PEER-TO-PEER LEARNING AND THE ARMY LEARNING MODEL

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The Army Learning Model is the new educational model that develops adaptive leaders in an era of persistent conflict. Life-long, individual-based learning will blend together self-development, institutional instruction, and operational experience across the operational and institutional components. The ALC 2015 changes the method and manner in which education will be delivered to the current and future force. This thesis examined the salient areas proposed by the ALM and its impact on P2P learning. A literature review focused on five areas before conducting a quantitative survey on how current mid-grade leader's value P2P learning. The five areas were: defining the ALM, role of the individual, class facilitator, P2P, and blended learning. These five areas were the basis for conducting a survey among ILE students at Fort Leavenworth. The survey was an attitude-type survey to determine how mid-grade leaders value the salient parts of the ALM--and its impact on P2P learning/reflection. The research showed that mid-grade leaders clearly prefer P2P learning in a collaborative environment, seconded by an effective facilitator, and technology is leveraged--and not a distractor to the educational objectives. The study provides recommendations by the researcher for schools and implementing bodies from the literature review and the survey results.

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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

PEER-TO-PEER LEARNING AND THE ARMY LEARNING MODEL, by MAJ Frank Adkinson, 142 pages.

The Army Learning Model is the new educational model that develops adaptive leaders in an era of persistent conflict. Life-long, individual-based learning will blend together self-development, institutional instruction, and operational experience across the operational and institutional components. The ALC 2015 changes the method and manner in which education will be delivered to the current and future force. This thesis examined the salient areas proposed by the ALM and its impact on P2P learning. A literature review focused on five areas before conducting a quantitative survey on how current mid-grade leader's value P2P learning. The five areas were: defining the ALM, role of the individual, class facilitator, P2P, and blended learning. These five areas were the basis for conducting a survey among ILE students at Fort Leavenworth. The survey was an attitude-type survey to determine how mid-grade leaders value the salient parts of the ALM--and its impact on P2P learning/reflection. The research showed that mid-grade leaders clearly prefer P2P learning in a collaborative environment, seconded by an effective facilitator, and technology is leveraged--and not a distractor to the educational objectives. The study provides recommendations by the researcher for schools and implementing bodies from the literature review and the survey results.

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ACRONYMS

ALC	Army Learning Concept
ALDS	Army Leader Development Strategy
ALM	Army Learning Model
ALPS	Army Learning Policy and Systems
AT&LDM	Army Training and Leader Development Model
CAM	Combined Arms Maneuver
CCC	Captains Career Course
CGSC	Command and General Staff College
dL	Distributed Learning
F2F	Face-to-Face
ILE	Intermediate Level Education
MFE	Maneuver Fires Effects (Army branch)
MMOG	Massively-Multiplayer Online Games
OES	Officer Education System
P2P	Peer-to-Peer
PBL	Problem-based learning
PME	Professional Military Education
TRADOC	Training and Doctrine Command
U.S.	United States

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CHAPTER 1

INTRODUCTION

> The mandate for the Army is to create a learning environment that enables mastery of fundamental competencies through an appropriate mix of live and technology-enabled learning methods. Technology-enabled learning must be balanced with higher quality face-to-face learning experiences that employ learning strategies that foster critical thinking and problem solving skills needed for operational adaptability. (Department of the Army 2011c, 15)

In January 2011, General Martin E. Dempsey, former Commander of United States (U.S.) Army Training and Doctrine Command (TRADOC) approved the release of Army Learning Concept (ALC) 2015, now being implemented as the Army Learning Model (ALM). Dempsey writes, "It seeks to improve our learning model by leveraging technology without sacrificing standards so we can provide credible, rigorous, and relevant training and education for our force of combat-seasoned Soldiers and leaders," he continues with, "It speaks of access to applications, the blending of physical and virtual collaborative environments, and learning outcomes" (Department of the Army 2011d, i). In an era of persistent conflict and operational ambiguity, the ALM was developed to meet the demands of the Army Operating Concept and the Army Leader Development Strategy (ALDS), which states, "The Army must continually adapt to changing conditions and evolving threats to our security. An essential part of that adaptation is the development of new ideas to address future challenges." (Department of the Army 2011c) Dempsey believes that future challenges should be addressed through "a campaign of learning." (2011c, i).

The ALM is the new educational model that develops adaptive leaders in an era of persistent conflict (Department of the Army 2011c, 5). Life-long, individual-based learning will blend together self-development, institutional instruction, and operational experience across the operational and institutional components (Department of the Army 2011c, 5). Simply put ALC 2015 changes the method and manner in which education will be delivered to the current and future force. ALC 2015 claims out-dated education methods do not meet the generational gaps of the "net generation." Nor do the current methods develop critical thinking skills in an era where the enemy and environment are not well-defined (Department of the Army 2011c, 7).

The manner or delivery in which an individual Soldier will receive his education is a dramatic change from the current Professional Military Education (PME). To meet individual educational needs, technology-based instruction across the career of a Soldier, and not just PME school, will be the norm. New mediums will enhance the individual educational needs through live, virtual, constructive, and gaming capabilities. Distance learning will be accepted as a vital educational tool to meet the Soldier's educational milestones through his career. In January 2011, the Army released ALC 2015, now referred to as the ALM. One of the stated objectives for the ALM is to develop a modular learning model for mid-grade Army leaders within resident and distance learning environments, utilizing Blended Learning (Department of the Army 2011c, 54).

How will peer-based learning in the ALM provide adequate warfighting skills (Combined Arms Maneuver (CAM) and Wide Area Security) for mid-grade officers in the Army? What are the implications utilizing class facilitators and technology-based

education delivery methods to enhance peer-to-peer understanding? What is the role of the student to enhance peer-to-peer understanding within the ALM?

The purpose of this study is to inform individuals, implementing bodies, and facilitators who seek to improve or balance peer to peer (P2P) learning in this new learning model. It is an attempt to quantify the value of P2P learning for mid-grade leaders within the ALM and assist those seeking to improve the Army's PME system. This study would be a failure if the exploration of what is "effective" P2P learning within the ALM was not directly addressed. This study attempts to provide teaching strategies or pedagogical approaches for educating adult learners in a Blended Learning model.

The issues confronting the ALM directly, and P2P learning indirectly, are two-fold. It seeks to broaden educational milestones and goals for the Institutional and Force Generating Forces, requiring unity of effort for long-term institutions who historically do not work together in educating the individual Soldier. The current Army education model and leaders lack expertise or have yet to clarify Blended Learning and Experiential Learning techniques across the force to be used in the ALM.

The problems confronting the ALM are quite simple. As a new educational model being implemented across the force with entrenched systems and organizations, it has to deal with being "new." This will require current educational and institutional bodies to identify current education flaws and meet the demands of this new model. The current language in the ALM does not directly address key aspects to implementing effective strategies for collaborative learning within the ALM. As the ALM refers to teamwork and

collaboration, communication and engagement, as 21st Century Soldier Competencies, P2P learning (reflection) must be addressed (Department of the Army 2011d, 41).

Primary Research Question: How do U.S. Army mid-grade leaders value P2P learning as outlined in the ALM?

Secondary Research Questions:

1. Does P2P learning provide shared understanding (reflection) of warfighting skills (CAM and Wide Area Security) for mid-grade leaders?

2. Does group collaboration impact the value of P2P learning of mid-grade leaders?

3. Does the learning environment impact the value of P2P learning for the mid-grade leader?

4. Does technology impact the value of P2P learning of mid-grade leaders?

5. What is the role of the student within the ALM?

6. How does the role of class facilitator impact the value of P2P learning for mid-grade leaders?

Assumptions

ALM will be implemented despite infrastructural problems and reduction of military spending in all Department of Defense Departments. During research through informal discussions and surveys, peer-based or P2P learning has the same definition for all parties or individuals. Peer-based instruction quality in the Army is measured through previous research. Quality of distance learning and Blended Learning has been researched for adults. P2P teaching strategies have been measured within adult learners.

The ALM will be implemented in its current design by 2015. It must be accepted that Blended Learning strategies, Distributed Learning (dL) strategies, and overall Army educational milestones were devised from some military and civilian studies. Technology-based education strategies (mediums) will continue to change in both civilian and military educational institutions.

Definition of Key Terms

Army Leader Development Strategy (ALDS): Provides framework for developing leaders in a competitive learning environment based on seven qualities. (Department of the Army 2011e, 22).

1. Competence in core leader proficiencies
2. Agility to operate with a global mindset and across the spectrum of conflict.
3. Ability to operate in Joint Interagency Intergovernmental Multinational environments and leverage other capabilities in achieving their goals.
4. Capability to operate and provide advice at the national level.
5. Cultural astuteness and ability to use this awareness and understanding to achieve an intercultural exchange.
6. Courage enough to see and exploit opportunities in the challenges and complexities of the operational environment.
7. Grounding in Army values and Warrior Ethos.

Adaptive Learning: The method that endeavors to transform the learner from a passive receptor of information to a collaborator in the educational process. (Department of the Army 2011c, glossary).

Blended Learning: The educational model of combining face-to-face (F2F) classroom methods with technology delivered instruction, that can be delivered either in a resident or non-resident environment to form an integrated instructional approach (Department of the Army 2011c, glossary).

Campaign of learning: An integrating process that focuses learning on critical operational issues, identifies for the community priority army warfighting challenges and questions to be answered, reduces unnecessary redundancies across learning activities (with Joint, capabilities needs assessments, studies, wargames, and others), be adaptable to support quick-turn assessments, and adopt senior leader investment approval, (Department of the Army 2011c, glossary).

Collaborative learning: The grouping or pairing of students for the purpose of achieving an academic goal. An instructional method in which students at various performance levels work together in small groups toward a common goal (Gokhale 1995) or Collaboration is a process by which individuals negotiate and share meanings relevant to the problem-solving task at hand (Roschelle and Teasley 1995).

Distributed learning: Delivery of standardized individual, collective, and self-development training to Soldiers and DA civilians, units, and organizations at the right place and time through the use of multiple means and technology; may involve student-instructor interaction in real time (for example, via two-way audio and video television) and non-real time (for example, via computer-based training). May also involve self-paced student instruction without benefit to access to an instructor; (for example, correspondence programs) (Department of the Army 2011c, glossary).

Experiential Learning: David A. Kolb (with Roger Fry) created the model out of four elements: concrete experience, observation and reflection, the formation of abstract concepts, and testing in new situations. He represented these in the famous experiential learning circle that involves (1) concrete experience followed by (2) observation and

experience followed by (3) forming abstract concepts followed by (4) testing in new situations (after Kurt Lewin) (infed.org n.d.).

Facilitator: One to render easier the performance of an action, the attainment of a result; to afford facilities for, promote, help forward an action or process (Oxford English Dictionary 1989).

Functional courses: Courses designed to qualify leaders, Soldiers, and DA civilians for assignment to duty positions that require specific functional skills and knowledge (Department of the Army 2011c, glossary).

Lifelong learning: Individual lifelong choice to actively and overtly pursue knowledge, the comprehension of ideas, and the expansion of depth in any area to progress beyond a known state of development and competency (Department of the Army 2011c, glossary).

Maneuver Officer: Formerly called combat arms officers, an officer that falls under the Maneuver Fires Effects (MFE) Division. Branches include Infantry, Armor, Aviation, Military Police, Engineer, Chemical, Field Artillery, Air Defense, Special Forces, PSYOPS, and Civil Affairs.

Mid-grade leader: Not an Army definition for mid-grade leader. It is an accepted term used in the Army for junior captains to senior majors. In this study, midgrade leader education is directed toward Captains Career Course (CCC) and Intermediate Level Education (ILE) students.

Modular learning: A module is a unit of work in a course of instruction that is virtually self-contained and a method of teaching that is based on the building of skills and knowledge in discrete units (Graeger and Murray 1989).

"Net Generation": Generation Y, also known as the Millennial Generation (or Millennials) [1] [2], Generation Next [3], Net Generation [4], Echo Boomers [5], describes the demographic cohort following Generation X. While there is no universally agreed upon time frame, the term generally includes people born in the 1980s and early 1990s [6], sometimes including those born as late as the year 2000 [7]. One segment of this age-group is often called the "eighties babies" generation, in reference to the fact that they were born between 1 January 1980 and 31 December 1989 [8] [9] [10]. Members of this generation are called Echo Boomers, due to the significant increase in birth rates through the 1980s and into the 1990s, and because many of them are children of baby boomers [11] [12] [13] [14]. The 20th century trend toward smaller families in developed countries continued [15] [16], however, so the relative impact of the "baby boom echo" was generally less pronounced than the original boom. Characteristics of the generation vary by region, depending on social and economic conditions. However, it is generally marked by an increased use and familiarity with communications, media, and digital technologies. In most parts of the world its upbringing was marked by an increase in a neoliberal approach to politics and economics; the effects of this environment are disputed (Wikipedia 2012).

Operational Adaptability: The ability to shape conditions and respond effectively to changing threats and situations with appropriate, flexible, and timely actions (Department of the Army 2011c, glossary).

Peer-to-Peer learning: The term peer-to-peer (P2P) refers to a network of equals (peers) in which two or more individuals are able to spontaneously collaborate without necessarily needing central coordination (Schoder and Fischbach 2003). There is not a military definition for P2P learning.

Problem-based learning: Problem-based learning (PBL) is a total approach to education. As defined by Dr. Howard Barrows and Ann Kelson of Southern Illinois University School of Medicine, PBL is both a curriculum and a process. The curriculum consists of carefully selected and designed problems that demand from the learner acquisition of critical knowledge, problem solving proficiency, self-directed learning strategies, and team participation skills. The process replicates the commonly used systemic approach to resolving problems or meeting challenges that are encountered in life and career. There are other definitions to PBL.

Self-development training: Self-development is planned; goal-oriented learning that reinforces and expands the depth and breadth of an individual's knowledge base, self-awareness, and situational awareness. Self-development will complement what you have learned in the classroom and on the job, enhance your professional competence, and help you meet your objectives. There are three types of self-development: structured, guided, and personal.

1. Structured self-development-Required learning that continues throughout your career and is closely linked to and synchronized with classroom and on-the-job learning.

2. Guided self-development-Recommended but optional learning that will help keep you prepared for changing technical, functional, and leadership responsibilities throughout your career.

3. Personal self-development-Self-initiated learning where you define the objective, pace, and process (Department of the Army 2011c, glossary).

Definitions currently not found within the Professional Military Education (PME): Modular learning and Facilitator.

Limitations

There are rather exhaustive studies on educational research within the civilian and military context. To ensure that prudent research is conducted, advice was solicited from both civilian and military researchers (educators) in adult learning. Additionally, because of the vast amounts of studies and literature on adult learning and the use of Blended Learning, efforts in this study were to find leading thinkers in the appropriate context and examine effective strategies used therein. Research is mainly limited to the rank of Major for accessibility at the Command and General Staff College (CGSC). This study and its significance can be used for all adult learners and implementing bodies in the Army's PME.

Time will be limited to conduct a more comprehensive study because of the 10 month Graduate Degree requirement. This will impact the amount of research gathered from literature reviews, surveys, and interviews of civilian and military subjects. This

study did not explore research into intelligent tutoring and artificial intelligence simulation because of its inherent single-user design. Additionally, it is out of the purview of this study to balance where education ends and training begins within the use of gaming and simulations. Other limitations include lack of funding and the researcher's limited experience conducting research. Finally, as an Operations Officer implementing the ALC within a Center of Excellence, there remain some latent perceptions on early experiences in implementation of the ALC. Initial focus on implementation revolved around reducing PowerPoint slides and making videos. Implementing bodies were not given the "why" or the "how" to implement the ALM. Additionally, implementing bodies were constrained by lack of funding or expertise to meet the technology-based instructional expectations within the ALM.

Scope and Delimitations

The study will discuss the implications for the MFE officer within the ALM and how it affects the P2P dynamic. Initially, it is important to define the impacts on the ALM for P2P learning. Simply put, how important is P2P learning in general?

As a new model for education within the PME, the role of the individual within the ALM will increase. Is there a generational difference in individual learning for the "net" generation? What is the role of the individual to meet individual educational milestones? How does the individual support P2P learning in and out of the classroom for his peers? These areas will be explored in literature reviews and a survey.

With the new focus in which the manner the individual receives instruction in the classroom by a "facilitator," a study of how the facilitator impacts P2P learning is

warranted. This may shed some light on proper techniques for facilitating MFE officers and how it impacts P2P involvement (reflection). Literature reviews and a survey will attempt to place a value on the facilitator in and out of the classroom, as well as his role to promote peer learning.

With Blended Learning a more integrated aspect of the ALM, a review in the area of using digital-technology-based delivery methods will be conducted. This research will be limited to only impacts on P2P learning. There is an exhaustive amount of literature on "how" to implement, and "why" to implement. However, most of the "why" to implement revolves around being more cost-effective and accessibility to wider audiences. Research will attempt to explain "how" various digital-technology-based mediums can facilitate P2P learning. A literature review and survey will be the basis to measure the impact of leveraging technology within peer learning.

The quantitative research will only focus on officer education for Army Majors in the CGSC. The study will not discuss all technology-based delivery methods. This area will be limited to studying current delivery methods within the ALM.

Significance

The implementation of the ALM is the most profound change to the Army's PME in decades. It will cross the institutional and operational forces in an attempt to implement a new educational model to support life-long learning in an era of persistent conflict. In-depth research for all branches is relevant; however, data collection on mid-grade officers will provide ample correlation to all ranks and education centers in the Army. Exposure through research of the implications or effects of this new PME model

may simply increase awareness, or it may identify educational gaps that inhibit the warfighting skills necessary for the mid-grade leader.

With the implementation of a new educational model, there is bound to be some controversy. The research will not engage in direct conflicting views, but to provide insight for implementing organizations, individuals, and anyone involved in the Army's PME as it relates to peer learning. Results from the research may assist not only in implementation, but also the hundreds of Army instructors who wish to effectively reach individuals in the classroom and beyond.

CHAPTER 2

LITERATURE REVIEW

The purpose of this study is to inform individuals, implementing bodies, and facilitators who seek to improve or balance P2P learning in this new learning model. It is an attempt to quantify the value of P2P learning for mid-grade leaders within the ALM and assist those seeking to improve the Army's PME system. The purpose of the literature review is to weigh each aspect of the primary and secondary research questions as found in the ALM, from previous research, and schools of thought in and out of the military.

This chapter is organized into five parts. Part one will define the ALM and what it means for the current and future force. It is intended to provide the scope of what the ALM means to the Army. Part one will tie the ALM to the ALDS and the Army Learning Policy and Systems (ALPS). Assumptions described in the ALM will be addressed by those referenced in the ALM. Does the ALM address the P2P interaction or possible educational gaps for the mid-grade officer? The review will be my basis of understanding as to why the transformation is needed and how it correspondently will meet the needs for the Army.

Part two will discuss the role of the individual within the ALM. The literature review will entail studies of the role individuals engage within various learning strategies. This part will also discuss the assumed generational learner gaps as addressed in the ALM. As the adult learner in the ALM, the individual learner must become more

self-aware to elevate his or her educational experience. Part two will look into learning styles and the role the individual has into promoting P2P and experiential learning.

Part three will discuss P2P learning for adult learners. This part will discuss the current Army model and the implementation of the ALM. Discussed in this part is F2F learning studies from civilian and military sources. There are extensive amounts of literature on this specific area as a pedagogical strategy within education. Research will focus on metrics or values of peer-based interaction within the educational realm. For example, research in educational theory by Dr. Benjamin Bloom and others have placed values on peer-based interaction in the classroom for adults (Bloom 1985, 6).

Part four will discuss the role of the educational facilitator for adult learners. This part will consist of defining how a facilitator supports P2P learning. This part will move into the area of Experiential Learning and the role of the facilitator therein. David Kolb's pioneering book on adult experiential learning will be a basis for understanding adult learning. Research into using facilitators within the Army has been conducted by Army Research Institute in this particular area as an example.

Part five will discuss Blended Learning within the ALM and outside the Army. Volumes of educational material are written on this topic. For example, Professor Thomas C. Reeves of the University of Georgia's Department of Educational Psychology and Instructional Technology provides an example for my research; Dr. Reeves studied the benefits and difficulties of technology-based instruction over residential and distance learning across multi-generations. Inherent in Blended Learning is distance or distributed learning. There is a robust international effort in on-line college and vocational education.

A specific example of measuring the effectiveness of on-line courses on a controlled group was published by the Tokyo Institute of Technology in 2011. The Laval University in Canada also researched the effectiveness of distance learning.

Defining the Army Learning Model

> The U.S. Army Learning Concept for 2015, is to describe an Army learning model that meets the All-Volunteer Army's need to develop adaptive, thinking Soldiers and leaders capable of meeting the challenges of operational adaptability in an era of persistent conflict. ALC 2015 describes a learning continuum that blurs the lines between the Operational Army and the Generating Force by meshing together self-development, institutional instruction, and operational experience. This is a learner-centric continuum that begins when an individual joins the Army and does not end until retirement. The learning model enhances the rigor and relevance of individual learning through routine assessment of 21st century Soldier competencies that enable success across full-spectrum operations. It is a learning model that adapts to fluctuations in learning time and maximizes opportunities to master fundamental competencies. It is open to inventiveness, to input of learner knowledge, and advances in learning strategies and methods. ALC 2015 describes an adaptive, career-long individual learning model that spans space and time to ensure Soldiers and leaders receive a level of preparation equal to the value of their service to this Nation. (Department of the Army 2011c, 5.)

Before diving into the individual parts of P2P learning within the ALM, it is important to define the ALM. This section will also cover why there is a need for change, where the ALM is nested with the ALDS, the ALPS, the U.S. Army Training Concept, the current education model, and how it supports the development of warfighting skills. The ALM, like the previous Army education model, will continue to provide education for Active Army and Reserve Component Soldiers and leaders. But the how, where, when, and why is vastly different from the previous model.

As stated in the ALC 2015 of the current learning model, "Designed to support a peacetime Army, this decades-old model is bound by outmoded ways of doing business,

outdated technology, and is only capable of limited innovation" (Department of the Army 2011d, 12). Additionally, the ALC 2015 addresses other failures in the current model such as failing to develop critical thinking, failing to engage learners, "sage on the stage" instructors instead of facilitators, not individualized for the learner, lacking accessibility, and lacks in learning methodologies, to name a few. It also contends that generational differences, and attitudes toward the use of technology by the millennium generation can enable learning to be more "operationally relevant, engaging, individually tailored, and accessible" (Department of the Army 2011d, 12). Additionally, it states the current Army learning environment consist of the institutional, operational, and self-development domains who "function independently" (Department of the Army 2011c, 43).

The ALM compliments both the ALDS and the U.S. Army Training Concept, which supports the Army Capstone Concept (Department of the Army 2011e, 21). Both *The Army Capstone Concept* (TRADOC PAM 525-3-0) and *The U.S. Army Operating Concept 2016-2028* (TRADOC PAM 525-3-1) provides the overall basis for this new educational model. *The Army Capstone Concept* foreword states, "It provides a foundation for a campaign of learning." With operational ambiguity in the future, "Operational adaptability requires a mindset based on flexibility of thought calling for leaders at all levels who are comfortable with collaborative planning and decentralized execution, have a tolerance for ambiguity, and possess the ability and willingness to make rapid adjustments according to the situation" (Department of the Army 2011a, ii). These demands will require new strategies in individual training and education, leader development, and collective training (Department of the Army 2011c, 5). Briefly stated,

the ALDS attempts to balance the three pillars of leader development; training, experience, and education. Although the ALDS is called the "Army LEADER Development Strategy", it is intended for both Soldier and leader. The ALDS espouses to developing Full Spectrum Learning balancing individual education requirements across live, virtual, institutional, and self-developing opportunities (Department of the Army 2011e, 21).

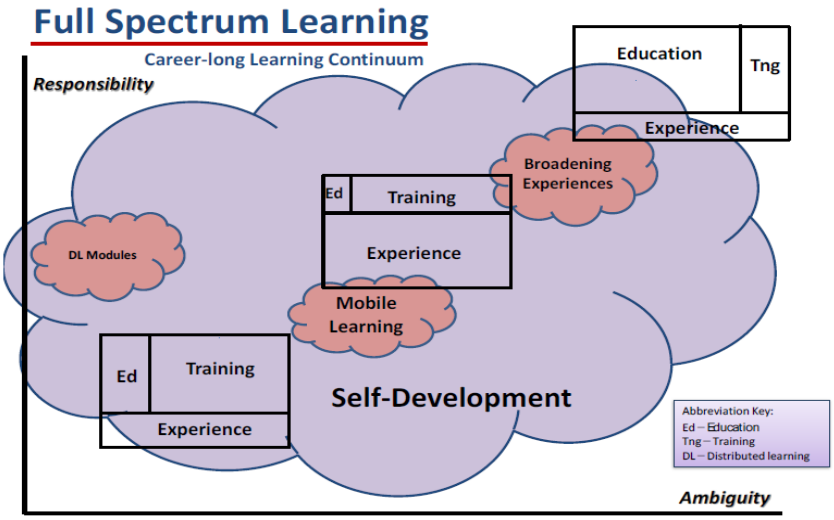


Figure 1. Full Spectrum Learning

Source: U.S Department of the Army, U.S. Army Training and Doctrine Command, TRADOC Regulation 350-70, *The U.S. Army Learning Policy and Systems* (Ft Monroe, VA: Government Printing Office, 2011), 22.

It seeks to develop seven core leader competencies as described in the definition section of chapter 1. Above is a graphical representation of Full Spectrum Learning. The Army Training Concept describes the training and capabilities required for forces to meet operational success in Full Spectrum Operations. The Army Training Concept is one of the pillars of the ALDS and works not solely, but as a complement to both learning and

development. All three pillars of leader development (education, training, and experience) will cross the Army Training and Leader Development Model (AT&LDM).

The AT&LDM is comprised of three separate but interconnected domains. The Institutional, Operational, and Self-Development domains comprise the AT&LDM. The Institutional domain compromises mainly those responsible for the PME in the Army. The Operational domain compromises mainly those responsible for training at a unit. The Self-Development domain develops Soldiers and leaders for individual development goals. These domains are obviously not distinct in execution in the Army today, but the goal for the new AT&LDM is to leverage a variety of technological mediums to make each domain more accessible and tailored for the individual. Below is a graphical representation of the AT&LDM.

Figure 2. The Army Training and Leader Development Model

Source: Department of the Army, TRADOC Regulation (TR) 350-1, *Training* (Washington, DC: Government Printing Office, 2009).

The ALM is a key component to implementing the AT&LDM. It will cross all domains to meet the demands of the operational environment and the individual Soldier and leader. As broader self-development is a key part to the AT&LDM and the ALM, a closer examination to what the role of the individual, P2P learning, and how technology-based educational methods are warranted. But why the change?

According to the ALM, there are several factors for changing the PME in the Army. It contends that "The U.S. Army's competitive advantage directly relates to its capacity to learn faster and adapt more quickly that its adversaries," it continues with, "The current pace of technological change increases the Army's challenge to maintain the edge over potential adversaries" (Department of the Army 2011c, 5). It also states that the current educational model is inadequate because of ill-equipped (trained) instructors, lecture-based, not individualized, challenged the Army Force Generating cycle, and considered inadequate to the net generation, to name a few. It also contends that five learning environment factors have precipitated this change in PME. The five are: Generational and Learner differences, Technology differences, Inputs to the Army, Learning science, and Lifelong learning (Department of the Army 2011c, 12). The initial paragraphs of this section stated why the ALC 2015 is replacing the current learning model within the Army. For the sake of brevity and focus, this section will briefly contend with the five environmental factors written on page 12 of the ALC 2015.

Before diving into the five environmental factors for change, how did the current model become "out-dated" or a "brick and mortar" educational system? (Department of the Army 2011c, 7). Interested readers can find more information on this subject in a

recent study conducted by the School of Advanced Leadership and Tactics completed in February 2010, regarding past and current mid-grade officer education. This current study highlighted the similar findings from the previous 11 studies from 1946 to 2003. A link to the 2010 findings is provided in the reference section of this study (Raymond et al. 2010). This study is of particular interest because it recently evaluated fifteen CCCs. The commissions' research determined five key findings: Select high-quality small group leaders, curriculum must be current and relevant, increased oversight in CCC governance, updated technology in the classroom to support small group instruction, and a resident course to learn from peers (Raymond, Beurskens, and Carmichael 2010).

As stated earlier, in the ALC 2015, the five environmental factors for educational reform to the current PME is predicated around the growth of information technologies (Department of the Army 2011c, 11). Page 12 of the ALC quotes the release of the U.S. Department of Education's National Education Technology Plan of 2010 in echoing that information technologies call for "revolutionary transformation rather than evolutionary tinkering" (Department of the Army 2011c, 12). Although the ALC's five learning environment factors do not directly reference peer-learning, it indirectly highlights why peer-learning may be important to the ALC.

The generational differences, as one of the environment factors, states that millennial learners have a generational characteristic to "social engagement." As such, the ALC concludes that the future learning model should "provide more opportunities for collaboration and social learning" (Department of the Army 2011c, 12). It continues with the need for learner differences to account for Soldier experience and that facilitated

learning should occur in the classroom. These two aspects of the generational and learner difference will hinge on peer-learning within the ALM.

The technological opportunities presented to the current and future generations are also a significant environmental factor according to the ALC. It contends that emerging technologies like mobile computing open content, electronic books, augmented reality, gesture-based computing, and visual data analysis will have the greatest effect on the learning environment in the next five years (Department of the Army 2011c, 13). It states that the Army and the curriculum developers therein must leverage technology that provides, "engaging, relevant, and rigorous resident, distributed, and mobile learning" (Department of the Army 2011c, 13).

Another environmental factor requiring a change to the current PME is the inputs or the recruits coming into the Army. The ALC contends that the Nation's education system, with its declining literacy rate and mediocre math and science ranking, requires the Army to fill the educational gap (Department of the Army 2011c, 13). It also contends that multicultural challenges and obesity may challenge the future force. Balancing on the apolitical, it also contends that the standardized testing of the No Child Left Behind Act impacted a generation of learners who lack skills in critical thinking, collaboration, adaptability, effective communication, problem solving, and others (Department of the Army 2011c, 13). Again, although not directly addressed, language within the ALM contends that peer-learning within the educational collaborative environment is important for adult learners.

The ALC contends that advances in learning sciences have provided new insights into improved learning strategies and applications of technology (Department of the Army 2011c, 14). The bulk of this section within the ALC is predicated on the research conducted by Professor M. David Merrill in the Department of Instructional Technology at Utah State University. In broad terms, he concludes that recent educational theories and models have fundamentally similar principles. These recent models are based upon real world problem-centered approaches and have five principles:

1. Learning is promoted when learners are engaged in solving real-world problems.
2. Learning is promoted when existing knowledge is activated as a foundation for new knowledge.
3. Learning is promoted when new knowledge is demonstrated to the learner.
4. Learning is promoted when new knowledge is applied by the learner.
5. Learning is promoted when new knowledge is integrated into the learner's world (Merrill 2002).

Although not directly stated, it is important to note that the learning sciences in the ALC (mostly by Merrill's study) are predicated upon students or learners working together to solve a problem, where peer-learning can occur. Interestingly, Merrill's study of "recent" educational models does not discuss technology, but the value of problem-solving in the instructional or educational environment.

Finally, the ALC's environmental factor of lifelong learning is not really a factor, but more of a goal. In essence, it defines the importance of self-motivated learners who

can think critically and solve complex problems. It will require the Army to develop educational goals with holistic integration of training, education, and experience.

Each of the five learning environment factors within the ALC references technology. Technology in a general or more specific definition is used over 30 times in the four pages describing the learning environment factors. It does seem weighted toward technology. However, the ALC also counterpoints the use of technology by stating that it is not the centerpiece or the panacea. It asks the Army to leverage technology and establish a learning system that is engaging, relevant, and rigorous.

Finally, the ALM discusses using modular learning as a key component to implementation of the ALM. As stated for the CCCs, "By 2015, the CCC is envisioned to be a more tailored, modular learning approach completed over time, with a mix of resident and non-resident-gated learning events that include both standardized and tailored learning modules" (Department of the Army 2011c, 54). The ALM does not provide a definition of modular learning, nor does it speak of modular learning within the context of the other educational levels. The ALPS echoes modular learning by stating, "individuals must augment their experience by completing a series of mandatory learning modules leading to defined career gates." But like the ALM, it does not clearly define what modular learning will entail.

Although not clearly defined, it assumed that modular learning in the Army is similar to modular learning in the civilian sector. There tends to be a few views of exactly what this entails, but it is generally described as an independent educational unit of limited scope provided with a series of educational and learning activities (Torralba and

Murray 1989). Modular learning tends to have similar characteristics, those are, independent learning units, students start at various entry levels of expertise, learning materials play a more important role, it requires more of an organizational role for the administering body, and the individual learner must complete educational gates.

Role of the Individual in P2P Learning and the ALM

> I'm always ready to learn, although I do not always like to be taught.
> —Winston Churchill

To first understand how P2P learning can provide effective learning in the educational environment, a review in the role of the individual is needed. This section will discuss the role of the individual student in the ALM, the individual role among adult learners, and leading studies or thoughts across multi-generational learners.

The ALM attempts to address a new educational model in an era of persistent conflict and with a pending fiscal reduction. Rightfully, it addresses that the education of the individual is paramount with working in a more ambiguous operating environment within decentralized operations. It seeks to educate individuals in the span of a career to meet the 21st century Soldier competencies (Department of the Army 2011e, 27). Individuals will receive a more tailored education to meet his or her professional or personal educational goals. It will not be limited to the "schoolhouse." Students will be offered more educational opportunities through broadening assignments and Army educational milestones. Inherent in all these aspects, the role of the individual within the ALM has exponentially grown.

The ALPS (TRADOC Regulation 350-70) contends it can provide Full Spectrum Learning in an educational continuum from initial entry to retirement. As rank is

provided, educational demands become more relevant, as denoted in the ALPS depicting Full Spectrum Learning (Department of the Army 2011e, 22). Although not explicitly depicted, it is important to note that in Full Spectrum Learning as depicted in the ALPS, P2P learning is an inherent aspect across all three domains of education, training, and experience. In developing all seven core competencies of the ALDS, P2P learning is a key aspect to developing Soldiers and leaders in the Army (Department of the Army 2011e, 22). So what is the role of the individual or self-development requirements within the ALPS?

Both the ALPS and the ALM do not directly define what the role of the individual plays in P2P learning. They do address the individual responsibility for meeting self-development requirements. Specifically for mid-grade leaders, the TRADOC Reg 350-70 cites, “individuals must augment their experience by completing a series of mandatory learning modules leading to defined career gates,” additionally, it says, “mid-grade learning must also contain some critical branch technical and common leader skills taught through face-to-face instruction as the schoolhouse or appropriate location” (Department of the Army 2011e, 28). TRADOC Reg 350-70 also addresses the increased scope of learning, “Institutional learning strategies should include products that foster a deeper understanding of the Army at a combined arms level, and hone individual functional skills” (Department of the Army 2011e, 28). The ALPS (TRADOC Reg 350-70) clearly addresses that the mid-grade individual and schoolhouse within the PME, should develop a leader with an increased capability to fight with CAM.

The ALM echoes the ALDS for mid-grade leaders. The ALM addresses nine 21st Century Competencies for the individual to meet in complex, uncertain environments (Department of the Army 2011c, 18). These competencies are listed in Appendix A. The ALM intends to meet individual learning milestones through standardized and tailored learning modules (Department of the Army 2011c, 54). The milestones will be tracked by the individual and his chain of command through the Army Career Tracker. The Army Career Tracker and modular learning are not yet defined within the ALM or ALPS. The ALM states that tailored learning modules will develop the individual with self-paced Blended Learning. Mid-grade leaders within the ALM are expected to meet the 21st Century Competencies with additional critical thinking and problem-solving skills. They should also possess half the credits required for a Master's Degree. By the rank of Major, ILE graduates should possess a Master's Degree (Department of the Army 2011c, 55). Again, the individual will have an increased responsibility other than what is learned at the schoolhouse.

The ALM gives specific and implied responsibilities of the individual and the role of the various implementing bodies to provide milestones for the individual, but what is the role of the individual to enhance P2P learning? The three domains of learning within the ALM are Operational, Institutional, and Self-Development. These three domains complement each other and support life-long learning for the individual. The self-development domain relies on two things-the motivation and participation of the individual.

As noted in a 2011 study by Jaitip Na-Songkhla, motivation of the individual is created by either intrinsic or extrinsic rewards (Na-Songkhla 2010). Basically, intrinsic motivation is the pure act of wanting to learn something for the enjoyment of the act without external pressure. Extrinsic motivation is wanting to learn something for reward, like a promotion or pay-raise, with external pressure. Her findings were simple, recognition by mentors and-or peers either on-line or by other means supported intrinsic or extrinsic motivations for self-learning.

With the increased responsibility of meeting individual and institutional milestones within the ALM, the role of the individual in the overall educational environment to support blended, experiential, and dL to his peer is important. The study also supports the idea of unintended consequences of motivated individuals and how it supports peer learning. As noted in the study, “Self-directed learning, for example, is intentional and conscious; incidental learning, accidentally by-product of doing something else, after the experience learner becomes aware that some learning has taken place; and finally, socialization or tacit learning is neither intentional nor conscious” (Na-Songkhla 2011).

The idea of promoting individual accountability within the peer setting is also echoed in a 1998 and 1999 research by Johnson, Johnson, and Holubec. They determined the value of cooperative learning can make each member a stronger individual by his or her own right (Johnson, Johnson, and Holubec 1998). They also added that there are effective ways to structure and increase individual accountability. A few examples include keeping the groups small, random oral individual examinations, student on

student check on learning, and student editing (Johnson, Johnson, and Holubec 1998). They also describe positive interdependence within the cooperative effort can allow group members to influence each other (Johnson and Johnson 1999). The nine types of positive interdependence are in Appendix B.

Hugh Fuller of North Carolina State University studied how individual efforts supported cooperative learning teams. Although recognizing a more developed study to show causation, his findings concluded, "the students who were rated highest on team citizenship tended to do better in the course than students who received lower ratings. Students who show up prepared for work sessions and contribute actively to the team process-the principal requirements for high peer ratings-thus do better on tests than students who do not" (Kaufman, Felder, Fuller 2000). As cited in the two studies, motivated individuals who actively participate among peers, actively support both individual and peer learning.

As the ALM addresses that classrooms will be collaborative and experiential based, the individual efforts are key to not only the individual, but to the group in the learning environment. Students, who are only engaged in individual-learning activities, but fail to interact through negotiation or sharing, fail to meet the demands in the ALM classroom. Both cooperative and collaborative learning are vital in the ALM, but the value of shared meaning or group meaning is primarily a collaborative process. Collaborative learning will be discussed more in the next section.

An additional responsibility of the individual in the ALM is some instruction will be "self-paced" (Department of the Army 2011c, 19). It continues with, "Employing

self-paced technology-delivered instruction reduces the amount of face-to-face instruction" (Department of the Army 2011c, 20). Students will be required to conduct more mobile learning as their schedule allows it. Distributed learning will be emphasized with the ALM, requiring individuals to meet personal and Army-imposed educational gates. Generally, dL falls under Blended Learning, but since dL is an individual effort, it will be discussed in part five of this chapter. As stated in the ALM, "distributed learning content will be packaged in short modules that fit conveniently into a Soldier's schedule," additionally, "Intelligent tutors and feedback will tailor the learning experience to the individual learner" (Department of the Army 2011c, 20). Individual learning efforts will be managed by the Soldier's chain of command and an assigned facilitator in the Army Career Tracker.

Effective education for the individual requires understanding individual learning styles. Extensive research and discussion over individual learning styles for the past 30 years has allowed a thorough educational approach to the individual. The ways in which an individual characteristically acquires, retains, and retrieves information are collectively termed the individual's learning style (Felder and Henriques 1995, 21). The accepted three learning styles are: visual, auditory, and kinesthetic (Pashler, McDaniel, Rohrer, and Bjork 2008). Individual learning style dimensions are not exclusive of the other. People have all three dimensions, but bend toward the dimension that best suites them. Expounding on the three learning styles are the five learning style dimensions. The five dimensions as developed by Richard Felder are Sensing and Intuitive Learners, Visual and Verbal Learners, Active and Reflective Learners, Sequential and Global

Learners, and Inductive and Deductive Learners (Felder and Henriques 1995, 21). Both preference and educational dimension has been tested and facilitated with the Myers-Briggs Type Indicator to support individuals in their approach to learning (Felder and Henriques 1995, 21; Pashler, McDaniel, Rohrer, and Bjork 2009). Research has shown this is an effective tool in preparing the individual and the teaching body to reach all learners in an educational environment. Appendix C is an instructional technique example used to promote the individual learning styles and dimensions.

Other effective tools focused on the individual learner are used outside the military to develop the individual learner. Individualized learning plans or Personal Education Plans have provided effective learning for the individual adult learner. In essence, these plans assess the individuals learning preference, education level, self-efficacy, and educational goals. Once assessed, a tailored educational plan is implemented to meet institutional and personal educational goals.

P2P Learning

> Knowledge emerges only through invention and reinvention, through the restless, impatient, continuing, hopeful inquiry we pursue in the world, with the world, and with each other. (Friere 1974, 58)

It is clear to make the contrast between P2P learning and F2F instruction. F2F instruction is defined as receiving instruction or education from a live instructor where you are present. P2P learning is defined in the definition section of this study. The ALM describes classrooms as, “learner centered, experiential methodology,” and with the “added social benefit of peer-to-peer interactions” (Department of the Army 2011d, 19).

The Learner-centric 2015 learning environment seen below depicts the value of peer-based learning.

Figure 3. Learner-centric 2015 learning environment
Source: Department of the Army, U.S. Army Training and Doctrine Command, TRADOC Pam 525-8-3, *The U.S. Army Training Concept for 2012-2020* (Ft Monroe, VA: Government Printing Office, 2011), 22.

Experiential learning for mid-grade and intermediate level leaders is a recognized norm within the current Officer Education System (OES). Experiential learning is defined in the key terms of chapter 1. At the heart of the experiential methodology is the P2P relationship.

The "experiential methodology" prescribed in the ALM was developed by David A. Kolb. In 1984 he published, *Experiential Learning: Experience as the Source of*

Learning and Development. His research arguably changed the prescription of how knowledge is achieved with adult learners. He presents the idea that other educational theories, "deny any role for consciousness and subjective experience in the learning process." He contended that his theory was more holistic and would, "emphasize the central role that experience plays in the learning process" (Kolb 1984, 20). Kolb's theory of experiential learning is based on the collaborative and cooperative nature of using real-world experiences in the learning environment. His theory is predicated on the basis of: (1) Concrete experience, (2) Observation and reflection, (3) Forming abstract concepts, and (4) Testing in new situations. Better illustrated in the diagram below (see figure 4).

Dozens of studies cite Kolb's theory as the basis for adult peer-learning. There is little argument about the advantages of experiential learning over the disadvantages. The current Army OES has already implemented experiential learning as a teaching strategy in the ILE student, and has recently begun to teach instructors at the various CCC's for the student Captain. The Army's Faculty Development Plan teaches a 40 hour certification on experiential learning, providing instructor education on the premises of experiential learning.

Figure 4. Leads to Four Kinds of Knowledge
Source: David A. Kolb, *Experiential Learning: Experience as the Source of Learning and Development* (Upper Saddle River, NJ: Prentice Hall, 1984), 21.

As discussed earlier, the individual has an additional accountability in the collaborative process to promote peer-learning, the hub of experiential learning. Additionally, Malcolm Knowles is a source for reading about adult learners. One of Knowles five principles for adult learners cites, “Experience is the richest resource for adults’ learning” (Knowles1990). Figure 5 provides Knowles five assumptions.

- ☐ The need to know—adult learners need to know why they need to learn something before undertaking to learn it.
- ☐ Learner self-concept—adults need to be responsible for their own decisions and to be treated as capable of self-direction.
- ☐ Role of learners' experience—adult learners have a variety of experiences of life which represent the richest resource for learning. These experiences are however imbued with bias and presupposition.
- ☐ Readiness to learn—adults are ready to learn those things they need to know in order to cope effectively with life situations.
- ☐ Orientation to learning—adults are motivated to learn to the extent that they perceive that it will help them perform tasks they confront in their life situations.

Figure 5. Knowles' Assumptions
Source: Malcolm Shepherd Knowles, *The Adult Learner: A Neglected Species (Building Blocks of Human Potential)* (Gulf Publishing Co., 1990), 57.

Successful manifestation of Kolb's and Knowles' theories is adequate use of collaborative processes. As noted by leading researchers in this area of adult collaboration, "collaboration is a coordinated, synchronous activity that is the result of a continued attempt to construct and maintain a shared conception of a problem" (Roschelle and Teasley 1995). With the value of collaboration within experiential learning, how will the individual provide shared meaning for the group? This section will discuss collaboration within the F2F environment. Blended Learning (use of technology-

aided devices with F2F instruction) to promote e-based or online collaboration will be discussed in the last section of this chapter.

It is an important side note before exploring collaborative learning, as to when this type of approach should be employed. Research has shown that collaborative learning is an effective approach in both “drill and practice skills” and “critical thinking skills” (Gokhale 1995). Evidence has shown that collaborative learning in various age groups and professions has given students, “an opportunity to engage in discussion, take responsibility for their own learning, and thus become critical thinkers” (Gokhale 1995) Although not explicitly labeled collaborative learning, Benjamin Bloom’s “the two-sigma problem” places cooperative learning in the 79th percentile and student classroom participation in the 84th percentile. Bloom’s two sigma problem is in Appendix D.

Interestingly, TRADOC Pam 525-8-2 only discusses peer-based learning from technology-aided mediums, not in the collaborative classroom environment (U.S Department of the Army 2011c, para i). Although P2P learning occurs in live, virtual, gaming, simulation, and other technology-aided environments, it is assumed to be present in the F2F environment within the ALM. The ALM defines one of the six operational factors to re-examine the current model, is the need to “capitalize on experience” (U.S Department of the Army 2011c, 10). This paragraph begins with, “Recent operations provide Soldiers with a wealth of operational experience that contributes to peer-based learning in today’s classrooms, through blogs, and other media” (U.S Department of the Army 2011c, 10). The ALPS echoes the need for quality F2F instruction and peer-based learning (U.S Department of the Army 2011e, 26).

The benefits of P2P learning for adult learners are well documented. However, a review of P2P studies for this research is needed for a baseline to compare the ALM. Reviews of studies from various civilian and military sources provide insight on the value of P2P learning. The studies below were chosen because of their robust references for the basis of their research, and reference the leading schools of thought in education. Dating back to 1984 with Bloom's study of pedagogical strategies that support individual learning, he ranked that an "average" individual would be in the 66th percentile with only peer and cross-age remedial tutoring (Bloom 1985). Additionally, peer group influence can account for 58th percentile to the individual. (Bloom 1985).

Later studies concluded the same benefit to P2P learning in the educational and professional environment. A detailed study from Paul Armstrong and Miriam Zukas in 1994 titled "Power, peers, and professional development: the diversity of mutual learning," in which they write, "participants are willing to engage in peer mentoring, especially in adult education, because it is an integral part of the learning process; it is part of the learning experience and the experience of learning" (Armstrong and Zukas 1994). More recent studies have echoed the same benefits. Linda Joy Mesh of the University of Siena Language Center in Siena, Italy described how adult learners placed a high value of learning from peers. As quoted in her study, "These collaborative strategies promote peer interaction online in a reciprocally supportive climate for brainstorming ideas, expressing opinions, requesting and offering help, and learning within a group through peer feedback and support in L2 practice and performance" (Mesh 2010). This study is relevant because it speaks of collaborative strategies as those used in the Blended

Learning approach. Additionally, the Army has studied P2P benefits to improve shared learning and reflection.

A 2010 article in *Military Review* highlighted what studies in the Army for the past 64 years have consistently stated, "captains would grow the most through reflection on their experiences in an academic setting involving intellectual challenges and discussions with their peers. Moreover, these challenges needed to come from academic rigor and direct peer contact" (Raymond et al. 2010b). P2P learning in the Army profession is the basis for most small group instruction. For mid-grade and intermediate leaders, small group instruction (1:16 ratio or less) has been implemented since the 1980s. Informal strategies to promote P2P learning has been implemented into most CCC's and ILE, since small group instruction began. Recognizing that some CCC's and ILE classrooms were more collaborative in nature than others, recent movements by TRADOC leadership have invigorated the prospect of P2P learning in the collaborative environment.

For example, the Army Research Institute in 2009 developed a guide to assist facilitators in promoting effective P2P learning. The basis for this research was conducted by Woodie and Topping (Sanders, et al. 2009, 1). As stated in the guide, "the Army needs to leverage the potential of peer-to-peer (P2P) training, which refers to the acquisition of knowledge and skill through active helping and supporting among equals" (Sanders et al. 2009, 1). It is important to note that Experiential Learning is what is being conducted in these collaborative environments, as noted in the ALC and ALPS. The hub in which experiential learning occurs is predicated upon P2P reflection.

Other effective P2P teaching strategies in the professional and educational environment have been developed to aid educators in supporting P2P learning. A P2P guide developed by Engineers Without Borders provides an easy read in the value of P2P learning, facilitation, the Spiral Model, physically preparing the workspace, self-mental-emotional preparation, personality types, learning styles, group behaviors, and overall "workshop" preparation (Takaki n.d.). Additionally, the Research Center for Leadership in Action in 2007 developed a "how-to" guide based upon the Center for Applied Research in best practices for designing P2P learning exchanges (Research Center for Leadership in Action 2007). It provides specific classroom techniques by incorporating pre-work, during the exchange, and follow-up activities to promote P2P learning. The above examples are cited because they are recognized effective strategies to promote P2P learning. As such, quick packets or how-to guides may aid implementing bodies in providing tools for their faculty and instructors.

The Facilitator in P2P Learning

> The Problem-based Learning teacher is a facilitator of student learning, and his-her interventions diminish as students progressively take on responsibility for their own learning processes. (Hmelo-Silver and Barrows 2006)

Generally speaking, the role of mentor or facilitator is highly important in P2P learning. This section will discuss the role of facilitator within the ALPS and the ALM. Additionally, a review of studies from within academia and the military will be the basis to compare the ALM. Once again, as volumes have been written on this topic, studies will be relegated to the ones within Experiential and Blended Learning.

The ALPS cites the requirements for Instructors-Facilitators, more of what to do, versus how to do it, or why. This allows latitude for implementing bodies to determine their technical or educational needs in their specific branches or schools. The ALM describes the role of facilitator as, "responsible for enabling group discovery," with the ability to, "construct knowledge by sharing prior knowledge and experiences" someone who, "guides the group to recognize better solutions" (Department of the Army 2011c, 19). It is best described in the section of the ALM for CCC's, "The facilitator encourages peer-to-peer learning, collaboration, problem solving, and social networking" (Department of the Army 2011c, 54). The out-dated role of instructor in the ALM will transition to the role of facilitator. This will require out-dated "instructor" or "sage on the stage" delivery to support experiential learning in the collaborative environment. Additionally, it will place the added weight of facilitating in the virtual world. The ALM requires that facilitators "require greater proficiency in communication skills and subject mastery than traditional lecture methods" (Department of the Army 2011c, 20). Schools will have to move from placing personnel as a positional opening, to hiring the right facilitator, requiring a more stringent selection (Department of the Army 2011c, 27). The ALM recognizes the value of the facilitator within P2P learning, and has placed a mandate for schools to place the right instructor (facilitator) to encourage P2P learning.

Facilitation techniques in education are not new, but have become very popular in the past two decades. Current leaders in this area such as D.D. Pratt, Trentin, and Grasha have provided all levels of education, ways to promote a better learning environment. In words close to the ALM, Trentin wrote, "Learner-centered teachers are guides,

facilitators, and designers of active learning experiences. They promote democratic and egalitarian views of education and are open to different kinds of learning" (Trentin 2008). The role of facilitator enables P2P learning in which, "Facilitating learning promoted student discussion in a constructive, socially interactive, integrated language environment" (Brookfield 2006). It creates an environment in which, "Empowered students came together so they could think and talk" (Isaacs 1999).

The Army Research Institute also developed a similar product to enhance P2P learning. In 2009 the *Peer-to-Peer Training Facilitator's Guide* was developed by the Army Research Institute to provide small group facilitators learning techniques and best practices to provide effective peer-learning (Sanders et al. 2009, 1). Based on studies from academia, industry, and the military, the guide provides facilitators stages to delivering P2P learning. An example of stage two, for delivering collaborative learning techniques can be found in Appendix F).

A recent 2011 study conducted at the CGSC by Barry Leslie of Kansas State University is a detailed study of self-efficacy for facilitated-led environments. Particularly valuable for the Army, it researched how the CGSC school, CGSC faculty, and current small-group instructors describe facilitation at the CGSC for ILE students. The CGSC describes its faculty as, "talented facilitators of learning in the classroom who created an active and collaborative learning environment in which students practiced critical thinking to guide discussion and foster the construction of knowledge" (USACGSC 2010). This current and relevant study provides an insight into the efficacy of current facilitators in the ILE, in the Army classroom. As a side note, the Army is

fortunate to have two recent studies on its current educational system for Captains. The CCC Course Study by Colonel Raymond as referenced earlier, and the study by Barry Leslie. These two studies are valuable in gauging current gaps in the educational experience of a Captain to the rank of Major. Although Leslies' is more academic in tone, Raymond's research and findings are based upon the opinion and attitudes of the current mid-grade leader. Leslie's research and findings are included in Appendix K. Barry's study concluded there was minimal self-efficacy by the faculty in regards to age, gender, or position. However, self-efficacy became an issue from a demanding academic calendar and changing schedule, providing little time for small group reflection. In turn, too much academic content with little class time forced more lecture, minimizing effective experiential learning and classroom facilitation (Leslie 2010).

It is important to note that the facilitation-led educational environment requires more from the individual, peer groups, and the facilitator. For this environment to promote P2P learning, the facilitator must acquire certain qualities and values. D.D. Pratt's "A general model for teaching in Adult and Higher Education," A.F. Grasha's "Four Teaching Methods," and R. Schwarz, *The Skilled Facilitator: Practical Wisdom for Developing Effective Groups* are leading references of facilitated environments. The common thread for these researchers describes facilitators with certain abilities or qualities. They also contend in general that an effective faculty can, "flow from one style to another, based on student learning styles" (Grasha 2002). For the sake of brevity and academic respect, this study recommends interested readers to again reference Leslie's study on facilitated environments within the current OES at the CGSC.

Additionally important for effective facilitation is facilitator education. Some argue that facilitator education versus facilitator training provides deeper understanding of the skills required in the classroom. The four approaches to facilitator education are best described by Glyn Thomas' manner in which facilitator education is often approached (see Appendix E). Thomas extrapolated the different approaches to facilitator education from leading thinkers in the field to develop four dimensions in facilitation education (Thomas 2003). The four dimensions are Technical Facilitator Education, Intentional Facilitator Education, Person Centered Education, and Critical Facilitator Education. The Technical Facilitator Education approaches the need for skills or competencies to facilitate groups. The Intentional Facilitator Education approach requires facilitators to intentionally use methods and strategies in a given environment. The Person Centered Education approach also intentional, but the facilitator understands the theories behind facilitation. Finally, the Critical Facilitator Education approach recognizes the political and emotional impact of facilitation (Thomas 2003).

Since the ALM intends to use experiential learning in a facilitated classroom. A literature review in the area of facilitated problem-based learning seemed appropriate for this study. PBL concepts tend to fit with the Operational Adaptability that the ALDS and Army Capstone Concept require. As stated in a 2006 article of *Interdisciplinary Journal of Problem Solving* on (PBL), "Problem-based learning is an active learning method based on the use of ill-structured problems as a stimulus for learning" (Barrows and Tamblyn 2000). It continues, "Empirical studies of PBL have demonstrated that students who have learned from PBL curricula are better able to apply their knowledge to novel

problems as well as utilize more effective self-directed learning strategies" (Hmelo-Silver 2004). As Army leaders tend to find themselves in ill-structured environments, PBL is what should be facilitated in the Army classroom. The article continues with, "This method is characteristically carried out in small, facilitated groups and taken advantage of the social aspect of learning through discussion, problem solving, and study with peers" (Hmelo-Silver 2004).

Again, effective facilitator techniques and considerations are quite exhaustive within civilian and military sources. The literature review conducted in this study finds there is not a difference in facilitating among different adult learners based on age, experience, or position. In essence, when applied effectively, facilitation techniques improve P2P learning within adult learners.

Blended Learning and P2P

> A society which is mobile, which is full of channels for the distribution of a change occurring anywhere, must see to it that its members are educated to personal initiative and adaptability. Otherwise, they will be overwhelmed by the changes in which they are caught and whose significance or connections they do not perceive. (Dewey 1916)

One of the 13 characteristics of the Learner-centric 2015 learning environment is Blended Learning. In earnest, Blended Learning is the manner in which most of the other 12 characteristics facilitate education within the Learner-centric 2015 learning environment. Since Blended Learning combines F2F and technology-online instruction, the other characteristics inherently become an aspect of Blended Learning. The ALM contends that Blended Learning can add to P2P interactions, reduce learning time by 30 percent, leverage digital age learners, and when balanced within the collaborative

environment, can create a “powerful learning experience” (Department of the Army 2011c, 19-20). This section will address how Blended Learning within the ALM will add to P2P learning-reflection, how digital age learners engage in P2P learning within Blended Learning, and studies of how Blended Learning adds to P2P learning. Also discussed in this section is the use of technology-aided mediums that support P2P learning. This section is limited to discussing simulations and gaming, blogs or wiki-type community portals, and dL as it relates to P2P learning. P2P learning within Blended Learning was purposely segregated from the other sections due to the weight that the ALM places upon Blended Learning.

TRADOC Reg 350-70 provides the guidelines for the ALM to implement Blended Learning by stating, “Use authentic exercises in classroom and blended learning activities to maximize skills transfer to the job and the Operating Environment (OE)” (Department of the Army 2011e, 26). The ALM states Blended Learning as, “The term blended learning is defined most frequently as online or technology-delivered instruction combined with face-to-face instruction. It blends the efficiencies of self-paced, technology-delivered instruction with the expert guidance of a facilitator, and can include the added social benefit of peer-to-peer interactions” (Department of the Army 2011c, 19). Since distributed or distance learning is inherently an individual effort, it will not be discussed in detail within the context of Blended Learning in this section. Blended Learning within the ALM is a long list of technology-based delivered instruction with inherent P2P learning-reflection. These include but are not limited to: dL, intelligent tutoring, virtual and augmented reality simulations, automation and artificial intelligence

simulation, massively multiplayer online games (MMOG), adaptive learning programs, Web 2.0 technologies, mobile internet devices, mobile computing, blogs, videos, wiki-type networks, and a digital-resourced portal (Department of the Army 2011c, 22).

As stated earlier, the ALM provides the Learning Environment Factors for the new direction for Army learning. Two of the factors are generational and learner differences, and technology opportunities. These two factors warrant a section devoted to Blended Learning. Blended Learning seems to be a good fit for the generational differences as proposed in the ALM. Describing the "net" or "millennial" generation of learners, the ALM claims, "digital age learners include visual and information literacy, multitasking ability, immersion in technology (ubiquitous computing), social engagement, achievement-oriented, sheltered from harm, and a desire to make a difference in the world" (Department of the Army 2011c, 12). It also claims that, "reliance on digital media has resulted in shorter attention spans, poor teamwork skills, lack of listening and critical thinking skills, and a lack of intellectual courage" (Department of the Army 2011c, 12). It also prescribes to claims that informational technologies are revolutionary, rather than evolutionary (Department of the Army 2011c, 12).

The debate on both sides is mostly based upon broad conceptions and little evidence. Evidence does not show informational literacy or multitasking skills of the net generation, nor does it show poor attention spans. Recent studies by the British Journal of Educational Technology challenged the above notions and found no empirical evidence that the net generation processes information differently, nor are they disinterested in

their current educational environment (Bennett, Maton, and Kervin 2008). As stated by Dr. Thomas C. Reeves, in 2006, of the University of Georgia, “Instead of worrying about whether Boomers, GenXers, or Millennials will learn more from direct instruction or virtual reality games, instructional designers and educational technology researchers working closely with practitioners and subject matter experts should begin by identifying the needs of any given set of learners” (Reeves 2007).

As F2F collaboration is an accepted practice to promote peer-learning and critical thinking skills, and with the ALM placing such emphasis on using technology-aided devices, the next paragraphs will only discuss on-line collaborative learning in the ALM. Again, P2P learning within the use of Blended capabilities will be discussed in the last section. As discussed earlier, technology opportunities are one of the five learning environment factors for needed change. As stated in the ALM, “emerging technologies that are likely to have the greatest effect on the learning environment in the next 5 years include mobile computing, open content, electronic books, augmented reality, gesture based computing, and visual data analysis,” are some of the needs for change (Department of the Army 2011c, 13). It continues with relevant learning will provide, “adaptive learning, intelligent tutoring, virtual and augmented reality simulations, increased automation and artificial intelligence simulation, and massively multiplayer online games (MMOG) (Department of the Army 2011c, 13). The emerging field of mixing technology and collaboration tends to be problematic and hard to empirically study. Some of the above technologies are individually-natured in general and will do little to promote collaborative learning. However, the use of MMOG, simulations, mobile

computing, and Web 2.0 have a value within collaboration. Online collaboration like email, blogs, wiki, and others have facilitated online collaboration and improved peer-learning.

The cost-effective, accessible, informal, and on-demand applications of online learning have connected people and content like never before. Leading advocates in the expansion of online and F2F collaboration from John Brown and Richard Adler, and Rena Palloff and Keith Pratt, have studied the value of instructors and learners conducting online collaboration with success. Brown and Adler advocate that social learning can exist in the classroom and the virtual worlds (Brown and Adler 2008). They offer advice to implementing bodies, faculty, and educators that because of technological advances, that teaching and learning are no longer limited to the classroom (Stoeger 2008). In fact, they contend that collaborative learning is valuable in the informal and formal settings of both classroom and online environments. Leading advocates and educators like Dr. Rena Palloff and Dr. Keith Pratt have also studied the topic of collaborating online. They have written four books in this area since 1999. Again, their work is geared toward program development for the implementing bodies and educators in mostly adult education. Their latest book, *Collaborating Online: Learning Together in Community*, provides literature on how to build virtual teams, address limited resources in implementation, empower online learners, and utilize collaborative activities to provide an overall effective educational online program. As leaders in this area, they may provide effective implementing strategies for online collaboration to Army education developers.

In regards to collaborative and on-line learning, a recent field of computer-supported collaborative learning has emerged in the educational sciences. Although catered toward all types of computer-aided learning, it also addresses on-line learning. For implementing bodies of online learning, the literature in the study of computer supported collaborative learning may provide the Army insights into effective implementation. Leading proponents in this area like Sue Bennett basically echo the same benefits of online collaboration (Stoeger 2008). A 2004 book labeled *Online Collaborative Learning: Theory and Practice* written by Dr. T. S. Roberts provides studied information from Dr. Bennett's research and others in this field.

For effective online learning to occur, the online learning community or environment may be different than the F2F environment. To effectively collaborate in the web environment requires the same effort in the F2F environment. That is, careful consideration is needed to implement an online collaborative environment. A recent study by the Delft University of Technology in the Netherlands determined that effective online learning must address quality, context, and sustainability issues (Hennis, Lukosch, and Veen 2010). The intent of the research was to determine the reputation of effective peer-based on-line learning environments. They admit, "quality" is in the eye of the beholder, but they rightfully assessed that an expert in a certain field to determine quality is better than a layman (Hennis, Lukosch, and Veen 2010). Again, research in this area may assist the Army implementing bodies in determining how to effectively employ online peer-learning strategies. In the Army assessing online collaboration and maintaining its reputation-quality, context, and sustainability may be an effective assessment model.

There is a vast amount of literature in regards to gaming-simulations, interactive software, and mobile devices to aid-hinder learning. As education is being more personalized and a learner-centered activity, the use of technology within education can provide personalized services and promote collaborative activity (Brown, Collins, and Duguid, 1989) (from theory of learning for the mobile age). Dozens of reviews from various sources has provided this insight, as best stated in an article labeled "A Theory of Learning for the Mobile Age," "The creation of meaning lies in the act of exchange: The unique interaction that takes place between the elements of the system (humans or technology) within a distributed context. The learning system as a whole evolves in a continuum of advancing knowing through conversation and interactions. Knowledge is embodied in both the elements of the system and their interactions" (Brown, Collins, and Duguid 1989). The use of technology is not meant to replace practice or education objectives, but they can aid by providing another repetition and support collaboration efforts. As noted in one study on mobile learning for those in the education field, "design technology to enable rich conversation," it continues with, "Education in the mobile age does not replace formal education, any more than the worldwide web replaces the textbook; rather it offers a way to extend the support of learning outside of the classroom, to the conversations of interactions of everyday life" (Sharples, Taylor, Vavoula 2006).

Again, there are many studies into the use of using technology within education. Studies have generally determined there can be equality in F2F and web-based learning. Studies from Verdun and Clark in 1991 to Simonson, Smaldino, Albright, and Zvacek in 2006 have determined equal learning in F2F and web-based learning, but not necessarily

more effective (Horzum, Balta, and Alper 2006). However, in most of these studies there tends to be the variable of attitude or opinion of the student who prefers more web-based or F2F learning. Basically, if the students' attitude toward one medium over the other is weighted, his educational experience and outcome will be determined by his preference. A 2006 study in Estonia comparing the use of web-based and F2F learning determined that there are preferential differences, but overall, Blended Learning is more preferred than wholly web-based courses (Horzum, Balta, and Alper 2006). Further research by the University of Central Florida also concluded that Blended Learning was preferred more than fully online courses (Dziuban, Hartman, and Moskal 2004, 7). It also concluded that students that succeeded with an A, B, or C preferred blended courses. However, students were more likely to withdraw slightly more from a blended course and substantially more from a solely on-line course. The school contributes this success in use of Blended Learning to effective instructional design and virtual student support. They also contend that chat rooms, discussion groups, and email improve increased facilitation (Dziuban, Hartman, and Moskal 2004). A recent study conducted by the Journal of College Teaching and Learning in 2009 attempted to determine how student attitudes compared between Blended Learning and a F2F course. Additionally, they sought to determine what Blended Learning techniques were more advantageous. It was concluded that blended courses were more favored, but needed to be innovative, interesting, and active. The definition of "active" meant they were more collaborative in nature and not static online activities. Examples of active learning activities include virtual learning

environments, collaborations, games, video teleconferencing, and threaded discussions (Gill 2009).

There is not a standard or coherent Blended Learning model used in the military or civilian sectors. But in general, they all espouse the same benefits or capabilities. The American Society for Training and Development espouse to three Blended Learning models. The skill-driven model combined self-paced learning with facilitator support to develop specific knowledge or skills. The attitude-driven model mixes various events and delivery media to develop specific behaviors. The competency-driven model blends performance support tools with knowledge management resources and mentoring to develop workplace competencies (Valiathan 2010). The three American Society for Training and Development Blended Learning models are in Appendix I for your review (Valiathan 2010). A handbook written by Charles Graham of Brigham Young University concluded there are three categories of blended models. The enabling blend attempts to create an equal learning environment through F2F, online, and Blended Learning programs. An enhancing blend uses a traditional university and adopts technology in the classroom. The transforming blend used more in the corporate environment uses more high-end technology like Live-Virtual-Constructive simulations and problem-based training to elevate the learning experience (Graham 2004). In either case, both schools of thought say there is an increase in P2P learning strategies. Neither provides an explanation to which model or approach increase P2P learning, but suggest that is should be a consideration when weighing human interaction to establish the right condition.

Proponents of Blended Learning contend that it is an extension of the learning environment and not meant to replace the classroom. Blended Learning provides the educator more tools to reach the individual learner. When designed in an effective manner, various blended activities can engage the various learning styles (Cognitive Design Solutions n.d.). In fact, some argue that the personalization of the individual learner in an optimal Blended Learning experience can engage the different learning styles, learning preferences, and learning architectures (Cognitive Design Solutions n.d.). In this context, the learning styles are visual, auditory, and kinaesthetic learners. For learning preferences, Dr. David Kolb's Learning Style Inventory of the Assimilating style, the Converging style, the Diverging style, and the Accommodating style is engaged in Blended Learning. The four instructional architectures as developed by Ruth Clark of receptive, directive, guided discovery, and exploratory approaches can engage different learners (Cognitive Design Solutions n.d.). When delivered with the above considerations, utilizing on-line, classroom, synchronous and asynchronous delivery methods can provide an overall effective learning experience that is self-paced and collaborative in nature. The Cognitive Design Solutions, a web-based company provides a variety of Blended Learning instructional methods and activities and is in Appendix J.

As dL is a recognized form of Blended Learning, it is precluded from this study in detail. It is mainly precluded because it is generally an individual effort. Additionally, recent research for mid-grade leaders has given insight into the attitude toward dL by Army Captains. That is not to say that effective learning for the individual learner within dL cannot occur. As cited from the Combined Arms Center Special Commission in 2010,

"They felt that the peer interaction would be lost in a dL environment. When asked if a seminar-type forum would mitigate the loss of peer interaction, students stated that while this would allow for peer learning in the classroom environment, the peer interaction and learning process that takes place outside the classroom would be lost or diminished" (Raymond et al. 2010a). A recent study from the Rand Corporation in 2011 on dL within the Army concluded some fair results on the current Army dL system. Again, in the findings on page 87, students wanted more interaction with instructors and peers (Straus et al. 2011).

The ALM references the use of MMOG as an online education tool within the ALC. Although gaming has been around for a long time, the idea of using asynchronous MMOG for educational purposes is a new thought. Proponents contend that using MMOG is naturally collaborative and enhances problem solving techniques while building teamwork (Preston, Booth, and Chastine n.d.). There is a growing trend of using MMOG in universities such as Rochester and Massachusetts Institute of Technology. This is a relatively new area of study and has some innate technology and user limitations or constraints. Establishing virtual communities and providing equitable bandwidth are a few constraints considered in using MMOG. Initial studies do show that the collaborative "game-play" nature and interaction in MMOG can motivate some learners. A recent study determined that intrinsic motivations do influence the intention of a learner in a collaborative MMOG environment (Kong and Kwok 2009).

A 2009 study by the International Review of Research and Open and Distance Learning determined computer supported collaborative learning by use of blogs and chat

rooms with small group activities can improve online courses (Brindley, Walti, and Blaschke 2009). The intent of this study was to determine whether grading collaborative projects produced higher student participation. Additionally, the study points out effective strategies used to increase motivation and collaboration. The findings are in Appendix G. In a three year study, it concluded that, “instructional strategies is equally or more effective in encouraging participation in small group activities in the online classroom” (Brindley, Walti, and Blaschke 2009). A recent article providing similar effective strategies for online educators provides a useful input-output table for educators. The table is in Appendix F. In Appendix H is a recent article by the Rochester Institute for Technology on strategies for effective online collaboration. They determined 16 online strategies to provide effective online collaboration. A few examples of online strategies are: build group interdependence, keep groups small, establish peer evaluation, encourage questioning, make learning personally relevant, and so on. In essence, Rochester Institute for Technology discovered, there is no change from online collaboration to F2F collaboration. What is key to take away, is this: The school determined what worked best for it and provided it as potential strategies for the entire faculty. Again, cross-pollinating these types of strategies and techniques can provide a repository of ideas as the Army implements a new learning model.

In summary, chapter 2 was an encompassing look into the literature that defines the salient parts of the ALM as it relates to P2P learning. The literature review consisted of an exploration into the five areas that define the basis of P2P learning within the ALM. These five areas consisted of defining the ALM, the role of the individual, P2P learning,

use of technology-aided mediums, and the role of the class facilitator. The literature review consisted of reviewing the ALM, leading schools of thought into each area or approach, and studies that explored the area or approach. Additionally, the researcher attempted to find effective techniques, strategies, or pedagogical approaches that improve P2P learning within the five areas researched.

CHAPTER 3

RESEARCH METHODOLOGY

Purpose and Survey Design

The purpose of the research is to inform individuals, implementing bodies, and facilitators who seek to improve P2P learning in this new learning model.

The first step consisted of a historical literature review (research) of collected materials from U.S. Army and civilian sources. In essence, it was a descriptive review of the ALM (TRADOC Pam 525-8-2) and balanced mix of civilian authorities on adult learning, distance learning, Blended Learning, peer-to-peer interaction in the educational environment, and subscribers to technology-delivered education. Included were studies from the past 50 years about bridging educational gaps across multi-generations. Finally, any existing U.S. Army data on implementation of the ALM for possible implications within the force was reviewed. Interviews, discussions, and literature reviews from implementing bodies like the School of Advanced Leadership and Tactics, the various Directorates of Training from the Centers of Excellence, and Kansas Secondary Education Programs provided insights to implications of implementing Blended Learning to adult learners.

The second step consisted mainly of quantitative survey research from the CGSC in April of 2012. Inherent in this step was the development of a well-scripted and narrowed survey that focused on the primary and secondary research questions. The survey design was an online survey conducted at Fort Leavenworth, Kansas. Students who received surveys were approximately two months from graduation and had

completed their Common Core curriculum and were taking elective courses. This is beneficial because it allowed students to rate their educational experience in regard to environment, experiential learning techniques-collaboration, facilitation techniques by new instructors, a new peer group, and new individual learning responsibilities. The survey instrument was provided through an online survey program (Inquisite) with 22 questions and five control variables. The actual survey instrument is in Appendix L. The five control variables were: P2P, Environment, Technology, Facilitator, and Collaboration. Variance errors were minimized through a definition guide with the survey and utilizing a Lykert scale with mostly single variable questions. There were 20 Lykert scale questions and two open-ended questions. The randomized CGSC survey participants were provided a 22 question attitude inventory survey. Several drafts were developed to ensure interpretation and variance error was minimized. The survey was approved by the CGSC Quality Assurance Office and given the survey control number of 12-14-061. The researcher referenced *Handbook in Research and Evaluation, A Collection of Principles, Methods, and Strategies Useful in the Planning, Design, and Evaluation of Studies in Education and the Behavioral Science* by Robert R. Knapp publishing to develop and evaluate the overall research in this study.

The goal is to determine the implications from both the literature review and survey research was to determine the implications of P2P interaction in the OES for the mid-grade leader. The central focus was, if the quantitative research was in consideration of P2P learning and reflection. Therefore, research conducted was aimed at tabulating the

overall value of P2P learning, the class facilitator, peer collaboration, and use of technology-aided delivery methods of P2P learning.

Primary research question: How do U.S. Army mid-grade leaders value P2P learning as outlined in the ALM?

Secondary research questions:

1. How does the role of class facilitator impact the value of P2P learning for mid-grade leaders?
2. Does the learning environment impact the value of P2P learning for the mid-grade leader?
3. Does technology impact the value of P2P learning of mid-grade leaders?
4. Does group collaboration impact the value of P2P learning of mid-grade leaders?
5. Does P2P learning provide shared understanding-reflection of warfighting skills (CAM and Wide Area Security) for mid-grade leaders?

Tertiary research question: What is the role of the student within the ALM?

Survey Participants and Demographics

The sample group for the survey was from ILE class 12-01. The survey was delivered by the Army Knowledge Online email to 250 random students. Of the 250 students who were provided the option to respond, 32 provided input, with a response rate of 12.8 percent. Of those who responded, all provided a 100 percent response rate to all 22 questions.

The researcher provided assurance to each participant prior to the survey on the survey main page under the instructions column. It guaranteed that each participant's answers were voluntary and responses were confidential. The survey did not request demographic data from the participants. Class 12-01 mean demographics include the following: 37 years of age, 75 percent were males, 38 percent were MFE officers, and 50 percent obtained or were seeking to obtain their Master's Degree.

Data Collection and Analysis Procedures

Once the survey was completed, analysis of the 20 close-ended Lykert-type questions was conducted. The analysis included response rate of the Lykert-scaled questions. The two open-ended questions required coding by the five control variables of P2P, Environment, Technology, Facilitator, and Collaboration. Some of the open-ended questions fell into two or more control variables, if so; they were included in both percentages. The control variables were the basis for the other 20 questions and will be categorized for convenience in chapter 4 for the reader. Again, these five variables were derived from the primary and secondary research questions.

Question 1 was developed to gain a general baseline for the survey participant. Basically, question one was designed to inform the researcher of the general attitude the survey participant rated his or her current education experience. It was also intended to quickly reinforce the definitions on page one of the survey for the participant. Question one had four individual rating parts (Facilitator, P2P, Technology, and Environment) from a Very satisfied to Very dissatisfied Lykert scale.

Question 2 was developed to place a value of the Army mid-grade leader places upon P2P learning and reflection. This question was deliberately broadened to include both education and reflection as expressed in constructivist education theory. Since mid-grade leaders require conversations in and out of the classroom that are not often cleanly divided between education and personal or shared reflection, question two was intended to generally place a broad value mid-grade leaders place upon P2P learning. Question two provides data for secondary research question five (P2P).

Question 3 is the first question to place a value on P2P learning within the classroom environment. This question places a value on P2P learning with the benefit of F2F interaction in the classroom. Question three provides data for secondary research question five (P2P).

Question 4 is placing a value on P2P learning out of the classroom without a formal classroom environment or structure. Again, this question is in intended to place a value on mid-grade leaders in the area of P2P learning. Question four provides data for secondary research question five (P2P).

Question 5 asks not the value the participant places upon P2P learning, but how much P2P learning increased his-her individual knowledge as a maneuver officer. Since demographics were not asked in the survey, this survey question could be interpreted to include gaining maneuver "knowledge" by other branches or the participant included their own gain of maneuver knowledge. Question five provides data for secondary research question five (P2P).

Question 6 is the first question to determine a value participants place upon the use of technology in the course. It is a question to determine if technology-delivered mediums improved the course instruction as an effective instructional tool. Question six provides data for secondary research question three (Technology).

Question 7 is asking participants to place a value of technology-delivered mediums in promoting P2P learning in the classroom. The dynamic of F2F learning and technology is the basis of Blended Learning. This question challenges the advantages or disadvantages of incorporating technology to improve P2P learning in a F2F learning environment. Question seven provides data for secondary research question three (Technology).

Question 8 has participants placing a value of utilizing technology and supporting P2P learning out of the classroom. Again, this is a large part of Blended Learning and dL. Question eight provides data for secondary research question three (Technology).

Question 9 was designed to determine the value of technology in a F2F environment and its impact on P2P learning. For example, did participants find using simulations positively or negatively impacting P2P learning in the educational environment. The environment is the subject for question nine. Question nine provides data for secondary research question two (Environment).

Question 10 was designed for participants to place a value of the classroom facilitator in delivering overall educational objectives. The ALM places the class facilitator as a key component in experiential learning; this survey is linking how students

perceive the current classroom facilitator. Question ten provides data for secondary research question one (Facilitator).

Question 11 is a direct question of the value participants place upon the classroom facilitator and the impacts on P2P learning. The question is designed for the participant to determine how much the facilitator aids in P2P learning. Question eleven provides data for secondary research question one (Facilitator).

Question 12 is designed to force the participant to choose between more P2P interactions, better facilitators, more technology, better designed course work, or "other" (an open-ended response). None of the survey respondents provided an "other" answer.

Questions 13 through 20 were short response Lykert-scaled questions with strongly agree to strongly disagree questions. It was designed to ensure consistency from previous questions with a more definitive scale. Additionally, since the basis for this research is P2P learning, collaboration is also introduced within the P2P context. Below is a table for questions 13 through 20 and the corresponding variables.

Table 1. Survey Question-Variables

Survey Question	**Topic (variable)**
Question 13	P2P
Question 14	Technology
Question 15	Technology
Question 16	Technology
Question 17	Collaboration
Question 18	Collaboration
Question 19	Technology
Question 20	Technology

Source: Created by author.

Questions 21 and 22 were open-ended questions for respondents to provide their own values in the area of classroom instruction and using technology with instruction.

Summary

In summary, chapter 3 provided the applied research methodology to identify the value that current ILE students place upon P2P learning. The quantative research utilized a self-developed instrument to find the value that the above students place upon P2P learning in their educational experience. The analysis from this research may provide a current glimpse into how mid-grade leaders value their P2P learning in a future learning model.

CHAPTER 4

ANALYSIS

Chapter 4 contains the analysis and findings of the secondary questions and concludes with how those questions answer the primary research question. Each question has a resulting answer based upon the literature review and survey conducted at Fort Leavenworth.

Purpose

As stated in chapter 2, the purpose of this study is to inform individuals, implementing bodies, and facilitators who seek to improve P2P learning in the ALM. It is an attempt to quantify the value of P2P learning for mid-grade leaders within the ALM and assist those seeking to improve the Army's PME system.

Survey data (raw)

The data in this section was used to rate the participants' attitude toward answering the salient aspects (five variables) of the primary and secondary research questions. The five-scale Lykert questions were either "how-much" or "agree-disagree" type questions. All questions, but the two open-ended questions are directly linked to the five variables (P2P, Environment, Technology, Facilitator, and Collaboration). The researcher will start with question one and end with the two open-ended questions (questions 21 and 22). Below are the primary and secondary research questions:

Primary research question: How do U.S. Army mid-grade leaders value P2P learning as outlined in the ALM?

Secondary research question one: How does the role of class facilitator impact the value of P2P learning for mid-grade leaders?

Secondary research question two: Does the learning environment impact the value of P2P learning for the mid-grade leader?

Secondary research question three: Does technology impact the value of P2P learning of mid-grade leaders?

Secondary research question four: Does group collaboration impact the value of P2P learning of mid-grade leaders?

Secondary research question five: Does P2P learning provide shared understanding-reflection of warfighting skills (CAM and Wide Area Security) for mid-grade leaders?

The raw survey data is provided in Appendix L for review. Below is the analyzed data for questions 1 through 20. Readers should review the notes below, for table 2.

∑= Overall Satisfaction or Agreement Value: The sum of the two most positive percentages of Very Satisfied (VS)+Satisfied (S) or Very Much (VM)+Much (M) or Strongly Agree (SA)+Agree (A) values.

Note 1: Choices for improvement only included: Better Trained Facilitators (TR); More Technology (Tech); Better Designed Coursework (CW); More Peer-to-Peer Interaction (Peer); and Other.

Note 2: Choices were relative to the value of NOT collaborating with peers.

Note 3: Choices were relative to the effectiveness of LESS online collaboration.

Table 2. Analyzed Data for Questions 1 through 20

Question	Topic	VD	D	N	S	VS	∑
1A	FACILITATOR	3.13	9.38	6.25	43.75	37.50	**81.25**
1B	PEER	6.25	9.38	0.00	25.00	59.38	**84.38**
1C	TECHNOLOGY	3.13	12.50	31.25	34.38	18.75	**53.13**
1D	ENVIRONMENT	16.13	6.45	0.00	58.84	22.58	**81.42**
Question	**Topic**	**NA**	**NM**	**S**	**M**	**VM**	**∑**
2	PEER	0.00	9.38	6.25	43.75	40.63	**84.38**
3	PEER	0.00	9.38	3.13	37.50	50.00	**87.50**
4	PEER	3.13	6.25	6.25	34.38	50.00	**84.38**
5	PEER	0.00	6.25	21.88	28.13	43.75	**71.88**
6	TECHNOLOGY	6.25	28.13	28.13	37.50	0.00	**37.50**
7	TECHNOLOGY	0.00	34.38	25.00	34.38	6.25	**40.63**
8	TECHNOLOGY	15.63	34.38	37.50	12.50	0.00	**12.50**
9	ENVIRONMENT	0.00	12.50	46.88	21.88	18.75	**40.63**
10	FACILITATOR	0.00	6.25	18.75	43.75	31.25	**75.00**
11	FACILITATOR	3.13	15.63	15.63	46.88	18.75	**65.63**
Question	**Topic**	**TR**	**Tech**	**CW**	**Peer**	**Other**	
12	ENVIRONMENT (Note 1)	21.88	6.25	50.00	18.75	3.13	
Question	**Topic**	**SD**	**D**	**N**	**A**	**SA**	**∑**
13	PEER	0.00	6.25	3.13	46.88	43.75	**90.63**
14	TECHNOLOGY	9.38	12.50	50.00	28.13	0.00	**28.13**
15	TECHNOLOGY	3.13	28.13	34.38	31.25	3.13	**34.38**
16	TECHNOLOGY	3.13	18.75	28.13	37.50	12.50	**50.00**
17	COLLABORATION	0.00	6.25	3.13	43.75	46.88	**90.63**
18	NOT COLLABORATION (Note 2)	21.88	56.25	9.38	9.38	3.13	**12.51**
19	TECHNOLOGY	3.13	34.38	43.75	18.75	0.00	**18.75**
20	NOT TECHNOLOGY (Note 3)	0.00	15.63	37.50	40.63	6.25	**46.88**
21	Open Ended						
22	Open Ended						

Source: Created by author.

Questions 21 and 22 were open-ended questions for respondents to provide their own values in the area of classroom instruction and using technology with instruction. The responses were coded in the responding five variables (P2P, Environment, Technology, Facilitator, and Collaboration) and contained in either positive or negative categories. Some responses in the coding process contained more than one variable. Nine participants did not answer the open-ended questions. Four participants provided a "no comment" or "none" type answer. This is 13 responses that could not be coded. Only one response was not representative for providing a positive or negative response for coding purposes. Readers should review the notes below for tables 3, 4, and 5:

1. % Pos is the percentage of positive coded responses in each respective category.
2. % Comment is the percentage of coded responses (pos and neg) with respect to all responses.
3. ∑ is the percentage of coded positive responses only with respect to all responses.

Table 3. Coded Responses for Question 21

Codes	Pos	Neg	Total	% Pos	Comment	∑
Peer	16	0	16	100	45.71%	**45.71%**
Environment	4	0	4	100	11.43%	**11.43%**
Technology	1	0	1	100	2.86%	**2.86%**
Facilitator	9	2	11	81	31.43%	**25.71%**
Collaboration	3	0	3	100	8.57%	**8.57%**
Total	33	2	35			

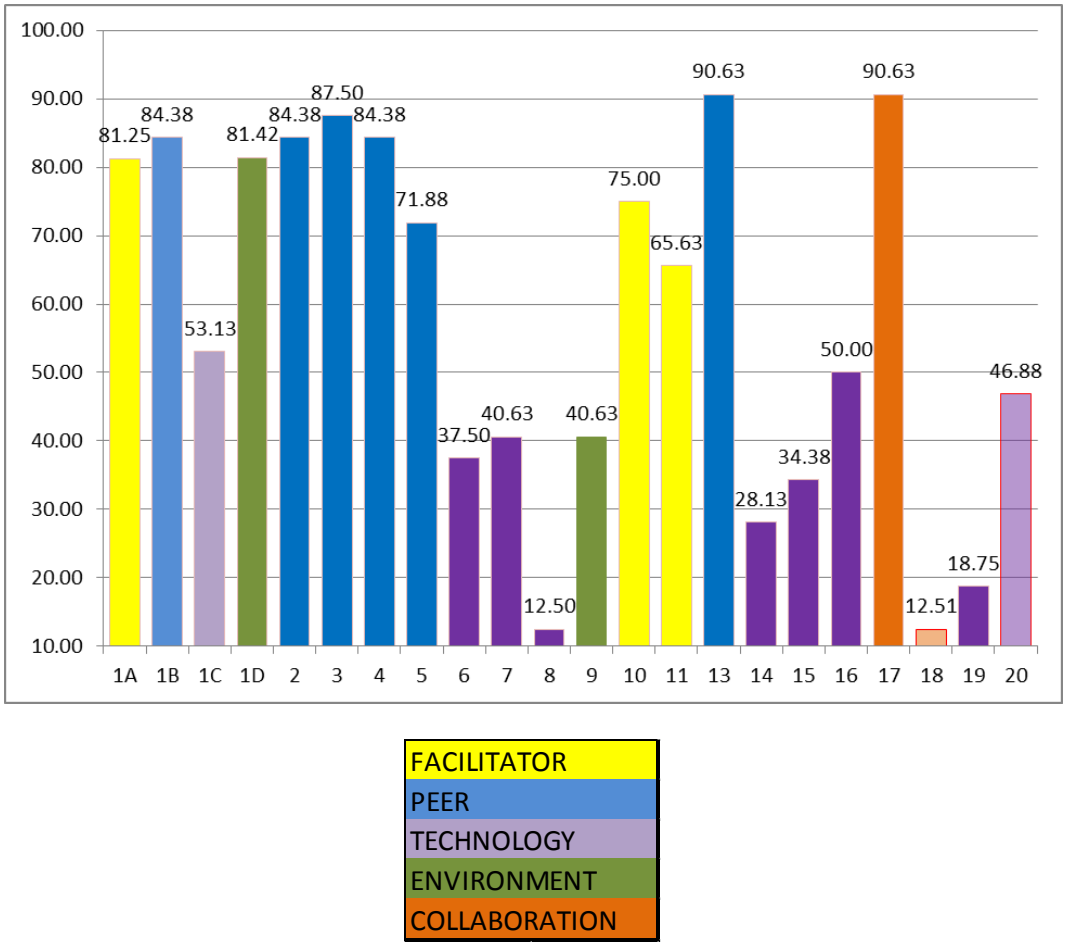
Source: Created by author.

Table 4. Coded Responses for Question 22

Codes	Pos	Neg	Total	% Pos	Comment	Σ
Peer	3	0	3	100	8.57%	**8.57%**
Environment	5	2	7	71	20.00%	**14.29%**
Technology	15	5	20	75	57.14%	**42.86%**
Facilitator	0	0	0	0	0.00%	**0.00%**
Collaboration	2	0	2	100	5.71%	**5.71%**
Total	25	7	32			

Source: Created by author.

Table 5. A Graphical Representation of Questions 1 through 20



Source: Created by author.

Overall Findings (Research Questions Answered)

As the ALM espouses to leveraging Blended Learning, classroom facilitators, and more collaboration in the classroom and beyond, emphasis on the changes within the OES should constantly be critiqued and assessed. A key component to the ALM is P2P learning. This researcher looked at the salient points of the ALM and attempted to define the value mid-grade leaders place upon these salient points. This study also attempted to define the effectiveness of the future ALM through the lens of those in the current mid-grade educational environment. Addressed in the following paragraphs (and in Appendix M) are the findings of the secondary research questions followed by the primary research question. Data analysis of the research questions conclude:

1. How does the role of the class facilitator impact the value of P2P learning for mid-grade leaders? Participants of the survey valued the role of facilitator in the overall educational objectives and in promoting P2P learning (Questions 1A, 10 and 11). In the role of facilitator aiding overall educational objectives, 75 percent rated the facilitator in the "Very Much" and "Much" rating (Question 10). In aiding P2P learning, 65 percent rated the facilitator in the "Very Much" and "Much" rating (Question 11). In question 21, 81 percent respondents provided positive remarks of the facilitator. Overall, participants rated the facilitator in having a substantial role with enabling P2P learning.

2. Does the learning environment impact the value of P2P learning for the mid-grade leader? Participants favored learning environments that promoted P2P learning, effective facilitation, effective use of technology-based mediums, and well-developed course work. 77 percent of the participants were "Satisfied" and "Very Satisfied" with the current course environment (Question 1D). When required to choose

between the other variables to improve the educational environment, 50 percent (largest percentage) chose “Better-designed course work” to improve the educational environment (Question 12). In the area of classroom instruction, 100 percent positive response rate was provided (Question 21). In the area of technology-based instruction, 71 percent provided a positive remark (Question 22). The conclusion would be that respondents valued classroom instruction over technology-based instruction (Questions 21 and 22).

3. Does technology impact the value of P2P learning of mid-grade leaders? Participants provided varied responses to the use of technology in several areas of Blended Learning approaches. Participants were “Satisfied” and “Neither Satisfied or Dissatisfied” by 65 percent in rating their current use of technology (Question 1C). Technology to provide a better understanding of MFE skills in course instruction was rated as 37 percent, the highest percentage (Question 6). It would be concluded that an effective technology-delivered medium for improving MFE skills was used in this class. For technology aiding P2P in the classroom, “Much” and “Not Much” was individually rated at 34 percent, a tie (Question 7). Additionally for question 7, 25 percent valued technology in aiding P2P in the “Some” scale. It would be concluded that technology aiding P2P in the classroom only provided minimal benefit. Technology aiding P2P out of the classroom was fairly consistent in providing “Some” benefits (Question 8). F2F instruction with technology in providing an effective peer-learning environment was again consistent by providing “Some” benefits (Question 9). When forced to choose from the other variables, technology-delivered instruction in the educational environment

scored the lowest by far (Question 12). Question 21 provided one positive response. Again, respondents provided a consistent trend with a 75 percent positive response rate to question 22, the open-ended question.

4. Does group collaboration impact the value of P2P learning of mid-grade leaders? Participants overwhelmingly valued collaborating with peers according to the close-ended questions (Questions 17 and 18). Although low response in the open-ended questions, it still had positive remarks (Questions 21 and 22). However, online collaboration was rated lower than F2F collaboration (Questions 19 and 20).

5. Does P2P learning provide shared understanding-reflection of warfighting skills (CAM and Wide Area Security) for mid-grade leaders? Participants overwhelmingly valued P2P learning and reflection in the "Very Much" or "Agree" scales (Questions 1B, 2, 3, 4, 5, and 13). On the open-ended question regarding the biggest benefit of classroom instruction, P2P positive responses were the highest by almost 2 to 1 (Question 21). On the open-ended question regarding the biggest benefit of technology-based instruction, P2P received 100 percent positive remarks, but was surpassed by environment (Question 22). For more information on the responses to the open-ended questions, see Appendix N.

What is the role of the student within the ALM? This secondary research question was not surveyed by the researcher. The literature review was the basis for this particular research question.

How do U.S. Army mid-grade leaders value P2P learning as outlined in the ALM? Students clearly prefer P2P learning in a collaborative environment, seconded by

an effective facilitator, and technology is leveraged and not a distracter to the educational objectives.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

With the release of the ALC 2015, faculty developers to class instructors have worked diligently to educate the current student while implementing a new model for the future student. In the end, implementing a new learning model is a daunting task and will require changes across the entire force. Out of the prevue of this research, but it may force behaviorist educational models and advocates to shift to a more constructivist educational model. The individual will require more educational counseling and awareness. Classroom environments will need to become more collaborative. Class facilitators will need to develop skills that promote collaboration, while improving the educational needs of the individual learner. Technology will need to be engaging and relevant in a balanced approach for leveraging in and out of the classroom.

Significance of the Study

The ALM will require robust changes from the student to the administering institutions throughout the Army. For this simple fact, constant assessment and challenging old or new axioms is required. The education of our current and future force cannot nor does it deserve a dose of a flawed learning model. The goal of this study was an attempt to define how current mid-grade leaders value what the ALM espouses to create. This study was also an attempt to communicate effective strategies or techniques for implementing Blended Learning for the faculty and student as the ALM is implemented. In implementing this new educational model, it is important that the student is the priority in education. The students' perceptions, attitude, and overall value

he or she places upon the learning environment, the facilitator, technology, collaboration, and P2P learning-reflection should be considered a priority as well. This study has sought to define the ALM and its impact on P2P learning. More importantly, as asserted by the ALM, to define a more effective P2P learning experience within the ALM.

Recommendations

Based on the literature review, the researchers' experience in instructing mid-grade leaders, as a student in ILE, and survey results, the following is recommended:

1. Instructor selection is stringent. Facilitators are trained in strategies that create an effective learning environment. This includes classroom arrangement, time on task balance, responsive feedback from the facilitator and peers, peers arrangement based upon learning styles and branch, lead-in techniques, etc. Faculty development includes building effective modules, facilitation education (v. facilitator training), experiential learning, and PBL. This development process is on-going through Faculty Development Program Army Basic Instructor Course and constant refresher training-faculty train-ups. Facilitators are constantly evaluated by peers and students. Effective (students respond favorably) techniques are shared quickly across the schools and TRADOC. The Army needs to define facilitator qualities. Facilitator skills can adjust to the learning styles of the individual student. Facilitators are effective in enabling or linking classroom discussions or subject material to online discussions (blogs, threaded discussions, etc).

2. Collaborative strategies are implemented in the classroom to empower peer-learning through effective facilitation techniques, individual and group assignments, use of multi-sensory mediums (video, vignettes, debate, off-sites, computer based instruction,

gaming, guest speakers, etc), and problem-based scenario exercises. The exercises should engage all participants and develop critical thinking and interaction skills. Effective techniques that harness experiential learning are shared. Supportive climates exist in the classrooms for opinions, brainstorming, and peer feedback. Interdependence strategies are employed to construct a collaborative environment.

3. Technology-based mediums are relevant, engaging, and support all learner types and styles. Technology-based mediums are relevant by supporting the students experience or providing a meaningful approach in supporting abstract (experimental) learning. Technology-based mediums must engage the student by attractive delivery and cueing both sight and sound. Students find the value of using technology in the right context if in support of the learning objectives. Online use is more synchronous and provides more opportunity for peer-learning. Online collaboration is employed to continue an education theme or subject. Education barriers should be broadened and interconnected across the OES for mid-grade leaders to share lessons learned, specific skills, and experiences. Reach-back to education centers (schools) provide students a repository for “any-time” or impromptu learning. Web-based capabilities should provide connectivity for the student, peers, facilitator, and the education center (school) a virtual meeting to inform and share. Technology-based mediums support learning objectives, using technology is rarely the learning objective.

4. Individual learning styles are provided to the individual learner for his own self-actualization. Individuals are provided the knowledge of their individual learning styles and educational strategies are developed to engage active learning in the

classroom. The individual learner is provided opportunities or reminded that he has a role in the overall educational value in the classroom. Reward good class behavior. Provide more group work in areas that are new or abstract to an individual learner. Provide feedback to the individual learner in individual and group exercises (assignments). The individualized and tailored learning models and Army Career Tracker needs to be defined.

5. P2P strategies are implemented to increase peer interaction and discussion. Classroom environments are arranged and conducive to increase discussion, experiences are shared, and group activities favor interaction. P2P relationships are encouraged to extend beyond the physical classroom to online applications. Leverage PBL in ill-structured scenarios to promote peer interaction and interdependence. Establish Pre-During-Post activities that involve peer interaction (reflection). Schools develop and continually refine effective P2P techniques (approaches) and cross-pollinate.

The above recommendations are not all encompassing, but relate to improving P2P learning. The above recommendations are also predicated on techniques or strategies that are provided in chapter 2 or the Appendix. Adding the obvious as a final recommendation, it is important as the ALM is implemented that class facilitators and administration bodies constantly provide a feedback mechanism from the Army adult learner. In the end, every student must be reached for an overall effective classroom environment. Sharing ideas that spur peer-learning or interaction, a new facilitation technique, or a board drill that led to a good class discussion should be constantly shared and disseminated.

Future Research

In earnest, each area of the researcher's secondary research questions could be a research thesis. For example, future research could consist of a more narrow focus on P2P learning in the F2F learning environment. As the Army moves forward into implementation, it is recommended by this researcher that the CGSC ask students interested in education to challenge this research and the educational model proposed by the ALM. It is also recommended by this researcher that the school use this study as a broad approach and adjust the survey to support a pre and post study for mid-grade students. This also includes a larger participant pool to include the fifteen CCC's. It is also recommended the survey used in this study be included for both resident and non-resident mid-grade students. The survey conducted would have been more informative if a pre-survey and post-survey were conducted with CGSC students upon arrival and prior to graduation. Additionally, a more rigorous survey for statistical analysis is suggested for future research. The researcher recommends future research be conducted on P2P learning to include Non-Resident students who attend the "satellite" course. Additionally, the researcher was not able to conduct a survey on the role of the individual in supporting P2P learning. It is recommended this may be another area of interest for a future study or survey. The individual learner will have a more involved role to meet the expectations of the ALM. This role will extend to involvement in the classroom to support collaborative and experiential learning, but will also expand to an active role in non-traditional educational assignments. Finally, it is also recommended that research conducted by Dr. Dawn Weston be reviewed with her study on distance education instruction. Dr. Weston's study is particularly relevant for those implementing the ALM for mid-grade

leaders in the Army. Her 2010 study addresses the perception that dL students place upon dL effectiveness.

Conclusions

As stated in the beginning of this study, the ALM will greatly impact the manner in which education is currently delivered. However, there are more opportunities to reach the educational needs of the current and future force than obstacles. As the ALM is implemented, the need for information sharing of effective pedagogical strategies and techniques should be disseminated. The data in this study indicated that mid-grade leaders highly value P2P learning. This is not a surprise. Previous studies in and out of the military have attested to the benefit of P2P learning among adult learners.

As the Army finds itself dealing with ill-structured problems requiring skills to work collaboratively in the Joint and cultural context of the Operating Environment, collaborative skills are required. This survey finds that collaboration among peers ranked high among mid-grade leaders. Again, this supports the value of P2P learning within the collaborative environment. The current and future mid-grade leader is surrounded with technology. Participants that were surveyed were generally receptive to the benefit of technology in the educational environment. But when it came to choosing between more P2P interaction, better designed coursework, and a better trained class facilitator, technology was represented as the last choice to develop expertise as a mid-grade leader.

Ultimately, it will be the P2P dynamic that will define the ALM as an effective model. If the ALM fails to create an environment of collaboration, proper leveraging of technology, promoting the individual learner, and the selection of quality facilitators, the

ALM will have failed at what it had intended to do. More importantly, it would fail the individual whose educational needs require a skill set unlike any other.

APPENDIX A

21st Century Soldier Competencies

- Character and accountability
- Comprehensive fitness
- Adaptability and initiative
- Lifelong learner (includes digital literacy)
- Teamwork and collaboration
- Communication and engagement (oral, written, negotiation)
- Critical thinking and problem solving
- Cultural and joint, interagency, intergovernmental, and multinational competence
- Tactical and technical competence (full spectrum capable)

Source: Department of the Army, U.S. Army Training and Doctrine Command, TRADOC Pam 525-8-2, The U.S. Army Learning Concept for 2015 (Ft Monroe, VA: Government Printing Office, 2011), 18.

APPENDIX B

Types of Positive Interdependence

Johnson, Johnson and Holubec describe three levels in establishing positive interdependence. The teacher first has to assign the group a clear, measurable task, then structure positive goal interdependence, and finally blend positive goal interdependence with other types of positive interdependence.

There are nine types of positive interdependence:

Positive Goal Interdependence: Students must realize that they can achieve their learning goals if, and only if, all the members of their group also achieve their goals.

Positive Celebration/Reward Interdependence: A mutual reward is given for successful group work and members' efforts to achieve it.

Positive Resource Interdependence: Each member of the group has only a part of the information, resources, or materials necessary for his or her task. In this way, the members' resources have to be combined so that the group accomplishes its goal.

Positive Role Interdependence: Each member is assigned complementary and interconnected roles that show the responsibilities required by the group to fulfill a common task.

Positive Identity Interdependence: Group members have to find and agree upon a common identity, which can be a name, a motto, a slogan, a flag, or a song.

Environmental Interdependence: Students are bound together by the physical environment in which they work. Thus, the teacher has to find an environment that unifies students.

Positive Fantasy Interdependence: The teacher gives students an imaginary task, for which they have to come up with solutions, for example a life-threatening situation or dealing with future technology.

Positive Task Interdependence: Work has to be organized sequentially. As soon as one team accomplishes its portion, the next team can proceed with its responsibility, and so on.

Positive Outside Enemy Interdependence: The teacher puts groups in competition with each other. In this way, group members feel interdependent and do their best to win the competition (Johnson, Johnson, and Holubec 1998).

Positive resource, role, and task interdependence result in individuals realizing that the performance of group members depends on the whole group and not on individuals. No student is on his or her own. As a result of mutual causation, cooperative efforts are characterized by positive inducibility in that group; members are open to being influenced by each other. If one member of the group has taken an action, there is no need for other members to do so (Johnson and Johnson 1999).

APPENDIX C

Learning and Teaching Styles in Foreign and Second Language

☐Motivate learning. As much as possible, teach new material (vocabulary, rules of grammar) in the context of situations to which the students can relate in terms of their personal and career experiences, past and anticipated, rather than simply as more material to memorize (intuitive, global, inductive).

☐Balance concrete information (word definitions, rules for verb conjugation and adjective-noun agreement) (sensing) and conceptual information (syntactical and semantic patterns, comparisons and contrasts with the students' native language) (intuition) in every course at every level. The balance does not have to be equal, and in elementary courses it may be shifted heavily toward the sensing side, but there should periodically be something to capture the intuitors' interest.

☐Balance structured teaching approaches that emphasize formal training (deductive, sequential) with more open-ended unstructured activities that emphasis conversation and cultural contexts of the target language (inductive, global).

☐Make liberal use of visuals. Use photographs, drawings, sketches, and cartoons to illustrate and reinforce the meanings of vocabulary words. Show films, videotapes, and live dramatizations to illustrate lessons in texts (visual, global.).

☐Assign some repetitive drill exercises to provide practice in basic vocabulary and grammar (sensing) but don't overdo it (intuitive).

☐Do not fill every minute of class time lecturing and writing on the board. Provide intervals—however brief—for students to think about what they have been told; assign brief writing exercises (reflective). Raise questions and problems to be worked on by students in small groups; enact dialogues and mini-dramas; hold team competitions (active).

☐Give students the option of cooperating on at least some homework assignments (active). Active learners generally learn best when they interact with others; if they are denied the opportunity to do so they are being deprived of their most effective learning tool.

☐Balance inductive and deductive presentation of course material. Instruct some or all of the class in the language being taught, to facilitate language acquisition and develop skill in oral communication (inductive). In parallel, provide explicit instruction in syntax and semantics to facilitate formal language learning and develop skill in written communication and interpretation (deductive). (Felder and Henriques 1995, 28-29)

APPENDIX D

Effect of Selected Alterable Variables on Student Achievement

		Effect size	Percentile equivalent
D[a]	Tutorial instruction	2.00	98
D	Reinforcement	1.20	
A	Feedback-corrective (ML)	1.00	84
D	Cues and explanations	1.00	
(A)D	Student classroom participation	1.00	
A	Student time on task	1.00[b]	
A	Improved reading/study skills	1.00	
C	Cooperative learning	.80	79
D	Homework (graded)	.80	
D	Classroom morale	.60	73
A	Initial cognitive prerequisites	.60	
C	Home environment intervention	.50[b]	69
D	Peer and cross-age remedial tutoring	.40	66
D	Homework (assigned)	.30	62
D	Higher order questions	.30	
(D)B	New science & math curricula	.30[b]	
D	Teacher expectancy	.30	
C	Peer group influence	.20	58
B	Advance organizers	.20	
	Socio-economic status (for contrast)	.25	60

Note. This table was adapted from Walberg (1984) by Bloom.

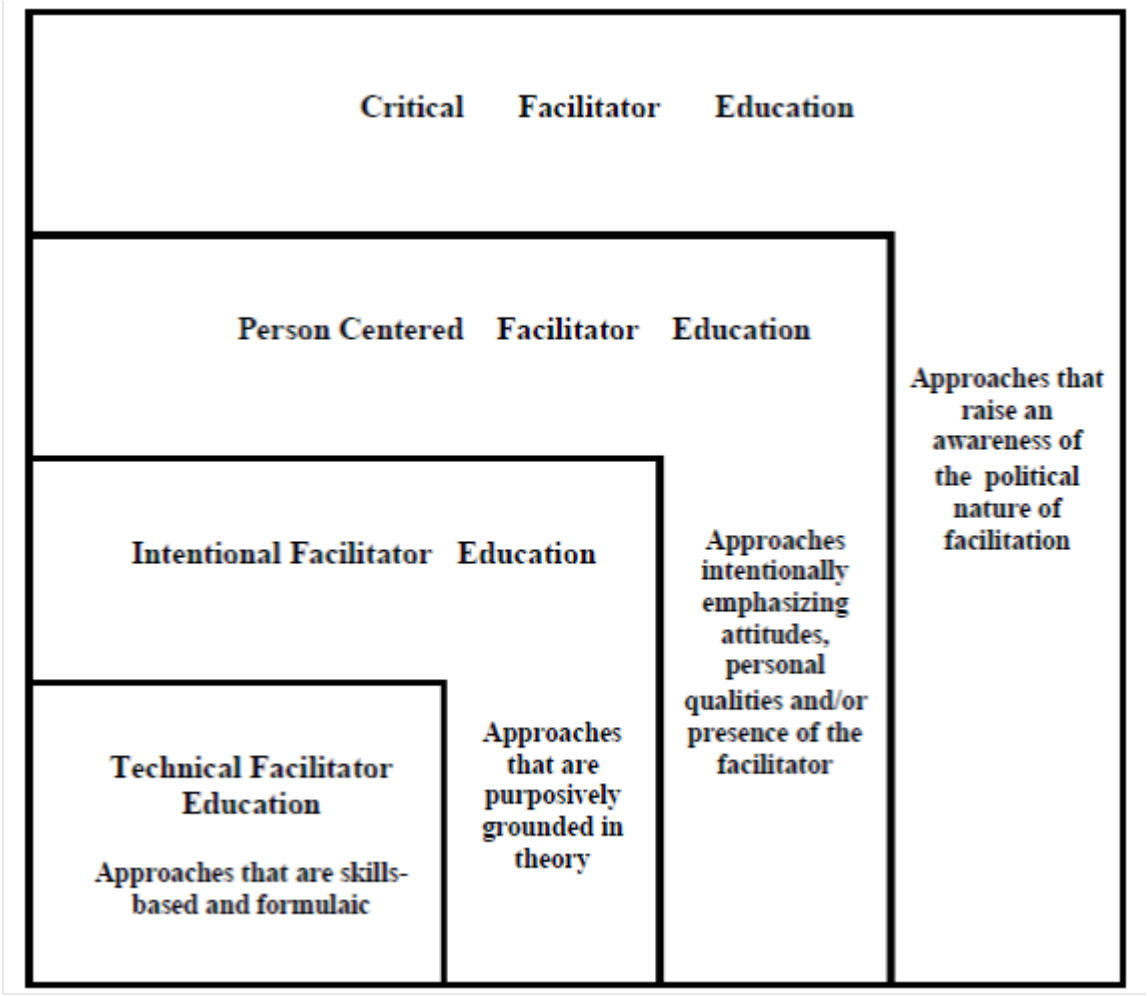
[a]*Object of change process*—A-Learner; B-Instructional Material; C-Home environment or peer group; D-Teacher.

[b]Averaged or estimated from correlational data or from several effect sizes.

Source: Benjamin S. Bloom, Education Researcher 13, no. 6 (June/July 1984): 4-16.

APPENDIX E

Glyn Thomas Dimensions of Facilitator



APPENDIX F

How to Use Collaborative Learning Techniques

How to Use Collaborative Learning Techniques

Collaboration	How to Do It	Tips
Group Discussion: A general discussion of an issue or topic by the group.	Decide on a discussion topic that is of equal interest to all Soldiers. Use participation and questioning techniques to get everyone involved.	When group discussions are successful, it may be difficult to know who is leading the discussion.
Assigned Discussion Leader: One person other than the facilitator leads the group discussion.	Facilitator assigns someone else in the group a topic to lead the discussion on. Allow a little time for the discussion leader to prepare.	You may not know until you start the discussion which Soldiers may want to lead discussions.
Clusters: Soldiers are divided into smaller groups for discussion.	Assign someone in each cluster to record. Allow time for each group to report back to the larger group.	Provide each group with a flipchart or whiteboard space to record important points of their discussion.
Turn to a Partner: Each Soldier works with another on an assigned topic.	First provide the group with background information on a topic. Immediately move to discussion with a partner.	This works best when Soldiers have enough background on the topic to discuss without reviewing concepts.
Think/Pair/Share: Each Soldier works alone on an assigned topic, and then shares results with a partner.	Allow Soldiers time to think BEFORE they discuss with a partner. Give Soldiers a specific amount of time (30 seconds, five minutes, etc.) for the "think" segment of this technique.	When people are given time to think, their responses differ from those they would give if they respond immediately.
Individual Presentation: A formal presentation delivered to a captive audience.	Soldiers give a presentation on a topic, question, or issue to the group without interruption.	*Individual presentations* should be used sparingly and only when independent research is required.
Jigsaw: Each smaller group provides a piece of the puzzle to the whole.	Soldiers are divided into smaller groups to work on some aspect of the same problem. They then share their part of the puzzle with the larger group.	Ensure the limits of what each group will contribute to the topic are clearly defined.
Group Survey: Each Soldier is surveyed about the topic.	Allow each Soldier to offer or state their point of view. Keep track of the results of the survey.	A survey works best when opinions or views are briefly stated.

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APPENDIX G

IRRODL Creating Effective Collaborative Learning Groups

in an Online Environment

(Brindley, Walti, Blaschke Study conducted in 2009)

Transparency of Expectations

Details of the requirements to participate in a study group are posted in the course syllabus. The purpose (learning objectives) of collaboration and expectations of the learners are made very clear in the main conference. If students communicate reluctance about study group participation, instructors encourage participation and are open about discussing the purpose and process.

Clear Instructions

The group task, timelines, and usability of the desired product are described in detail, giving students the best opportunity to focus on collaborating to share ideas and the workload rather than leaving them to spend a great deal of time trying to clarify the task and develop a common understanding of it.

Appropriateness of Task for Group Work

Each study group works as a team of consultants to carry out an environmental scan and needs analysis of a particular educational or training provider (develop a case study) in preparation for a second task (done individually). This type of task is easier and a much more rich experience when performed by a group as opposed to an individual.

Meaning-Making/Relevance

The group assignment is an opportunity to apply principles and knowledge gained in the course to the analysis of a real life situation, often from a student's work context. Further, in the last week of the course, the group projects are exchanged and peer reviewed (by the groups), making full use of the learning potential of the project.

Motivation for Participation Embedded in Course Design

Individual success is dependent upon group success. The group product (comprehensive case study) is needed by individual learners in order to complete their final assignment, that is, to design a learner support system for their group's case study.

Readiness of Learners for Group Work

The group project takes place during the final third of the course after students demonstrate that they have sufficient mastery of the subject matter to reflect on how to apply their knowledge in particular contexts, including their own work settings (as demonstrated in the conference discussions), and they have had the opportunity to develop a sense of community and hone their collaborative learning skills.

Timing of Group Formation

Although the group project is not undertaken until the third section of the course, the study groups are formed during the second unit. This allows time for a sense of collaboration and interdependence to develop among the members before the task is assigned. During the period before the task, group members discuss their shared interests and possible scenarios for the case study.

Respect for the Autonomy of Learners

Study group participation is mandatory but learners have the freedom to form their own groups based on shared interests. Instructors provide guidelines for group formation and open a space in the virtual classroom for this purpose. The choice of educational or training context for the case study is the decision of each group, and groups often have lively discussions and do significant research before consensus is reached, resulting in high ownership of the project.

Monitoring and Feedback

The study group conferences and chats are monitored closely by instructors who provide respectful and timely feedback on process and direction when necessary to prevent groups from getting stalled or going off course. Instructors also provide feedback on draft versions of the case studies, and they provide time for revisions before presentation of the final project

Sufficient Time for the Task

Most of the third and last unit of the course (approximately four weeks) is devoted to the study group project to provide sufficient time for the process and to accommodate varying work schedules and time zone differences of these adult learners.

Implications for practice (study above):

1. Facilitate learner readiness for group work and provide scaffolding to build skills. Scaffolding is important in preparing learners for small group projects. This can be

accomplished through instructional design (sequencing activities within the course that build on previously learned skills) and positioning small group activity later in the course when students have acquired the confidence and skills to be successful. Students need to be taught the necessary skills for effective online collaboration, particularly those skills that will help them succeed in a group environment, such as planning and negotiation skills (Curtis & Lawson, 2001). Chapman, Ramondt, and Smiley (2005) recommend using ice breakers, seeding, and statements about expectations regarding participation, etiquette, and guidelines for behavior, and Smith (2003) discusses uses of interaction standards, tools, and techniques. Learners often need help with acquiring information literacy skills (how to retrieve, evaluate, apply, and source information effectively) and with using the technology effectively.

2. Establish a healthy balance between structure (clarity of task) and learner autonomy (flexibility of task).
The instructor should provide guidelines for team member performance in conducting the group project (Palloff & Pratt, 1999) and ensure that the task is achievable, sustainable, and properly timed within the course (Bouchat, 2007). Juwah (2006) has found that allowing learners to form their own groups and select their own topics facilitates socializing within groups and positive group dynamics. Effective course design will make the purpose and parameters of group tasks and the learning goals clear and explicit while still allowing students flexibility, such as choice of group membership, member roles, and specifics of the topic. When students have personal control over the task (content, process, intentions, goal setting, consequences, outcomes, and group partners), their engagement, responsibility, and sense of the relevance of the task are heightened.

3. Nurture the establishment of learner relationships and sense of community.
In order for true collaboration to occur, a sense of community needs to be established within groups (Palloff & Pratt, 2005; Chapman, Ramondt, & Smiley, 2005). Important elements for establishing successful learning communities are informality, familiarity, honesty, openness, heart, passion, dialogue, rapport, empathy, trust, authenticity, disclosure, humor, and diverse opinions (Chapman, Ramondt, & Smiley, 2005). Instructors can model, discuss, and reinforce these elements in the main conference, helping students to prepare for smaller, more intense group learning experiences. If students develop relationships with their peers early, they can build on these relationships in group work.

4. Monitor group activities actively and closely.
During the collaborative process, the instructor needs to be available for feedback, general information, and private counsel. In addition, the instructor needs to intervene as required to keep discussions on track, support and animate dynamic conversation, help students stay focused on the task, assist with relationship building, and provide reassurance. Although this paper does not advocate formal assessment, continuous feedback is a type of formative evaluation that helps students develop specific skills and deepens the learning process.

5. Make the group task relevant for the learner.
Research by Curtis & Lawson (2001) has found that the more interested a student is in a group topic, the more motivated the student is in participating in the collaborative effort. Allowing learners to pursue topics according to mutual interest sets groups up to share and co-create knowledge. Authentic, real-world environments and relevant content provide motivation for collaborative learning. Enabling students to control and direct their learning to the greatest extent possible helps them to achieve a purpose that is specific to their needs and challenges their zone of proximal development (Vygotsky, as cited in Lin, 2008).

6. Choose tasks that are best performed by a group.
Individual learners make compromises regarding flexibility of study in order to participate in a collaborative exercise. Engaging in tasks that benefit from teamwork will increase their sense of purposefulness and motivation to participate.

7. Provide sufficient time.
Course design should allow sufficient time for collaborative learning activities, including time for scheduling, planning, and organizing. Most importantly, time is required for the discussion and exchange of ideas that are crucial to deeper learning.

APPENDIX H

RIT Teaching Strategies

Collaborative Learning

Strategies for Effective Online Collaboration

- Build strong group interdependence
- Keep groups small
- Establish peer evaluation
- Group project evaluations
- Encourage peer instruction
- Provide clear instructions, assignment overviews
- Keep groups heterogeneous
- Make the important work visible
- Give students control
- Set up meaningful mini-due dates
- Make the learning personally relevant
- Encourage questioning
- Start a conversation
- Give students feedback on their discussion contributions
- Make sure to seed the discussion, not just request a post
- Instructor involvement in discussion should be minimal

Source: http://online.rit.edu/faculty/teaching_strategies/collaborative_learning/strategies.cfm

Build strong group interdependence

A design goal for any group activity should be to build strong group interdependence, the "one for all and all for one" camaraderie that encourages members to help each other work toward a common objective. This can be as simple as offering bonus points to a study group if everyone in the group scores above a certain minimum grade on an assignment, test, or individual paper. This will motivate the better-prepared students to help and encourage the members who are most likely not going to meet the goal, and the less-prepared students are likely to work harder so as not to disappoint the group. An example of effective goal interdependence coupled with peer instruction was used by Online Learning Statistics Professor Tom Barker, who gave a quiz to his class that he had organized into study teams. The teams were advised prior to their fourth and last quiz that if everyone on the team scored above 80% correct, then everyone would get 2% bonus points added to their score. And if everyone on a team scored above 90%, then each team member would receive 3% bonus points added to their score. The result? "I need to do more analysis, but there is promise! The average grade on the last quiz was 7.76 (s=1.34). The average grade on this quiz was 8.96 (s=.90). Not only did the average increase, but the variation was less. Now, while there is no statistically significant difference between

the variances, I did observe a more consistent grade within teams. I will next ask how much study the teams did as a group and use this covariate to see if there is more significance beyond the raw comparison of scores. Thanks for the idea!"
~Professor Barker

Keep groups small
Group members need to interact frequently; this is best accomplished if groups have fewer than six members.

Establish peer evaluation
The Online Learning Department has created an online evaluation tool called Clipboard. The best use of this tool, however, is not simply at the end of a team project, but 25%-30% into the process, when students can learn from the feedback and make adjustments. According to Barbara Millis, director of faculty development at the U.S. Air Force Academy and author of "Managing!-and Motivating!-Distance Learning Group Activities," peer evaluation helps to build team skills as it "permits students to reflect on their process and outcomes, and provides teachers with continuous feedback." As examples, she recommends, after an assignment is completed, students respond to the following questions:

- Did all members of the group contribute?
- What could be done next time to make the group function better?
- What were the most important things I learned?
- What contributions did I make?

For example, Online Learning faculty member Kitren VanStrander used the peer evaluation tool created by Online Learning with her Intro to Quality class. They completed the tool at four points during the teams' work throughout the quarter. The feedback they received informed them of their performance along the way, and was in itself beneficial to learning about quality improvement.

Group project evaluations
Group project evaluations are peer evaluation in another form. Once projects are completed and posted, groups evaluate one another's projects according to the project criteria. For example, for the Software Process Management class, one Online Learning faculty member asks students to propose a topic to cover from the list of course topics. Teams of five people are assembled and grouped by similarity of topics. Students write individual reports and comment on one another's work. Students are asked to criticize the work of their peers, providing both positive feedback and suggestions for improvement for certain milestones (outline, draft report). Students are asked to pay particular attention to references in the report and to suggest other references, with a rationale for those suggestions.

Encourage peer instruction
Devise assignments whereby students develop expertise in different topics and are charged with teaching other students in a structured format (develop an activity, an interactive online lecture, a game, a quiz).

Provide clear instructions, assignment overviews
Barbara Millis, director of faculty development at the US Air Force Academy and author of “Managing!-and Motivating!-Distance Learning Group Activities,” suggests that clear instructions include an estimate of the time involved to do the work; this helps students budget their time.

Keep groups heterogeneous
Millis explains that “heterogeneous grouping, deliberately mixing students based on achievement level, gender, ethnicity, academic interests, learning styles or other relevant factors... will typically permit students to work constructively with other individuals who bring different strengths and approaches to academic tasks . . . preparing students for the modern work place and for society as a whole.” Most authorities agree that instructors should form groups to ensure students are exposed to diverse ideas.
Keep collaborative teams together long enough to do needed team-building and to create a meaningful product; this may take at least half of an academic quarter.
Establish a way to differentiate individual work, by monitoring discussion, establishing milestone “meetings,” requiring progress reports. Grades for team effort alone raise student concerns about those who will not do their fair share, but receive the grade others have earned. Clear grading should have a mechanism to grade individual as well as group effort. How is this done?

Make the important work visible
Be sure that email is used only for “housekeeping” details (i.e., when to chat, where to post, format of written work) and the discussion board is reserved for posting substantial work and for discussion of content or issues. In this way, the communication posted on the discussion board is substantive and easier to evaluate.

Give students control
Students who say they do not like collaborative projects may have had a bad experience in a team where some members procrastinated, or where they took on more than a fair share of the workload, or where communication was difficult. Make collaborative work more attractive by giving students more control over process and outcomes. Allow students choice in learning activities, decision-making, initiation of activity, and end-products. For example: one RIT faculty member allows their students in Strategic Planning & Evaluation to select from an array of potential topics for their group assignment and for individual projects. Among the potential assignments is the opportunity to define unique projects with guidance from the instructor.

Set up meaningful mini-due dates
Provide a timeline for work to be done, with milestones for meaningful chunks of work. "Until I was in Professor Coleman's class, I had not had a good experience in an online group project. The projects in my previous courses were somewhat vague in their requirements; normally this is desirable in a "face-to-face" group project, but in an online project it leads to more confusion and delay, as team members attempt to find agreement on the problem domain. What she did that the others did not was to give clear group project guidelines, as well as multiple deliverables of these projects (rather than one big deliverable at the end of the quarter.)"
~Tony Jefferson, Faculty, B. Thomas Golisano College of Computing and Information Sciences

Make the learning personally relevant
Allow students to relate and apply coursework to student needs, interests, and to their workplace or life experience. Direct and immediate application of course concepts is motivating and enhances the learning.

Encourage questioning
Model questioning with open-ended questions to start and then encourage questions and dialogue within the group. Encourage negotiation within the group by beginning the process.

Start a conversation
Communications Professor David Neumann finds that collaboration begins best with a conversation.
"The most important thing for successful student team projects is setting up specific communication expectations early, supply online icebreaker exercises, give students a chance to participate in the course before assigning teams, checking in to group discussion area to make sure interaction is healthy. But the most powerful method for motivating students to engage in group projects or any other form of online interaction is to have a conversation with them. I have found that creating this type of personal connection, even if only once, is extremely important."
~David Neumann, Communications Professor

Give students feedback on their discussion contributions
Students expect timely and direct feedback, but it should not always be posted publicly. A message of praise or a message with pointers for improvement should be sent privately, while messages explaining or contributing to course content should be added to the course discussion.

Make sure to seed the discussion, not just request a post
Start a debate, ask for a critique, establish a panel discussion, solve a problem . . . ask any open-ended question.

Instructor involvement in discussion should be minimal
Instructors are needed to guide the discussion in the right direction. A reply to every message will halt discussion. Small groups need the freedom to conduct their own discussions.

APPENDIX I

Three Blended Models

There are three major categories of blended learning [6] [1] [9]:

1. Skill-driven learning, which combines self-paced learning with instructor or facilitator support to develop specific knowledge and skills. This category is offline (face-to-face & work-based)[6][1][9]and will include the following types of methods: lectures/presentations; tutorials; workshops; seminars; role play; simulations; conferences; tutoring; coaching; mentoring; 360 degree feedback; manager as developer; learning on the job; projects; apprenticeships; shadowing placements, email, chat, forum, virtual community, web site visits.

2. Attitude-driven learning, which mixes various events and delivery media to develop specific behaviors. This category is offline (individual work) [6][1] [9] will include the following types of methods: books, magazines, newspapers, workbooks, keeping a journal, review/learning logs, audio cassettes, audio CD, videotape, DVD, TV, radio.

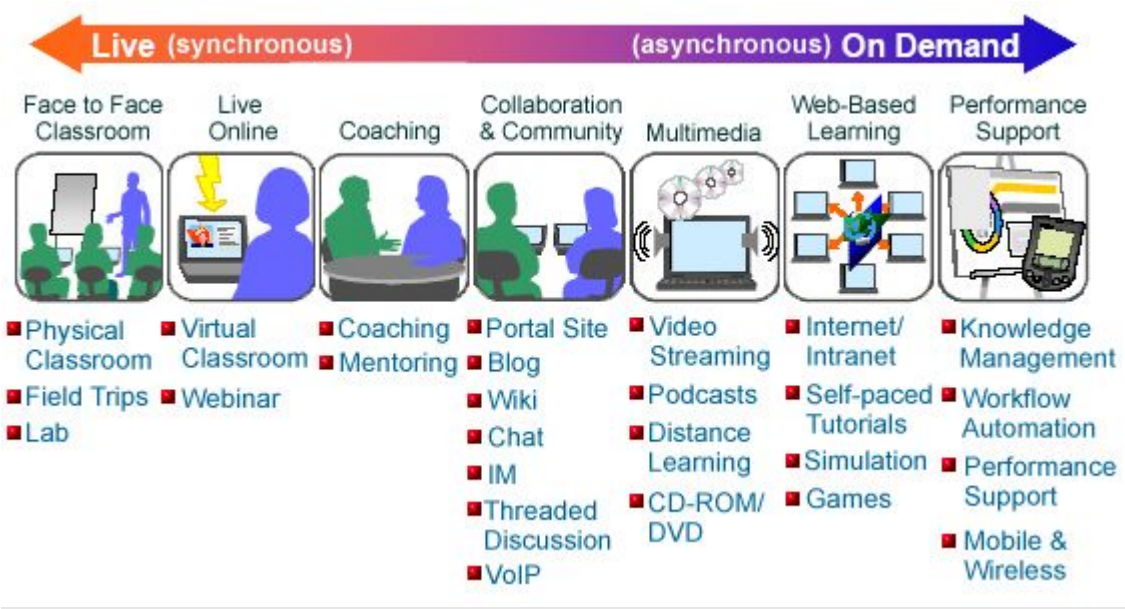
3. Competency-driven learning, which blends performance support tools with knowledge management resources and mentoring to develop workplace competencies. This category is called online & interactive media [6][1][9]and will include the following types of methods (delivered either online or via CD ROMs or non web-based CBT approaches): simple learning, resources, interactive generic content, interactive customized content, performance support, simulations, e-tutoring, e-coaching, e-mentoring, 360º feedback, email, bulletin boards, text chat, application sharing, audio conferencing, video conferencing, virtual classrooms, searching knowledge bases, data mining, document and file retrieval, ask an expert, search engines, websites, user groups, e-commerce sites, PDAs, mobile phones.

Source: Purnima Valiathan, Blended Learning Models, http://www.astd.org/LC/2002 /0802_vailiathan.htm

APPENDIX J

The Variety of E-Learning Instructional Methods and Activities

A particular learning event will engage a learner in Receptive, Directive, Guided Discovery or Exploratory Learning; while the sequence of activities in a Blended Learning course has the potential to engage all of these learning architectures (instructional strategies).



Source: http://www.cognitivedesignsolutions.com/ELearning/BlendedLearning.htm

The following table provides a summary of the kinds of learning activities and instructional methods that are available to an E-Learning Blended Course.

E-Learning Instructional Methods & Activities	
Same Time / Same Place (Traditional)	**Classroom Instruction** ▫ **Mini-lectures** ▫ **Interactive Lectures (participation required)** ▫ **Panels** ▫ **Videotape presentations**

	▫ **Demonstrations** ▫ **Guided discussions** ▫ **Debates** ▫ **Student presentations** ▫ **Group collaboration** ▫ **Case study analysis** ▫ **Role playing** ▫ **In-class writing** ▫ **Simulation exercises** ▫ **Games** ▫ **Problem-based learning exercises** ▫ **Story-telling** **Hands-on Labs & Workshops** **Field Trips** ▫ **Observations** ▫ **Fieldwork or Clinical work**
Same Time / Different Place (Synchronous) Live E-Learning	**Web Casts** **Virtual Classroom** ▫ **Mini-lectures** ▫ **Interactive Lectures (participation required)** ▫ **Panels** ▫ **Videotape presentations** ▫ **Demonstrations** ▫ **Guided discussions** ▫ **Debates** ▫ **Student presentations** ▫ **Group collaboration** ▫ **Case study analysis** ▫ **Role playing** ▫ **In-class writing** ▫ **Simulation exercises** ▫ **Games** ▫ **Problem-based learning exercises** **Conference calls** **Video broadcasts** **Chat** **Virtual Labs** **Instant messaging (IM)** **Online Collaboration** ▫ **E-meetings** ▫ **Online coaching or mentoring** ▫ **Communities of Practice**

Different Time / Same Place (Traditional)	**Lab Exercises** **Observations** **Coaching, Tutoring or Mentoring**
Different Time / Different Place (Asynchronous) Self-Paced E-Learning	**Web-based Training Tutorials** ▫ **Mini-lectures** **(text, graphics, audio, video)** ▫ **Video presentations** ▫ **Flash animation (interactive exercises)** ▫ **Drill & Practice** ▫ **Demonstrations** ▫ **Guided discussion** **(email, threaded discussion forum)** ▫ **Writing exercises & assignments** ▫ **Simulation exercises** **(automated guidance and feedback)** ▫ **Online assessments & testing** ▫ **Games** ▫ **Problem-based learning exercises** **(scenario examples)** ▫ **Story-telling** **Assessments, Tests & Surveys** **Simulations (stand alone applications)** **Performance Support** ▫ **Job Aids** **(on screen; printable)** ▫ **Online Help** **(documentation; search engine tools)** ▫ **EPSS** **(Electronic Performance Support Systems)** **Online References & Document Management** **Online Recordings / Multimedia** ▫ **Audio** ▫ **Video** ▫ **Webcasts & Podcasts** ▫ **Virtual classroom session recordings** **(Recorded live events)** **Print-based Materials & Documentation** **CD-ROM: Self-paced content / Multimedia** **Intranet: Enterprise Portal** **Knowledge Management Systems** **Communities of Practice Portal Sites** ▫ **Online learning communities** **(Announcements, publishing articles,**

	promoting workshops & conferences) **Discussion Forums** **Project Collaboration Forums** **Blog** **Threaded Discussion** **Email: registration, alerts, group messaging, individual mentoring** **Distributed & Mobile Learning Resources**

Source: http://www.cognitivedesignsolutions.com/ELearning/BlendedLearning.htm.

APPENDIX K

Barry and Self-Efficacy at CGSC Findings/Recommendations

Based on the results of the study, this section provides recommendations for the CGSC. These recommendations include institutional or teaching department changes related to the classroom environment, faculty development, curriculum development, preparation efforts for class by the faculty and students, and novice faculty introduction to discussion teaching methodology. The CGSC and departments should consider the following:

1. Reduce interruptions or changes to the published teaching schedule. CGSC policies regarding changes to the teaching schedule should be reviewed and reinforced by the institutional leadership.

2. Review institutional or department policies that affect faculty ability to adjust the lesson plans within their classrooms. Providing faculty with the latitude to adjust their lesson plan will allow them to better manage their classroom environment.

3. Include within the faculty development program (FDP) phase one a segment about developing collaborative, student-centric classroom environments that support discussion-teaching methodology.

4. Include a module in the faculty development program about techniques for faculty preparation to facilitate lessons. This is different from the FDP phase 2 series of the various departments. This recommendation focuses on giving faculty a set of tools or skills whereby they can tailor lesson plans quickly and effectively to meet the needs of their seminar, yet achieve the course learning objectives.

5. Curriculum developers and lesson authors need to perform surgery on their lesson plans and choose the material that provides the greatest benefit to the student. This is easy to say but not so easy to do, given the outside requirements from Department of Defense, the U.S. Army, and in some cases, Congress. However, CGSC and teaching departments should consider a closer look at the content to include reading materials and refocus material to develop 21st century leader competencies that instill lifelong learning habits. The review should consider changes to the amount and relevancy of reading materials, inclusion of critical thinking questions, allocation of time for components of the experiential learning model, and integration of discussion teaching methods.

6. Revitalize the existing CGSC faculty observation and feedback process, with an emphasis at the team and department levels.

7. Revisit the concept of having novice or less experienced faculty work with experienced faculty members to create a collaborative, student-centric.
classroom environment.

APPENDIX L

ALM Survey Questions

MMAS Survey Questions (ALM)

The purpose of this survey is to gather data in evaluating how effective peer-learning enables overall learning objectives for mid-grade and intermediate Army leaders.

Background: The recent release of the Army Learning Concept (ALC) will change the manner and delivery education is given to Army Soldiers and leaders. The ALC will utilize a more blended learning approach to reach educational milestones and objectives. Blended learning is the educational model of combining face-to-face classroom methods with technology delivered instruction that can be delivered either in a resident or non-resident environment to form an integrated instructional approach. For example, technology delivered instruction includes distance learning, virtual environments, gaming, videos, and blogs. Blended learning within the ALC also includes facilitated-led classroom environments with problem-solving or experiential learning techniques.

Key definitions:
Peer learning- The term peer-to-peer (P2P) refers to a network of equals (peers) in which two or more individuals are able to spontaneously collaborate without necessarily needing central coordination.
Technology delivered instruction- Examples include computer-based instruction (CTI), videos, gaming like UrbanSim or JCATS, distance learning with video-teleconference, email, blogs, etc.
Facilitator- Instructor who “facilitates” class collaboration, problem solving, and social networking in and out of the classroom.

Instructions:
o Your participation in this survey is voluntary and your responses are confidential.
o This survey should take no longer than 10 minutes to complete.
o Upon completion please click the submit button at the bottom of the survey.

POC: MAJ Frank Adkinson (devon.adkinson@us.army.mil)

Survey has been approved by CGSC QAO
Survey Control Number: 12-04-061

1) Select your satisfaction with the elements of your current learning experience.

A. SGL/Facilitator
{Choose one}
( ) Very satisfied
( ) Satisfied
( ) Neither satisfied or dissatisfied
( ) Dissatisfied
( ) Very Dissatisfied

B. Learning with peers
{Choose one}
( ) Very satisfied
( ) Satisfied
( ) Neither satisfied or dissatisfied
( ) Dissatisfied
( ) Very Dissatisfied

C. Technology-aided instruction
{Choose one}
( ) Very satisfied
( ) Satisfied
( ) Neither satisfied or dissatisfied
( ) Dissatisfied
( ) Very Dissatisfied

D. Overall course environment
{Choose one}
( ) Very satisfied
( ) Satisfied
( ) Neither satisfied or dissatisfied
( ) Dissatisfied
( ) Very Dissatisfied

2) How much does peer-to-peer learning increase your reflection as a career MFE officer?
{Choose one}
( ) A. Very much
( ) B. Much
( ) C. Some
( ) D. Not much
( ) E. Not at all

3) How much do you value peer-to-peer learning in the classroom?
{Choose one}

( ) A. Very much
( ) B. Much
( ) C. Some
( ) D. Not much
( ) E. Not at all

4) How much do you value peer-to-peer learning out of the classroom?
{Choose one}

( ) A. Very much
( ) B. Much
( ) C. Some
( ) D. Not much
( ) E. Not at all

5) Learning from peers increased my knowledge as a maneuver officer?
{Choose one}

( ) A. Very Much
( ) B. Much
( ) C. Some
( ) D. Not much
( ) E. Not at all

6) How much does technology-delivered mediums (simulations, gaming, computer-based instruction, email, blogs) aid in course instruction to better understand MFE skills?
{Choose one}

( ) A. Very much
( ) B. Much
( ) C. Some
( ) D. Not much
( ) E. Not at all

7) How much does technology-delivered mediums (simulations, gaming, computer-based instruction, email, blogs) aid in peer-to-peer learning IN the classroom?
{Choose one}

( ) A. Very much
( ) B. Much
( ) C. Some
( ) D. Not much
( ) E. Not at all

8) How much does technology-delivered mediums (simulations, gaming, computer-based instruction, email, blogs) aid in peer-to-peer learning OUT of the classroom?

{Choose one}

( ) A. Very much
( ) B. Much
( ) C. Some
( ) D. Not much
( ) E. Not at all

9) Face-to-face instruction WITH technology-based instruction provided an effective peer-learning environment?

{Choose one}

( ) A. Very much
( ) B. Much
( ) C. Some
( ) D. Not much
( ) E. Not at all

10) How much does the SGL/facilitator aid in overall educational objectives?

{Choose one}

( ) A. Very much
( ) B. Much
( ) C. Some
( ) D. Not much
( ) E. Not at all

11) How much does the SGL/facilitator aid in peer-to-peer learning?

{Choose one}

( ) A. Very much
( ) B. Much
( ) C. Some
( ) D. Not much
( ) E. Not at all

12) Which would develop more MFE expertise in your current educational environment, please choose one or explain?

{Choose one}

( ) A. Better trained class facilitators
( ) B. More technology-delivered instruction
( ) C. Better-designed course work
( ) D. More P2P involvement by fellow students
( ) Other [ ]

Answer questions 13-20 with the appropriate response:

13) I find classroom interaction with peers to be effective?
{Choose one}
( ) Strongly Agree
( ) Agree
( ) Neutral
( ) Disagree
( ) Strongly Disagree

14) I find online interaction with peers to be effective?
{Choose one}
( ) Strongly Agree
( ) Agree
( ) Neutral
( ) Disagree
( ) Strongly Disagree

15) I find more technology-based mediums (simulations, gaming, blogs, email, computer-based instruction) in the classroom to be effective?
{Choose one}
( ) Strongly Agree
( ) Agree
( ) Neutral
( ) Disagree
( ) Strongly Disagree

16) I find less technology-based mediums (simulations, gaming, blogs, email, computer-based instruction) in the classroom to be effective?
{Choose one}
( ) Strongly Agree
( ) Agree
( ) Neutral
( ) Disagree
( ) Strongly Disagree

17) I find collaborating with peers to be effective?
{Choose one}
( ) Strongly Agree
( ) Agree
( ) Neutral
( ) Disagree
( ) Strongly Disagree

18) I find not collaborating with peers to be effective?
{Choose one}

( ) Strongly Agree
( ) Agree
( ) Neutral
( ) Disagree
( ) Strongly Disagree

19) I find more online collaboration with peers to be effective?
{Choose one}

( ) Strongly Agree
( ) Agree
( ) Neutral
( ) Disagree
( ) Strongly Disagree

20) I find less online collaboration with peers to be effective?
{Choose one}

( ) Strongly Agree
( ) Agree
( ) Neutral
( ) Disagree
( ) Strongly Disagree

21) What is the biggest benefit in classroom instruction? (1200 characters)
{Enter answer in paragraph form}

22) What is the biggest benefit in technology-based instruction (simulations, gaming, computer-based instruction, blogs, email)? (1200 characters)
{Enter answer in paragraph form}

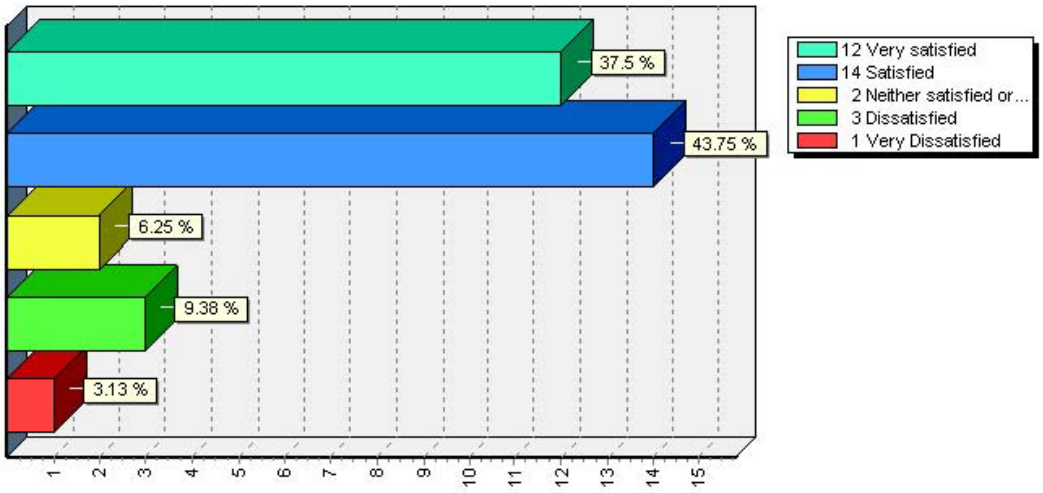
Thank you for participating in this survey.

Please click “Finish” to submit your responses.

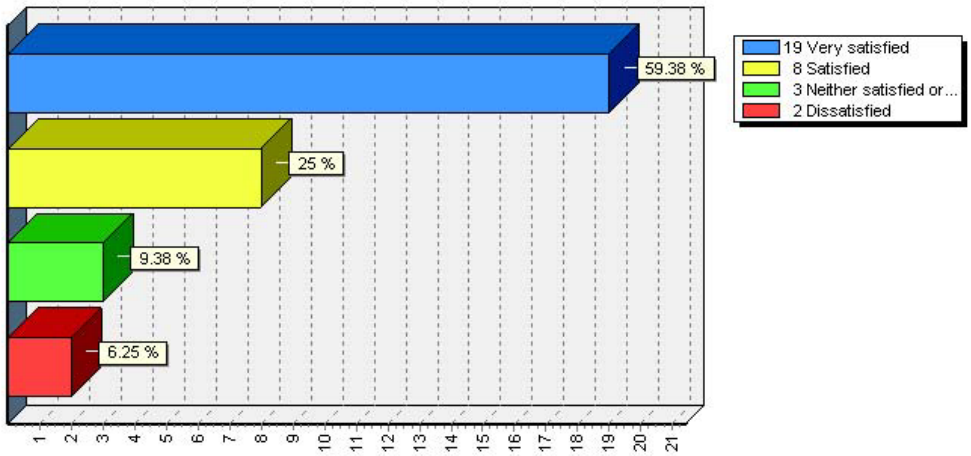
APPENDIX M

Bar Graphs from MMAS Survey Questions (ALM)

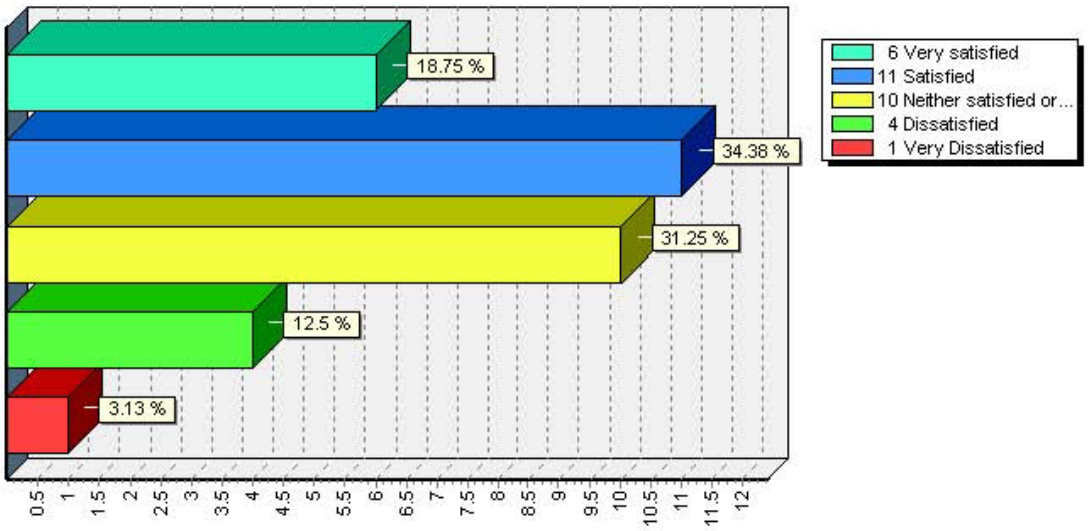
A. SGL/Facilitator



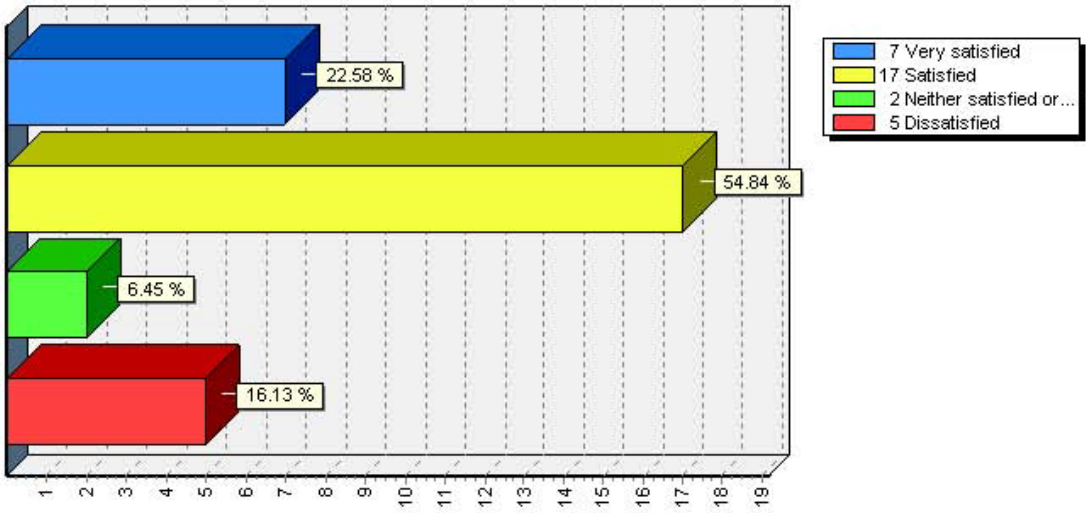
B. Learning with peers



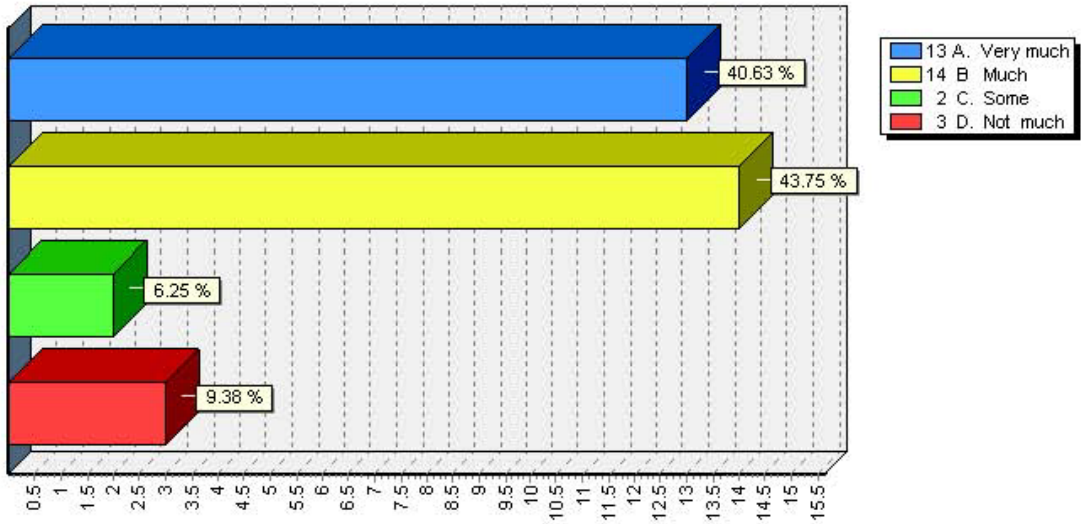
C. Technology-aided instruction



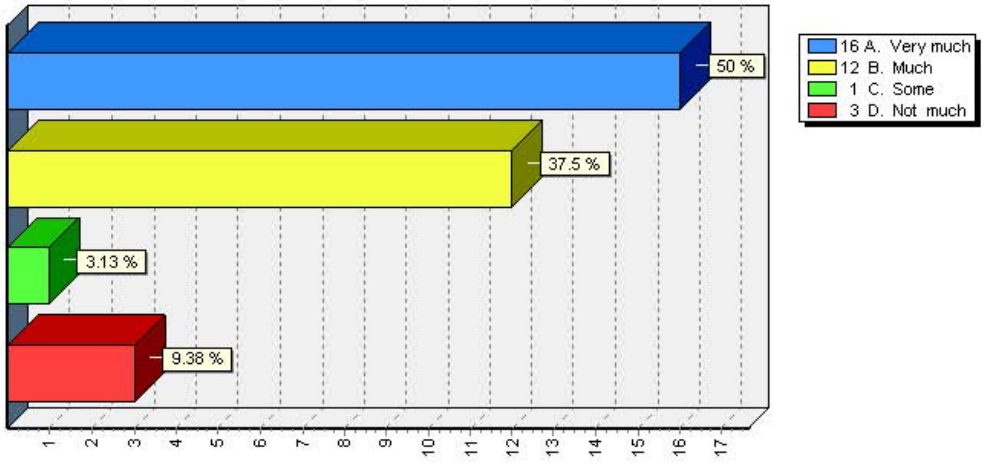
D. Overall course environment



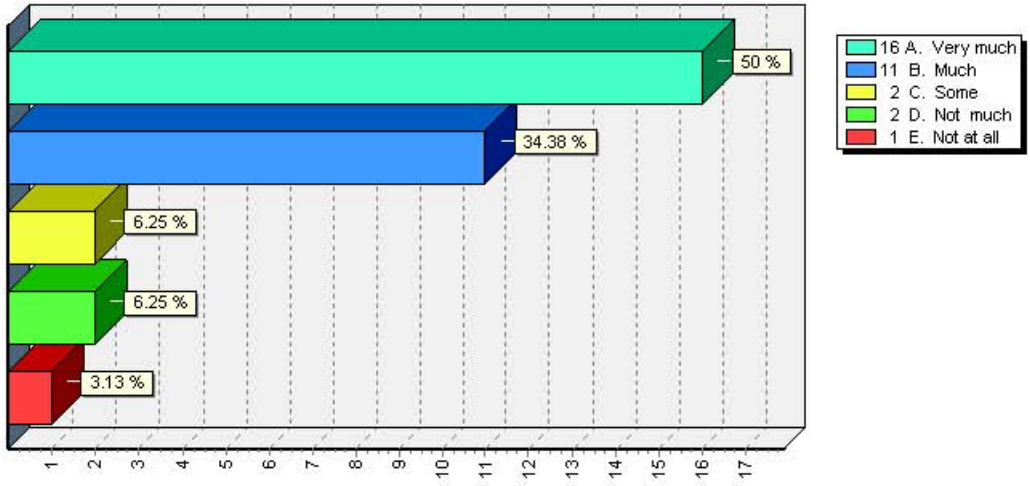
2) How much does peer-to-peer learning increase your reflection as a career MFE officer?



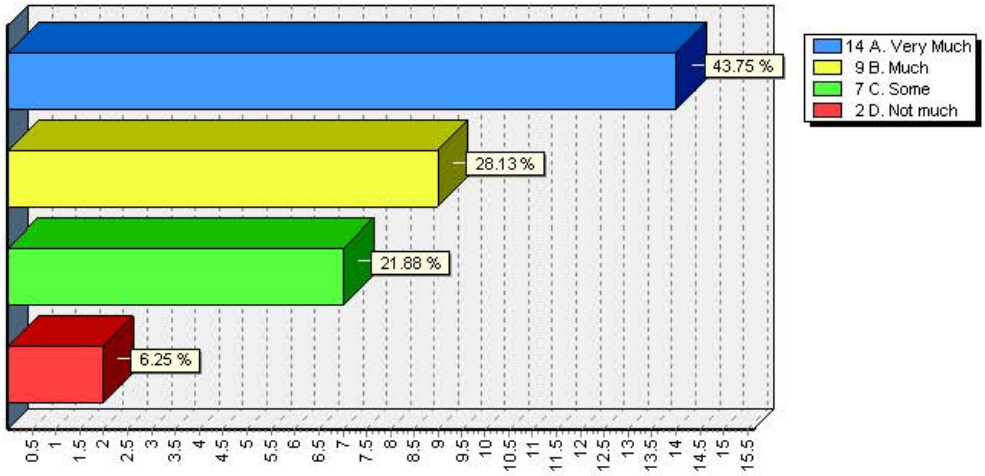
3) How much do you value peer-to-peer learning in the classroom?



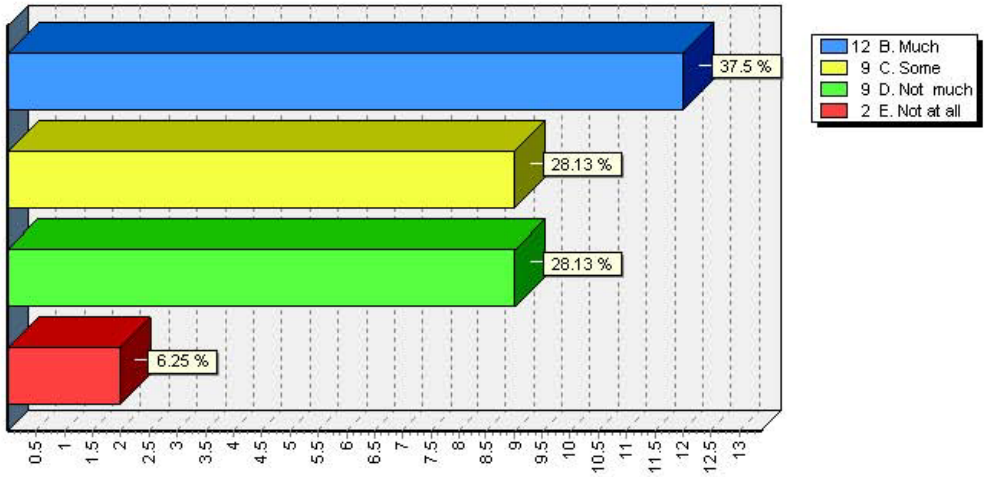
4) How much do you value peer-to-peer learning out of the classroom?



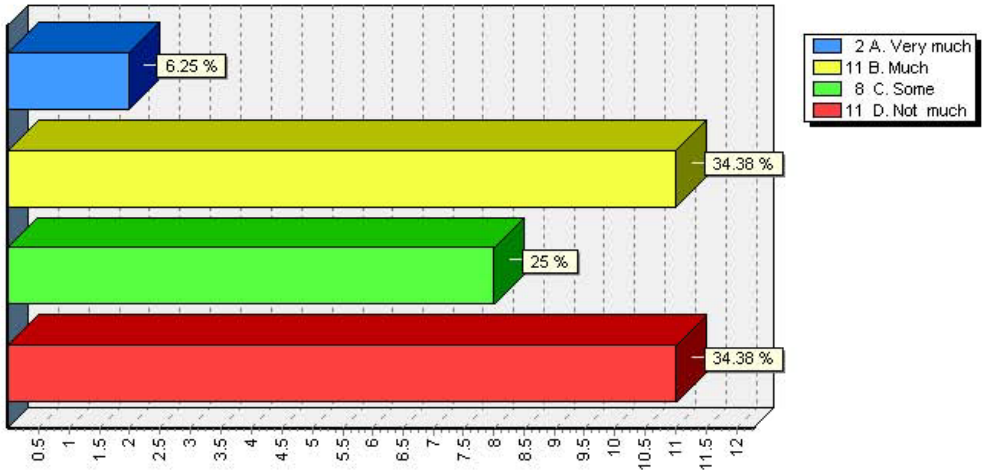
5) Learning from peers increased my knowledge as a maneuver officer?



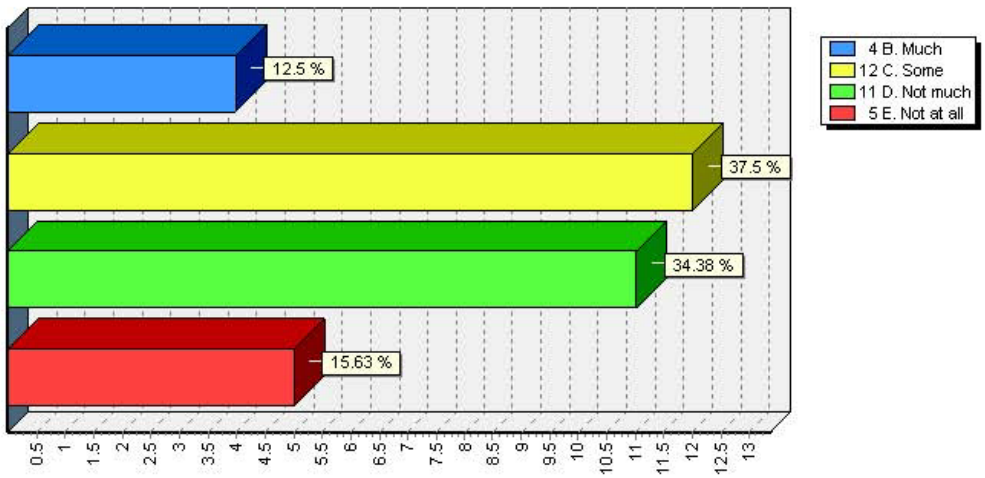
6) How much does technology-delivered mediums (simulations, gaming, computer-based instruction, email, blogs) aid in course instruction to better understand MFE skills?



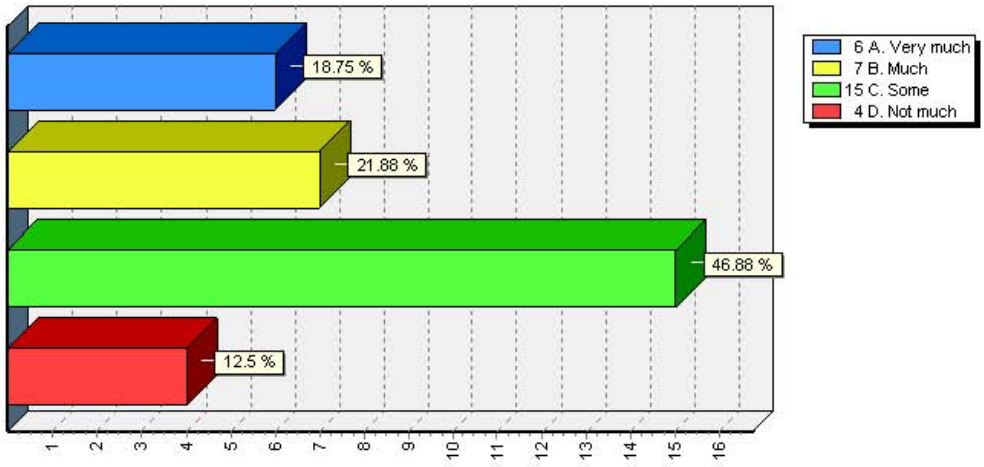
7) How much does technology-delivered mediums (simulations, gaming, computer-based instruction, email, blogs) aid in peer-to-peer learning IN the classroom?



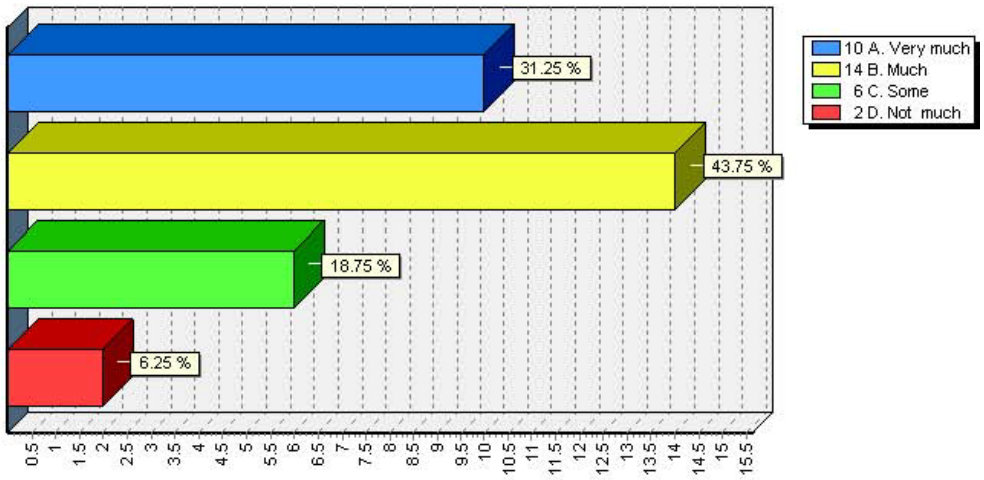
8) How much does technology-delivered mediums (simulations, gaming, computer-based instruction, email, blogs) aid in peer-to-peer learning OUT of the classroom?



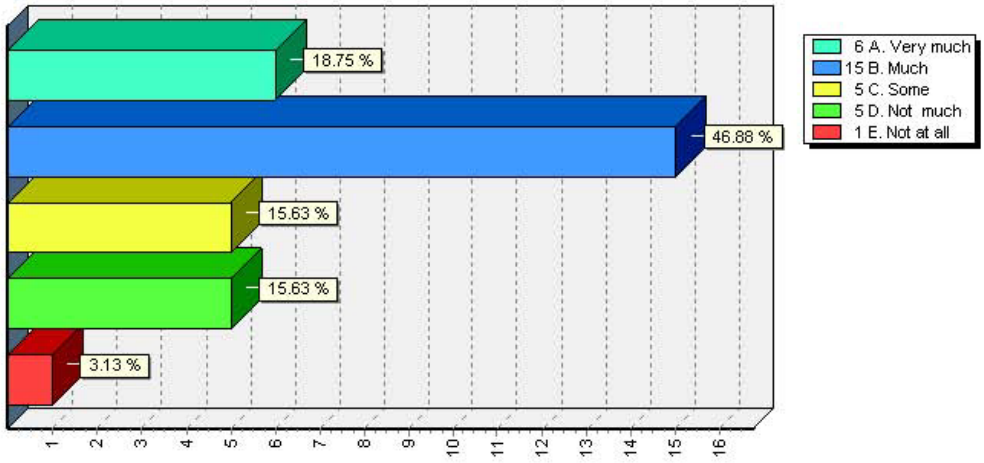
9) Face-to-face instruction WITH tenchnology-based instruction provided an effective peer-learning environment?



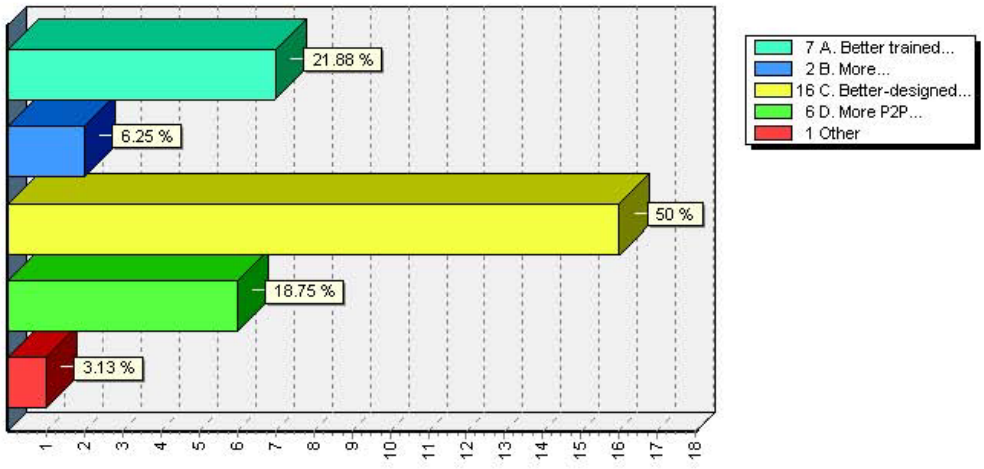
10) How much does the SGL/facilitator aid in overall educational objectives?



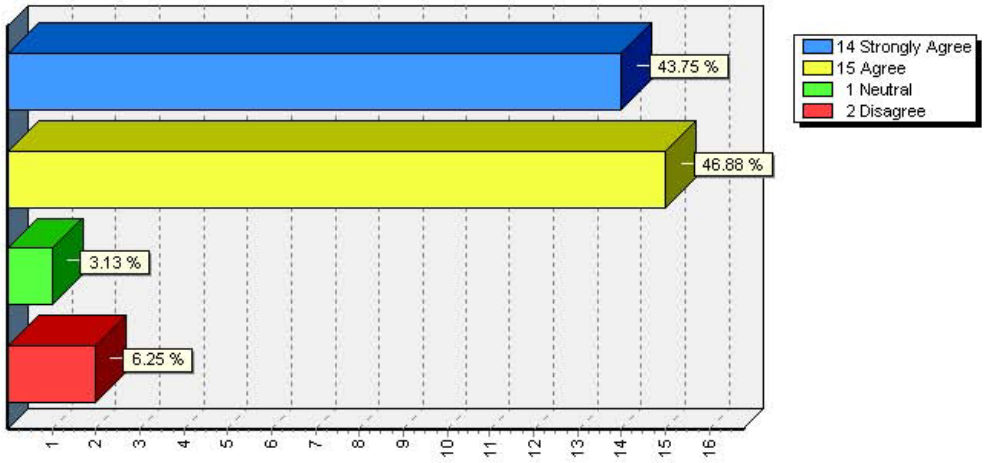
11) How much does the SGL/facilitator aid in peer-to-peer learning?



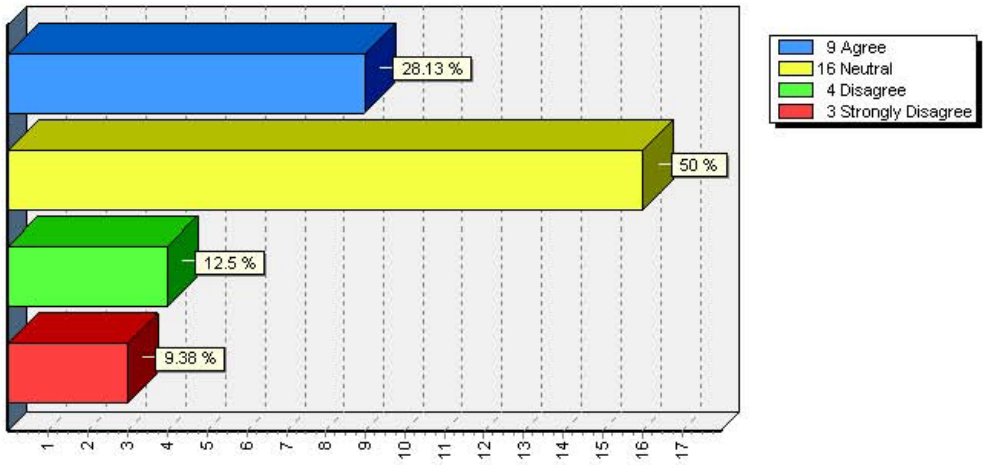
12) Which would develop more MFE expertise in your current educational environment, please choose one or explain?



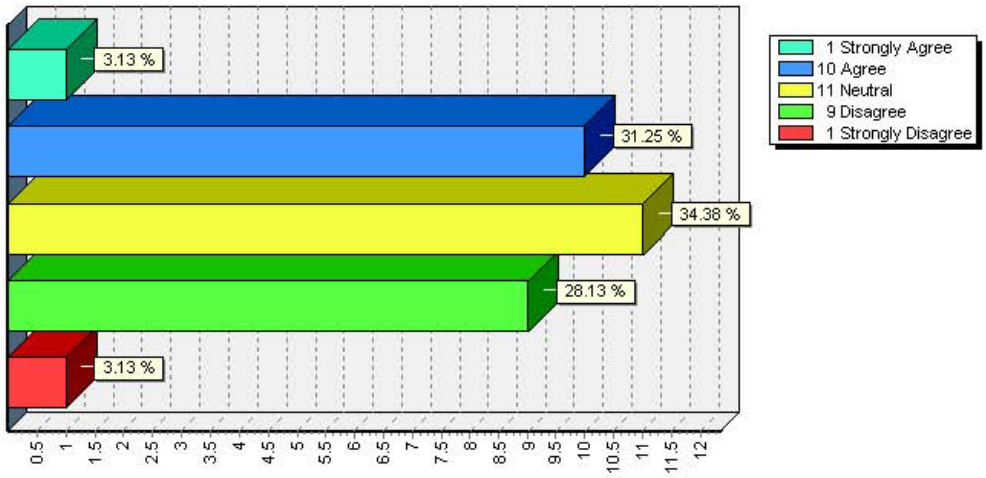
13) I find classroom interaction with peers to be effective?



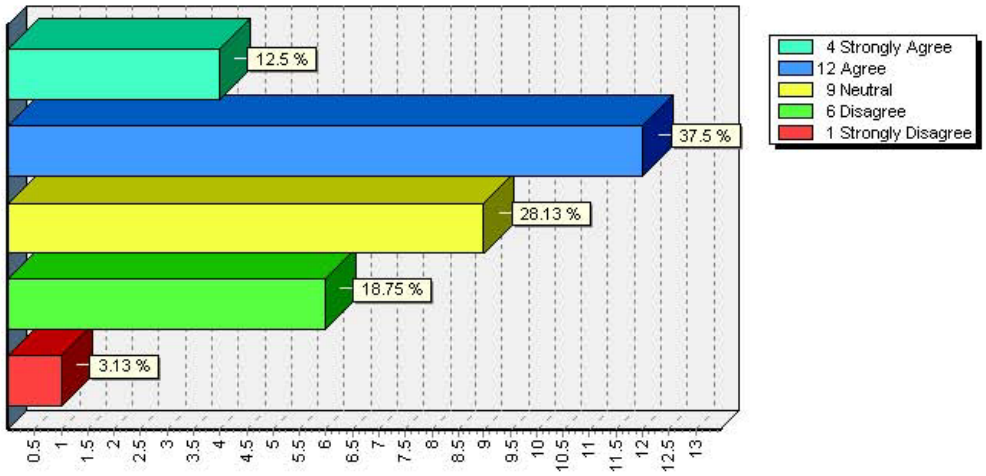
14) I find online interaction with peers to be effective?



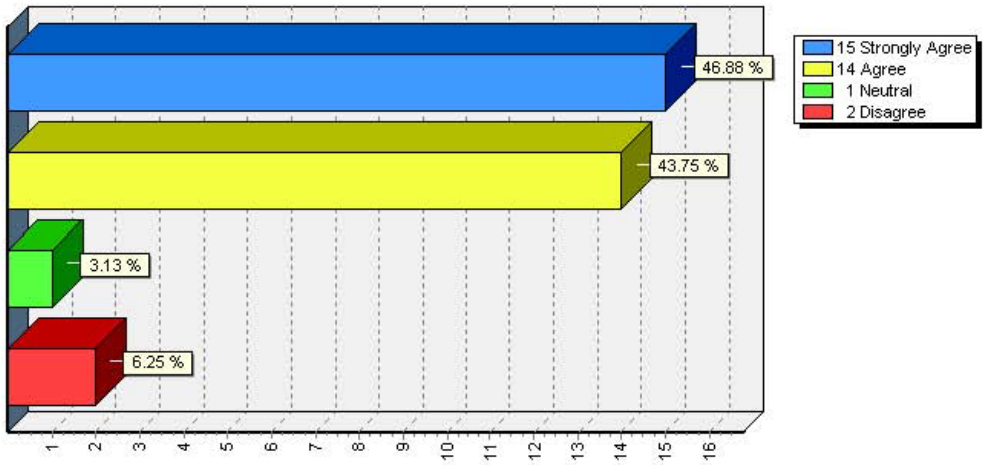
15) I find more technology-based mediums (simulations, gaming, blogs, email, computer-based instruction) in the classroom to be effective?



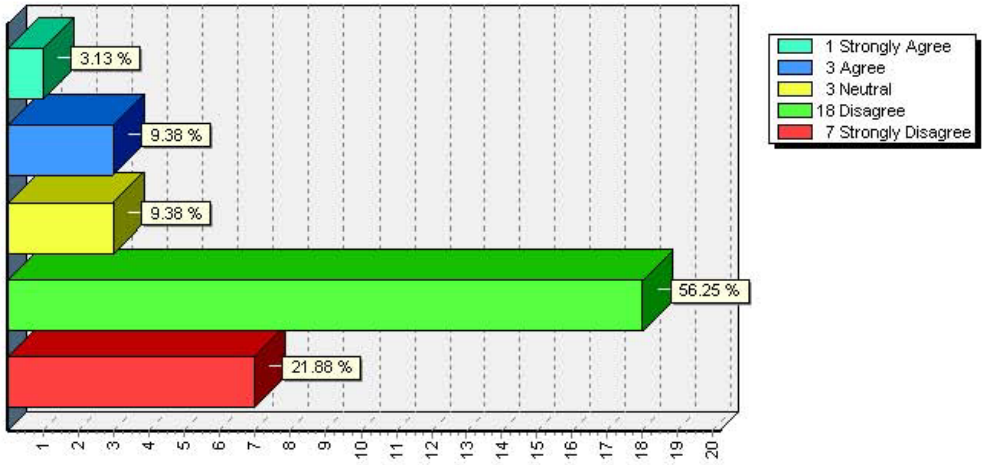
16) I find less technology-based mediums (simulations, gaming, blogs, email, computer-based instruction) in the classroom to be effective?



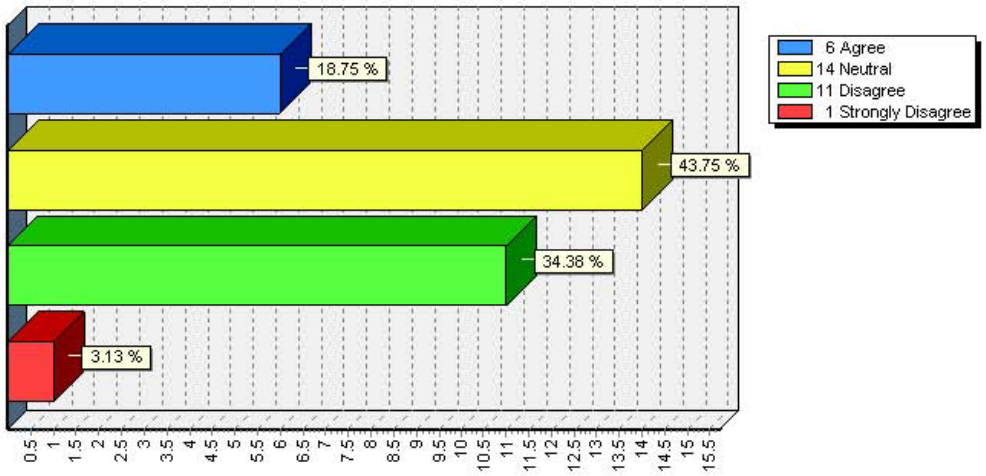
17) I find collaborating with peers to be effective?



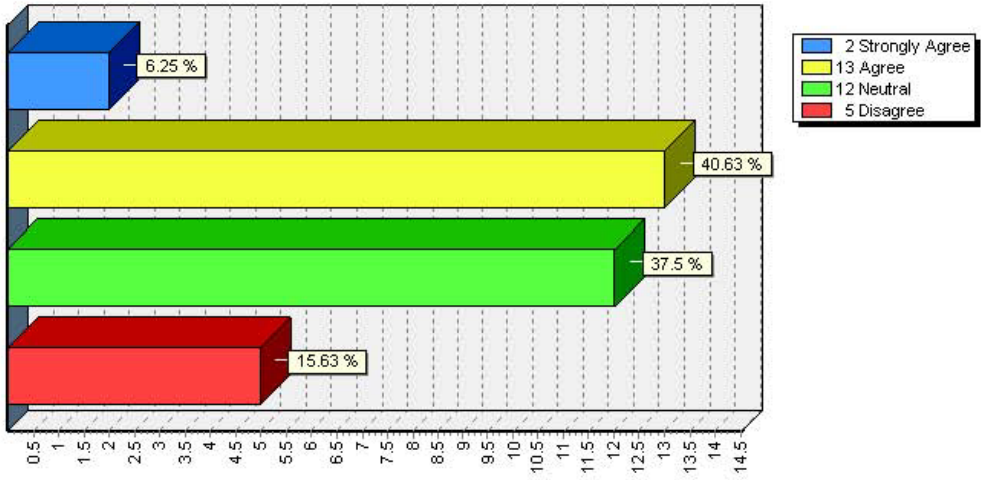
18) I find not collaborating with peers to be effective?



19) I find more online collaboration with peers to be effective?



20) I find less online collaboration with peers to be effective?



APPENDIX N

Text and Paragraph Responses by Question

Text and Paragraph Responses by Question
MMAS Survey Questions (ALM)

Question: 21) What is the biggest benefit in classroom instruction? (1200 characters)

Expert instructors in their field that provide keen insights to readings and issues.
A knowledgeable, objective instructor who grades fairly. My history classes were so biased with favorites. I am a history major, the instructor and the class never disagreed with my opinions and historical references however my participation grades were consistent 85's. I was told I need to participate more. The favoritism was clearly displayed towards the foreign and SAMS selected students during all phases of historical instruction. These students never said a word in class yet received 98's for participation.
You have peers together discussing real word experiences and sharing knowledge learned.
Having a small group that understands each others nuances and provides effective, constructive dialogue.
Classroom instruction maintains the personal interaction between students, peers, and instructors. It also allows for flexibility that does not confine the participants and promotes an ability for instruction to evolve.
Having an excellent instructor that knows the information from several aspects, inside and out who can facilitate a discussion among the members of the class.
Interacting with peers; being able to ask questions and offer alternative solutions/ideas.
Seeing and hearing others as they relate their experiences or ideas on the topic at hand.
Learning from my peers.
Biggest benefit of classroom instruction is learning from my peers. Overall, the instructors were great as well, but there are a few that do not believe in peer 2 peer involvement. Instead, that rather you sit there and listen to the instructor talk off the slide presentation.
Instructor facilitated learning with liberal curriculum guidelines coupled by P2P collaborative learning.
Based on the design of the CGSC Classroom size the environment is excellant for enabling course content instruction and learning. Critical to this is the quality and face-to-face benefit afforded from the small classes.
The years of Army exeperience brought by the SGA and other instructors as well as the opportunity to interact with peers.
The technology-based mediums are a great in classroom
Was quality SGI/Facilitatorsthat were able to pose questions or put the students in positions that challenged then and would cause that peer to peer interaction. I find those both means to be the most complimentary. I think to much stock is put in the "high tech" classrooms which provide little benefit to us. We seem to use a fraction of the technology, because it seems to be more of a hinderance than a aid to classroom or online instruction. Nothing can replace the ability of a well trained instructor with their experience being able to assess the skill level of those in their audience and tailoring their instruction to ensure each individual gets to the learning objective. A one size, rigid computer can not replicate that.
Assuming the instructor can convince the students that he is competent, the ability to have an intelligent discussion relevant to the subject at hand with the instructor contributing as much as moderating is the biggest benefit to classroom instruction.
Open dialog and candid discussion between peers.
Face to face interaction with some mediation provided by SGLs.

Text and Paragraph Responses by Question
MMAS Survey Questions (ALM)

Question: 21) What is the biggest benefit in classroom instruction? (1200 characters)

Face-to-face with instructors provides better interaction and is easier to have questions answered / topics explained.

Laying out what the doctrine says, and then discussing what everyone has seen in their units.

Knowledgeable SGAs/SGLs who adjust the course materiel to meet the learning objectives while enabling student input based on interpretation and experience.

The instructor can gauge the comfort level of his students and then redirect the training if need be.

No comment

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peer interaction; especially the eagle owl exercise talking and interacting with the UK officers was very enlighting. Class room instructors should be uniformed personnel. The college as a whole tends to forget they are dealing with officers that have more than a decade of experience.

Group discussions if allowed to follow tangents to a degree.

That their is an expert delivering the instruction...the SGL. I would love to have a teaching job when I retire, where the students do all the teaching. Maybe...I could have them grading each others papers.

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experiences of peers

The dialogue between students and with instructors is dynamic. That dynamic conversation produces a deep thinking which is essential in an institution of higher learning. Personal interaction and relationships created in the classroom environment far exceed any benefit that technology based instruction offers.

The product that the military produces is trained people (Soldiers, Sailors, Airmen and Marines). Professional Military Education in the classroom environment teaches Officers through collaboration and dialogue and should not be marginalized by technology because it costs less.

Text and Paragraph Responses by Question
MMAS Survey Questions (ALM)

Question: 22) What is the biggest benefit in technology-based instruction (simulations, gaming, computer-based instruction, blogs, email)? (1200 characters)

None.
Engaging every student in the simulation is the biggest benefit in simulations. It is demoralizing to watch the students not tagged with responsibility to go off and "take care of something."
It gives you some insight on the ineraction of a staff, and how to cooperate and coordinate.
Aids in providing products for future reference.
Technology based instruction is great at enhancing the learning environment.
The audio and visual of these programs enhances learning.
I don't find it very useful at all. Using CPOF, Decisive Action, and the other technology-based instruction here has been of minimal value and seems more a waste of time. Given the right technology that was actually helpful, I would be all for its integration.
Makes things look more professional.
Technology is great as long as its used as an aid in the learning process. CPOF pretty much sucks and it makes the work tedious. Instead, we could have finished the briefing together with powerpoint, saving 2/3rds of our time. CPOF is not student/user friendly and a waste of Army money.
The online capacity of the Student Sharepoint, as long as it remains working free from glitches.
For my experience the main benefit gained was learning another program that the Army had developed. Bottom line, tech-based instruction has its limitations and nothing can replace a true field-training exercise.
None.
saving time,
The biggest benefit is it's ability to capture large audiences at once. I see technology best as a facilitation tool not a replacement or substitute. Many claim it is cheaper, but I think in the long run you end up paying for it.
Life size, full motion simulators for major weapons systems and pacing items significantly increase the learning/training of the event while reducing risk to the trainee.
Access. It is available at any time, and potentially, from anywhere.
The ability to give us re-dos without wasting soldier time and effort.
Generally self-paced.
The sims gave the outputs for us to react to and plan around, they were effective in that the enemy had a vote. The CBIs were less effective, my personal view, having had an instructor to ask questions too would have added more to help with retention.
It creates a construct to facilitate practical application based learning.
This is a "neutral" party that dictates outcomes. It avoids reinforcement that all of our ideas will work.

Text and Paragraph Responses by Question
MMAS Survey Questions (ALM)

Question: 22) What is the biggest benefit in technology-based instruction (simulations, gaming, computer-based instruction, blogs, email)? (1200 characters)

No coment

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the more computer based interaction the less personal skill building time. computer / technology based instruction is ok but should not be the first choice.

Self paced learning and re-referencing the same information at a later time.

I can learn by myself, and don't have to depend on the class "know it all" or unprepared SGL.

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using technology i.e. CPOF that is current and up to date and will be used out in the field

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Technology based instruction is likely less expensive in budgetary terms, because students don't have to PCS to receive instruction. In educational terms, technology based instruction does not compare to the classroom experience and ultimately cost far more to the overall value of Professional Military Education.

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