

Background

The Kaliningrad game was developed by the USAWC Strategic Simulations Division, Center for Strategic Leadership. I first incorporated it into the USAWC curriculum in 2016 as part of the graduate seminar Security in Europe: NATO and the EU with 16 distance education students (see Angert & Barsness, 2016). In that first iteration, I

assessed that students did not fully comprehend the limitations on both the European Union (EU) and the North Atlantic Treaty Organization (NATO) to take collective action. The course has since been revised to address this deficiency to include the state secretary of the Ministry of Defense of Latvia (and graduate of the USAWC) speaking to the graduate seminar and a resident panel of regional experts added on the Baltic States, the EU, and NATO. The game continues to be revised using scenario, experience, resources, and mechanics to improve the student learning experience.

Scenario

The Kaliningrad game depicts a fictional situation with the potential for conflict between Russia and countries neighboring the Kaliningrad Oblast. This conflict threatens to bring in the EU and NATO, including the United States, in defense of the Baltic States and Poland. The actions take place at the strategic level with each player employing the various instruments of national power to further their interests. The scenario is based on real events and set six months in the future; this not only provides realism to the game but also reduces scripting requirements for the faculty instructor. Students come into the class having previously studied the European region. As national security professionals, they routinely follow key developments in Europe. Therefore, the scenario focuses on updating the current environment to reflect possible changes instead of having to recreate an entire timeline for the region. Increased realism and credibility of the scenario are advantages of this design.

Experience

For a game to be successful within PME, one of the most important aspects is creating an immersive learning experience. Scenario immersion begins with the description where a competitive tone is set for the game:

> A crisis is brewing in Russia's Kaliningrad Oblast. You and your teammates will find yourselves engaged in a contest of "international wills" and "policymaking skills," as you seek to promote interests without provoking a major war among nuclear powers. (Hillison, 2018)

The game space contributes to player immersion and represents a strategic-level headquarters or embassy. The game board is placed in the center of the large space where students gather around the board standing closest to the location on the board of the country or organization they represent. The facilitator stands at the top of the board.

The tabletop board (map) depicts the immediate area around Kaliningrad, areas outside of the region in which actions might take place, and key features related to the scenario (e.g., areas of ethnic Russian concentrations). Strategically important details (e.g., ports and roads) lend additional credibility to the experience.

Visual artifacts such as team placards (e.g., NATO Headquarters) are placed in each team's workspace and students are given badges (e.g., EU High Representative) with flags to identify their role in the game. When a team takes an action, it places tokens with graphic symbols on the map nearest to where the action will take place. This gives the players a visual cue and a spatial context for the action.

Subject-matter experts are assigned to each team to provide insights on the unique point of view of that country or organization. Players are given formal invitation cards to request diplomatic negotiations and replicate the formality of diplomatic negotiations. These activities are designed to support experiential learning methods for students to further examine the roles and functions of the EU and NATO and how the U.S. works with them to further mutual interests.

Resources

A large space allows all teams to gather around the board. Nearby team workspaces replicate individual team embassies and organizational headquarters (e.g., NATO HQ). Human resources are a key component of the game. Faculty members assume one of three roles: facilitator, faculty instructor, or subject-matter expert. The facilitator overseas the mechanics of the game. The faculty instructor is responsible for assessing student learning and evaluating the game. The subject-matter expert provides contextual expertise.

Mechanics

Decision-making processes are added for the EU and NATO teams to reflect consensus procedures within those organizations and recurring meetings (e.g., the NATO–Russia Council meetings) to replicate structured dialogue within and between organizations and other countries.

Multiplayer teams are organized to represent key players in the region: Russia, the EU, NATO, the United States, the Baltic States, and Poland. Students are assigned to teams to distribute experience of unique individual backgrounds (e.g., assignment to NATO) or expertise (e.g., foreign area officer). For example, students who took the Russia regional studies course are assigned to the Russian team. This is key because accurate representation of Russian interests and strategic outlook is essential to creating a realistic atmosphere and understanding how their actions might impact U.S. interests.

Pre-Game Learning

Prior to playing the game, students have three lessons where they study national interests, challenges, and opportunities in the European region. They also learn about the roles, functions, and capabilities of both the EU and NATO through individual readings and seminar discussions. This allows them to better play their roles during the game.

As homework, students read the rules of the game and watch a demonstration video. The faculty instructor conducts an in-class practice round of the game to familiarize students with the mechanics of the game. This saves time for actual game play and gives students time to reflect upon their actions and resulting outcomes in the practice round.

Phases of the Game

Each round, or game turn, represents two weeks and is divided into three phases: planning, negotiations, and execution. During the planning phase, teams determine what actions to take in pursuit of their assigned goals. During the negotiations phase, teams conduct diplomatic negotiations with other players. After the negotiations phase, players take their positions around the game board for the execution phase (see Table 1, page 57).

Order of Play

The map board indicates the order of play, which remains the same throughout the game.

Player Actions

During its turn, each team presents its argument. The argument consists of three main parts:

- what action that team is taking
- why that team thinks the action will be successful (e.g., sufficient resources, past success, etc.)
- the desired outcome

Players are constrained in that they can only use one instrument of national power per turn (e.g., diplomatic, informational, military, or economic). This arrangement is designed to force them to prioritize instruments and to consider the impact of sequencing different instruments. For example, a military action might be more successful if it has been preceded by a diplomatic effort to elicit

allied support and an information campaign that supported the desired end state of the military action.

The facilitator adjudicates the outcomes of each action. Each action starts with a 58% probability of success, requiring a dice roll of seven or greater. The facilitator adjusts the dice roll based on the degree of difficulty of the action, the strength of the argument, the strength of the counterarguments, and the impact of environmental trackers (see Table 2, page 58).

The dice roll instills an element of chance and friction into the outcome that replicates reality and adds to the experience of competition. A skilled facilitator explains the result by adding to the story line, rather than just giving the result of the roll. By describing the outcome in terms that could plausibly account for the result (e.g., an unseasonable winter storm thwarting a military exercise), the facilitator adds to the immersive nature of the student experience.

Table 1.
Mechanics of the Execution Phase

	Execution phase
Game turns (rounds)	Two weeks
Order of play	Same order every round
Player actions	Argument should answer these questions: · What instrument of national power is being used? · Why would it be effective? · What is the desired outcome?
Counter arguments	Supporting or opposing arguments: · Would they be able to complete the action? · Would it achieve the desired outcome?
Constraints	One instrument of power per turn
Adjudication	Facilitator determines outcome by: · Assessment of the arguments · Consideration of any modifiers · Student die roll
Victory	Achieve objectives: · Individual · Team

Table by author.

The dice roll provides a feedback loop opportunity. For example, highly successful rolls not only achieve the desired outcome but also change the environment (e.g., world opinion) and thus increase the probability of success in subsequent rounds (see Table 3, page 59).

Table 2.
Modifiers to the Probability of Success

	Increased chances of success	**Lowered chances of success**
Degree of difficulty of action	Low risk	High risk
Strength of argument	Strong	Weak
Strength of counterarguments	Other teams support action	Other teams oppose action
Environmental trackers	Permissive	Restrictive

Table by author.

Victory Conditions Assessment

After each round, the subject-matter expert assigned to each group provides an assessment to his or her team based on the following questions:

- Did the students demonstrate an understanding of how to effectively use the instruments of power?
- Did they understand the linkage between their actions and changes in the strategic environment?
- Did they demonstrate an understanding of the roles and capabilities of the EU and NATO?

At the end of the game, the faculty instructor, facilitator, and students collectively assess team and student performance. The faculty instructor guides this reflection by asking probing questions about team actions, instruments of power used, and outcomes using player team journals (see Table 4, page 60). Students explain their goals, their strategies to achieve those goals, and then determine whether they have achieved them and why. Students also examine how they dealt with any threats or opportunities that surface during the game. Finally, students contribute what they learned during the exercise. Through self-assessment, students take ownership of their ac-

tions and become accountable for the effectiveness of their judgment, analysis, and problem-solving skills.

Table 3.
Linkage between Outcome and Environment

	Moderately successful	**Highly successful**
High roll (e.g., 12)		Positive change to an environment tracker
Sufficient roll (e.g., 7)	Change to the situation	
Low roll (e.g., 2)	Negative change to an environment tracker	

Table by author.

Evaluation

The faculty instructor and facilitator collectively evaluate the game and review student surveys to modify the game as necessary. Faculty evaluations and narrative comments on the surveys reflect that the game contributes to student cognitive ability to analyze the strategic environment, develop strategies, and make appropriate decisions.

Scaling Up–The South China Sea Capstone Exercise

Background

Based on the success of Kaliningrad, the Distance Education Department added matrix games to the resident courses. A matrix game was added to the First Resident Course at the end of the first year as a formative assessment; a modified version was added to the Second Resident Course, which takes place at the end of the final year as a summative assessment. These games contribute to the assessment of outcomes with regards to strategy, instruments of power, and evaluation of the environment. The game is also used to assess the student's ability to communicate clearly, persuasively, and candidly.

Scenario

The South China Sea (SCS) scenario depicts the competition in the SCS area where China and other nations have competing sovereignty claims. The United States also

Table 4.
Player Journal

Team	Action	Instrument of power	Intended outcome	Actual outcome
Russia				
European Union				
NATO				
United States				
Baltic States and Poland				
Russia (second action)				

Table by author.

has security and economic interests in the SCS. The SCS provides a strategic-level environment for the game based on historical information, and like Kaliningrad, it is set six months in the future.

Experience

Each year, the USAWC updates the scenario based on current events. To enhance the realism of the experience, a simulated newscast video provides details on the situation prior to the game.

To scale up the game from one seminar to 23, some aesthetic qualities are sacrificed to provide sufficient space and facilitators. For example, game play is

conducted in the seminar rooms that cannot accommodate separate team workspaces. Teams end up having to conduct negotiations in the corners of the room, in the hallway, or in breakout areas near the seminar room. While this works, it detracts from the immersive experience of the game.

Scenario injects are used at the end of each round to change the environment in which the teams compete. In his book *Learning by Doing*, e-learning analyst and simulation designer Clark Aldrich (2005) notes that students rarely get to experience conflict in role-playing scenarios (p. 104). Injects (e.g., a pilot shot down by another country) enable the facilitators to increase tension in the scenario (and thus the need for military action), or to deescalate tension (when things are spiraling out of control).

Resources

Expanding the game from one seminar to the entire class requires significant additional resources: 23 seminar rooms, 23 game sets, 23 faculty instructors, and 23 facilitators. Each seminar requires one faculty instructor to assess student learning and one facilitator to run the game. Expert facilitators are brought in from other schools, such as the National Defense University, to assist in executing the game.

The game designers create two different maps to accommodate the different objectives of the two courses. They depict the overlapping economic exclusion zones (territorial claims) of the various players, key geographic features (e.g., disputed islands), and resource-rich areas containing oil and gas fields.

The course director is responsible for training the faculty instructors and facilitators and provides students with a reference booklet for use during the game. The booklet includes a short narrative overview and a list of student interests and policy goals they use to create their strategies, prioritize their objectives, and help structure their arguments and responses to other players. It also provides examples of how the different instruments of power might be used to achieve their desired outcomes.

Mechanics

Most of the mechanics remain the same as those in the Kaliningrad game with the following exceptions: for the SCS scenario, the teams represent China, Indonesia, Philippines, Vietnam, Malaysia, and the United States. Also, students rotate through the "spokesperson" role so that every student's communication skills can be assessed during the argumentation phase.

Assessment

The course director provides a rubric and tracking sheets for recording assessments by faculty instructors. Faculty instructors use these to conduct both formative and summative assessments.

Evaluation

The SCS matrix game has proven effective at achieving the desired course learning outcomes. As with Kaliningrad, each seminar's faculty instructor, facilitator, and students collectively evaluate the game in terms of meeting the learning objectives and creating a realistic experience. Feedback is collected during the end of course hot wash and used for game revisions. For example, seminars may fail to get through the full spectrum of competition during the game, and modification of injects may enable facilitators to modulate tensions in the game scenario.

Student surveys have yielded similar positive results as with Kaliningrad. One area identified for improvement is the need for workshops to further develop instructors' and facilitators' skills in creating an immersive experiential learning experience.

The after action reviews and course hot wash provided rich qualitative insights into student learning. During the games, students who made alliances or coordinated with other teams tended to achieve better results if their goals were aligned. This reinforced insights on collective action and the value of cooperation. Students learned that the sequence of player actions matter. For example, using diplomatic, economic, and informational influence to set up military actions often leads to better outcomes. This reinforces the benefits of the whole-of-government, or in EU terms, the comprehensive approach to security issues. Students also learned how to adapt their strategies if their approaches were not working. For example, failed military actions were often followed up with less aggressive actions using other instruments of national power.

Reacting to COVID-19 Matrix Game Goes Online

About two months prior to execution in 2020, the USAWC commandant made the decision to conduct the resident courses online due to the COVID-19 pandemic. Only the Second Resident Course included a matrix game due to limited adjustment time for online delivery. The scenario and mechanics of the game required only minor updates and the assessment was largely the same, but the other elements had to be tailored for online delivery. Re-creating an immersive, online learning experience in three months' time was a challenge. The following is not

comprehensive but is illustrative of some of the key design considerations for running this matrix game online.

Scenario

The online game updates the SCS scenario to add an Australian team to reflect that country's increasingly important role in the region. The timeline is set further in the future, 2023, to portray heightened tensions and stimulate more competition between the teams.

Experience

The choice of medium impacts the student experience. The course director choses a video-teleconferencing program that both students and faculty are familiar with. Students create team-specific profile pictures which enhance team identity and promote easy recognition.

In some ways, the online platform allows for a more immersive experience than the in-residence game. Conducting the game online reduces the physical space requirement. Each team has a private area to conduct an analysis of the environment, to discuss its strategy, and to negotiate with other teams. Separate conference rooms are added to provide neutral meeting areas for negotiations.

Resources

While the physical requirements are reduced, the human resources remain the same: faculty instructors and facilitators for each seminar. Students and faculty require a computer, internet access, a microphone, and ideally, a webcam. The game board and tokens are created online. Conducting the game online also requires training so that all participants master the skills required to participate in the online platform.

Mechanics

The rules are the same as in-resident, with some modifications. During the pre-learning phase, students submit their individual strategies to their faculty instructor prior to meeting as a team. This allows the instructor to assess how well each student understands the strategy formulation framework and to provide individual

feedback to each student. Once their strategies are submitted, students meet online in their teams to plan their collective team strategy. Faculty instructors meet with their facilitators in advance to determine how they will communicate with each other during and between rounds. Students also require additional time to develop their counterarguments online.

Evaluation

It is harder for faculty and students to process oral arguments online. Having students submit a written summary of their moves in the chat box prior to oral arguments seems to improve the processing and recording of actions. While it is still too early to evaluate the success of this online matrix game, one consideration may be the use of an online virtual campus.

Matrix Games: Flexible and Scalable

These three examples demonstrate the flexibility and scalability of matrix games. They can be effective for a single seminar or for multiple seminars. They can be conducted in residence or online. They can be played in a few hours, an entire day, or over several days as an experiential learning activity to meet learning outcomes.

In his 2019 report *On Wargaming: How Wargames Have Shaped History and How They May Shape the Future,* Matthew Caffrey, a former professor of wargaming and campaign planning at the Air Command and Staff College, argues that wargames can save lives and lead to victory in actual warfare. They do this by developing the skills of leaders and organizations, providing a venue to experiment with strategy and tactics, and increasing the player's familiarity with "the environments in which they will operate" (Caffrey, 2019, p. 339).

Of course, wargames are not a panacea. The article "Wargaming has a Place" offers an array of experiential learning activities used at the Air War College and cautions against overemphasizing the value of games (Lee & Lewis, 2019). The authors argue that games often suffer from oversimplification and complex adjudication procedures and that other activities, such as staff rides and simulations, can better achieve desired learning objectives. Even proponents of wargames, such as Peter Perla and Ed McGrady, caution against poorly designed games having negative impacts based on incorrect information, over or understated risks, and the failure to account for chance and friction in game narratives (Perla & McGrady, 2011, p. 123). Finally, not all games are effective educational tools. If a game is ineffective, "usually the culprit is that the focus has drifted too far from the learning objective" (Weinstein, 2016, p. 47).

Conclusion: Game On!

The evaluation of matrix games at the USAWC demonstrates that games can be effective methods of assessing student learning and developing student warfighting skills if properly designed and executed. Effective games require a commitment to significant planning, rehearsal, and faculty development. Further use of the four elements of this PME Game Design Framework, (1) scenario, (2) experience, (3) resources, and (4) mechanics, should yield even richer collaborations among PME institutions on use of games to develop warfighters.

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Building Mutual Trust in the Classroom

Lessons for the Command and General Staff College

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Abstract

This article recommends that educational methods used in professional military education (PME) should utilize different teaching methods from the field of adult education and emphasize the concept of mutual trust in the classroom between teacher and student. Although this article covers the topic of military education broadly, the Command and General Staff Course is used as a reference in order to analyze the benefits of the andragogical approach for effective teaching methods; the large, diverse audience that includes sister services, interagency, and international students relies heavily upon the previous knowledge of the students. Methods from the field of adult education inspire multiple recommendations for improving the outcomes of PME, one of which is a discussion of the value of formative assessments during learning. The text argues that mid-career military officers must be educated differently than initial entry officers or enlisted soldiers due to extensive prior knowledge on the topics discussed in the classroom. The flipped classroom model, case study, and team teaching are all recommended to support critical thinking and self-directed learning.

The nature of warfare continues to change at a rapid rate. After two decades of largely counterinsurgency-focused operations, the U.S. military must refocus its training and education to counter peer adversaries in the volatile environment of the 21st century. Rarely does one simple answer exist for any given problem in today's complex, strategic environment. In 2013, Gen. Martin Dempsey, then chairman of the Joint Chiefs of Staff, called for leaders with "requisite values, strategic vision, and critical thinking skills to keep pace with the changing strategic environment" (Meiser, 2017, p.

81). To maintain pace with America's adversaries, military educators must be willing to challenge teaching techniques and to question the current structure and format of professional military education (PME). In short, military classrooms require a culture of mutual trust that holds students accountable for their own learning.

When Dempsey previously assumed command of Training and Doctrine Command (TRADOC), trust was one of only three focus areas; his successor, Gen. Ray Odierno, appropriately called trust the "bedrock of our honored profession" (Allen & Braun, 2013, p. 73). In 2016, the chief of staff of the Army addressed the significance of trust. Gen. Mark Milley was careful to point out that trust goes vertically through the chain of command as well as laterally amongst peers (Lopez, 2016). Trust is vital in a graduate-level education, as is demonstrated in the emergence of new learning theories and methods in the field of adult education. Those theories and methods encourage diversity of opinion and self-directed learning, and they rely critically on a culture of trust in the classroom (Knowles, 1984). The PME system has been slow to adopt andragogical methods, such as the flipped classroom and team teaching. Large lectures were the norm, and assessment of learning still largely focuses on rote memorization rather than actual application of complex subject matter.

This article utilizes the Command and General Staff College (CGSC) at Fort Leavenworth, Kansas, as an example of an institution that educates mid-career officers who have already demonstrated exceptional performance in more than a decade of service in the military. Mid-career professional education necessitates significantly different teaching methods than those utilized during the initial education of young soldiers, either enlisted or commissioned officers. Because of the extensive prior knowledge and experience of these men and women, mid-career students are expected to be much more active participants in classroom learning than novices during initial officer training.

Each year, the school hosts military officers from the other branches of service in the U.S. military as well as individuals from interagency organizations and many international military officers from around the globe. With more than 1,000 students per year, this institution provides an excellent opportunity to better understand the complexities of operating in a joint, interagency, intergovernmental, and multinational environment. To stimulate critical discourse, the large diversity of backgrounds from international and interagency students in the CGSC classroom encourages new ideas and perspectives rather than simply relying on conventional U.S. military doctrine and tactics.

Rigidity in military education has not been limited to just the United States. British psychologist Dr. Norman Dixon (2016), who examined the education of British military officers in the early 20th century, concluded that two main reasons exist for stultifying

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military educational programs. The first stems from the belief that unpleasant, boring, and tedious tasks develop character; and the second is the argument that intellectual exercise, which cultivates independent thinking as opposed to rote learning, harms the loyalty and obedience that military schools strive to enforce (Dixon, 2016). While character and obedience are clearly required traits, they cannot be overly enforced to the detriment of independent and creative thought. Dixon (2016) concluded that these rigid teaching methods at British military schools ultimately led to the promotion of some of the most incompetent military leaders in British history.

Unfortunately, before arriving at PME, many mid-career officers experience a lack of trust from commanders; these leaders often perceive senior leaders as unwilling to provide honest, candid feedback and unwilling to permit any honest mistakes or shortcomings (Allen & Braun, 2013). Officers routinely feel micromanaged and unable to manage their own units and calendars. Sadly, this climate extends into PME. Military classrooms often replicate the rigid climate of a board room more than they do the relaxed environment of a typical graduate-level classroom. Rather than challenge students to master their professions and think more conceptually, military educators continue to repeat the flawed rigid, lecture-based methods from previous generations that often encourage simple memorization and regurgitation of doctrine and tactics. The complex battlefield of today demands that PME adopt the teaching methods utilized in civilian graduate schools.

The Application of Adult Learning Theories

Adult learning theories emphasize that adults must take responsibility for their own decisions and learning (Knowles, 1984). This mindset must be incorporated into the learning methods of PME. With such a diverse audience in the classroom, instructors cannot properly challenge each student to reach his or her own potential by requiring the same expectations from each student for each lesson. It is the instructor's role to support each student's learning journey, not force each student to take the same journey through the course material. Students who already have extensive knowledge on a topic must be held accountable to provide vocal leadership in the classroom to assist others. Students should constantly be challenged to conduct additional outside research and examine preconceived biases and gaps in understanding.

Another definition of trust is the "willingness to be vulnerable" (Puranam & Vanneste, 2009, p. 13). This definition poses a threat to the zero-defect mentality typically expected of military officers and the mindset that an instructor should be perfect. However, the greatest way for a military educator to establish a climate of mutual trust that supports higher learning is to be willing to share his or her own vulnerabilities and mistakes. An instructor cannot have the answer for everything. A willingness to humbly admit vulnerability helps the instructor relate to the stu-

dents. Storytelling provides an extremely effective way of connecting with students and demonstrating the practical application of the material. An instructor who is willing to share shortfalls and mistakes encourages other students to do the same for the sake of collective learning and improving practices for the future.

This willingness to be vulnerable requires a deep level of trust between the student and the teacher. This also requires instructors who are willing to take the time to truly master their profession and examine their own biases and assumptions. Much like the idea that students must be held accountable to direct their own learning, instructors must constantly challenge themselves to improve course material and find additional resources to challenge students. The classroom must be a safe learning environment where mistakes are viewed as learning experiences rather than as failures. Students who show initiative to experiment with new ideas and try new models should be rewarded, and instructors must also be willing to accept that they do not have all the answers.

While leaders who are willing to be transparent and admit personal imperfections are rare in the military, this transparency is critical to building trust between leaders and subordinates; the same is true in the classroom for trust between students and educators. Classroom instruction must provide a climate of trust for learning that facilitates freedom of expression and the option to offer contrary views or experiences to help learners synthesize the subject material. Honest debate and critical discourse stimulate professional development.

Instructors must demonstrate a profound respect for each student's prior knowledge and experiences (Pratt & Smulders, 2016). The instructor should never be viewed as the only source of knowledge and the only voice heard in the classroom. Regardless of the knowledge and experience of the instructor, students cannot learn the required material simply through transmission from the instructor; students learn by connecting past knowledge to new material through reflective application (Ross-Gordon, Rose, & Kasworm, 2017). Effective instructors do not want students to simply repeat what an instructor said in class. Students in PME must be expected to demonstrate higher-level thinking and analytical skills. Memorizing doctrinal terms and definitions may lead to high test scores; unfortunately, these test scores do not indicate whether students have the ability to synthesize ambiguous information and apply it in the real world.

Adult educators Robert Kegan and Lisa Laskow Lahey (2016) use the term "constructive destabilization" to describe the process for leaders to grow and develop beyond their current abilities. Kegan and Lahey (2016) argue that a subordinate who can already demonstrate all the responsibility required for a particular task is no longer in the right job. When applied to the classroom, students who already have knowledge of a particular topic must be challenged to examine their biases and build deeper understanding through rigorous studies, and possibly by rotating through unfamiliar leadership positions. Instructors should not accept surface-level analysis from students and verbatim reproduction from the readings

(Pratt & Smulders, 2016). However, to facilitate this higher learning, students must be given adequate time to process, reflect, and apply the information to truly be evaluated or assessed on their understanding of the subject matter.

Education requires critical and creative thinking to properly analyze all the context and perspectives that apply to a given situation. Military experiences from one generation or one operation cannot blindly be applied to another theater, an unfortunate lesson learned during the past 19 years in Iraq and Afghanistan. For any particular subject matter, a humble instructor willingly accepts that students may have relevant or applicable experiences to share with their peers. Rather than feel challenged by student knowledge, the instructor should exploit it for the good of the group. This will not lead to a loss of instructor credibility; rather, this will lead to increased admiration for the instructor's authenticity.

Mutual trust between the instructor and the student reassures the student that his or her professional development is the end goal and not a means to an end. If an educator is viewed as a loyal partner who genuinely cares about student learning, students will trust the instructor and feel safe to experiment with new ways of thinking (Pratt & Smulders, 2016). Authentic instructors are approachable and willing to take the time to challenge a student in ways that encourage professional development, even if initially the student fails the first attempt.

Inversely, the student must still view the instructor as credible, even if the instructor willingly admits he or she does not have all the answers. His or her credibility begins with the requisite knowledge and experience to educate the next generation of America's leaders. Adult educator Stephen Brookfield (2015) notes that instructors must be viewed as having relevant knowledge, skills, or experiences that have immediate application for the student. Brookfield (2015) warns that educators must also understand the line between an authority and an ally. The instructor is obviously the authority figure but must be viewed as the student's ally to support learning and encourage questions and discussion. If the environment is too hierarchical and authoritarian, students will not feel free to experiment with new ideas and theories in the classroom to increase their level of understanding of complex topics.

Credibility and authenticity go hand in hand. Authenticity sets the foundation for trust. Brookfield (2015) describes authenticity as the perception that teachers are open and honest with students. The first step is to establish clear and definable expectations for classroom conduct, participation, and evaluations. These expectations must remain constant, and they must apply equally to all students. Authenticity is also demonstrated through effective feedback, both during classroom activities and homework assignments. Instructors must find ways to conduct regular formative assessments, either formally or informally, during each block of instruction. These assessments can be much more developmental and less threatening than summative assessments, which come at the end of the block of instruction.

Not all learners are the same, but the military educator must understand the personalities and motivations within the classroom to enable everyone's success. Rather than treating adult students as blank canvases, adult educators must be cognizant of the experiences that students bring to the classroom and leverage those experiences for a greater collective understanding of the material. Beyond just delivering a lecture, an instructor's role is to understand the classroom dynamics and help activate students' prior knowledge to bridge the gap between what they already know and the new content (Pratt & Smulders, 2016). In the process, the educator will be challenged along the way by thought-provoking questions and new experiences learned from his or her students.

For instructors who do not feel completely confident in their ability to effectively engage students on a particular topic, the transmission model of pedagogy is often the default (Pratt & Smulders, 2016). This model allows the instructor to facilitate a deeper discussion of the subject matter by delivering a substantial amount of material, typically through a lecture with slides, rather than hold students accountable for the readings. For topics where the material is new, lecturing using the transmission model obviously has its place in the military classroom. However, this model should not be the default for every block of instruction, especially for topics in which students have prior knowledge and experience. An overuse of the transmission method, often taking place through long lectures, can lead to intellectual stagnation as students become disengaged and disinterested in the material. Instructors must be prepared to use a variety of methods and techniques to keep students engaged in learning. Learners must be trusted to be active participants in their education.

Credibility as an actual educator is much different from professional credibility as an active duty or retired military officer or foreign service officer. Regardless of prior military knowledge and experience, poor teaching techniques will degrade the credibility of the instructor and lessen trust in the classroom. Some teachers may struggle to adapt to educational models that are less hierarchical and allow the students to actively participate in learning. However, if instructors remember that the end goal is to provide students with the tools they need to succeed postgraduation, then the instructor must be aware when students struggle to remain engaged in the course material.

The situational nature of the classroom requires instructors to be comfortable utilizing a variety of methods to enable student learning. The day of the week, time of day, and personal and family requirements also affect how a student engages with an instructor in the classroom. Each student will have a different level of interest in and motivation for each topic. Some students may experience external motivation, such as the need to pass a test; others may have a professional motivation because the topic is critical to their career field. The following three methods are recommended techniques for instructors to enable student learning through entrusting students to become active participants in their learning.

Proposed Classroom Methods

Flipped-Classroom Model

A simple method designed to enable trust in the classroom is the flipped-classroom model. In this model, students are assigned pertinent readings prior to class. Assigned readings mean that during class, the instructor does not have to transmit hours of information about the topic. The students are expected to come to class with a basic understanding of the content. Then, the instructor can facilitate a deeper understanding of the subject matter through a variety of means. This method holds students accountable by forcing them to be active participants, which requires reading and research prior to class. It also builds trust by encouraging them to share their thoughts and perspectives, even if students disagree on particular points. Effective instructors can use disagreement as a teachable moment to address the complexity of warfare and how complex problems often do not have one simple solution.

When used appropriately, the flipped-classroom model encourages healthy debate and creative thinking in the classroom, and the instructor is free to serve as more of a moderator or facilitator, rather than as a transmitter of information. Inversely, if used incorrectly, students do hours of reading prior to class but then cover the same basic material in class; in this case, there is no incentive for the student to prepare prior to class because the class simply restates the same basic material from the readings. Using the flipped-classroom approach, students are held accountable for preparing for each class.

Additionally, students in the flipped-classroom model will find the classes and exercises much more engaging because the classes are more interactive and encourage critical discourse and the consideration of alternate perspectives. Students will also be more open to sharing ideas and opinions freely with peers rather than challenging the instructor as the sole voice in the classroom.

Case Study

An effective case study provides the perfect venue to demonstrate the analytical skills required for students in PME. Case studies are more than simple stories or situations described by an instructor; anecdotes told without broader context represent a single data point and do not provide proper perspective (Dahl, 2017). Case studies should be open-ended and present a dilemma to the student (Wlodkowski & Ginsberg, 2017). This approach encourages different reactions from each student and challenges both students and instructors to be more open and less de-

fensive. Instructors must be exceptionally prepared with all the facts and context, and the instructor must be willing to explore new concepts and conclusions.

Case studies challenge students to analyze how they would respond in a particular situation. However, Dahl (2017) argues that case studies should do more than that. The broader goal should be to examine how a particular case study can inform the student's understanding for other cases and other situations. Using this perspective, instructors should encourage students to do additional research and look for other examples of similar situations and identify broader patterns and trends rather than revisit one battle or historical event. The instructor's willingness to allow diverse opinions and perspectives reinforces the need to understand situational context rather than simply copy previous techniques and decisions. This willingness enables the student to apply the lessons of the case study in the future rather than simply critique the decisions of the past.

Team Teaching

After 50 years of teaching experience, educator Stephen Brookfield (2015) still admits that it can be difficult to instruct with another teacher in the classroom. However, team teaching can be an extremely effective method to support learning. Team teaching does not mean a second teacher sits in the classroom and adds a few points in an unstructured method. Rather, team teaching, as instructed by Brookfield (2015), involves deliberate development of a lesson plan between two or more instructors to leverage the knowledge and experience of each instructor to increase student learning. When done correctly, this method provides the students divergent opinions and experiences to reinforce that all learning is situational. As a secondary benefit, team teaching also supports the idea that no one individual has all the answers, which reinforces the humility required in the military classroom.

Partnering an instructor with a student who has a particular expertise provides another opportunity for team teaching. The instructor and the student jointly develop a lesson plan that leverages the knowledge and experiences of the student while incorporating the teaching experience of the instructor to assist with the method of instruction. The instructor who effectively provides students the opportunity to teach his or her peers exhibits a profound respect for student credibility. Student teaching in this way can be extremely beneficial because students will often be more likely to understand the language and techniques of a peer who has similar professional experiences; when a peer demonstrates the relevance of the material, the learner is much more likely to take the time to understand its application in his or her own career. Students who do not find relevance in the subject matter will resist the learning (Brookfield, 2015).

Testing and Evaluation

Unfortunately, the true testing and evaluation phase for PME is often on the battlefield, which demonstrates the need for review of instructional methods utilized during PME. The last century is full of examples from leaders who rigidly followed doctrine and failed to innovate or leverage new technology or tactics; for example, British leadership before World War II that failed to recognize the potential of the tank drew the conclusion that "innovation and progress are inherently dangerous and therefore to be eschewed" (Dixon, 2016, p. 111). Often, this disdain for creativity and new tactics and technology stems from the repetitious training rituals conducted by military officers throughout decades of service. Eventually, over time, these ritualistic drills and tactics can lead to blind obedience or to outdated techniques and procedures on the battlefield. Outdated tactics led to immense loss of life during the two world wars and Vietnam.

In the 1950s, a study of the War College challenged the "restrictive militarism" of the school and its "tendency to conform to a prevailing pattern of thought" (Dixon, 2016, p. 330). Can the same be said today of PME? Will this generation of military instructors recognize the extreme changes in doctrine and tactics utilized by America's competitors since Desert Storm? Failure to leverage new capabilities, such as cyber and space, could potentially lead to the same devastating results of the previous century including the failure to recognize the value of tanks and airplanes or the failure to accept counterinsurgency doctrine in Iraq and Afghanistan.

Graduate-level instruction begins with teachers who challenge students to think beyond the prescriptive steps of doctrine. The asymmetrical threats of the 21st century require military leaders who are valued for their ability to think and innovate, not for following rigid, prescriptive doctrine. This generation of America's leaders express a great desire for meaningfulness and satisfaction in their work; this is true from the military base to the board room. Research shows the majority of millennials who leave a particular business experience burn out not because of overload but because of a lack of personal and professional development from superiors (Kegan & Lahey, 2016). The same is true in the classroom. Students who are not challenged will only put in minimum effort and will not see the value in the material.

Readings and homework assignments must be deliberately selected to prevent students from becoming disengaged with the topic. Students must be active participants in the learning process. Information presented in class that lacks meaning to the student will be discarded once the test or evaluation is completed (Sousa, 2017). An instructor's response to why a particular topic is important should never be that the material is simply on the test. Instead, the instructor must demonstrate that the learning objective has relevance to the student. Instructors must be more mindful and help students establish meaning for the material; this connects the subject area to prior experiences and helps demonstrate the significance of the

material for future use (Sousa, 2017). Again, a personal story or an example of how this material was either effectively or ineffectively utilized by the instructor helps the students understand its relevance.

Instructors must also have respect for time. Time blocks must not be so rigidly prescriptive that they inhibit learning by leaving no time to discuss the material or ask questions for clarification. If the material is too much for a particular block of instruction, then the instructor must take the time to find the most critical information and cover that information. The instructor must also be aware of the classroom dynamics. At times, students will be mentally exhausted from the strain of learning and applying new material; an instructor who is cognizant of this will either take a break or reengage the topic when students are more engaged. To keep content relevant, instruction should be problem centric, not content oriented (Knowles, 1984). Effective evaluations mirror this approach as well; multiple choice and fill-in-the-blank tests are not adequate for testing a student's ability to properly synthesize the material for future professional application.

A common flaw in the military classroom is an oversimplification of very complex ideas, either for the sake of time or for ease of grading; examining the Lykke model as a construct (ends + ways + means = strategy) provides a perfect example (Meiser, 2017). While this model can be a useful construct, Meiser (2017) argues that the model has become a crutch "undermining creative and effective strategic thinking" (p. 82). Simple whiteboard exercises that analyze complex ideas like military strategy or centers of gravity in a short amount of time do not stimulate critical discourse or synthesis of complex learning. In fact, they falsely encourage students to believe that strategic planning should be minimized to a prescriptive checklist.

The same can be said for many other models utilized in PME. Rather than conduct detailed, holistic analysis, students are often quickly encouraged to simply fill out a chart for the instruments of national power, mission or operational variables, or the effects of terrain on a given operation to demonstrate basic understanding for a block of instruction. Again, models and checklists can be useful tools, but overreliance on models without discussing linkages between actions and results leads to imperfect deductions (Meiser, 2017). According to Meiser (2017), a simple checklist will be much easier to grade than a white-board exercise that asks students to align resources with goals, but the latter demonstrates a much more thorough understanding of the solution to a given problem and stimulates further classroom conversation.

Ultimately, instructors must not lose sight of the goal: that students are able to transfer classroom learning to practical application in their future assignments. Doctrine is meant to be a guide, not a rulebook. Additionally, just because a student can memorize doctrinal terms and tactics does not necessarily prepare the student to apply that doctrine to solve a complex military problem. This requires instructors to adequately support students while allowing them to think, reflect, and question previous assumptions and beliefs (Wlodkowski & Ginsberg, 2017).

Leaders like T. E. Lawrence, British Gen. William Slim, and Edward Lansdale provide timely lessons to America's military leaders today for demonstrating the value of innovation and unconventional tactics to achieve great success; sadly, many of the most innovative leaders such as B. H. Liddell Hart were not appreciated or respected by their peers because they did not simply remain quiet and follow orders from disillusioned leaders (Dixon, 2016). The CGSC classroom curriculum should address successes and failures throughout America's history and be willing to accept that history is unfortunately full of mistakes that led to unnecessary casualties. Some examples that demand analysis include overconfident leaders who failed to interpret intelligence at places like Pearl Harbor, interwar mistakes between World War II and Korea, and the refusal to adopt population-centric tactics during Vietnam. All stem from leaders who were unable to understand the battlefield environment and think creatively. Lawrence considered depth of knowledge as the most important trait for a military leader; he deplored the "closed and vacuous minds" of his peers (Dixon, 2016, p. 374). Challenging rigid doctrine and closed-minded thinking begins in the classroom.

Field grade officers are expected to lead large formations after graduation; they should be given the same respect in the classroom. Innovation and progress are absolutely essential for the future success of America's military. Instruction should be challenging yet developmental at the same time. Instructors must use their position in a helpful way to inspire, guide, and encourage students by empowering student leaders within the classroom through a climate of trust (Brookfield, 2015). As students gain increased knowledge and experience, each student should be given more of a primary role in the classroom; after all, what is learned is more important than what was taught (Pratt & Smulders, 2016). The first true test of a student's application of knowledge and abilities should be in the controlled environment of a classroom, not in a war zone thousands of miles away.

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Paycheck to Paycheck

A Path to Financial Readiness

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Abstract

Despite the multitude of financial resources available to service members, statistics show that soldiers are comparatively worse off than their civilian peers in terms of financial stability. Household financial planning in the Army receives organizational emphasis that is not necessarily commensurate with its potential impact on soldiers. This article explores the current landscape of personal finance among soldiers in the Army and examines opportunities for improvement in Army education that can bridge the gap between current metrics and desired readiness levels. Statistical observations of soldiers' financial position are examined in terms of assets and liabilities. Relevant resources available to soldiers are highlighted, and quantitative metrics are used to justify additions to doctrine, leadership, and training. The article concludes with a survey of the benefits of improved financial literacy in the Army and recommendations for further exploration.

On Monday morning, Pfc. Smith arrives to work in a red sports car fresh off the lot. Even though the sticker price was more than he will earn in a year, the dealer offered to set him up with a financing package at the attractive rate of 28.5% APR. On a separate occasion, Warrant Officer 1 Doe, the unit mobility officer, has his security clearance revoked a month before deployment due to his large unpaid debts. These vignettes are not isolated cases in the Army. Smith and Doe are emblematic of a larger issue in the military population that is not confined to the more junior cohort: lack of personal finance knowledge. The National Foundation for Credit Counseling (2019b), which publishes an annual summary of the financial health of Americans, reported that 34% of active duty service members are unable to pay their bills on time and that 11% have debts in collection. These numbers stand in stark contrast to the general public's reported amounts of 25% and 5% for the same two categories, respectively (National Foundation for Credit Counseling, 2019a). Army leaders in every generation have observed the above statistics as they occur. Soldiers' financial health presents outsized risk to the readiness of a formation that is not depicted on

the average unit's command and staff slides. Despite the abundance of financial opportunities afforded solely to service members, many soldiers repeatedly demonstrate that they are not educationally equipped to make prudent financial decisions. Many of the liabilities borne by soldiers pose considerable risks to their financial well-being. The Army can reap significant tangible and intangible benefits in this domain by expanding the formal and informal educational resources available to soldiers. This process will entail developing instructional doctrine, revamping financial literacy training, and further engaging leaders in the financial health of their formations.

Debt and Savings

Examination of the asset column of the average soldier's finances offers insights into the overall picture of personal finance in the Army. Nonretirement savings activity within military families is one troubling feature of the financial health landscape. In 2019, service members surveyed by the Consumer Federation of America most frequently reported saving between $251 and $2,500 in liquid assets over the year (Caban, 2019). As might be expected, density functions of service member savings show that yearly savings amounts are positively correlated with rank. This phenomenon, at face value, seems to reflect the increase in disposable income as rank increases. However, proportional savings and rank remain positively correlated when normalized for annual income (Caban, 2019). These observations suggest that soldiers gain financial know-how gradually and with experience rather than early in their careers. This delay can have massive implications in terms of the time value of money.

Similarly troubling is that 24% of survey respondents reported that debt repayment was the primary objective of their savings, a higher percentage than any other savings category. Since 2014, debt repayment has increased relative to every other savings category (Caban, 2019). While the reduction of high-interest debt is a justifiable priority, this trend suggests that higher debt load year-over-year might also be a factor. The net effect of these phenomena is likely a reduction in the amount of cash on hand to manage current expenses and liabilities. The relatively low amounts saved by soldiers in liquid assets are not for lack of support, however. Multiple resources exist that can strengthen the ability of the average soldier to save and budget. For example, soldiers deployed abroad can reap an annualized 10% return on funds deposited in the Savings Deposit

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Program, a rate unparalleled in public fixed income products of similar credit quality (Defense Finance and Accounting Service, 2019). Additionally, most bases employ contractors in the Army Community Service (ACS) division whose job it is to support healthy savings habits. While service members who employ these resources or similar programs throughout their career have a marked advantage, current statistics do not suggest that the average soldier is doing so effectively.

Retirement Savings and Thrift Savings Plan Allocations

Soldiers also demonstrate poor financial planning initiative in a second category of the asset column: retirement savings. The Army's shift from its legacy "High 3" retirement system to the Blended Retirement System mirrors the global growth of defined contribution models in retirement funds (Ang, 2014). This change puts the uninformed soldier at an even higher risk of substandard retirement account performance if he or she is not familiar with the Thrift Savings Plan (TSP). The TSP is a fantastic vehicle for tax-advantaged retirement savings, offering several low-fee funds representative of the broader market and no-cost portfolio rebalancing. However, the advantages it offers are underutilized by many soldiers. Until 2015, contributions to the TSP went by default into the fixed income "G" Fund, which has narrowly outpaced the rate of inflation over the last decade (Federal Retirement Thrift Investment Board, 2019). Generations of soldiers who did not adjust this allocation suffered substandard performance relative to the overall market due to their 100% weight in government fixed-income securities. The current convention automatically allocates soldiers' money to a target date fund constructed using mean-variance optimization for the assumed risk appetite of their age group (Nestler, 2007). While this is a marked improvement over previous years, data from the 2018 TSP investment allocations is still troubling. Over 10% of service members below the age of 30 and 20% below the age of 40 are still 100% invested in the G Fund (Federal Retirement Thrift Investment Board, 2019). This approach, while benefiting from being virtually risk free, would likely be recommended by few asset managers for this population. Individuals in younger age groups have a considerably different wealth utility curve than older service members and would ostensibly benefit from more market exposure (Ang, 2014). Even TSP officials remark in their 2018 annual report that certain groups invest solely in funds that "may not be the best option" for their personal investment horizon (Federal Retirement Thrift Investment Board, 2019). Investment allocations to the "S" and "I" funds, tracking small-cap and international stock indexes, are also concerning. Investors with a longer time horizon stand to gain significantly from exposure to value investing and international diversification. However, the average allocations to these two factors total only 11% of young participants' portfolios (Federal Retirement Thrift Investment Board, 2019). Given these peculiar statistics, it is no surprise that the standard for "education" on the TSP Blended Retirement System is a mandatory online class that can be

finished in 15 minutes. This training is wholly inadequate to serve the needs of the population and can result in substandard investment performance. In the financial education domain, the Army seems not to place significant emphasis on modern adult learning techniques in hopes that soldiers will learn on their own time.

Real Estate Investments

Real estate is a common addition to the asset column of soldiers' balance sheets. While a home can offer attractive returns, military families face numerous risks in their real estate investments that can further endanger their financial well-being. Real estate investing is a popular subculture within Army circles, with numerous social media resources that advocate real estate investments specifically for service members. Behind much of this popularity is the Veterans Affairs (VA) Home Loan, a product that gives soldiers the ability to own a home for a low or zero-down payment at an attractive interest rate. In 2018, over 700,000 veterans and active duty service members had a current VA home mortgage (Consumer Financial Protection Bureau, 2018). While a useful tool, the VA loan gives soldiers access to an astounding amount of leverage at an early point in their careers. In the years since the 2008 housing crisis, steady gains in home prices and falling interest rates have lulled many military investors into complacency toward the risk inherent in the real estate market. The short average holding period between permanent change-of-station moves and interest-heavy early mortgage payments incurred by military homebuyers make expected value calculation difficult and can increase return variability. High transaction costs over this short time frame can significantly impair the profit potential of buying a home. If the service member decides to instead hold his or her property when he or she moves, he or she is often at the mercy of management agencies. Service members can also face market liquidity risk when trying to receive a fair sale price. The statistics on veterans' mortgages seem to accurately reflect these harsh realities. A 2017 survey by the Financial Industry Regulatory Authority found that veterans were 40% more likely than civilians to be underwater on their mortgages and 28% more likely to have made a late mortgage payment in the last year (Williams & Pellecchia, 2017). These statistics call into question whether real estate should be more commonly filed as a liability than an asset in the service member's balance sheet.

Liabilities: Cars and Other Traps

The most common liabilities soldiers incur are further glaring evidence of personal financial mismanagement. The most prominent liability in many soldiers' possession is their automobile. The classic vignette of junior enlisted soldiers purchasing new trucks and sports cars at inflated interest rates is a sad reality in many forma-

tions. In many cases, the average car purchase made by service members exceeds their reasonable budget. Data collected by USAA in 2019 showed that the top three most purchased cars by Army soldiers were the Ford F-150, Chevrolet Silverado, and Dodge Ram (USAA, 2020). Base models of these vehicles roll off the lot in the low $30,000 range, with higher trim levels reaching upward of $40,000. General financial planning principles hold that most individuals should spend between 10% and 30% of their gross annual income on car purchases. Assuming these metrics, a conservative estimate of the yearly salary required to buy one of the three above cars is $150,000. This pay rate is realistic only for higher field grade and general officers, a subset that represents less than 10% of the total force (U.S. Department of Defense [DOD], 2018, p. 15). The population mean base pay of less than $50,000 in the Army is incongruent with the type of cars most often seen on military installations. The monthly cash outflows to these liabilities can detract significantly from savings and investment activity among soldiers and contribute to their debt load.

Imprudent accrual of liabilities extends well beyond the purchase of automobiles, however. The Office of Servicemember Affairs, a subsidiary of the Consumer Financial Protection Bureau, maintains a yearly record of financial marketplace complaints by service members. Of the complaints logged in 2019, the vast majority referenced debt collection, mortgages, credit cards, and various loans (Consumer Financial Protection Bureau, 2019, p. 23). Liabilities such as cash advances, credit card debt, and consumer loans are more likely to affect service members than their civilian peers, as predatory lending is commonplace in the areas surrounding military installations. Junior service members with low credit scores and little money management experience are prone to falling victim to high-interest debt (Fox, 2019). The magnitude of the liabilities in many soldiers' balance sheets is a significant threat to their financial readiness.

Resources versus Reality

The systemic financial stress experienced by soldiers despite their available resources appears to represent a gap in knowledge. The American soldier has numerous financial resources not afforded to his civilian counterparts. For example, the Military Lending Act (MLA) of 2006 (Federal Deposit Insurance Corporation, 2016) and Servicemembers Civil Relief Act (SCRA) of 2003 (Mason, 2014) provide low caps on borrowing interest rates, provisions for termination of leases, and protections from eviction, among other boons for servicemembers. The military offers robust life insurance and healthcare policies at bargain-basement prices to service members and their families. Soldiers have access to a highly liquid network of low-interest lending offered by the Army Emergency Relief (AER) fund (Army Emergency Relief, n.d.). They also have the benefit of a stable, predictable paycheck, and high job security. Despite these resources, large portions of the military remain financially troubled.

Military families, in comparison to their civilian counterparts, are 20% more likely to report financial strain at grades below O4 and three times as likely below the grade of E7 (Hosek & Wadsworth, 2013). For reference, the E1-O3 and E1-E6 populations represent 93% and 69% of the Army's strength, respectively (U.S. DOD, 2019). In 2019, the Office of Servicemember Affairs found that 4,700 to 8,000 service members are separated each year from the military for financial issues (Consumer Financial Protection Bureau, 2019, p. 7). These statistics are perplexing, as the average service member has numerous supporting financial agencies at their beck and call. This incongruity suggests that soldiers are largely unaware of what support is available to them, or how to utilize it properly. Any financial education currently provided has done little to improve financial decision making in the Army.

Even a soldier with a current weapons card, medical screening, and PT test, the standard checks of readiness, can still carry financial burdens that drag down unit readiness. The thousands of soldiers separated for financial issues every year can leave squads, platoons, and companies understrength in critical occupational specialties (Consumer Financial Protection Bureau, 2019, p. 7). In multiple cases, service members have had security clearances revoked due to the perceived recklessness of their debt (Associated Press, 2006). These situations have a direct impact on readiness. A platoon sergeant about to lead his unit on a night raid should not have to worry if Pfc. Smith will have to return from deployment early to address his delinquent bills. A soldier drowning in high-interest debt with no exit strategy can be just as great a risk to readiness as his peer who has not fired his assigned weapon in two years. It will likely take the former soldier's chain of command longer to find a solution than the latter's. The time spent addressing individual financial issues could be better spent perfecting mission essential tasks.

Doctrine: Codifying Personal Finance Standards

Doctrinal changes are the first part of the puzzle to codify what financial readiness looks like for the Army. In many military fields, doctrinal publications are the bedrock of instructional design. Learning outcomes are tailored to doctrinal guidelines that come from hundreds of years of soldier experience in warfighting. Unfortunately, no such doctrinal body of knowledge exists for Army financial literacy education. A brief search of the Army publications catalog reveals hundreds of documents detailing the financial management of acquisitions, unit budgets, and services. Notably absent from this group is any active comprehensive reference for soldiers who wish to improve their financial knowledge. In a readiness-focused Army that puts incredible stress on individual competencies, this is unconscionable.

Current Army doctrine regarding soldier finance is mainly punitive in nature. As observed in a 2003 study, "although Army Regulation 600-15, *Indebtedness of Military*

Personnel, mandates soldiers to wisely manage their finances and promptly pay debts, it does not provide instructional advice for success. Instead, it is more creditor-focused, requiring leaders to process complaints against soldiers" (Peterson, 2003, p. iii). There is a need for instructional doctrine to balance out reactionary policies on financial management. The Army "Ready and Resilient" program is designed to confront complex issues that are individual to each soldier and it provides a potential framework for the doctrine of financial readiness. In resiliency training, soldiers receive both formal and informal instruction on how to deal with physical and emotional stressors through healthy coping strategies and thought processes. The roadmap to financial health requires many of these same competencies. The Ready and Resilient program, a more recent doctrinal addition, is a proof-of-concept that doctrinally backed educational initiatives can rapidly integrate into the force and generate an impact. Publication of doctrine by a group of professionals with demonstrated financial knowledge is a vital first step in developing financial literacy education for the Army.

Education and Training

While doctrine can codify the tenets of financial readiness, practical education is the key to raising the bar on personal finance acumen. The Army has a handful of worthwhile digital resources that deal with personal finance, but comparatively fewer opportunities exist for in-person instruction (Murphy, 2018). Too often, online training is viewed by soldiers as a distraction from their duties, and many will go to significant lengths to avoid it. In the current high operational tempo environment, it is all too easy for online training to be skipped through or disregarded. As such, it might benefit from the addition of face-to-face engagements. The employment of blended learning, combining these instructional avenues, has demonstrated merit in numerous studies and would be a natural feature for the financial education domain (Fortuna, 2017). Basic marksmanship and land navigation are not learned solely through computer-based classes and neither should basic money management skills.

The efficacy of military educational programs that identify specific issues and address them through personalized instruction is undeniable. Efforts in the Army's safety domain are particularly relevant to the discussion of effective education and training. In an example from the aviation safety field, one program shows how effective training generates quantifiable results in soldier performance. As early as 2004, Army Aviation identified aircrew coordination as a factor in the steadily climbing aviation accident rate. In response, the Army created the Aircrew Coordination Training–Enhanced (ACT-E) program. The program institutes both digital and in-person education conducted by trained safety experts and accompanied by deep audio/visual resources. The learning objectives are clearly defined in both doctrinal references and course materials. During the program of instruction, soldiers can directly visualize hazards to safety, discuss

best practices, and gain insight into the underlying decision-making process (*Flightfax*, 2004). Annual roundtable discussions at the unit level bring visibility to current issues in execution, directly address failures, and create greater awareness of the issues at hand. Instructors have personal expertise in the subject matter and can effectively convey pertinent information. The training is relevant, personal, and does not devolve into buzzword preaching. Instructors justify the importance of the issue in the minds of students and gain buy-in through realistic presentation of subject material that students can connect to their own experiences. The ACT-E program, in concert with parallel modernization efforts and greater overall safety emphasis, led to a steady decline in accident rates for a decade after its institution (U.S. Department of the Interior, 2014, p. 4). While an admittedly anecdotal example, the success of the ACT-E program, and others like it, demonstrate that military educational programs are quantifiably effective when conducted in accordance with relevant adult education principles. The Army's approach to personal finance education should model these same ideals.

The creation of a training program to address financial planning competencies will require the concerted efforts of leaders at multiple echelons. A good start might be to hire additional financial services professionals to conduct a core curriculum of instruction for garrison units. ACS contractors are employed in this function at most units (U.S. DA, 2015a), but several factors limit their impact. Department of Defense Instruction 1342.22 only mandates one financial readiness counselor per ACS division, or approximately one per duty station (U.S. DOD, 2012). In a division of over ten thousand soldiers, there are simply not enough finance professionals to conduct regular training for the entire population. Regulations require those employed in these positions to have any "nationally accredited financial counseling certification" (U.S. DOD, 2012, p. 17). However, there is little depth in financial readiness offices. Soldiers interested in investment portfolio construction have no specialized investment advisor to contact. Those needing specialized tax planning advice are not likely to find a certified public accountant in the ACS office. The financial readiness support system, as it exists, would benefit from the addition of a deeper, wider talent pool. To the Army's credit, the very existence of the Financial Readiness Program (FRP) is a step in the right direction. Nevertheless, as it stands today, the FRP is not extensive enough and does not garner enough unit involvement to be effective, as evidenced by current statistics.

Another possibility for improved training would be to create "master financial trainers" from units at a battalion or lower level and send them back into the force to teach specialized classes. This approach, modeling the safety efforts previously discussed, would only be as effective as the translation between field experts and unit delegates. However, ensuring appropriate rigor of course material and equipping unit trainers with doctrinally sound course outlines could potentially yield favorable results. Structured courses aside, first-line leadership could also become the primary informal personal finance trainers. Officer and NCO professional military education (i.e., Basic Of-

ficer Leaders Course, Captains Career Course, Advanced Leader Course, Senior Leader Course) could include expanded blocks of instruction on basic financial resource information and best practices. This expansion of knowledge would give first-line supervisors the ability to speak with a degree of authority on personal finance topics without giving specific investment advice. The end state of this initiative would see financial readiness becoming part of the Army's core curriculum of educational material in both professional military education and unit-level instruction.

Leadership Involvement

The final piece of the puzzle in building soldiers' financial readiness is leader involvement. Without adequate emphasis from leaders within Army units, educational efforts are unlikely to be successful. Leaders must monitor the state of financial affairs within their formation and identify what issues merit further instruction. The monthly Unit Commanders' Finance Report provides information about pay discrepancies to commanders, but it could paint a better picture of financial health if reinforced with more data. For instance, direct deposit pay, credit score, TSP contributions, outstanding travel card balances, known large debts, and any other reportable payment obligations could form a model of relative financial readiness for each soldier. The combination of these weighted factors, along with optional surveys, would create a more complete financial risk model. Financial literacy is historically difficult to measure quantitatively (Baker & Ricciardi, 2014). However, Army leaders serve in a profession where they know their soldiers individually and could infer from this data where their unit is lacking. Leaders could use these insights to create informal learning opportunities for soldiers on financial topics. As noted by Baker and Ricciardi (2014), financial literacy education provided by leaders can convincingly improve decision-making among subordinates. Quantitative management of financial readiness can be an essential tool for leaders in improved financial education.

Qualitative measures might also be useful in gauging soldier financial readiness. Soldiers reaching out to their leadership to solicit financial assistance would be better served by a standardized menu of options than the sporadic knowledge of their chain of command. As Field Manual (FM) 6-22, *Leader Development*, states, leaders "provide subordinates with (or direct them to) the necessary resources for development" (U.S. Department of the Army [DA], 2015b, p. 7-48). To this end, financial readiness enablers should draw from an "order of operations" contained in the corresponding doctrine that would direct soldiers to the appropriate resource. For example, Pfc. Smith informs Capt. Brown that he is two months behind on his car payment and has no savings built up. Brown should be able to reference an Army techniques publication, directing Smith to an AER loan and FRP counselor and helping him set realistic goals for starting a monthly savings contribution. Not

all soldiers will ask for help when they need it, but leaders should remain vigilant for signs of financial distress. The defining characteristics of the "develops others" competency, as described in FM 6-22, is the ability of leaders to "assess the developmental needs of others" and "counsel, coach, and mentor" (U.S. DA, 2015b, p. 7-46). Effective leadership in the financial domain involves coaching subordinates, modeling prudent risk behavior, and providing mentorship opportunities. These educational tenets are already applied by Army leaders every day. Indeed, the approach implied by FM 6-22 is corroborated by modern studies of adult learning behaviors in the financial domain. Taylor et al. (2010) note that "learners need to be more actively involved for significant learning to take place" (p. 471). The Army leadership style promotes frequent engagement with subordinates that generates consistent active involvement. The combination of data-driven and qualitative approaches to total financial readiness will likely reveal more areas that commanders are exposed to risk and give them tools to address it.

Benefits of Improved Financial Literacy

The benefits, both tangible and intangible, of improving financial knowledge across the Army are considerable. The most direct, observable effect of better financial readiness will be the recoupment of lost productivity costs. A seven-year study of the Navy's Personal Financial Management Program found that a conservatively estimated $172 million is lost in work time, assuming only 10% of the population is experiencing financial difficulties (Luther et al., 1997, p. iv). This number increases significantly with any higher expected rate of financial stress. Lending programs would also benefit from better financial health across the force. AER, which provided over $69 million in emergency financing in 2017, would likely be able to expand the scope of their grants dramatically, given a reduction in personnel needing their assistance (*Army Emergency Relief*, 2017, p. 15). Improvement in Army financial education would undoubtedly have an impact on retention as well. Financial readiness improvements are a natural addition to The Army's nascent Talent Management Task Force, which is charged with acquiring and retaining a high-quality force (U.S. DA, 2016). Retaining soldiers requires not only the service members themselves to commit to continuing their Army career but also their dependents. In 2018, financial stress was cited as the top lifestyle stressor among military families (Sonethavilay et al., 2018, p. 16). For the population groups most prone to financial difficulty, improvements in household financial planning are likely to be significant factors in the decision to stay in the Army. It is estimated that each separation of a service member costs the DOD over $57,000 (Limitations on Terms of Consumer Credit Extended to Service Members and Dependents, 2014). Given this staggering figure, the Army stands to gain materially in both cost savings and retention of talent.

The Army can reap possibly its greatest reward from improved financial literacy in the area of physical and behavioral health. The linkage between financial stress and behavioral health is firmly established in the Forum on Health and National Security's 2016 examination of these two factors (Ursano et al., 2016). A team of economists, medical professionals, and resilience experts found that "financial stress impacts mental and behavioral health as well as servicemember and family function" (Ursano et al., 2016, p. 1). A nontrivial proportion of the challenges the Army faces in improving behavioral health can likely be attributed to financial well-being. Distress that leads to substance abuse, depression, family violence, and suicide can occur as a direct result of money management behaviors (Ursano et al., 2016). The panel conclusively recommended that "identifying, testing and evaluating universal training (active skills training) and prevention programs should be part of planned financial management and planning education across the career and family life cycle" (Ursano et al., 2016, p. 4). Integrating finance education into the military culture could be a massive step toward improving quality of life for soldiers and reducing the incidence of behavioral health issues. The prospective improvements in readiness from these efforts to address systemic issues are substantial.

Conclusion and Recommendations for Future Research

Solving the Army's financial literacy problem is a complex task that requires full engagement at all levels of leadership. The Army, unfortunately, mirrors the U.S. educational system in its lack of coverage of personal finance topics and would benefit greatly from their addition. In order to better serve soldiers, further research is necessary on what specific tools are most useful for each cohort. While junior soldiers might need information on bedrock strategies for saving and budgeting, older service members with higher fixed costs would likely benefit from retirement and tax planning, as well as portfolio management information. In addition, further study is needed to identify which modern adult education principles are ideal to convey financial subject matter to the military student. Although doctrinal changes do not happen overnight, interim guidance for leaders to promote healthy behaviors and turn the tide of financial distress should be carefully considered. There remain a number of avenues of the financial readiness landscape that can and should be explored to generate the best future outcomes for soldiers.

Soldiers have all the resources they need to be financially healthy, but financial readiness efforts in doctrine and training are still necessary to give them the roadmap to success. The purpose of financial readiness programs should not be to add yet another "check the block" requirement but to teach soldiers where they can improve and reveal where commanders are assuming risk. The combination of sound doctrine and practical training with leadership engagement is a time-tested method for affecting organizational change—and can be leveraged to this end. The creation of a comprehensive

financial readiness program is a lofty goal, but is entirely achievable given the success of similar readiness efforts in other domains. Soldiers at every level will benefit from gaining personal finance skills during their time of service and beyond. Financial education must be a core tenet of the Army's people strategy for the future in order to maintain a high-quality force that can fight and win in any environment.

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U.S. Army Training and Doctrine Command Virtual Learning

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Abstract

This article presents a brief history of the development of virtual learning enablers and the software and hardware that supports virtual learning. The article addresses the early roots of hypertext and hypermedia and today's delivery platforms that offer virtual classrooms with instructor and student interaction.

Early in the year 2020, the world came to know a new enemy by name. That enemy was a global pandemic, and its name was COVID-19. In response, most Americans made adjustments to their daily lives. In the Army, decisions needed to be made that would ultimately impact the future of training and education for soldiers and civilians. Army senior leaders envisioned an environment for virtual learning and recognized the need for an environment agile enough to train and educate at any time and in any place. This environment could put instructors and students together to reap all the benefits of face-to-face learning. This article aims to trace the evolution of the foundational tools in the Army and enable robust future virtual capabilities.

The Introduction of Virtual Learning

The technology that underlies an environment for virtual learning draws from the use of hypertext. Hypertext allows the learner to access other information by clicking a mouse, and it predates the Army's distributed learning program. In 1945, Vannevar Bush conceived the concept of clicking links as a way of branching between pieces of information and described a "hypertext like device" he called memex (Bush, 2019). In 1965, Theodor Nelson gave this concept the name of hypertext (Talbert, 1988, p. 2.8). Hypertext allowed the reader to branch as needed rather than follow a strictly linear path of information.

Hypermedia was a natural extension of hypertext that allowed linkage between information and different forms of media. It offered four elements that enabled the learn-

er to interact with content that was part of the virtual environment: linear, substitution of image for text, look back, and branching. The Department of Defense later adopted these elements for computer-based training (Kenyon, 2012; Vernon, 1993).

In 1985, a large-scale hypertext/hypermedia system called Intermedia allowed instructors and students to create, organize, visualize, and connect multimedia information (Talbert, 1988, p. 2.14). This system produced excellent results as both students and instructors felt a deeper understanding of the course material over a traditional linear display of text or platform recitation. Blended learning allows students the benefits of both traditional and digital learning. David Ausubel's theory of meaningful learning explains part of this phenomenon as an individual's desire to make meaning of new information by relating it to previously understood concepts. From a cognitive perspective, it is the purpose of education to help students grasp essential and central ideas (Talbert, 1988, p. 3.2). To assist instructional designers, Intermedia used toolsets that made up three instructional design environments: one to help instructors plan their course material; one to manage the development process; and one to provide for delivery, presentation, testing, and controlling content to achieve the desired learning event (Talbert, 1988, pp. 2.16–2.17).

These early tools evolved into software applications known today as course management systems (CMS). The systems that employed all three instructional design environments became learning content management systems (LCMS). These systems formed the enabling technology for a virtual learning environment (VLE). The evolution of VLEs aligns and traces back to the growth of e-learning or the use of emerging technology in the delivery of training and education. The standards, specifications, and implementation of a virtual university were envisioned in 1998 by the Institute of Electrical and Electronics Engineers. The VLE ultimately defined a university environment for students with limited or no access to a brick-and-mortar campus. It provided an online interaction in three types: student-content interaction, teacher-student interaction, and student-student interaction (Boser, 2020).

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The Army's Use of VLEs

The Army's use of software applications to enable the face-to-face classroom environment includes an LCMS called Blackboard. Instructors for the Command and General Staff College, the Army War College, the School of Advanced Military Studies, and the Sergeants Major Academy primarily use this LCMS to manage learning, post grades, communicate with students, and receive homework submissions (Weller, 2007).

The same LCMS used in those classroom venues was used in the distributed-learning environment, providing access for Reserve Component students and to other students who do not have easy access to a brick-and-mortar campus. As the implications of the COVID-19 pandemic evolved, this distance-learning environment became the new normal for the instructor-led classroom as hundreds of instructors and thousands of students became the focus of the professional military education/operational planning team in March 2020. Classroom support and a distance-learning environment became the Army's solution: a VLE.

Virtual Learning Enablers

The term "virtual learning enabler" does not have a concrete and indisputable definition. Enablers provide a virtual space for students and instructors to interact. The capabilities of an LCMS includes many touchpoints for student-to-instructor interaction such as methods for breaking down the curriculum, tracking the student, and plans for student-to-student and student-to-instructor communication.

These VLEs are software applications, and there are today many LCMSs in use in academia, business, and government. Within a CMS, there are defined roles for both instructors and students. The instructor can be present with students in a synchronous session or have the students engage in the CMS independent of instructors and peers. The Army's LCMS, defined as a web-based platform for the digital aspects of courses of study, presents resources, activities, and interactions within a course structure and provides for the different stages of assessment (U.S. Army Training and Doctrine Command [TRADOC], 2013).

To better understand the VLE, we need to acknowledge the value of a learning management system (LMS). This system provides options that are much broader in scope than a CMS. A CMS fits within the range of an LMS to provide structure and delivery to a course. In contrast, the LMS provides for the planning, implementation, assessment, and evaluation of many classes or a complete curriculum. The Army has defined an LMS as a software application for the administration, documentation, tracking, reporting, and delivery of educational courses. It provides training programs or learning and development programs that are focused on online learning delivery supporting a range of uses, and acting as a platform for online content, including

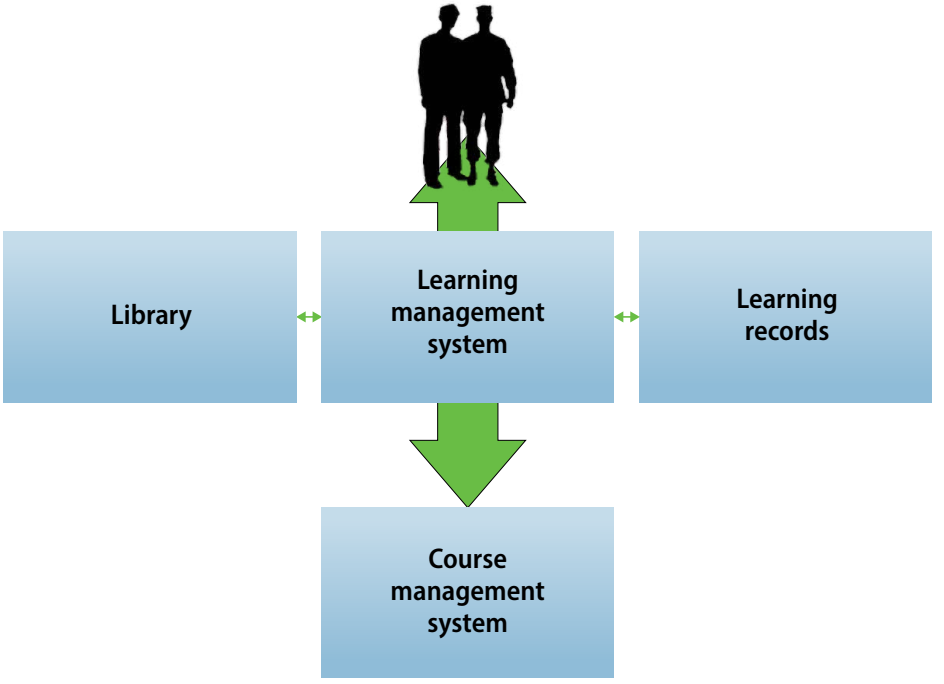

Figure. Virtual Learning Environment. Figure adapted from M. Weller, 2007, *Virtual learning environments: Using, choosing and developing your VLE.*

courses both asynchronous-based and synchronous-based (TRADOC, 2013). An LMS may offer classroom management for instructor-led training or a flipped classroom used in higher education, but not in the corporate space.

In the figure, the student enters the VLE via the LMS. This route accomplishes a few things. First, it confirms the identity of the student and offers a catalog of courses. Second, it manages the registration of the curriculum and the various courses that support it. Once complete, the student can launch the course and begin the learning event. The library and other resources are captured in the course environment. Additional resources are videos, podcasts, assessments, and games. The LCMS provides for authoring content, importing content, or storing content.

Finally, when the course is complete, the LMS manages the updates to the student records and can report completion or grades to another system if required.

One could argue that only an LMS or only a CMS is needed, but there are legitimate reasons to employ the capabilities of both. An LMS can manage a curriculum, but a CMS can better handle a course.

Conclusion

The future direction for Army training and education now includes a plan for a virtual environment. As the events of this year unfolded, the enablers the Army already had in place became the fallback. The Army rose to the occasion. It quickly formed the professional military education/operational planning team, identified systems in place, ascertained gaps in instructor-led education and training, and found a shortfall in software application licenses. Within a few weeks, the Army VLE was fully operational.

The way forward for Army training and education reflects optimism and determination. It has been a long, tough year, but in true Army fashion, there was an attitude of "we can do this," and it did.

Glossary

Asynchronous learning allows students to complete their work on their own time. Students are given a time frame–usually a one-week window–during which time they need to connect to their class at least once or twice. (eLearning, n.d.)

Blended learning has seen growth over time, primarily because of the increasing accessibility of technology and ongoing interest in digital learning technologies. Many education advocates have spoken to the advantages of blended learning in the classroom, such as student-centered instruction, data collection, and increased engagement. As with any educational model, blended learning should be used sensibly and thoughtfully to enrich student learning. (Study, n.d.)

Flipped classroom is a model that involves instructors having students interact with new material for homework first. Then, they use class time to discuss the latest information and put those ideas into practice. (Nelson-Danley, 2020)

Hypertext is text displayed on a computer or other electronic device with references (hyperlinks) to other documents the reader can immediately access, usually by a mouse click or keypress sequence. Early conceptions of hypertext defined it as text that could be connected by a linking system to a range of other documents stored outside that text. (Talbert, 1988)

Synchronous learning occurs on set schedules and time frames. Students and instructors are online simultaneously in synchronous classes since lectures, discussions, and presentations take place at specific hours. All students must be online at that exact time to participate in the class. (eLearning, n.d.)

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Teaching Noncommissioned Officer Professional Military Education in the COVID-19 Environment

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Abstract

Prior to the COVID-19 pandemic, most noncommissioned officer (NCO) professional military education (PME) courses such as the Basic Leader Course (BLC), the Advanced Leader Course, and the Senior Leader Course were delivered in a resident, face-to-face format. However, the Master Leader Course (MLC) and the Sergeants Major Course were always delivered in both a resident format and an online (distributed learning, or DL) format utilizing Blackboard.mil and Blackboard.com, respectively.

During the COVID-19 pandemic, instructors of all resident PME courses had to figure out how to deliver resident instruction to their students in a DL format. Since the NCO Leadership Center of Excellence (NCOLCoE) is the proponent of the program of instruction for BLC and MLC, those courses will be the focus of this article.

The Basic Leader Course–Distributed Learning

Blackboard.mil (Bb.mil) is the learning management system (LMS) currently utilized to safely teach BLC within COVID-19 restrictions. At the beginning of the first emergency BLC, during the initial outbreak of the pandemic, the Bb.mil service became overwhelmed by the number of users, which resulted in numerous problems. Both facilitators and learners had problems accessing the Bb.mil website or accessing the course materials and the learning resources. Some of the specific problems were as follows:

- Gateway timeouts. Facilitators and learners attempted to access course material. The proxy server did not receive a timely response from the upstream server.
- Latency issues. Facilitators and students would access course content, and it would take several minutes to load. Examples include downloading reading material and references, uploading assignments, and viewing graded assignments.
- No access to Bb.mil. There were several instances where noncommissioned officer academies (NCOAs) reported they were unable to access Bb.mil.
- Bb.mil proxy server crashed. After the server crashed, it still took four to five months to approve, purchase, and install.
- Bb.mil later had issues with allowing facilitators and students to access the site through civilian internet service providers.
- Bb.mil conducted updates on the first Tuesday of every month at 1600 EST. The updates interrupted other NCOAs who were in session. Bb.mil shut down until the maintenance was completed.
- Bb.mil is approximately five versions behind Blackboard.com (Bb.com) and cannot sustain a learning environment conducive to educate the Army's future leaders.

Basic Leader Course's Incorporation and Utilization of Virtual Collaboration Platforms

During the initial conduct of the emergency BLC, NCOLCoE and the NCOAs needed to quickly identify effective virtual collaboration platforms that could be utilized to deliver the course content in a synchronous, virtual manner. Synchronous instruction is instruction that is delivered online in real-time. The instructor and students are logged in the online classroom at the same time and interact with each other via chat sessions and/or via virtual discussions where the instructor and students can see one another.

The BLC course manager was able to send recommendations to the force such as utilizing defense collaboration services (DCS), global video services/video

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teleconferencing, Microsoft Office Teams (MS Teams), and Skype Business. The guidance was for the NCOAs to test which virtual collaboration platform would work the best for each respective academy. DCS was initially tested at the Eighth Army NCOA in Korea because Korea's quarantine took place before the quarantine in the United States. MS Teams eventually became the predominant virtual collaboration platform that NCOLCoE advocated due to the positive experiences reported by users and facilitators.

The NCOLCoE BLC team created distributed learning products in order for learning to continue in the DL environment. The learners were provided job aids and other resources to help them effectively navigate each lesson. During the asynchronous phases of learning, discussion boards were utilized to facilitate critical thought and reflection. Asynchronous instruction is online instruction that is not delivered/communicated in real-time. Asynchronous instruction involves the instructor and students posting and responding to discussion boards at their convenience within a predetermined amount of time. An example would be an instructor posting a discussion question in the online classroom and the students having up to three days to post a reply to the discussion question.

The drawback to asynchronous facilitation was the lack of real-time interaction between the students and the facilitators. This problem can be remedied by incorporating relevant prerecorded lecture videos related to the specific lessons the students are engaged in. Choe et al. (2019) conducted a research study and determined that online lecture videos incorporated into the online asynchronous lessons greatly enhanced engagement and student satisfaction while ensuring the learning outcomes were still met.

The overall guidance to the BLC NCOAs was to deliver courseware and collaboration as they would in a resident course. This proved challenging for many NCOAs because not many instructors had online teaching experience and because there were systemic issues with the Bb.mil LMS. Another issue was the lack of online virtual collaboration tools within the Bb.mil LMS. This problem was overcome through the separate use of MS Teams.

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Sgt. Maj. Christopher A. West has served 25 years in the U.S. Army. A graduate of the U.S. Sergeant Majors Course, he currently serves as Basic Leader Course Manager at the NCO Leadership Center of Excellence.

The NCOLCoE oversaw management of access to Bb.mil. The NCOLCoE created self-enrollment instructions for each NCOA to send to its learners in order to streamline the enrollment process into Bb.mil. This made enrollment more efficient, much easier for the learners to navigate, and less stressful for the NCOA administrators.

Communicating Intent

Some of the NCOAs initially experienced a misunderstanding concerning when to utilize the DL products and when to utilize the discussion board threads. This issue was resolved through DL training provided to the facilitators by the NCOLCoE BLC course manager in order to better facilitate communication, coordination, collaboration, and comprehension. Specific guidance was given to the NCOAs to use DL products in the event facilitators were unable to use a virtual collaboration platform (MS Teams, DCS, Skype, global video services, and BlackBoard [Bb] Collaborate) to deliver course content. Guidance was also given to facilitators to conduct frequent virtual collaboration sessions that were synchronous and simulated the face-to-face interactions students had with their facilitators in resident courses. End-of-course critiques/after action reviews revealed that the students were receptive to the virtual collaboration sessions because they felt more engaged with the instructors and their fellow learners.

In a DL environment, it is necessary for learners to be able to take ownership of their learning in order to succeed in the course. It is up to the learners to absorb the material and to effectively communicate their understanding of the information through the use of discussion board threads, peer responses, and other means. However, no one should assume that adult students will instinctively know how to utilize effective self-regulating learning strategies. Online students must be introduced to the strategies they can utilize that are tailored to their individual needs or circumstances. A key indicator of future student success in a DL environment is the student's possession of effective self-regulating learning strategies/behaviors (Quesada-Pallarès et al., 2019).

Basic Leader Course Blackboard.com Pilot

The NCOLCoE BLC team conducted several train-the-trainer sessions on the use of Bb.com in preparation for the BLC Bb.com pilot. NCOLCoE conducted the Bb.com pilot in June 2020. Bb.com provided one virtual collaboration platform (Bb Collaborate). That platform is built inside of Bb Learn (Bb.com). This allowed the NCOAs to have one singular platform that included an LMS for the course content and also included an embedded virtual collaboration tool (Bb Collab-

orate). No longer did the facilitators and students have to utilize two separate tools from two separate platforms (Bb.mil and MS Teams) to achieve the learning outcomes. The built-in capabilities of Bb.com facilitated student learning. Bb.com allowed both facilitators and learners to access the website without a common access card, and facilitators and learners were able to utilize any commercial and government network to access the Bb.com website.

Government networks in some locations had difficulty accessing Bb.com. This was resolved by working with the Combined Arms Center (CAC) and local network enterprise centers by providing them with feedback from prior lessons. Bb.com allowed facilitators and learners to telework and attend class from their residences. One reported issue was that some learners did not have enough data space on their civilian internet data plans. This caused learners to have to contact their internet service providers and change their data plans in order to increase their available data, which resulted in increased monthly data plan payments for learners.

Bb Collaborate enabled facilitators to create small group discussions by utilizing breakout groups. Breakout groups allowed four learners per group (replicating a resident, small group, face-to-face session) to collaborate on a topic without interrupting other learners. The learners then returned to the larger group to discuss the breakout group's decisions or outcomes. This approach proved beneficial to the achievement of the overall learning outcomes and it facilitated student engagement with peers and facilitators.

NCOA facilitators had to successfully complete Bb Learn and Bb Collaborate training prior to receiving access to Bb.com. This training ensured that all facilitators were certified to teach in a DL environment utilizing the Bb.com LMS.

Student Management System

The student management system (SMS) assisted the NCOAs with access to future students based on an Army Training Requirements and Resources System (ATRRS) reserved seat. The NCOAs printed out the next class ATRRS attendees list and compared it to the enrolled students in SMS before granting the students access and before creating a Bb.com account for them. This practice ensured that only the students listed in ATRRS who enrolled in SMS were provided Bb.com accounts. NCOLCoE and CAC granted access for three SMS administrators for each NCOA. Those individuals attended training provided by CAC and were only given access upon successful completion of training.

It is highly recommended that the Army continue utilizing SMS and Bb.com as the platforms and LMS for the Army. Bb.com creates a learning environment conducive to student engagement and conducive to helping students achieve the intended learning outcomes in a DL environment.

The Master Leader Course

Background

The Master Leader Course (MLC) was initiated via Execution Order 236-15 in October 2014 (U.S. Department of the Army [DA], 2015). The course went through analysis, design, and development throughout the spring and summer of 2015. In November 2015, the MLC went through operational group trials. A second operational trial was conducted in January 2016. The course was fully operational in April 2016. In the summer of 2017, the design and development team for the DL version started to fill out the shell of a four-week model, an eight-week model, and then a six-week model. This means that the MLC team developed plans to deliver the curriculum in four-, six-, and eight-week options. The six-week option was determined to be the most viable option.

The six-week model was selected over the other course lengths in order to better facilitate the Select-Train-Educate-Promote (STEP) concept. The STEP concept involves ensuring soldiers are provided the training and education needed in order for them to be promoted to the next rank (U.S. DA, 2019). Analysis identified the six-week DL model as more inclusive for students from the U.S. Army National Guard and the U.S. Army Reserve, who may have full-time civilian employment and who may be seeking a way to continue their military professional development while working. The six-week DL model also facilitates the Guard and the Reserve's participation in the STEP program.

The MLC DL was initially piloted in 2017 using PowerPoint slides. The PowerPoint slides were cumbersome and hard to load across the learner spectrum. This means that the PowerPoint slide files were much larger than the web slides that were ultimately used. The size of the files made them difficult to load and resulted in latency issues during delivery.

Given the difficulties associated with PowerPoint, the NCOLCoE Interactive Multimedia Instruction department conducted research and discovered that a more efficient way to deliver content was to use a web-slide application that enables a smoother delivery using the Bb.mil platform. The new course design employed web slides with the Generalize New Information segment of the experiential learning model embedded. An embedded Generalize New Information segment frees up facilitators to have a more intensive observation of student interactions. Therefore, if a facilitator observes a student not engaging or identifies that the quality of the content in the student's posts is insufficient or not meeting the learning outcomes, the facilitator can then set up a direct session with the individual student or with the entire class using a virtual collaboration tool to refocus the student and/or the class.

Master Leader Course Distributed Learning

The MLC DL is a synchronous course encompassing all four of the Army Learning Areas: Army leadership and the profession, mission command, human dimension, and professional competence (U.S. DA, 2017). What makes the MLC DL synchronous is the real-time experience where the students have access to their facilitators via phone, text, email, and now video collaboration and facilitation sessions. Real-time experience refers to students and instructors communicating with each other at the same time just as if they were communicating with each other in a face-to-face environment such as what occurs in a typical classroom.

The MLC DL uses a flipped course or blended learning model where the students are provided the lessons as they proceed through the courseware answering questions, conducting research, and responding to their facilitators and classmates.

The courseware leverages the students' ability to manage time and to have a work-life balance. The course is gated so that the students must engage with the courseware for three hours per day. Three hours a day may not seem like a lot of time until one factors in the time necessary to research and write a portion of the group research project. At the same time, other course requirements must be met such as conducting research to incorporate the NCO common core competencies into six executive summaries based on historical events and current doctrine. These core competencies were developed by the NCOLCoE. The six common core competencies are leadership, communication, readiness, training management, operations, and program management.

Students do not have embedded readings in the courseware. They are given the core doctrine as a starting point for research; after that, they must go to the Army Publishing Directorate and retrieve the appropriate doctrine to support their executive summaries. They also must study for three exams and prepare briefings.

Facilitators engage with the students in the threaded discussion area, posing thought-provoking questions to each student and providing feedback to the students' thoughtful and reflective posts. The facilitators observe group interactions in the discussion areas and will follow up with additional thoughts regarding students' posts. Online facilitation is very intensive for facilitators, who spend much of their time assessing the students' discussion posts, papers, exams, and executive summaries. The facilitators also form the audience for the students' briefings to provide feedback.

COVID-19 Mitigation

The MLC DL pilot during the COVID-19 pandemic entailed disenrolling the remaining fiscal year 2020 MLC resident classes and then reenrolling all of those

students into the MLC DL classes. The MLC was able to scale for size using the active-duty Army facilitators and the U.S. Army Reserve NCOAs. The staff at Fort Bliss MLC DL was able to provide mentorship for those facilitators who had never taught in a virtual environment. One of the MLC DL classes had to be conducted in a two-week time frame instead of a six-week time frame. The comparison between the emergency two-week DL class and the regular six-week DL class taught a major lesson: the six-week DL class is tenable whereas a two-week MLC DL class is not.

The two-week DL class was executed in a two-week emergency mode and was very time-intensive to the point of untenability. During the emergency two-week DL class, facilitators and students alike experienced a great amount of stress trying to meet all gates in the course. Especially challenging for the facilitators was trying to provide timely feedback to the students during the two-week time frame.

MLC DL was normally delivered via Bb.mil prior to the COVID-19 pandemic. During the pandemic, facilitators decided to conduct an MLC DL pilot utilizing Bb.com in order to compare and contrast the Bb.mil LMS with the Bb.com LMS since BLC was also participating in a Bb.com pilot. The MLC DL Bb.com pilot received accolades from students and facilitators alike due to its excellent functionality, reliability, and inclusion of Bb Collaborate within the LMS. Utilizing Bb.com and web slides in the six-week model, the students obtained a much richer educational experience. They experienced reduced stress since they were able to achieve a work-life balance that is unattainable in the two-week resident version of the course.

With the Bb.com platform, latency and content loading issues were mostly nonexistent in contrast to the Bb.mil LMS, which was/is fraught with issues and outages. However, a lack of funding for Bb.com licenses forced the NCOLCoE to have to revert to the Bb.mil platform after the Bb.com pilots ended.

Master Leader Course Teaching Strategy

The MLC teaching strategy is about making connections with previous experiences and pieces of knowledge with courseware to provide linkage with future applications in the field. This is referred to as experiential learning (Girvan et al., 2016). The students are encouraged to take notes to mitigate the forgetting curve so they can recall key points brought out by the lesson's questions. The MLC teaching strategy also highlights the importance of DL facilitators staying abreast of newly discovered value-added practices pertaining to the facilitation of online learning. Online learning is constantly evolving with the advent of new educational technology that will require new online teaching skills and methodologies (Ferdig et al., 2020).

The Future

Facilitators learned and continue to learn many lessons from making these changes as a result of the COVID-19 pandemic. They realized the need for educational institutions to be able to continue their training and education mission by incorporating DL into the way curriculum is delivered (Basilaia & Kvavadze, 2020; Chick et al., 2020).

The DL model enables the Army to educate more soldiers over time with fewer facilities and workforce required. Utilizing the Bb.com LMS made BLC and MLC just as effective as their resident counterparts. The achieved learning outcomes illustrated that when facilitators utilize a university model, BLC and MLC can deliver cognitive courseware products with maximum efficiency.

From an educational standpoint, making students responsible for their learning by leveraging communication, research, and group problem-solving, the Army can achieve an industry-standard level of competency.

The Bb.com LMS provides a suite of tools that enable a real-time or blended approach to education that the resident course simply does not provide. With those tools, facilitators are able to moderate with fractional engagement to keep students on track. Fractional engagement is the point of need with a fraction of the engagement of resident (in-person) delivery.

The flipped approach using web slides allows the student to manage time and engage with courseware at the time and place of his or her choosing. The web slides allow all students to see all content, thus ensuring all students across all compos achieve the same learning outcomes.

The future of NCO PME may very well be blended learning. Blended learning involves combining face-to-face (resident) instruction with online instruction and has the potential to increase students' level of knowledge retention, thereby facilitating effective learning (Westerlaken et al., 2019). Utilizing blended learning affords PME institutions the flexibility to deliver their curriculum all resident, all DL, or a combination of the two methods (blended). This translates into PME as an option for just about any environment that requires soldiers to quarantine and/or telework.

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Upcoming Conferences of Note

January 20–23, 2021: Association of American Colleges & Universities (AAC&U) Annual Meeting

Virtual conference

https://www.aacu.org/events/am21

Titled "Revolutionizing Higher Education after Covid-19," this year's annual AAC&U meeting will evaluate how higher education institutions are reacting to the current climate. The meeting will be an entirely virtual event due to the ongoing global health crisis.

January 26–29, 2021: Future of Education Technology Conference (FETC)

Virtual conference

https://www.fetc.org/

FETC 2021 will be a fully interactive, free, virtual multi-day conference experience using state-of-the-art technology. Hear from blockbuster keynote speakers, learn from top experts and innovators in education technologies, experience AI-based networking to build your personal learning network, and explore the cutting-edge FETC Virtual Expo where solution providers will demonstrate all the latest apps, hardware, software, and tech tools to help your school or district emerge stronger in this new era.

March 22–24, 2021: The American Council on Education's Annual Meeting

Virtual conference

https://www.acenet.edu/Events/Pages/ACE2021.aspx

Regarded as the most distinguished higher education event nationwide, more than 2,000 executive leaders in higher education regularly attend the annual conference. With a focus on data-driven insights, participants can look forward to three days full of networking opportunities, information sessions, and more.

April 5–9, 2021: Higher Learning Commission (HLC) Conference

Virtual conference

https://www.hlcommission.org/Programs-Events/conference.html

Held virtually this year, the conference offers learning, professional development, and networking opportunities for HLC members.

June 3–5, 2021: Lilly National Conferences: Evidence-Based Teaching and Learning

DoubleTree · Austin, Texas

https://www.lillyconferences.com

The Lilly Conference Series provides opportunities for the presentation of the Scholarship of Teaching and Learning. Faculty and administrators at various stages in their academic careers come from across the United States, representing nearly every discipline found in higher education.

June 4–6, 2021: The Teaching Professor Conference

Sheraton New Orleans Hotel · New Orleans, Louisiana

https://www.magnapubs.com/teaching-professor-conference/

The conference focuses on practical, research-based tools and best practices to help educators excel in the classroom. A Teaching Professor Virtual Conference is offered.

June 8–11, 2021: EduData Summit

Delegates Dining Room at the United Nations · New York

https://edudatasummit.com/

EduData Summit (EDS) is a premier forum for data-driven educators. Learn and share best practices regarding big data, predictive analytics, learning analytics, and education.

June 28–29, 2021: Army University Learning Symposium

Fort Leavenworth, Kansas

More information to be published.

Call for Papers

The *Journal of Military Learning* (*JML*) is a peer-reviewed semiannual publication that supports efforts to improve education and training for the U.S. Army and the overall profession of arms.

We continuously accept manuscripts for subsequent editions with editorial board evaluations held in April and October. The *JML* invites practitioners, researchers, academics, and military professionals to submit manuscripts that address the issues and challenges of adult education and training, such as education technology, adult learning models and theory, distance learning, training development, and other subjects relevant to the field. Submissions related to competency-based learning will be given special consideration.

Submissions should be between 3,500 and 5,000 words and supported by research, evident through the citation of sources. Scholarship must conform to commonly accepted research standards such as described in *The Publication Manual of the American Psychological Association*, 7th edition.

Do you have a "best practice" to share on how to optimize learning outcomes for military learners? Please submit a one- to two-page summary of the practice to share with the military learning enterprise. Book reviews of published relevant works are also encouraged. Reviews should be between 500 to 800 words and provide a concise evaluation of the book.

Manuscripts should be submitted to usarmy.leavenworth.tradoc.mbx.armyu-journal-of-military-learning@mail.mil by 1 April and 1 October for the October and April editions respectively. For additional information call 913-684-9331 or send an email to the address above.

Author Submission Guidelines

Manuscripts should contain between 3,500 to 5,000 words in the body text. Submissions should be in Microsoft Word, double-spaced in Courier New, 12-point font.

Manuscripts will use editorial style outlined in *The Publication Manual of the American Psychological Association*, seventh edition. References must be manually typed. (The automatically generated references employed by Microsoft Word have proven to be extremely problematic during conversion into final layout format for publication, causing delays and additional rekeying of material.) Manuscripts that arrive with automated references will be returned to the authors for compliance with submission requirements. Bibliographies will not be used and should not be submitted with manuscripts.

Submissions must include a one-paragraph abstract and a biography not to exceed 175 words in length for each author. Such biographies might include significant positions or assignments, notes on civilian and military education together with degrees attained, and brief allusions to other qualifications that establish the bona fides of the author with regard to the subject discussed in the article. Do not submit manuscripts that have been published elsewhere or are under consideration for publication elsewhere.

Authors are encouraged to supply relevant artwork with their work (e.g., maps, charts, tables, and figures that support the major points of the manuscript. Illustrations may be submitted in the following formats: PowerPoint, Adobe Illustrator, SVG, EPS, PDF, PNG, JPEG, or TIFF. The author must specify the origin of any supporting material to be used and must obtain and submit with the article permission in writing authorizing use of copyrighted material. Provide a legend explaining all acronyms and abbreviations used in supplied artwork.

Photo imagery is discouraged but will be considered if it is germane to the article. Authors wanting to submit original photographs need to do so in JPEG format with a resolution of 300 DPI or higher. Each submitted photo must be accompanied by a caption identifying the date it was taken, the location, any unit or personnel in the photo, a description of the action, and a photo credit specifying who took the photo. Captions should generally be between 25 and 50 words.

The *Journal of Military Learning* (*JML*) will not consider for publication a manuscript failing to conform to the guidelines above.

The editors may suggest changes in the interest of clarity and economy of expression; such changes will be made in consultation with the author. The editors are the final arbiters of usage, grammar, style, and length of article.

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