

FOSTERING CREATIVE THINKING WITHIN THE U.S. ARMY COMMAND
AND GENERAL STAFF OFFICERS' COURSE CURRICULUM

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MASTER OF MILITARY ART AND SCIENCE
General Studies

by

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ABSTRACT

FOSTERING CREATIVE THINKING WITHIN THE U.S. ARMY COMMAND AND GENERAL STAFF OFFICERS' COURSE CURRICULUM, by Major Sean P. Michaelson, 54 pages.

Increasingly, the need for creativity and creative thinking is being stressed within the Army and all branches of service. The Army has officially recognized that creative thinking can and will help soldiers and leaders prepare to meet the challenges of an ambiguous future operating environment. The Command and General Staff Officers' Course (CGSOC) prepares field grade officers to operate at increased levels of responsibility, therefore this study employs a qualitative narrative analysis methodology to examine the emphasis of creative thinking within the Academic Year (AY) 2016 curriculum. Using the qualitative research analysis software, NVivo 11, current Army doctrine and the CGSOC block and individual lesson advance sheets were examined for the proportionality of seven cognitive learning outcomes, as described in the Chairman of the Joint Chiefs of Staff, Officer Professional Military Educational Policy. This study shows that the AY 2016 CGSOC curriculum places an emphasis on the lower order thinking skill of comprehension, as opposed to the cognitive skills of synthesis and create, which are more closely associated with creative thinking. This study concludes that the Command and General Staff School must officially define creative thinking as a cognitive skill and determine a method for assessing creativity.

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ACRONYMS

AOC	Advanced Operations Course
ADP	Army Doctrine Publications
ADRP	Army Doctrine Reference Publications
AY	Academic Year
CJCSI	Chairman of the Joint Chiefs of Staff
CJCSI	Chairman of the Joint Chiefs of Staff Instruction
CGSC	Command and General Staff College
CGSOC	Command and General Staff Officer's Course
CGSS	Command and General Staff School
IQ	Intelligence Quotient
JCS	Joint Chiefs of Staff
JPME	Joint Professional Military Education
OPMEP	Officer Professional Military Education Policy
OE	Operational Environment
PME	Professional Military Education

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CHAPTER 1

INTRODUCTION

Today's global security environment is the most unpredictable I have seen in 40 years of service . . . Future conflicts will come more rapidly, last longer, and take place on a much more technically challenging battlefield.

— Chairman, Joint Chiefs of Staff, *The National Military Strategy of the United States of America*

As stated by the Chairman, Joint Chiefs of Staff (CJCS) in *The National Military Strategy of the United States of America* (2015), the Operational Environment (OE) of the future will be more uncertain than ever before. Threats to the United States can no longer be simplified as coming from a traditional nation state, such as the Union of Soviet Socialist Republics during the Cold War. Nor can the United States focus on the danger of trans-national terrorist organizations like Al-Qaeda. No longer does the United States have the luxury to focus on one specific threat to national defense. Instead, the OE of the future will be a combination of threats, that will attempt to minimize American strengths in technology through low cost countermeasures such as population integration (HQDA 2014c). The new nature of warfare the military will face will be a hybrid of conventional and unconventional techniques (HQDA 2014c). The “hybrid threat” of the future “is the diverse and dynamic combination of regular forces, irregular forces, and/or criminal elements all unified to achieve mutually benefitting effects”(HQDA 2010, V). Future engagements are likely to involve the employment of military forces against a hybrid threat composed of conventional and unconventional hostile forces across the globe.

Deployment of U.S. forces from 2020 and beyond may not just be in response to direct threats, hybrid or other, to national interests. Instead, a natural occurring

phenomenon may warrant the utilization of U.S military forces to operate in an environment of uncertainty, which will require adaptability and creative thinking. For example, global pandemics, such as the West Africa Ebola crisis, or un-forecasted weather events like the Haiti hurricane response may deserve U.S. military force intervention.

To counter the difficult ambiguity of the future, the joint forces has identified the combination of “people, processes, and programs to execute globally integrated operations,” (CJCS 2015, 13) which requires “innovative leaders, optimized decision-making, and advanced military capabilities” (CJCS 2015, 13). The Army has echoed the JCS call for innovation by incorporating the power of innovation in guiding publications, incorporating innovation in doctrinal publications. The Army is trying to encourage the development of a climate that fosters creative thinking, stating in U.S. Army Training and Doctrine Command Pamphlet 525-3-1, *The Army Operating Concept, Win in a Complex World 2020-2040*, that, “Innovation drives the development of new tools or methods that permit Army forces to anticipate future demands, stay ahead of determined enemies, and accomplish the mission” (HQDA 2014c, 22). The institutional Army takes the need for innovation one step further than the JCS by defining innovation as, “the result of critical and creative thinking and the conversion of new ideas into valued outcomes” (HQDA 2014c, 22). The joint forces and the Army in particular has identified and highlighted the need for creative thinking to meet the challenges of the future through official publications. The past two years has seen an emphasis on this concept through doctrine and official policy. Primarily, the Army’s “human dimension” (CSA and SECARMY 2015, 1) concept has been underscored in terms of leader development over technological

or material solutions to meet the challenges of an ambiguous OE and defeat the enemies of the future (HQDA 2014c). The development of agile, adaptive, and innovative leaders who thrive in chaos are the key components to the human dimension (CSA and SECARMY 2015).

The OE of the future is intricately complex and ever changing (HQDA 2014c). The “human dimension” concept is the Army’s solution. As the OE rapidly changes and “grow more complex, the demand for creative and critical thinkers also grows” (CSA and SECARMY 2015, 4-5). People, and their ability to think, is more important than technology and as a result, “requires the Army to invest more in developing the unique talents and diverse cognitive abilities of its people” (CSA and SECARMY 2015, 5). Arguably, the investment in the people of the Army begins in the institutional Army versus the operational Army. To develop creative soldiers and leaders, “the Army must develop mechanisms that facilitate rapid institutional change to incorporate creative ideas from a variety of sources” (CSA and SECARMY 2015, 5). Almost fourteen years of persistent conflict as part of the Global War on Terror has generated an ability to adapt and overcome rapidly changing battlefield conditions, but as the wars in Iraq and Afghanistan draw down, “the Army must become more agile at the strategic and institutional levels” (CSA and SECARMY 2015, 5).

Problem Statement

It is not known if or to what degree the Professional Military Education (PME) system emphasizes the development of student creative thinking skills to face the uncertainty of the future. The Command and General Staff College (CGSC), “trains and develops leaders for Unified Land Operations in a Joint, Interagency, Intergovernmental,

and Multinational operational environment; and advances the art and science of the profession of arms in support of Army operational requirements” (USACAC 2016). As previously discussed, a key component of agile, adaptive and innovative leaders is creative thinking; yet through the CGSC mission statement, it appears that the emphasis is on traditional processes of thinking rather than encouraging the development of creative thinking skills which will enable officers to successfully defeat the hybrid threat of the future. Yet, the degree to which individual creativity is nurtured by attending CGSC is largely unknown.

Research Question

With such a heavy emphasis on the uncertainty of future conflict and the proposed solution being innovative or creative thinking at the joint and Army levels, does the Command and General Staff Officers’ Course (CGSOC) curriculum place an emphasis on the development of creative thinking to prepare future organizational level leaders for the uncertainty of the future? The subsequent research question is; does current Army doctrine place an adequate amount of emphasis on creative thinking, providing a framework for CGSOC curriculum development?

Purpose

The purpose of this qualitative narrative analysis is to discover the emphasis of creative thinking within the CGSOC curriculum through published and approved Common Core and Advanced Operations Course (AOC) block and individual advance sheets (Creswell 2013). This study will help identify if the Command and General Staff

School (CGSS) has recognized the importance of creativity, and therefore prioritized its development within the CGSOC curriculum.

Research Methodology

This thesis will employ a qualitative approach to answering the primary and subsequent research question. A narrative analysis (Creswell 2013) methodology and the use of the qualitative research software, NVivo 11, will allow the author to systematically examine relevant sources pertaining to this thesis and answer the primary research question.

Assumptions

The first assumption in this study is that creativity and the ability to develop creative thinking skills does exist within the CGSOC curriculum, although it is not known to what degree. The second assumption of this study is that the level of creativity gained by attending and graduating CGSOC is not assessed. The third, and possibly most important assumption, is that creative thinking is a skill that can be developed in an environment, such as PME. That is, creative thinking is not an inherent ability only found in select individuals, but instead through the fostering of a positive learning environment and specific learning outcomes can be achieved.

Definition of Terms

Army Doctrine Publications: “Army doctrine publications (known as ADPs) contain the fundamental principles by which operating forces and elements of the generating force that directly support operations guide their actions in support of national

objectives. An Army doctrine publication provides the intellectual underpinnings of how the Army operates as a force” (HQDA 2014a, 2-5).

Army Doctrine Reference Publication: Army doctrine reference publications (known as ADRPs) provide “a more detailed explanation of the principles contained in the related Army doctrine publication” (HQDA 2014a, 2-5).

Creative Thinking: “Creative thinking involves creating something new or original. Creative thinking leads to new insights, novel approaches, fresh perspectives, and new ways of understanding and conceiving things” (HQDA 2012h, 5).

Critical Thinking: “Purposeful and reflective judgment about what to believe or what to do in response to observations, experience, verbal or written expressions, or arguments” (HQDA 2012h, 5).

Enabling Learning Objective: The specific learning outcomes that must be mastered to accomplish Terminal Learning Objectives (USACGSC 2014, 37).

Field Manual: “Field manuals (known as FMs) contain principles, tactics, procedures, and other doctrinal information. They describe how the Army and its organizations conduct and train for operations. Field manuals describe how the Army executes operations described in the Army doctrine publications. They fully integrate and comply with the doctrine in the Army doctrine publications and Army doctrine reference publications” (HQDA 2014a, 2-5).

Innovation: “the result of critical and creative thinking and the conversion of new ideas into valued outcomes. Innovation drives the development of new tools or methods that permit Army forces to anticipate future demands, stay ahead of determined enemies, and accomplish the mission. Innovation is particularly important in organizations that

develop capabilities as well as those that train, equip, and sustain forces” (HQDA 2014c, 22).

Institutional Training Domain: “The institutional training domain is the Army’s institutional training and education system, which primarily includes training base centers and schools that provide initial training and subsequent professional military education for Soldiers, military leaders, and Army civilians” (HQDA 2012e, 2).

Learning: “Cognitive and/or physical process where a person assimilates information, and temporarily or permanently acquires or improves skills, knowledge, behaviors, and/or attitudes” (HQDA 2014b, 233).

Operational Training Domain: “The operational training domain is the training activities organizations undertake while at home station, at maneuver combat training centers, during joint exercises, at mobilization centers, and while operationally deployed. This domain equates to assignments in the operational Army and the generating force” (HQDA 2012e, 3).

Self-Development Training Domain: “Planned, goal-oriented learning that reinforces and expands the depth and breadth of an individual’s knowledge base, self-awareness, and situational awareness; complements institutional and operational learning; enhances professional competence; and meets personal objectives” (HQDA 2012e, 3).

Terminal Learning Objective: “Specifies what students should know or be able to do at the end of the course that they didn’t know or couldn’t do before” (HQDA 2014b, 233).

Limitations

The depth and breadth of research into the development of creative thinking in the civilian education and business world is exhaustive. Unfortunately, there is no universally agreed upon method of developing creativity and assessment of individual creative thinking skills. There are some tests that claim to identify certain personality traits found to be more conducive to creativity, but these tests are far from 100 percent effective. Additionally, there is no universal method to assess the level of creativity within an educational curriculum. The efficiency of a curriculum may only be judged after the student body has been released back into the general Army population and their ability to be creative is measured in terms of battlefield success.

Delimitations

Critical and creative thinking are mutually supporting concepts and as a result are often used interchangeably. However, while critical and creative thinking complement each other, they are distinct concepts that require special attention. The aspects of an environment conducive to one may not be conducive to the other. Therefore, this study will focus singularly on creative thinking development in the CGSOC curriculum and not the confluence of both. Additionally, only the block and individual lesson advance sheets will be examined as a part of this study of creativity within the CGSOC curriculum. Lesson plans and all readings were not included for analysis.

Significance

This study has the potential to have wide and far-ranging consequences for the education of Army leaders in the future. It is unlikely that the current and future OE is not

going to suddenly become more clear and certain. Therefore, as the Army has ascribed, leaders that can function well and even thrive in chaos is critical (CSA and SECARMY 2015). Most research in creative thinking is geared towards the civilian business and educational domains. The U.S. military presents a somewhat different cultural environment as compared to the civilian world, but this does not make their models inapplicable. This study has the potential to blend civilian attributes of learning environment that develops creative thinking with the Army culture. The result of which could be a model for the growth of exactly the kind of soldiers the Army says is a requisite for the OE of the future.

Conclusion

The uncertain OE of the future is going to force the Army into unpredictable situations that may not have been accounted for in training. The solution is an investment in the human capital of the force that will build the adaptiveness required to fight and win. An investment in human capital represents a potential change in the PME of soldiers and leaders across the Army.

CHAPTER 2

LITERATURE REVIEW

Everyone has the potential to be creative, but not everyone fulfills that potential. . . . The world could be a very different place—a more entertaining, productive, and efficient place—if we each used our full potential.

— Mark A. Runco, *Creativity: Theories and Themes: Research, Development, and Practice*

The measurement of creative thinking and or what constitutes a creative versus a non-creative individual or organization is best classified as vague; yet the importance of creative thinking development in current and future military leaders has been espoused at the highest levels as described in chapter 1. CGSS and CGSOC has an inherent responsibility to foster the development of creative thinking. Thus, the primary research question is; does the CGSOC curriculum place an emphasis on the development of creative thinking to prepare future organizational level leaders for the uncertainty of the future? The subsequent research question is; does current Army doctrine place enough emphasis on creative thinking, providing a framework for CGSOC curriculum development?

This literature review will survey works that recognize that all individuals have the ability for creative thought and creativity is a skill that can be developed and fostered through deliberate cognitive processes and influenced through educational curriculum, such as that presented at CGSOC. An examination of the psychological and social science fields provides insight into individual creativity, specifically a scientific model for the cognitive process of and origin of creativity. The civilian business world presents a large group of literature to be studied as it applies to the development and application of

creative thinking in otherwise non-creative individuals and organizations. Educational interventions that foster creativity will be examined next. As doctrine represents concepts that guide and govern the Army profession, a comprehensive review of ADPs and ADRPs will be detailed, to explain the role of creativity within the U.S. Army.

Individual Creativity

The search for creativity and what helps drive innovation has long been studied. However, research in the last century into the origins of creativity, shows that it begins with the human mind. As such, while creativity is often times equated to a spark of genius that some individuals possess and some do not, exhaustive research in the field suggests that creativity is in reality a cognitive process. Multiple cognitive models exist and more are being developed and published every day, but a seminal reference, still recognized today comes from the early twentieth century British psychologist, Graham Wallas. Wallas devised what is known today as a stage model describing the act of creation in four separate and distinct mental acts. These stages of the creative process are; “preparation,” “incubation,” “illumination,” and “verification” (Runco 2010, 19). The first stage of the model, “preparation,” is what is most commonly known today as “problem identification” (Runco 2010, 19). This phase can be closely related to the mission analysis step of the Military Decision Making Process. The individual will delineate what exactly the problem is and gather all relevant and related facts to the problem he or she is attempting to solve before moving into the second stage (Sawyer 2003). The first stage of the Wallas model is relatively easy to understand and the easiest to comprehend. The “incubation” (Sawyer 2003, 23) stage however, begins to move into a bit of murkiness as it deals with the human unconsciousness. The second stage of the

model serves as a waypoint between “preparation” and “illumination” (Sawyer 2003, 23). All information gathered in the first stage is mentally consumed and routed through an unconscious internal organization and reorganization as the mind seeks the third stage, “illumination” (Sawyer 2003, 23). The “incubation” period describes how an individual can be mentally solving a problem in their sub-conscious, while not actively thinking about it (Runco 2010, 19). Sometimes in the field of cognitive research this stage is best explained as, the sub-conscious is freely working without the interference of the consciousness mind (Runco 2010). The third stage, “Illumination” is arguably the shortest of the four stages and describes, in time and space the “Eureka” moment (Sawyer 2003, 23, 26). It may appear that solutions to problems pop into our heads, but in reality the “illumination” stage cannot happen without going through the first two stages, even if they happen rapidly and within the unconsciousness (Runco 2010, 19). Unfortunately, all ideas are not good ideas, which is why the human mind moves into the fourth stage, “verification” (Sawyer 2003, 23). During this phase, all ideas produced from “illumination” are validated by the conscious mind, or more simply is this idea suitable, feasible and acceptable (Sawyer 2003, 23). While this stage model is described in a linear fashion, current research suggests that the process actually occurs in a recursive manner. Meaning an individual may leap between stages and repeat steps if necessary (Runco 2010).

Intelligence and Creativity

In the mid-twentieth century, much of the research investigating creativity focused on evaluating the relationship between intelligence, measured as intelligence quotient (IQ) and creativity. This was important because in the quest for the identification

of creativity, intelligence could be tested, consequently if the two could be correlated than creativity could be measured through student achievement as measured by grade point averages and IQ tests in children (Runco 2010). The initial research, conducted in 1962 by Jacob Getzels and Phillip Jackson (Runco 2010), associated intelligence and creativity and found that general intelligence, IQ, and creativity are related. However, in 1965, Michael Wallach and Nathan Kogan disagreed with the conclusion and more importantly the method in which the study was conducted, believing that if tests are not administered in a certain set of conditions that the testing conditions themselves can suppress creativity in otherwise creative individuals (Runco 2010).

Wallach and Kogan conducted their testing in what was termed a “permissive environment” (Runco 2010, 3), or more simply a psychologically safe environment. They administered a series of questions looking to gauge convergent and divergent thinking; convergent thinking being thought of as traditional intelligence, or schoolhouse answers. Convergent thinking questions usually only have one answer. For example, how many inches are in one foot? Divergent thinking, on the other hand, can be equated to creativity and creative thinking. Divergent thinking questions do not have one simple answer and there are no wrong answers. An example of divergent thinking is; make a list of possible uses for a paper clip. The children tested were also instructed to think of the tests as a game where there was no wrong answer and spelling did not matter. Instead, the researchers emphasized to the children that what mattered most was listing as many answers to the questions as possible, because again, there were no wrong answers.

The results of these tests, conducted in a risk-free environment were much different than the original Getzels and Jackson study and found no correlation between

convergent thinking (traditionally thought of as intelligence) and divergent thinking (creativity), instead they represent two autonomous forms of thought (Runco 2010). To clarify the implication of this study and the numerous studies conducted in the same manner, in a permissive environment, is that creativity is not the same as traditional intelligence. Or, the development of traditional intelligence, convergent thinking, has no impact on the development of creative or divergent thinking (Runco 2010).

Wallach and Kogan's initial research concluded that intelligence and creativity were distinct of one another. Excelling in one was not a predictor of success in the other, but more recent research suggests the two related. "Threshold theory" holds that intelligence and creativity are not completely correlated, nor are they completely independent. Instead, there exists a minimum amount of traditional intelligence required, threshold, for one to be creative (Runco 2010, 6). The "threshold theory's" (Runco 2010, 6) biggest implication is that if an individual falls below the cut-line of minimum intelligence, there is no chance for creative thought. However, traditional intelligence above this line indicates an individual has the potential for creativity, but may not display the attributes of divergent thinking (Runco 2010).

Another topic frequently found in the literature in regard to creativity, is the role of mental development over the course of an individual's life span and the various factors that can promote or inhibit creativity (Runco 2010). The study of development, similar to the study of creativity, has numerous models and theories. For simplification, this literature review will focus on Lawrence Kohlberg's model, which was created during his research on moral reasoning, as described by Mark Runco in *Creativity: Theories and Themes: Research, Development, and Practice*. This model for development is one of the

most applicable to the study of creativity as it deals with “conventions” (Runco 2010, 41). “Conventions” (Runco 2010, 41) whether they be formal or informal define normative behavior. As creative thinking can be defined as abnormal thinking, this model focusing on the development of normal behavior is well suited (Runco 2010). Kohlberg’s model (Runco 2010) for development describes three levels of development: pre-conventional, conventional, and post-conventional. The pre-conventional stage applies to young children as they are new to the world and are not able to recognize or think in a conventional fashion (Runco 2010). The pre-conventional stage explains the conviction that children are more creative than other age groups because their behavior, language, play, and art is totally self-expressive (Runco 2010). Moving on through life, children enter the conventional phase, where cognitive function has developed enough to understand basic conventions and they begin to display normative behaviors expected of society. It is during this phase that creativity reaches a low point as fitting in or growing up seem more important than creativity (Runco 2010). Eventually with enough of the right experiences, the post-conventional phase of development is entered, where thinking for one’s self is achieved and conventions are used only as reference (Runco 2010). It is during this phase where creativity and divergent thinking has the potential to increase.

An individual’s experiences and the environment could also affect the development of creativity. The experience of adversity is often times thought to drive creativity and innovation and several studies have tried to prove a correlation between the two. One of the more popular studies, *Cradles of Eminence*, from Victor and Mildred Goertzel used biographical and autobiographical data to conclude that out of 400 celebrated persons studied, an overwhelming majority had faced severe adversity, mostly

in their childhood (Runco 2010, 46). The implied conclusion of this study is that hardship at an early age instilled a need to be creative as a coping method of dealing with the adversity faced at the time that then enabled those individuals to become distinguished members of society. One of the most conclusive statements of *Cradles of Eminence*, as quoted by Mark Runco in his own work, *Creativity*, is, “The comfortable and contented do not ordinarily become creative” (Runco 2010, 46). A similar study conducted around the same time by MacKinnon (Runco 2010), concluded almost the same thing as Goertzel and Goertzel but with an importance on the role of parents, specifically fathers in the lives of creative individuals. Donald MacKinnon found that creative individuals tended to have over bearing and merciless fathers (Runco 2010).

Beyond the individual role of parents in creating tension, the family characteristics of process and structure have been linked to the development of creativity (Runco 2010). Process refers to how the family operates on a daily basis, or “discipline by parents who are somewhat lax but still give a sense of security for children, allowing them to explore, play, and experiment, all of which can contribute to practical but creative problem solving” (Runco 2010, 51). Structure, describes how the family is organized. According to Runco, there is compelling evidence that children’s positions within the family is a strong predictor of creative behavior. With the arrival of siblings, the eldest child whom was previously an only child has a need for achievement and as a result, conforms more quickly. Second and third children attempt to find their role in the family and because the eldest has taken the part of conventional achiever, become more divergent or creative (Runco 2010).

Creativity in Business

Creativity and innovation is extremely important in business. There are thousands of books and articles published each year on creativity in the business sector. Numerous organizations exist, giving seminars to executives all over the world on this very topic because of its relevance and importance. The reason for this focus is quite simple.

Creative companies are more successful than non-creative or status quo organizations, so creativity equals profit. A Swedish government report cited in *Creativity Unlimited:*

Thinking Inside the Box for Business Innovation (Dahlen 2015) found that “the yield from creativity in the form of new business among companies was on average 25 – 40% at the company level and all of 55 – 80% at the level of society as a whole” (Dahlen 2015, 41). Just as the military faces an uncertain OE, so does the private sector.

Technology is advancing at a rapid pace and foreign nations are moving beyond consuming the unskilled labor market and are trending to outpace the United States in terms of skilled labor because of their investments in education and technology (Liu, Noppe-Brandon, and Lincoln Center Institute 2009). Eric Liu and Scott Noppe-Brandon assert that one advantage that America has always had over other countries is imagination, which could be described as one of America’s most precious and vital resources (Liu, Noppe-Brandon, and Lincoln Center Institute 2009).

The ability to innovate requires an investment in human capital. Employees with a sense of fulfillment and job satisfaction are generally more productive and workers allowed to exercise creativity in the work setting are happier (Dahlen 2015). One model presented by Micael Dahlen in *Creativity Unlimited* explains the creative process as three parts; knowledge, motivation, and situation (Dahlen 2015). These three factors are

unequal according to Dahlen and end in a creative result. Knowledge accounts for 32 percent (Dahlen 2015, 73) of the creative result, but is invaluable because without some experience in the field a successful result is impossible. A common myth related to creativity in business is that innovation can only come from an outsider, when in reality a base of knowledge in the field is a key component to creativity in the field, whether it be marketing, sales, or the stock market (Dahlen 2015). In contrast, knowledge can be a hindrance to creativity as described by Cynthia Barton Rabe in *Innovation Killer: How What We Know Limits What We Can Imagine--And What Smart Companies Are Doing about It*. Conventional wisdom in business is to hire experts in a given field with the assumption that they are the best equipped to lead innovation. Rabe argues that the exact opposite is the case because experts have the inability to think outside the norms within their specialty (Rabe 2006). “Expertthink” as Rabe calls it is “the tendency to make decisions with which the ‘establishment’ will agree” (Rabe 2006, 14). David Burkus calls this the “expert myth” (Burkus 2013, 12). Burkus describes that contrary to logic, knowledge in a given field can actually decrease creativity over time, especially as a level of expertise is achieved (Burkus 2013).

Motivation accounts for the smallest percentage, 25 percent (Dahlen 2015, 73), of the three factors but cannot be discounted. Motivation is the smallest percentage because, the capacity (motivation) for creativity is largely dependent on an individual’s state of mind, which varies (Dahlen 2015). Motivation is also directly linked to knowledge because, “it is not enough to have the right knowledge. You must also understand that it is correct and thereby want to use it creatively” (Dahlen 2015, 74).

The third and final component of Dahlen's model is situation. At 43 percent (Dahlen 2015, 73), the situation represents specific work processes and possible incentives for producing a creative result. Everyone has the capacity to be creative, but creative individuals display the capacity for idea generation more so than others, but this trait can be forced through the application of deliberate processes (Dahlen 2015). Dahlen argues that the human mind is lazy and falls prey to ingrained thinking that takes the path of least resistance, termed tunnels and riverbeds, but through deliberate thinking these tunnels and riverbeds can be avoided (Dahlen 2015). The first step is to understand that innovation does not come from "outside of the box" thinking, but instead "inside the box" thinking (Dahlen 2015, 103). This cannot happen unless "the box" (Dahlen 2015, 104) is understood, then the box can be expanded. Everyone faces limitations in their lives and as a result, reside within "boxes," but knowing what exactly the box consists of is a huge first step towards creativity (Liu, Noppe-Brandon, and Lincoln Center Institute 2009, 69).

The belief that being completely free from rules or constraints, creates the optimal conditions for creativity is what Burkus describes as the "constraints myth" (Burkus 2013, 14). The reality of course is that the human mind needs some form of structure. A problem cannot be solved or a new product invented if one does not have an understanding of what they are trying to achieve (Burkus 2013). There are many descriptions of the box within creativity in business literature, but this literature review will focus on the model presented in *Creativity Unlimited*.

Dahlen's four walls of the box are; conventions and rules, common sense, physiology, and consciousness (Dahlen 2015). Conventions and rules are not the same

“conventions” (Runco 2010, 41) described above by Runco, but instead the limits individuals place on themselves which are often times the hardest to break (Dahlen 2015). Common sense as the second wall of the box is what an individual perceives as the correct answer, because the mind is falling into a thinking trap as it desperately searches for the easiest path to a solution. There can be multiple solutions to a problem set, but often times “common sense“ immediately dictates a solution and retards the creative process (Dahlen 2015 127). The third wall of the box, physiology, describes the fundamental structure of the brain. Certain regions of the brain perform specific functions which can have an adverse effect on creativity (Dahlen 2015). This physiology can be overcome through systematic thought processes that force the brain to work in concert or, put all of the puzzle pieces in one box. As noted above in the Wallas stage model of the creative process (Runco 2010), the sub-consciousness plays a vital role in creativity, the same is true in Dahlen’s model of the box (Dahlen 2015). Creative individuals must understand that creativity comes as much from mental relaxation as it does concentration (Dahlen 2015).

Another popular construct in the field of business creativity is lateral thinking and lateral leadership (Sloane 2006). Lateral thinking is “thinking that seeks new ways of looking at a problem rather than proceeding by logical steps” (Sloane 2006, 7). Lateral leadership helps to inspire creativity within their organization to develop new solutions to problems. In *Lateral Thinking: Unlocking the Creativity and Innovation in Yourself and Your Team*, Paul Sloane contrasts the characteristics of a lateral leader to conventional business leadership. The lateral leader is focused on team creativity and innovation more than process, whereas the conventional leader is efficient and goal oriented. Lateral

leaders can be found in smaller, technological firms where innovation is the key to success and conventional leaders are found in more structured settings like government or the military (Sloane 2006). Just as Dahlen (2015) above, Sloane feels that lateral leaders are not born. Instead, through the direct application of deliberate creative thinking processes, anyone has the capacity to display creative or innovative thinking. Through twenty lateral leadership techniques, Sloane describes how a conventional leader can become more creative, but the process of change cannot begin without a shared vision of innovation and effective communication throughout the organization (Sloane 2006).

Deliberate thought processes and techniques can help drive creativity but it is also important to remain constantly cognizant of the factors that can stifle innovation within an organization (Sloane 2006). Sloane describes twelve “great ways to crush creativity” (Sloane 2006, 116) While this literature review will not survey all twelve, the author will focus on three of the most applicable to this thesis. Criticism is one of the surest ways to kill the creative mindset in an organization (Sloane 2006). Constant criticism of a team member’s ideas will slowly erode their confidence, causing them to stop bringing new ideas to the team, but instead to conform to existing conventions (Sloane 2006). Fear of being wrong or failure can lock an individual into a “creative thinking prison“ which creates a hesitancy to suggest new techniques or explore alternatives to the status quo (Dundon 2002, 22). Overworking is the next way that creativity can be limited (Sloane 2006). Working longer and harder on a problem does not equate to productivity in solving the problem. Without taking time to relax and allow the mind time to solve the problem through the sub-conscious thought, innovation cannot ever happen. There is simply not enough excess capacity for creativity when constantly consciously thinking

about a problem (Sloane 2006). The third and last hindrance to creativity described here is promotion from within (Sloane 2006). Promoting from within the ranks of a company definitely has its advantages, but also severe consequences. Promoting from within a team, results in the advancement of individuals that have conformed to the culture of the team and are less likely to go against pre-established conventions (Sloane 2006).

Creativity in Education

Creativity in the classroom results in true learning as opposed to traditional intelligence (James and Brookfield 2014), or “when students learn something using different senses and when they study the same content through different modalities, there is a depth and complexity to their learning” that is not present in traditional teaching methods (James and Brookfield 2014, 4). In *Engaging Imagination: Helping Students Become Creative and Reflective Thinkers*, Alison James and Stephen Brookfield describe six techniques for the active engagement of students. This literature review will focus on one of the techniques in order to remain relevant to the primary and secondary research questions. The method described is the use of visually based teaching and learning. James and Brookfield, delineate between looking and seeing (James and Brookfield 2014). Looking is more of an initial scan of images, while seeing, as defined by James and Brookfield can lead to a more profound appreciation (James and Brookfield 2014). Of course, it can be argued that some students learn visually, others do not, and there are tests that can help identify learning methods more applicable to some students as opposed to others. However, the exploration of visual teaching techniques through the use of pictures and images “help students understand complex ideas, explore new knowledge, and communicate learning” (James and Brookfield 2014, 70).

According to Patti Drapeau (2014) the teacher has a significant role to play in the fostering and development of student's creative thinking. Primarily, teachers themselves have to accept creativity and potentially novel solutions. Teachers are responsible for setting the classroom conditions that will spark creativity (Drapeau 2014). The student has to feel free to express their ideas and opinions in a safe environment, free from criticism and ridicule (Drapeau 2014). Various techniques can be employed to create this environment with one of the more successful being the formation of small groups where familiarity is gained among its members and true self-expression can be displayed (Drapeau 2014). Teachers also have the responsibility to think of themselves not only as teachers, but coaches. Teachers help students through the learning process as they provide students with "resources, modeling and advising and develop criteria for measuring progress and success" (Drapeau 2014, 18).

Problem based learning is a technique that encourages the use of creative problem solving skills can help foster individual and group creativity in the classroom (Drapeau 2014). Creative problems present the student with a situation where all of the facts are not known, forcing students to sort through information that is provided, identify gaps in the information provided and make assumptions along the way (Drapeau 2014). Working through the creative problem solving process is shown to provide greater content knowledge (Drapeau 2014).

Cognitive taxonomies are useful tools in education to assist in curriculum development by associating learning objectives to corresponding levels of thought (Brookhart 2010). In 1956, Benjamin Bloom, managed the creation of a framework for understanding how human beings think and process information in order to increase the

effectiveness of educators (Reeves 2011). This framework, or as it is more commonly known, “Bloom’s Taxonomy” became one of the most widely used tools to aid in curriculum development and, despite its age, is still used by many educational facilities today (Brookhart 2010 40). “Bloom’s Taxonomy” is comprised of six domains: knowledge, comprehension, application, analysis, synthesis, and evaluation (Brookhart 2010, 40). These domains range from simple (knowledge) to multifaceted (evaluation) skills and are often displayed as a pyramid to aid in visualization (Reeves 2011). Synthesis, considered a higher order thinking skill, is most applicable to creative thinking. Synthesis is defined as, “putting parts together to form a new whole. Synthesis level tasks require arranging ideas in a new or original way” (Brookhart 2010, 40).

While Bloom’s original taxonomy is still in use today by multiple education institutions, a revision was published in 2001 (Brookhart 2010). The revised taxonomy is similar to the original, with the cognitive processes being expressed from low to high order thinking skills, but the original nouns were replaced with verbs and the higher levels of thinking were re-organized (Reeves 2011). The revised taxonomy is comprised of, from lowest to highest order thinking skills; remember, understand, apply, analyze, evaluate, and create (Brookhart 2010, 41). Create, expressed in the revision as the most complex cognitive skill, is most closely associated with creative thinking and is defined as, “putting disparate elements together to form a new whole, or re-organizing existing elements to form a new structure. Process includes generating, planning, and producing” (Brookhart 2010, 41).

Creativity in U.S. Army Doctrine

Even though creative thinking within the military is a new concept, its importance as a quality of Army leaders is beginning to take center stage. The ADP that sets the tone of all other ADPs and ADRPs is ADP 1, *The Army*. ADP 1, “states what the Army is, what the Army does, how the Army does it, and where the Army is going (HQDA 2012a, iii). With ADP 1 having such an important role in defining various aspects of the Army, it is noteworthy that creativity within the Army is addressed as “training and leader development must emphasize and recognize creativity at every level, and we need to reward leaders for their creativity” (HQDA 2012a, 4-4). ADP 1-01, *Doctrine Primer*, extensively describes the role of doctrine to the Army profession and the often times ignored relationship between the Army’s professional body of knowledge and creativity (HQDA 2014a), clearly stating, “Tactics always require judgment in application and often require creative thinking; they are always descriptive, not prescriptive” (HQDA 2014a, 2-2).

ADRP 3-0, *Unified Land Operations*, describes the Military Decision Making Process as helping “commanders, staffs, and others think critically and creatively while planning” (HQDA 2012f, 1-9). ADRP 3-0 highlights the need for creativity within the Army, stating, “Flexibility and innovation are at a premium, as are creative and adaptive leaders. . . . The Army requires flexibility in thought, plans, and operations to be successful in unified land operations (HQDA 2012f, 2-13). ADP 3-90, *Offense and Defense*, annotates, “the first aspect of the art of tactics is the creative and flexible application of the means available to the commander to seize and retain the initiative from the enemy” (HQDA 2012b, 2). The linkage between the commander, enemy and

tactics is described as, “Commanders use their creativity to develop solutions for which the enemy is neither prepared nor able to cope” (HQDA 2012b, 1), which is further expanded upon in ADRP 3-90 as, “every commander needs a high degree of creativity and clarity of thought to outwit a willing and able opponent” (HQDA 2012g, 1-2 - 1-3). The fact that no two tactical situations are the same and no standardized solution exists; requiring creativity is summed up with, “there are no checklists for solving tactical problems. Tacticians must not look for a checklist; instead, they must use their experience and creativity to out think their enemies” (HQDA 2012g, 1-2).

ADP 5-0, *The Operations Process*, represents a shift in doctrine from emphasizing the need for creative thinking to the application of creativity within the Army profession. ADP 5-0, describes the application of critical and creative thinking within the operations process as indispensable to commanders and staffs in order to assist, “with understanding situations, making decisions, and directing action” (HQDA 2012c, 5). ADP 5-0 offers the linkages between critical and creative thinking, but also describes them as two distinct thought processes central to the Army planning process. Critical thinking is pronounced as “purposeful and reflective judgment about what to believe or what to do in response to observations, experience, verbal or written expressions, or arguments,” (HQDA 2012c, 5), whereas creative thinking “leads to new insights, novel approaches, fresh perspectives, and new ways of understanding and conceiving things” (HQDA 2012c, 5). ADRP 5-0, *The Operations Process*, does not expand much on creative thinking beyond ADP 5-0, but does define the application of critical and creative thinking as one of the four “principles of the operations process” (HQDA 2012h, 1-3).

ADP and ADRP 5-0 explain the role of creative thinking as applied to the Army operations process, whereas ADRP 6-0, *Mission Command*, explains creativity as applicable to the art of command. ADRP 6-0 goes into tremendous depth describing how critical and creative thinking aid commanders in gaining situational understanding and ultimately help informed decision making (HQDA 2012e). ADRP 6-0 also separates critical and creative thinking, providing a definition for each similar, but not identical, to the description provided in ADRP 5-0. Creative thinking is described as “thinking in new, innovative ways while capitalizing on imagination, insight and novel ideas . . . Creative thinking leads to new insights, novel approaches, fresh perspectives, and new ways of understanding and conceiving things” (HQDA 2012i, 2-8). ADRP 6-0 emphasizes the need for commanders to employ creative thinking in the execution of their duties, but also highlights that commanders are ultimately responsible for the encouragement of subordinates’ creative thinking. The future nature of warfare for the Army is unknown, but what is known is that the enemies of the future will be thinking and extremely adaptive to any situation (HQDA 2012i). In order to prepare for these future conflicts, successful commanders should “encourage subordinates to bring creative and innovative ideas to the forefront . . . The result is a command climate that encourages initiative and supports operational adaptability” (HQDA 2012i, 2-12). Of higher order than the commander is a high performing organization that can meet the un-forecasted demands of the future, and “effective teams . . . promote the exchange of ideas, creativity, and the development of collective solutions” (HQDA 2012i, 3-4).

ADP and ADRP 6-22, *Army Leadership*, forms the bedrock of the profession of arms. These doctrinal publications collate the leadership attributes, competencies, and

skills that apply to officers, noncommissioned officers and Army civilians alike (HQDA 2012d). Almost immediately, ADRP 6-22 stresses that for the philosophy of mission command to be successful, as explained in ADP and ADRP 6-0, leaders must “receive training, education, and experience to become . . . Critical and creative problem solvers, agile and able to make decisions in operational environments with uncertainty, complexity, and change” (HQDA 2012j, 1-3). Following that, what are described as “conceptual abilities” are stressed as enabling effective problem solving and sound judgment (HQDA 2012j, 1-5). Innovation is described as one of the five key components that make up an Army leaders intellect along with mental agility and interpersonal tact (HQDA 2012j). Critical and creative thinking are emphasized as the basis for the Army Design Methodology in order to “understand, visualize, and describe complex, ill-structured problems and develop approaches to solve them” (HQDA 2012j, 5-1). Critical and creative thinking are linked, but described as two distinct yet interrelated concepts. Creative thinking is described as involving “thinking in innovative ways while capitalizing on imagination, insight, and novel ideas” (HQDA 2012j, 5-1). The concepts of innovation and creativity are linked and terms that are used almost interchangeably throughout ADRP 6-22. Innovation is described as, “the ability to introduce something new when needed or as opportunities exist . . . Being innovative includes creativity in producing original and worthwhile ideas” (HQDA 2012j, 5-2).

Following a format similar to ADRP 6-0, ADRP 6-22 stresses that a key component of high performing teams and organizations is creativity and innovation. However, ADRP 6-22 emphasizes that creative thinking leaders that will challenge subordinates with novel ideas and approaches. The result of which will be climate where

subordinates consider themselves as stakeholders of change (HQDA 2012j). Creative thinking and innovation are associated with learning organizations, which always strive to do better as they increase their efficiency. Critical and creative thinking and the encouragement of both from others is listed as a characteristic of a high performing, learning organization (HQDA 2012j). As an aspect of creating an environment that fosters creative thinking, leaders have to pick staff members that individually display the qualities of innovation, creative thinking, and acceptance (HQDA 2012j). Then together as a group, the staff has the potential to be a high performing organization that displays adaptability in the ambiguous OE of the future (HQDA 2012j).

ADP 7-0, *Training Units and Developing Leaders*, identifies that training leaders to think critically and creatively as one of the seven principles of leader development (HQDA 2012e). ADP 7-0 makes the declarative statement that “critical thinking and creativity are not necessarily inherent; however, leaders can develop them” (HQDA 2012e, 9). ADP 7-0 fails to go into specifics on this development of creative thinking but does state that the employment of mission command as a philosophy, “encourages risk-taking, initiative, and creativity in subordinates” (HQDA 2012e, 8).

ADRP 7-0, *Training Units and Developing Leaders*, does little to expand upon the training or development of creative thinking but does link creative thinking to the sought after trait of adaptability stating, “Train as you will fight, means training under an expected OE for the mission . . . Training conditions must enable leaders and Soldiers to assess challenges and employ critical thinking to develop sound, creative solutions rapidly” (HQDA 2012k, 2-2). Training leaders to think critically and creatively is listed as a principle of leader development, where four characteristics are associated with

critical and creative thinkers. Unfortunately, because critical and creative thinking are linked in this instance it is difficult to discern how ADRP 7-0 defines a creative thinker, but one of the four characteristics stands out as being more than likely associated to creative thinking. Critical and creative thinkers “are open-minded and consider alternative, sometimes nonconformist, solutions and the second-and third-order effects of those solutions” (HQDA 2012k, 2-5). This characteristic, ordered first of the four, speaks to innovation and trying things in a different way.

Summary

This survey of literature has shown that creative thinking is a cognitive skill that can be influenced through educational interventions, such as the CGSOC. Science has studied and continues to study the origins of creativity and the cognitive processes associated with creative thinking (Runco 2010). The civilian business sector, recognizes that creativity is a skill that can and must be developed in order to maintain a competitive edge (Dahlen 2015). The field of education also recognizes the importance of creativity and the identification of specific cognitive skills (Brookhart 2010). The military, Army specifically, recognizes the need for creativity and the direct application of creative thinking will enable soldiers to fight and win in the ambiguous OE of the future (HQDA 2014c).

CHAPTER 3

RESEARCH METHODOLOGY

The current environment in which the U.S. Army is conducting operations is complex and will continue to change and grow in the future. This study attempts to assess creative thought development within the current PME system, and a qualitative approach was adopted in order to extract the significance (Creswell 2013) placed upon creative thinking by the Army, specifically CGSOC through an examination of course curriculum. Using QSR International's qualitative data exploration tool, NVivo 11, a narrative analysis (Creswell 2013) was conducted of three main sources; current Army doctrine, Academic Year (AY) 2016 CGSOC Common Core and Advance Operations Course curriculum. These sources were chosen to answer the primary research question; does the CGSOC Common Core curriculum place an emphasis on the development of creative thinking to prepare future organizational level leaders for the uncertainty of the future?

CGSS has the responsibility to maintain three accreditations: regional, joint, and Army. In order to maintain the ability to grant Joint Professional Military Education (JPME) Phase I credit, the CGSS undergoes a Process for Accreditation of Joint Education team inspection every six years (Bassett 2016), based on the CJCS, Officer Professional Military Education Policy (OPMEP). Appendix A to Enclosure E of Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 1800.0IE, Learning Objective Verbs, utilizes Bloom's Taxonomy as a basis for defining the cognitive levels of learning achievement associated with JPME Phase I accreditation (see Appendix A). Using NVivo 11, seven nodes or themes were created based on the cognitive domain levels as described in Appendix A to Enclosure E of CJCSI 1800.0IE. NVivo 11's text search

function was utilized to conduct systematic coding, using the illustrative words provided in Appendix A to Enclosure E of CJCSI 1800.0IE. The query results were then automatically coded to the appropriate node. This process was repeated for all seven cognitive domain levels and their corresponding illustrative words. The results were displayed using NVivo 11's Hierarchy Chart Wizard. The amount of coding for all nodes was then compared against all sources. Emphasis of creativity within the curriculum was assessed based on the inclusion and proportionality of the nodes, create and synthesis as these are the two cognitive levels of learning most associated with creative thinking as described in the OPMEP (Vice Director, Joint Staff 2015). Prior to answering the primary research question, one subsequent research question must be addressed; does current Army doctrine place adequate emphasis on creative thinking, providing a framework for CGSOC curriculum development?

In order to answer the subsequent research question, sixteen ADPs and fifteen ADRPs were uploaded into the NVivo 11 software as sources. One folder will contain all ADPs and another will contain all ADRPs. The coding and theme methodology described above was employed and a hierarchy chart generated to answer the subsequent research question; does Army doctrine place an emphasis on creative thinking? Emphasis of creativity in Army doctrine was assessed based on the inclusion and proportionality of the nodes, create and synthesis.

To answer the primary research question, an analysis of the AY 16 curriculum was conducted using sixteen block advance sheets and 147 individual lesson advance sheets encompassing both the CGSOC Common Core and AOC curriculum. As an AY 16, CGSOC student, all block and individual lesson advance sheets were collected from

the author's individual access. All advance sheets will be used in their entirety, with no editing performed by the author. Common Core block and individual lesson advance sheets were organized into the NVivo 11 source folder, with sub folders representing the respective blocks. The same coding and theme methodology described above and applied to an analysis of Army doctrine will be employed and a hierarchy chart will be generated.

A qualitative, narrative analysis using coding and themes provided by Appendix A to Enclosure E of CJCSI 1800.0IE was applied in this study through NVivo 11 software in order to discover, the emphasis of creative thinking in Army doctrine as described in ADPs and ADRPs. CGSOC AY 2016 block and lesson advance sheets were also examined using the same methodology to answer the primary research question; does the CGSOC Common Core curriculum place an emphasis on the development of creative thinking to prepare future organizational level leaders for the uncertainty of the future?

CHAPTER 4

ANALYSIS

The role and importance of creativity has several direct applications to the current environment of uncertainty faced by Army soldiers and leaders (HQDA 2014c). CGSOC prepares field grade officers to move beyond the company level and lead at the battalion or brigade level. A key component to leading at levels of increased responsibility is creative thinking (HQDA 2012j). Thus, the primary research question remains; does the CGSOC Common Core curriculum place an emphasis on the development of creative thinking, to prepare future organizational level leaders for the uncertainty of the future? The subsequent research question is; does current Army doctrine place adequate emphasis on creative thinking providing a framework for CGSOC curriculum development?

Doctrine

A qualitative, narrative analysis of current U.S. Army doctrine was conducted using NVivo 11 research software to answer the secondary research question. For this portion of the analysis, two source folders were created in NVivo 11. One folder contained the current sixteen ADPs and fifteen ADRPs. The seven cognitive domains described in Appendix A to Enclosure E of CJCSI 1800.0IE, was used to create individual nodes within the software. The two source folders were then queried seven times, using the illustrative words listed in Appendix A to Enclosure E of CJCSI 1800.0IE, to describe the individual cognitive domains. The corresponding illustrative word query results were then coded to the appropriate node. The results were generated

using the NVivo 11 hierarchy tool for visualization (see figure 1). The larger a block within the chart, the higher number of coding references within the source documents, which in this case was all Army ADPs and ADRPs.

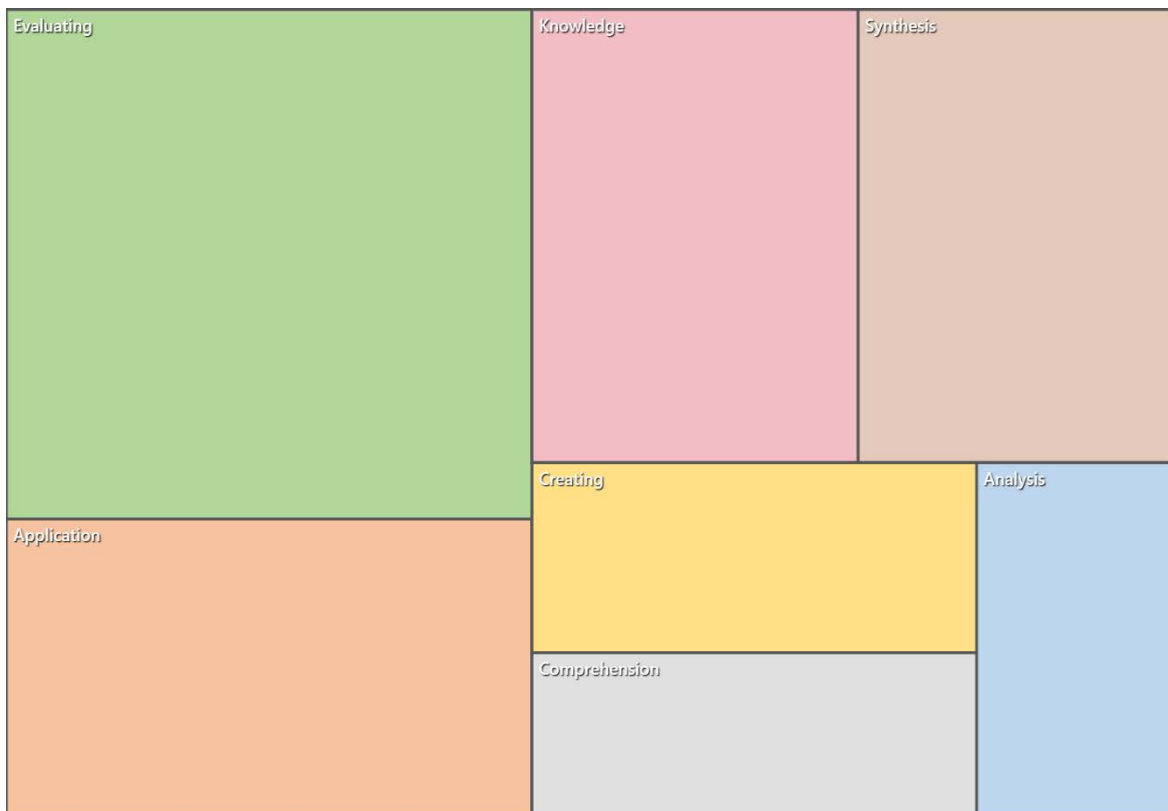


Figure 1. Army Doctrine Coding Results

Source: Created by author using NVivo 11 Software.

The cognitive domain of evaluating had, by far, the most direct coding references, with 5,014 direct references amongst the thirty-one source documents. Evaluating is a higher order thinking skill and is defined in Appendix A to Enclosure E of CJCSI 1800.0IE, as, “Making judgments based on internal evidence or external criteria” (Vice

Director, Joint Staff 2015, E-A-2). The domain of application was second, with 2,924 direct coding references. Knowledge was third, with 2,771 direct coding references, but was followed closely by synthesis, with 2,677 direct coding references. Creating ranked fifth of the seven cognitive domains, with 1,581 direct coding references. Comprehension and analysis rank sixth and seventh, with 1,363 and 1,317 direct coding references.

Command and General Staff Officers' Course Curriculum

A qualitative, narrative analysis of the combined CGSOC curriculum, both Common Core and AOC, was conducted using NVivo 11 research software to answer the primary research question. For this portion of the analysis, sixteen source folders were created in NVivo 11. Each folder was labeled based on the blocks of instruction, and block and individual lesson advance sheets were uploaded to the corresponding block folder. The seven cognitive domains described in Appendix A to Enclosure E of CJCSI 1800.0IE, was used to create individual nodes within the software. The sixteen source folders were then queried seven times, using the illustrative words listed in Appendix A to Enclosure E of CJCSI 1800.0IE, to describe the individual cognitive domains. The corresponding illustrative word query results were then coded to the appropriate node. The results were generated using the NVivo 11 hierarchy tool for visualization (see figure 2). The larger a block within the chart, the higher number of coding references within the source documents, which in this case was all Army ADPs and ADRPs.



Figure 2. U.S. Army Command and General Staff Officers' Course Curriculum Coding Results

Source: Created by author using NVivo 11 Software.

Within the analysis of the CGSOC curriculum, comprehension had the most direct coding references, with 1,575. Comprehension, is the second lowest order thinking skill in terms of complexity and is defined in Appendix A to Enclosure E of CJCSI 1800.0IE, as, “Grasping the meaning of information” (Vice Director, Joint Staff 2015, E-A-2). Synthesis, not far behind comprehension, ranked second with 1,388. Synthesis is one of two cognitive domains listed in Appendix A to Enclosure E of CJCSI 1800.0IE, associated with creative thinking; the other domain being creating. Application was the third ranked with 1,306 direct coding references. Evaluating placed fourth, with 1,286

direct coding references. The final three cognitive domain direct coding references are: analysis with 940, creating with 922, and knowledge with 634.

A qualitative narrative analysis was conducted, aided by qualitative research software. Army ADPs and ADRPs were first examined using the seven cognitive domains listed the OPMEP as nodes and the illustrative words listed in the OPMEP as coding. The results were then displayed visually in a hierarchal chart, where it is apparent that the cognitive domain of evaluating had the highest number of direct coding references. The same methodology was applied to the CGSOC Common Core and AOC curriculums, through block and individual lesson advance sheets. This analysis revealed that the lower order thinking skill of comprehension had the most direct coding references.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Creativity is not a new concept, but the idea that creativity is a cognitive skill that can be developed through educational interventions is a fairly recent change. This change in thinking has been aided by advances in science and research of the human mind. The Army has recognized that investment in human capital (CSA and SECARMY 2015) will benefit the force in the long run, and has stated publicly that creative thinking is a skill that must be resident in the force of the future (HQDA 2014c). The primary research question that this study attempted to answer was; does the AY 2016 CGSOC curriculum place adequate emphasis on the development of creative thinking to prepare future organizational level leaders for the uncertainty of the future? The subsequent research question, which had to be addressed before the primary research question is; does current Army doctrine place enough emphasis on creative thinking providing a framework for CGSOC curriculum development?

While the review of current Army doctrine may lend one to believe that creative thinking is emphasized within Army doctrine, this qualitative, narrative analysis has shown that when viewed comprehensively and systematically, Army doctrine does not emphasize either of the two cognitive domains associated with creative thinking, and therefore, does not provide a framework for creative thinking at CGSOC. Instead, an overwhelming majority of the coding references were associated with the cognitive domain of evaluating. Evaluating, per Bloom's original taxonomy is a higher order thinking skill (Brookhart 2010), but not relevant to the focus of this study, which was creative thinking.

The qualitative evaluation of the AY 2016, CGSOC curriculum has revealed that creative thinking is not emphasized. Instead, the lower order thinking skill of comprehension (Brookhart 2010) is valued proportionately above synthesis and create. This study has revealed that words are more powerful than most think, especially when viewed holistically in a qualitative approach. When viewed in this manner, themes emerge and a check can be conducted to ensure that emphasis is being placed in the correct cognitive domains in order to meet desired learning objectives.

Recommendations

There is no official Army definition for creative thinking and if a concept is not properly defined, learning objectives, either terminal or enabling cannot be constructed to achieve the curriculum necessary to develop the skill of creative thinking. If creative thinking development is an objective of the CGSOC, to prepare field grade officers for the ambiguous OE of the future, then the term must be officially defined and communicated across all departments and to students. It is possible that a common understanding would lead to more effective CGSOC learning outcomes that also foster creativity.

In Army doctrine and in the CGSOC block and individual advance sheets, critical and creative thinking are linked and often times used in the same sentence. The two concepts are inter-related, but are two distinct forms of thought. Therefore, CGSOC should separate the two skills and develop appropriate instruction and assessment for them individually.

“Bloom’s Taxonomy” (Brookhart 2010, 40) was developed in 1956 and revised in 2001. The OPMEP uses a modified version of both to define cognitive skills. While the

OPMEP's modified version is not ideal, due the similarity in cognitive domains, synthesis and creating for example, CGSOC has nothing similar. CGSOC still applies Bloom's original taxonomy but offers no official definitions or illustrative words as provided in the OPMEP. The ability of CGSOC to grant JPME Phase I credit is tied directly to the OPMEP, so CGSOC should adopt the Learning Objective Verbs table in the OPMEP to provide a common understanding of the cognitive domains, illustrative words, and definitions. This table should be published by CGSS, in an official CGSS document to show emphasis. As has been previously stated, words have meaning and simply changing the cognitive domain of synthesis to creating can have a powerful effect on learning outcomes and faculty understanding of terminal learning objectives.

Conclusion

The importance of creative thinking and the development of creative thinkers has been stressed throughout this thesis. While the Army is not an organization known to change rapidly, a few simple changes within CGSS can dramatically improve the development of creative thinking at CGSOC. These changes will ultimately benefit the Army, as students take these skills with them to their units and into rapidly changing conflicts around the world. The learning environment of Fort Leavenworth, Kansas is the ideal educational environment to foster creative thinking skills development, and thus could set the pace for divergent thinking in the Army.

APPENDIX A

CJCSI 1800.0IE, APPENDIX A TO ENCLOSURE E

LEARNING OBJECTIVE VERBS

Level	Illustrative Level	Definitions
Knowledge	arrange, define, describe, identify, know, label, list, match, memorize, name, order, outline, recognize, relate, recall, repeat, reproduce, select, state	Remembering previously learned information
Comprehension	classify, comprehend, convert, define, discuss, distinguish, estimate, explain, express, extend, generalize, give example(s), identify, indicate, infer, locate, paraphrase, predict, recognize, rewrite, report, restate, review, select, summarize, translate	Grasping the meaning of information
Application	apply, change, choose, compute, demonstrate, discover, dramatize, employ, illustrate, interpret, manipulate, modify, operate, practice, predict, prepare, produce, relate, schedule, show, sketch, solve, use, write	Applying knowledge to actual situations
Analysis	analyze, appraise, breakdown, calculate, categorize, classify, compare, contrast, criticize, derive, diagram, differentiate, discriminate, distinguish, examine, experiment, identify, illustrate, infer, interpret, model, outline, point out, question, related, select, separate, subdivide, test	Breaking down objects or ideas into simpler parts and seeing how the parts relate and are organized
Synthesis	arrange, assemble, categorize, collect, combine, comply, compose, construct, create, design, develop, devise, explain, formulate, generate, plan, prepare, propose, rearrange, reconstruct, relate, reorganize, revise, rewrite, set up, summarize, synthesize, tell, write	Rearranging component ideas into a new whole
Evaluating	appraise, argue, assess, attach, choose, compare, conclude, contrast, defend, describe, discriminate, estimate, evaluate, explain, judge, justify, interpret, relate, predict, rate, select, summarize, support, value	Making judgments based on internal evidence or external criteria.
Creating	categorize, combine, compile, compose, create, devise, design, explain, generate, modify, organize, plan, rearrange, reconstruct, relate, reorganize, revise, rewrite, summarize	Building a structure or pattern from diverse elements.

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