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**AN EXAMINATION OF INSTRUCTIONAL STRATEGIES AND TEACHING
METHODS USED IN TRAINING A PLATFORM BATTLE COMMAND
SYSTEM TO SUSTAINMENT WARFIGHTERS**

**A Research Paper Presented to
the Graduate Faculty of the
Department of Occupational and Technical Studies
at Old Dominion University**

In Partial Fulfillment of the Requirement for the Masters of Science Degree

**By
Lori A. Rapovy
August 2009**

APPROVAL PAGE

This research was conducted and prepared by Lori A. Rapovy under the direction of Dr. John Ritz in OTED 636, Problems in Occupational and Technical Education. It was submitted as partial fulfillment of the requirements for the degree of Master of Science.

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CHAPTER I

INTRODUCTION

The United States military relies on the latest digital technology and computer systems to achieve informational dominance over her adversaries. The capability of a digital networked force as a concept of operations has been referred to as “Network-Centric Warfare” or NCW. “NCW increases combat power by networking sensors, decision makers, shooters and their weapons platforms to achieve shared situation awareness, increased speed of command, high tempo of operations, greater lethality, increased survivability and a degree of self-synchronization” (Stone, 2004).

In the Army, a series of interoperable networked computers is known as the Army Battle Command System (ABCS). ABCS is a system of systems. Soldiers specializing in a particular battlefield functional area can sort through pools of information and compose a relevant visualization of the battlefield, known as the Common Operational Picture or “COP.” A key enabler of the commander’s COP is Force XXI Battle Command Brigade and Below (FBCB2).

Technical Manual 11-7010-326-10 reveals FBCB2 as a provider for on-the-move near real time situational awareness (SA) and command and control (C2) information to the warfighter; whether inside a vehicle, a tactical command center or other platform (Department of the Army, 2004). On a digitized map, FBCB2 shows the warfighter’s location, the location of other friendly forces, positions of observed enemy forces and battlefield hazards or obstacles.

Developed with simplicity in mind, the functionality and graphical user interface of FBCB2 is straightforward; and training the warfighter on its functionality has been vital in maximizing the use of FBCB2's potential. Accordingly, instruction on FBCB2 has been conducted among the three training domains of the Army: the operational, institutional and self development domains.

Operational training occurs at the unit level. Soldiers receive FBCB2 New Equipment Training (NET) by a mobile training team in conjunction with their unit being fielded the FBCB2 systems. After fielding has been completed, improvement of their FBCB2 skills is further enabled by practice occurring at one of the Battle Command Training Centers (BCTC) or Combat Training Centers (CTC).

Under the institutional domain, U.S. Army Training and Doctrine Command (TRADOC) established digital battle command training at the six Army centers of excellence and schools. Department faculty certified as a digital trainers conduct FBCB2 training as part of the core curriculum and focus on the science of battle command. The Army's institutional professional education system consists of:

- Non-Commissioned Officer Education System (NCOES)
- Warrant Officer Education System (WOES)
- Officer Education System (OES)
- Civilian Education System (CES)

The self development domain reinforces the concept that learning is life-long. Soldiers have used the FBCB2 Computer Based Training DVD also known as an "Interactive Multimedia Instruction" (IMI) to sustain and improve their tactical skills or to complete the FBCB2 course of study at their own pace.

To meet these training needs among the different domains, the Project Manager of FBCB2 developed programs of instruction focusing on collective and individual tasks. All tasks have been arranged in three Training Support Packages (TSP). Each TSP contains lesson plans, practical exercises, multimedia products and examinations that guide trainers in teaching a forty hour FBCB2 Operator Course, a forty hour FBCB2 Unit Level Maintainer (ULM) Course and an eight hour FBCB2 Tactical Operational Center (TOC) Course.

Still, institutional domain trainers have discovered that teaching the standardized TSP to the different PME courses has been problematic. Varying maturity and experience levels of the Soldiers prevents a one-size-fits-all instructional approach. Consequently, a major obstacle in using the TSP's recommended instructor-led "demonstration" method has been a decay in learning and a failure by some students to successfully complete individual tasks.

Statement of the Problem

The problem of this study was to determine if different teaching methods lead to improved short term student comprehension conducted during the FBCB2 operator course.

Research Questions

To guide a solution to this problem, the following research questions were established:

- (1) Does the instructional method reinforce the lesson's objective?
- (2) Does the trainer use training techniques to associate battle command content with a soldier's military occupation?

- (3) Does the instructional method engage the learner?
- (4) Does the teaching practice facilitate a change in behavior by the learner?
- (5) Does the instructional method contribute to student mastery as evaluated through practical exercises or the end of course examination?

Background and Significance

The architect for Army training is the U.S. Army Training and Doctrine Command or “TRADOC.” TRADOC’s responsibility is to develop leaders, train and educate the Army, develop doctrine and establish standards. Part of TRADOC’s core functions is to construct the Army Universal Task List (AUTL) - referred to by its publication number: Army Field Manual 7-15 (2005). To transform civilians into soldiers, a change of behavior has to happen. The AUTL is the catalyst for this to occur.

The AUTL provides training developers the doctrinal foundation needed to develop the Army’s tactical collective tasks. The proponents and schools take these tasks and define and write conditions and standards that support the collective tasks. The collective tasks for FBCB2 are derived from the six warfighting functions of movement and maneuver, intelligence, fires, sustainment, command and control and protection (Department of the Army, 2005).

The foundation of instructional design for the Army is the Systems Approach to Training (SAT). As Army Field Manual 7-1 (2003) asserts, SAT is the science of the Army’s training system (Department of the Army, 2003). The process involves five training phases: analysis, design, development, implementation and evaluation. The analysis phase determines what collective and individual tasks are considered “critical.” Proponents create unit and individual Combined Arms Training Strategies (CATS) in the

design phase. CATS are derived from the AUTL. CATS plan future training by determining who, when, where and how critical tasks will be trained (TRADOC, 1999). In the institutional domain, institutional CATS specify the critical tasks to be trained and associate them with Programs of Instruction (POI).

The development phase generates training products such as Training Support Packages (TSP). Since the predominant instruction conducted by U.S. Army School's is tailored towards the cognitive and psychomotor domains, training developers use Benjamin Bloom's Taxonomy to create learning objectives and to determine the manner in which to deliver instruction (TRADOC, 1999). These recommended instructional methods are annotated in both the POI and TSP. FBCB2's TSP frequently incorporates conference and demonstration methods as the means to train soldiers on the system.

The implementation phase executes the standardized training at the training sites; and the evaluation phase determines: (1) if the training progressed favorably; (2) how well the Soldiers performed and; (3) if the products effectively supported the training. Trainers are the first line-appraisers in evaluating training. The TSP provides the schools with a plan in how to conduct training but the schools and instructors have the autonomy to present lessons in more than one way and evaluate if the presentation worked well (TRADOC, 1999).

The proponent for writing the FBCB2 TSP was the Armor School located at Fort Knox, Kentucky. Training developers took the collective tasks from the AUTL, created CATS and then wrote the TSP; but it was written from an infantry and armor occupational perspective. This has been the challenge in teaching the standardized FBCB2 TSP to NCOs and leaders of Sustainment units: the TSP has a movement and

maneuver warfighting function, i.e., the TSP was written to train maneuver forces traveling in an area of operations via a M1A2 Abrams battle tank, an armored personnel carrier, or a M2A2 Bradley fighting vehicle. Trainers of Quartermaster and Transportation branches have to alter their instructions and learning activities to make the instruction authentic to their Sustainment warfighters' future missions. In reality, Sustainment soldiers travel on main supply routes utilizing wheeled and not track vehicles. As Army Field Manual 3-0 emphasizes, the Sustainment warfighting function is geared towards administrative movements of material and personnel, i.e., supplying and resupplying forces (Department of the Army, 2008). Training developers understood that FBCB2 students would be NCOs and leaders from different branches. They did their best to make the contents of the TSP applicable to full spectrum operations (offensive, defensive, stability or civil support operations), non-MOS specific and easily understandable by instructors of all branches. They created lessons that were systematic and logical in their training sequence and comprised of factual information. The TSP instructions on using the FBCB2 software are common to every NCO or leader of the Army; but the approaches, experiences and relational information contained in the TSP are not central to Sustainment soldiers. What is more, the manner in which the information is suggested to be transferred or delivered does not always connect with the student or make the Sustainment warfighter confident in his or her ability.

“Army training has one purpose: to produce competent, confident, adaptive soldiers, leaders, and units, trained and ready to fight and win our nation’s battles” (Department of the Army, 2003, p. 1-13). “...Commanders and leaders must conduct training in a way that ensures mission performance in the contemporary operating

environment” (Department of the Army, 2003, p. 1-2). The Army understands that traditional educational approaches may not meet all the needs of an expeditionary Army. Field Manual 7-0 (2008) point out that developing new approaches “...may be necessary to ensure Soldiers and Army civilians are confident in their ability to conduct full spectrum operations anywhere along the spectrum of conflict with minimal additional training” (Department of the Army, 2008, p. 3-2).

Limitations

The limitations of this research study were as follows:

1. This study was limited to 1st and 2nd lieutenants attending the Basic Officer Leader’s Course at Fort Eustis and Fort Lee, Virginia; and sergeants and staff sergeants attending the Basic Non-Commissioned Officer’s Course at Fort Lee, Virginia.
2. The participants were of varying ages, socio-economic and educational backgrounds and enrolled in a Sustainment Center of Excellence (SCoE) resident Professional Military Education (PME) course.
3. The study was conducted among different scheduling periods of the PME course. Trainers have previously noted that student motivation is high in the weeks after a course convenes rather than at the end of a sixteen week term. Also a loss of student concentration has been reported when the FBCB2 course is scheduled just prior to graduation.

Assumptions

The assumptions of this research study were as follows:

1. Students had little or no prior experience using FBCB2.

2. Students had basic computer skills and could read at the 9th grade level.
3. Students had access to the same learning activities, course materials and after-action review student questionnaires.
4. Students did not miss any lessons, learning activities or reinforcement exercises due to scheduled appointments, rotational leadership positions or class details.

Procedures

The problem of this study was to determine if different teaching methods leads to improved short term student comprehension conducted during the Sustainment Center of Excellence (SCoE) FBCB2 course. A mixture of instructional methods and techniques of delivery will be used. Instructional strategies will be tailored to the missions of Transportation and Quartermaster branches of the United States Army. An After-Action Review (AAR) student evaluation questionnaire will be given to all students enrolled in the FBCB2 course. The AAR results will be evaluated to determine the effectiveness of one instructional method and strategy over the other.

Definition of Terms

The following terms had special meaning to this study and are listed below to aid in the reader's understanding:

- After-Action Review (AAR): A professional discussion of an event, focused on performance standards. It enables soldiers to discover for themselves what happened, why it happened and how to sustain strengths and improve on weaknesses. It is a tool leaders, trainers and units can use to get maximum benefit from every mission or task.

- Battle Command: Battle command is the art and science of understanding, visualizing, describing, directing and leading and assessing forces to impose the commander's will on a hostile, thinking and adaptive enemy.
- Collective Tasks: A clearly defined, discrete and measurable activity or action that is performed by an integrated and coordinated collection of Soldiers.
- Combined Arms Training Strategies (CATS): The Army's overarching strategy for the current and future training of the force.
- Conference: A method of instruction that develops the training material through an instructor-guided student discussion.
- Demonstration: A method of instruction that shows the students how to perform a process or procedure.
- Individual Tasks: A clearly defined, discrete and measurable action that represents the lowest-level of behavioral action in a job or duty that is performed for its own sake.
- Learning Objective (LO): A precise three-part statement describing what the student is to be capable of accomplishing in terms of the expected student performance under specific conditions to accepted standards.
- Methods of Instruction: Noted on a Program of Instruction (POI). Suggests how the training material will be provided to the student. Examples of methods of instruction are conference, demonstration, practical exercise, student panel, research/study and role playing.
- Non-Commissioned Officer Education System (NCOES): The principal leader development and education system of Non-Commissioned Officers conducted

by the Non-Commissioned Officer Academies (NCOA). NCOES consists of the Basic Non-Commissioned Officer Course (BNCOC) for sergeants and staff-sergeants and the Advanced Non-Commissioned Officer Course (ANCOC) for sergeants' first class.

- Officer Education System (OES): The principal leader development and education system of commissioned officers. Consists of the Basic Officer Leader's Course (BOLC) for second and first lieutenants and the Captain's Career Course (CCC).
- Program of Instruction (POI): A POI covers a course/phase. It is a requirements document that provides a general description of course content, duration of instruction and methods and techniques of instruction. It also lists resources required to conduct peacetime and mobilization training.
- Technique of Delivery: Process or manner of delivering instruction that includes one or more methods. For example, group-paced instruction could use conference, discussion, demonstration and practical exercise.
- Training Development: The entire SAT process, not just the development phase of the SAT process.
- Warrant Officer Education System (WOES): The principal leader development and education system of warrant officers. Consists of Warrant Officer Candidate School (WOCS); Warrant Officer's Basic Course (WOBC) for warrant officers 1 to receive branch specific training; the Warrant Officer's Advanced Course (WOAC) for chief warrant officers 2-4; Warrant Officer Staff Course (WOSC) and Warrant Officer Senior Course (WOSSC).

Overview of Chapters

This chapter introduced the problem of training Quartermaster and Transportation branch warfighters on digital command and control (C2) systems; in particular the platform battle command system known as FBCB2 and how such training relates to their specific mission and occupational tasks. It established the basis for this research study and identified the limitations and assumptions to be considered. This chapter also offered the procedures in how the data will be collected and analyzed and defined words with special meaning to the study.

Chapter II will review recent literature, examining the fundamentals of an effective instructional program. Various research studies conducted during the training of digital C2 systems will also be reviewed. Chapter III contains the methodology and analysis in collecting the data for this research project conducted at dual sites: Fort Lee and Fort Eustis, Virginia, the institutional home-bases for Sustainment warfighters. Chapter IV will discuss the relevant findings of this research process. A summary of the findings, conclusions and recommendations for future studies will be provided in Chapter V.

CHAPTER II

REVIEW OF LITERATURE

The Army's training program has been deeply rooted in behaviorist and cognitivist learning orientations. In fact, Deatz and Campbell (2001) point out that a mixture of cognitive science principles were used to design and develop Computer Based Training (CBT) modules of Force XXI Battle Command Brigade and Below (FBCB2).

Elements of Effective Instruction

In recent years the Army has been incorporating elements of humanistic and constructivist strategies into its program. The Army has been evolving training by adapting and integrating technologies to meet the learning needs of warfighters and Army civilians (Wampler et al., 2006). In 2006, at the request of Training and Doctrine Command (TRADOC), the Army Research Institute (ARI) conducted a science of learning workshop among educational leaders of academia, industry and the various branches of the Armed Services. One of the goals of the workshop was to extract best practices and lessons learned with the purpose of creating an Army learning model. Participants found effective instruction to be: "experiential, authentic/current/relevant, guided, motivational/engaging, tailored to the learner and sometimes collaborative" (Quinkert et al., 2007, p. 10). These seven aspects of effective instruction merit further consideration:

Experiential- Merrill (2001) suggests that instructors should guide learners in recalling past related experience. He encourages teachers to evaluate student recollection for relevance to the task at hand. In doing so, students are likely to generate an accurate mental picture, thus achieving new interrelated skills.

Authentic/current/relevant- The Army emphasizes training to be mission-focused, realistic and performance-oriented, i.e., requiring Soldiers to physically perform tasks. According to Army Field Manual 7-0, “Training for Full Spectrum Operations” (2008), performance-oriented training “focuses on results rather than the process” (Department of the Army, 2008, p. 2-6). The Army desires realistic training. Authentic and realistic training has to replicate operational conditions as much as possible. Merrill (2001) advocates the same. He believes students learn best when they are completing task-centered, real-world based instruction.

Guided- Trainers who balance direct instruction with significant guidance are apt to see more learning taking place than students who learn through self discovery (Kirshner, Sweller & Clark, 2006). Clark and Wittrock (2000) recommend using a “guided discovery” method. Guided discovery is teaching by problem solving. Students are placed in groups, assigned a problem and are then expected to use experiential knowledge to solve the problem as a group. The guided portion comes from the role of the instructor acting as a coach and providing additional training and supervision as required.

Motivational/engaging- Training environments should be designed to enhance learning and encourage student initiative. “Learning is an active, hands-on approach as opposed to a passive, listening one” (Department of the Army, 2008, p. 2-6). Instruction should also be challenging and rewarding.

Tailored to the learner- Not every lesson can be customized to the various learning styles of every Soldier; however instructors can add learning activities or other

instructional strategies that are applicable to their profession, skill level, career path or duty assignment (Quinkert et al., 2007).

Collaborative- Learning occurs through dialogue, collaborative learning and cooperative learning. “Candid assessments, after action reviews, and applying lessons learned and best practices produce quality Soldiers and versatile units...” (Department of the Army, 2008, p. 1-5).

Changing the Behavior:

The Use of Learning Objectives as an Instructional Strategy

A key behaviorist principle used extensively in adult education is the construction of observable and measurable learning objectives. Army Regulation 350-1 (2007) points out that combat developers create learning objectives as a task, condition(s) and standard(s) for each and every task having to be trained (Department of the Army, 2007). These objectives are the central feature in Army training; trainers begin a lesson by reading the learning objectives so warfighters are familiar with what is expected of them. Trainers then apply a crawl-walk-run approach paradigm. This instructional pattern steadily builds upon the successful performance of each task. “The goal in training is achieving mastery, not just proficiency” (Department of the Army, 2008, p. 2-3).

Still Hussey and Smith (2002) caution on relying too much on learning objectives as an ends-to-the-means direction for instructing the lesson. They believe objectives are useful if they are simple and specify the knowledge, skills and abilities to be attained rather than just the behavior. Another concern is that instructors may constrict their teaching practices if they always have to spell out objectives in detail before beginning a lesson.

Programs of Instruction (POI), Combined Arms Training Strategies (CATS) and Core Mission Essential Task List (CMETL) specify what individual and collective tasks have to be completed. Army Field Manual 7-1 (2003) conveys these principles to be the foundation for the Army training plan; while the objective indicates the performance required for mission success (Department of the Army, 2003). These are not subjective. But trainers do have the prerogative to deliver training content in novel ways that will reach students' capability of retaining the data and performing the objective (TRADOC, 1999).

Although learning objectives have to be made known to students, trainers may use inventive means to introduce the objectives and reduce students' propensity to zone out. One manner is to rotate students, have them take turns reading the learning objectives when transitioning into the next lesson. Such a minor instructional strategy has enormous value; it encourages student participation and sets a pattern that students have to become active in their learning.

So why this focus on the use of learning objectives? Arreola (1998) posits learning objectives to be guides for trainers: paths to take to get to the destination. Objectives assist trainers in integrating instructional strategies into the lesson, i.e., how trainers plan to teach the lesson and capture student interest while focusing on improving comprehension, retention and meeting the learning outcome.

Studies on Effective Digital Training

The Army has researched in some form, shape or manner digital training including the employment of Force XXI Battle Command Brigade and Below (FBCB2).

Dudley et al. (2002) compared how digital systems are employed in Army brigade and battalion units. His research team evaluated the knowledge and skill proficiencies that would be required to operate various command and control (C2) systems. Their effort found a number of activities meriting the attention of trainers. In particular, they studied instruction which had complemented brigade operations only. It was not necessarily applicable to lower echelons or used at the lowest level, the vehicle platform level, as related to the current study. The significance of their study to this research project is that digital trainers must tailor instruction to their audience - albeit senior leaders or NCOs - and not use a one-size-fits-all approach.

Sanders (2001) outlined training techniques that can be added into the design of computer-implemented training. Of importance to this project was the author's inclusion of psychological behaviorist and constructive principles that have an influence on the acquisition, retention and transfer of FBCB2 skills. For instance, a cognitive strategy called "chunking" arranges bits of information from introductory levels to deeper process sequencing (Sanders, 2001; Deatz & Campbell, 2001; Goodwin, 2006). A training technique for doing just that is to take FBCB2 task content and break it into groupings of similar tasks (Sanders, 2001).

A possible behaviorist strategy is to use reinforcements to shape student performance. An FBCB2 training technique would be to give students a small but challenging assignment, such as giving them a 10-digit map grid and have them center their screens onto the map location. If they entered the coordinates correctly, they will see the map change to a different location and will be rewarded by completing the task successfully (Sanders, 2001).

A constructivist strategy is to provide multiple methods for the same instructional content. An FBCB2 training technique might be to give students an opportunity to review material from numerous points of view (Sanders, 2001). The author offers examples of rotating student roles or providing information that arrives to them from radio communication or by way of a digital text message, i.e., the same meaning is conveyed but different modes of presenting the message is used.

Digital Training's Relationship to Occupational Tasks

In their research report, "Six myths about digital training," Schaab and Moses (2001) followed soldiers over the course of a year where training was conducted among institutional and operational domains or received in collaboration with equipment fielding - known as New Equipment Training (NET). They discovered that formal training centers tend to teach basic operation of the equipment and not its functional use. Training soldiers on digital systems is more than just teaching them how to use the software functions; it also includes learning to employ the systems for its strategic value (Barnett et al., 2001). Unit leaders could not agree more. They complain that by the time soldiers arrive to their unit after receiving digital C2 training, they know very little about the system's purpose, what it is designed to do and how it supports the unit's mission (Schaab & Moses, 2001). These authors believe part of the reason for the disparity evolves from the Army's "crawl, walk, run" method of training elementary tasks, then moving through stages of advanced tasks. They interviewed trainers who consider the "crawl stage" to mean knobology or buttonology skills. "Focusing solely on the operational skills hinders the soldiers' understanding of how the digital system is used to achieve mission goals" (Schaab & Moses, 2001, p. 12). Therefore it is more appropriate

to train warfighters in the methods of extrapolating and analyzing data from the system and then applying it to their mission. Simply put, train them how to think instead of committing facts to memory.

For logistics and transportation military occupational specialties, FBCB2 plays an essential role in their missions as convoy commanders or convoy platoon sergeants. Their function in convoy operations is to deliver “supplies to the right place, at the right time, and in the right quantities” (Chambers, 2009, pp. 1-2). Quartermaster and Transportation branch instructors training FBCB2 to these soldiers must customize the instruction so as to talk their talk, i.e., have it be job specific. These trainers ought to teach FBCB2 function as it applies to the students’ MOS and avoid a generic buttonology model.

Standardized Training: Varying Methods of Instruction

Unfortunately, many Army instructors are not using creative methods to train warfighters on digital systems (Leibrecht et al., 2007). Although Army training is standards-based, it is not mundane. In fact, it is quite the opposite. Doctrine clearly articulates Army training to be performance-oriented, effective, challenging and engaging (Department of the Army, 2008; TRADOC, 1999). For those reasons and more, professional trainers have an obligation to deliver the content accurately but to also inspire learners, to want them to discover more about the subject matter, to want them to become skilled at it.

Battle Focused Training (Field Manual 7-1, 2003) cites the three predominant methods and techniques for delivering instruction that Army trainers use the most: lecture, conference and demonstration methods (Department of the Army, 2003). Lecture

is the least favorable method for delivering instruction. The instructor is the all-knowing sage-on-the-stage, with little-to-no student interaction taking place until the wrap-up point arrives. And this is oftentimes initiated by the instructor posing the following: “Are there any questions?”

Lecture and conference methods occur in conjunction with the use of some form of media, usually PowerPointTM. Most digital C2 training employs the conference and demonstration methods. In a conference session, students may discuss the information presented. The trainer initiates and guides the discussion. Demonstration method has been the preferred choice for training students on battle command computer systems. There are two approaches to the demonstration method: (1) the instructor demonstrates the function on the computer while students watch or; (2) a “guided demonstration” has students following along tantamount with the instructor (TRADOC, 1999). Learners receive the opportunity to apply what they learned in class through practical exercises. Practical exercises assist the instructor in recognizing what tasks need additional training.

The Leibrecht et al. (2007) research team reported that FBCB2 trainers rarely emphasized student practice or relating the lesson to basic soldiering skills. They seldom witnessed trainers employing memory aids so as to support subject matter retention. “Another technique, encouraging active learning, occurred rarely in 16 of the 18 days observed” (Leibrecht et al., 2007, p. 27).

A reason why instructors are restrained in experimenting with various training techniques is that many subscribe to the methods of delivering instruction as annotated in the TSP (Schaab & Moses, 2001). The annotation is simply a suggestion and not a

requirement. Recommendations for classroom activities are clearly addressed in Appendix H of TRADOC Regulation 350-70 (TRADOC, 1999), as presented in Table 1.

Another reason has to do with contact hours - getting as much done in the time allotted. Trainers' trust that by following the TSP or lesson plan "by the book" enables them in getting the complete message out, i.e., the entire lesson plan was instructed to students (Schaab & Moses, 2001). If this happens, they accomplished their agenda. But it is not feasible to train everything. As acknowledged in Army Field Manual 7-0 (2008), the focus should be training the tasks that are most important to a unit's mission accomplishment (Department of the Army, 2008).

A third reason why digital training has become too methodological in its approach has to do with the fact that soldiers arrive to the classroom with a mixture of computer experience; they range from basic familiarity to advanced computer skills. Singh and Dyer's (2002) study found that soldiers with little computer experience would benefit from basic computer training prior to receiving specialized training on Army Battle Command Systems. Lastly, Wampler et al.'s (2006) review on lessons learned in digital training research studies recommends that the Army incorporate a mix of instructional media and techniques when planning and developing new lessons.

Summary

Teaching and learning is a cooperative, collaborative and continuously evolving process. It involves creating, exchanging and evaluating information that has practical and significant relevance to trainers and trainees. Instructional development teams must include innovative instructional approaches in training products that will help to influence learning (Schaab & Moses, 2001).

Table 1
Methods of Instruction

Method	Description	Uses
Brainstorming	Students are presented with a problem and develop constrained solutions.	Provides a means for students to develop solutions to unpredictable situations or problems.
Case Study	The student is presented a description of a situation and is required to solve problems or identify actions related to the situation.	Provides an excellent means for a student to solve problems either individually or as a member of a group.
Conference (Discussion)	Student-centered instruction in which the instructor leads a discussion of the learning objective. Student participation is elicited.	Prepares students for: <ul style="list-style-type: none"> - Follow-on training. - Stimulates interest and thinking. - Develops imaginative solutions to problems. - Summarizes, clarifies and reviews the learning objective material.
Demonstration	The instructor and/or support personnel show and explain operation or action to the students. The student is expected to perform the operation or action after the demonstration.	This method of instruction shows how something is done. Some of its more important uses are to: <ul style="list-style-type: none"> -Teach: <ul style="list-style-type: none"> -- Manipulative operations and/or procedures, e.g., how something is done. -- Equipment operations or functions, e.g., how something works. -- Teamwork, e.g., how people work together to do something as a team. - Illustrate principles, e.g., why something works.

(continued)

Table 1 (continued)

Method	Description	Uses
Gaming	Applies the concepts of a game, i.e., rules turn taking, winning and losing to a learning situation. The students “play” the game by obtaining information, making decisions, and taking actions required to accomplish the game objective. Games may be on a board, but with current technology they will probably be played on a computer.	Provides: <ul style="list-style-type: none"> - A means for individuals to make decisions, take actions, and see the results of those actions to accomplish the game objective without killing people or destroying materiel. - Immediate feedback for increased learning. - A means for students to be exposed to determine solutions to unpredictable situations to increase learning. - A means for motivating students.
Lecture	An individual verbally passes information to attending students. Student participation is minimal. It has low training efficiency. It violates all three of the self-paced learning principles.	Lecture is a means to tell students information they need to know. Some of its more important uses are to: <ul style="list-style-type: none"> - Disseminate information that is not yet available in print. - Motivate, e.g., set the stage for demonstration, discussion, or performance. - Orient.
Panel Discussion	A panel consisting of instructors, guest speakers, or a combination discuss material pertinent to the lesson learning objective. The panel presents information and responds to student questions.	Provides a variety of views and opinions concerning material or problem for which there is no one correct solution.

Table 1 (continued)

Method	Description	Uses
Practical Exercise (Performance)	Student is required to perform the action required by the learning objective under controlled conditions to the established standard.	The most efficient way to learn to do something is to actually do it. This method of instruction is the best way for a student to learn to perform the required action to the established standard. Examples: operation and repair of equipment, exercises (field training exercises [FTX], forms completion).
Research/Study	Students research/study material in preparation for subsequent course requirements. It is associated directly to specific, identified lesson(s). Research/Study is conducted during regular training hours.	Research/Study is used to provide the students the opportunity to locate, analyze, and determine, facts, procedures, and concepts on their own.
Role Playing	Similar to case study method. The students act out the simulated situation. The student may assume the duties of a staff member in an organization and perform the work of that position.	Provides: <ul style="list-style-type: none"> - Simulated experience in the situation being acted out. - A means to assess decision making in a specific role. - Provides opportunities for the student to develop solutions to unpredictable situations and conditions.

Table 1 (continued)

Method	Description	Uses
Seminar	A group, usually guided by an instructor, seeks solutions to problems.	It is primarily used by a group working on advanced studies or a research project to: <ul style="list-style-type: none"> - Provide general guidance to the group. - Provide information on techniques and approaches being explored. - Develop imaginative solutions to problems under study.
Student Panel	Students participate as members of a panel. They discuss material directly related to the lesson learning objective.	Student panels are used to obtain: <ul style="list-style-type: none"> - Full student participation in a discussion. - A variety of student views, especially on material directly associated with subject matter expertise.
Study Assignment	Assignments are provided to the students that they must complete as either independent or supervised study. This is testable material.	Provides a means to: <ul style="list-style-type: none"> - Capitalize on individual differences, thereby improving learning. - Provide enrichment material. - Reduce classroom time.
Test	Students are evaluated on the performance of the action required by the learning objective. Performance test is on actual equipment, to include simulators and training devices.	Used to determine if the: <ul style="list-style-type: none"> - Students can perform objectives to the established standards. - Instruction teaches what it is supposed to train.

Table 1 (continued)

Method	Description	Uses
Test Review	After-action review of test with students.	Increases learning.
Tutorial	The instructor works directly with an individual student. It includes adaptive instruction, stimulates active participation, and promotes effectiveness and safety.	The primary uses are to: -Teach highly complex operations. - Provide individual remedial assistance.

Extracted from TRADOC Regulation 350-70, Systems Approach to Training Management, Appendix H.

Effective instruction will contain elements that are: experiential, authentic, guided, motivational and engaging, personalized to different learners and on occasion-collaborative (Quinkert et al., 2007). Studies on digital C2 training reflect that instructional designers and trainers must try new approaches in training digital skills - approaches that will greatly improve training effectiveness, that focus on the science of battle command and encourage student proficiency (Schaab & Moses, 2001; Leibrecht et al., 2007).

To relate and complement a unit's collective and individual tasks, digital C2 training should be modified to the extent that it is applicable with their Core Mission Essential Task List (CMETL) and soldiers' occupational specialties (Schaab & Moses, 2001). Trainers should modify conventional but broad Training Support Packages and transform them into lesson plans that are related to job tasks, teach functionality and employment skills rather than knobology or buttonology skills (Barnett, 2004).

To promote learning, instructors must alter their methods and techniques of delivering instruction and include learning activities and various instructional strategies into their lessons. Trainers must also be aware of behavior, cognitive and constructivist principles and learning strategies that can be used in the delivery of digital C2 training (Sanders, 2001).

Chapter III of this study will address the methods and procedures used to determine if different teaching methods lead to improved short term student comprehension. Chapter III will include the population, description of instrument, methods of collecting data procedures, statistical analysis and summarize the chapter.

CHAPTER III

METHODS AND PROCEDURES

This descriptive study sought to determine if different teaching methods lead to improved short term student comprehension conducted during the Force XXI Battle Command (FBCB2) course. The effectiveness of the instructional strategy was measured by observing students' successful completion of practical exercises (attaining a GO rating) with different instructional strategies used. Practical exercises (PE) contained situations that Sustainment Soldiers would likely encounter and were sequenced using the recommended "building block" approach (Wampler et al., 2006). Many of the PE's contained prior learned FBCB2 tasks as a means of reinforcing learned behavior (Sanders, 2001).

This chapter explains the research methods and procedures used to gather and analyze data from the study. Included in Chapter III is the population studied, description of instrument used, methods of collecting data procedures, statistical analysis and a summary of the chapter.

Population

Participants were 252 Soldiers and Department of the Army interns enrolled in two U.S. Army institutional schools. Students attended FBCB2 training in the Basic Officer Leader Course at the U.S. Army Transportation School on Fort Eustis and the Quartermaster Center and School on Fort Lee, Virginia. Student NCOs attended FBCB2 training through the Basic Noncommissioned Officer Course at Fort Lee, Virginia. Data were collected from seven course sessions conducted during a one month period.

Instrument Used

The instrument used in this study was an After Action Review (AAR) student questionnaire given to all students completing the FBCB2 course. Army Training Leader and Development (Army regulation 350-1) supports performance evaluation by way of an AAR for every training event that occurs (Department of the Army, 2007). In accordance with Army Lessons Learned Program (Army Regulation 11-33), AAR's are designed to provide feedback on task performance and capture lessons learned (Department of the Army, 2006).

The instrument included questions asking students to evaluate the block of training; in particular, the training methods used and students' perceptions toward training. The questionnaire followed a Likert Scale design with five choices offered. The questions supported the five research questions listed in this research study. A replicated copy of the questionnaire is included in Appendix A.

Method of Data Collection

Data were collected from the AAR student questionnaire given to students upon completion of the FBCB2 course. The AAR consisted of 25 closed-ended and five open-ended questions so that students would have the opportunity to provide additional information or state their opinion.

Statistical Analysis

The responses to the AAR student questionnaire were analyzed and tabulated to determine insight into successful instructional methods and training techniques on FBCB2 comprehension. The number, frequency and mean of the responses were

determined. The open-ended questions were reviewed and like responses were recorded in number and frequency.

Summary

Chapter III described the methods of data collection and statistical procedures used to analyze students' perception towards FBCB2 training following holistic methods of instruction. This chapter identified the population studied among two institutions and two Professional Military Education (PME) courses: the Basic Officer's Leader Course (BOLC) and the Basic Non-commissioned Officer Leader Course (BNCOC). The instrument used to analyze the data was explained in detail as well as the justification of implementing After Action Reviews (AAR) when training events have concluded.

Chapter III described how the data would be reported and measured by way of a Likert scale styled instrument. To capture student opinions, five open-ended questions were also put forward to participants. The results of this study will determine student satisfaction with the entire course and whether the methods of instruction were effective in improving learning of digital C2 systems. The findings of this statistical analysis will be discussed in Chapter IV.

CHAPTER IV

FINDINGS

In this chapter, the findings of the study conducted with students enrolled in two U.S. Army institutional schools will be reported. This chapter is composed of the following sub-sections: Introduction, Response Rate, Report of Findings and Summary.

The purpose of this descriptive research study was to determine if different teaching methods lead to improved short term student comprehension conducted during the Force XXI Battle Command Brigade and Below (FBCB2) digital platform battle command course. Teaching methods and techniques for delivering instruction included an assignment of a research task, facilitation of five performance-generated student practical exercises, the incorporation of a student led panel to illicit a variety of student perspectives in the decision-making process and conducting a test review.

Response Rate

The instrument used in this study was an After Action Review (AAR) student questionnaire given to 252 students completing the FBCB2 course. Participants were Soldiers and Department of the Army interns enrolled in FBCB2 training in the Basic Officer Leader Course (BOLC) at both the U.S. Army Transportation School (T-School) on Fort Eustis, Virginia, and the Quartermaster Center and School (QM School) on Fort Lee, Virginia. Also included were NCOs attending FBCB2 training through the Basic Noncommissioned Officer Course (BNCOC) at Fort Lee. Data were collected from seven course sessions conducted during a one month period.

Each student received an AAR upon completion of the course. Two hundred thirty-nine (239) students completed the questionnaire, thus providing the researcher with

a 95 percent response rate. See Table 2 for an analysis of the class, student numbers, population and response rate from both institutions:

Table 2
Response Rate

School	Course	Class Number	Class Population	Number of AARs Returned	Class Response Rate
T-School	BOLC	001	59	57	94%
		002	58	53	91%
QM School	BOLC	003	41	35	85%
QM School	BNCOC	029	36	36	100%
		033	31	31	100%
		038	11	11	100%
		039	16	16	100%
		Total:	252	239	
Overall Response Rate:					94.8%

Report of Findings

Each AAR question is discussed in this portion of the chapter. The AAR is divided into ten sections for a total of fifty questions. Sections I through V are closed-ended questions. Each respondent had to select one response to each close-ended question. Sections VI through Section X are open-ended questions.

Closed-Ended Questions

The first section consists of sixteen queries. These questions centered on the frequency of the event occurring during the block of training. The options students had

to select from were a range of 1- 5, i.e., “1” represented the event always occurred to “5” the event never occurred. There was also a choice of “N/A” if the participant believed the question is not applicable to the training received. The first four statements asked the student to rate the training overall:

Question 1, Objectives were presented at the beginning of the training.

Eighty-seven percent (209) of the respondents believed this statement always occurred; eleven percent (27) believed it usually occurred; one percent (3) said the statement occurred sometimes. The mean score was 1.14 which indicated that the average response always concurred with the statement.

Question 2, The training was well organized.

Eighty-five percent (202) of the respondents believed this statement always occurred; fourteen percent (33) believed it usually occurred; and one percent (3) said the statement occurred sometimes. The mean score was 1.17 which indicated that the response was always.

Question 3, The training was interesting.

Sixty-seven percent (160) of the respondents answered that the statement always occurred; twenty-two percent (52) believed it usually occurred; nine percent (21) said the statement occurred sometimes; and two percent (4) believed it seldom occurred. The mean score was 1.46 which indicated that the response was always.

Question 4, The training was challenging.

Fifty percent (119) of the respondents believed that the statement always occurred; eighteen percent (43) believed it usually occurred; twenty-one percent (49) said the statement occurred sometimes; nine percent (22) believed it seldom occurred; and two

percent (5) respondents answered that it never occurred. The mean score was 1.95 which indicated that the response was .05 near usually.

Questions 5 - 7 asked the student to evaluate the instructor(s) performance:

Question 5, The instructor(s) knew the subjects well.

Ninety-five percent (227) believed that the statement always occurred; and five percent (11) believed it usually occurred. The mean score was 1.06 which indicated that the response was always.

Question 6, The instructor(s) presented the training well.

Eighty-seven percent (209) believed that the statement always occurred; ten percent (23) believed it usually occurred; and two percent (5) said the statement occurred sometimes. The mean score was 1.15 which indicated that the response was always.

Question 7, The instructor(s) were easy to understand.

Eighty-seven percent (208) said that the statement always occurred; nine percent (21) believed it usually occurred; three percent (7) said it occurred sometimes; and one percent (2) believed it seldom occurred. The mean score was 1.17 which indicated that the response was always.

The next three statements asked respondents to evaluate the various student materials provided to them:

Question 8, The written material was easy to read and understand.

Seventy-five percent (180) said that the statement always occurred; sixteen percent (38) believed it usually occurred; two percent (4) said it occurred sometimes; one percent (2) believed it seldom occurred; and five percent (13) said the question was not

applicable to their experiences. The mean score was 1.23 which indicated that the response was always.

Question 9, The written material helped me learn the subjects.

Seventy-four percent (176) said that the statement always occurred; eleven percent (26) believed it usually occurred; five percent (13) said it occurred sometimes; three percent (6) believed it seldom occurred; and seven percent (16) said the question was not applicable to their experiences. The mean score was 1.32 which indicated that the response was always.

Question 10, The written material required was made available to me.

Eight-four percent (200) said that the statement always occurred; seven percent (16) believed it usually occurred; two percent (4) said it occurred sometimes; and seven percent (16) said the question was not applicable to their experiences. The mean score was 1.12 which indicated that the response was always.

Questions 11 - 13 ask the student to consider the classroom facilities and equipment used in training:

Question 11, The training areas (classrooms, bays, field areas) were good.

Eight-two percent (196) said that the statement always occurred; thirteen percent (32) believed it usually occurred; and four percent (9) said it occurred sometimes. The mean score was 1.24 which indicated that the response was always.

Question 12, The equipment used in hands-on training worked well.

Eight-four percent (200) said that the statement always occurred; thirteen percent (31) believed it usually occurred; and two percent (5) said it occurred sometimes. The mean score was 1.19 which indicated that the response was always.

Question 13, There was enough equipment for everyone to practice on.

Seventy-two percent (171) said that the statement always occurred; thirteen percent (31) believed it usually occurred; eight percent (19) said it occurred sometimes; two percent (4) believed it seldom occurred; and five percent (11) answered that it never occurred. The mean score was 1.53 which indicated that the response was usually.

The FBCB2 examination was covered in Questions 14 - 15:

Question 14, The exam(s) covered the materials presented in class.

Sixty-eight percent (162) said that the statement always occurred; eight percent (19) believed it usually occurred; one percent (2) answered that it never occurred; and twenty-one percent (49) said the question was not applicable to their experiences. The mean score was 1.17 which indicated that the response was always.

Question 15, The exam(s) questions were easy to understand.

Sixty-three percent (151) said that the statement always occurred; eleven percent (27) believed it usually occurred; two percent (4) said it occurred sometimes; one percent (2) answered that it never occurred; and twenty-one percent (49) said the question was not applicable to their experiences. The mean score was 1.25 which indicated that the response was always.

The last question of section I had the student evaluating the timeliness of the course lessons against the training schedule:

Question 16, Classes were completed during the time scheduled.

Ninety percent (216) said that the statement always occurred; seven percent (16) believed it usually occurred; and two percent (4) said it occurred sometimes. The mean score was 1.12 which indicated that the response was always. See Table 3.

Table 3

Total Participants, Mean and Percentage for Section I of the Questionnaire.

Question	Likert Scale					Mean
	Always	Usually	Sometimes	Seldom	Never	
	1	2	3	4	5	
1. Objectives were presented at the beginning of the training.	209	27	3	--	--	1.14
<i>Percentage (%)of responses:</i>	87%	11%	1%	--	--	--
2. The training was well organized.	202	33	3	--	--	1.17
<i>Percentage (%)of responses:</i>	85%	14%	1%	--	--	--
3. The training was interesting.	160	52	21	4	1	1.46
<i>Percentage (%)of responses:</i>	67%	22%	9%	2%	0%	--
4. The training was challenging.	119	43	49	22	5	1.95
<i>Percentage (%)of responses:</i>	50%	18%	21%	9%	2%	--
5. The instructor(s) knew the subjects well.	227	11	--	1	--	1.06
<i>Percentage (%)of responses:</i>	95%	5%	--	0%	--	--
6. The instructor(s) presented the training well.	209	23	5	1	--	1.15
<i>Percentage (%)of responses:</i>	87%	10%	2%	0%	--	--
7. The instructor(s) were easy to understand.	208	21	7	2	--	1.17
<i>Percentage (%)of responses:</i>	87%	9%	3%	1%	--	--
8. The written material was easy to read and understand.	180	38	4	2	--	1.23
<i>Percentage (%)of responses:</i>	75%	16%	2%	1%	--	--
9. The written material helped me learn the subjects.	176	26	13	6	--	1.32
<i>Percentage (%)of responses:</i>	74%	11%	5%	3%	--	--

(continued)

Table 3 (continued)

Question	Likert Scale					Mean
	Always 1	Usually 2	Sometimes 3	Seldom 4	Never 5	
10. The written material required was made available to me.	200	16	4	1	--	1.12
<i>Percentage (%)of responses:</i>	84%	7%	2%	0%	--	--
11. The training areas (classrooms, bays, field areas) were good.	196	32	9	1	1	1.24
<i>Percentage (%)of responses:</i>	82%	13%	4%	0%	0%	--
12. The equipment used in hands-on training worked well.	200	31	5	1	--	1.19
<i>Percentage (%)of responses:</i>	84%	13%	2%	0%	--	--
13. There was enough equipment for everyone to practice on.	171	31	19	4	11	1.53
<i>Percentage (%)of responses:</i>	72%	13%	8%	2%	5%	--
14. The exam(s) covered the materials in class.	162	19	1	1	2	1.17
<i>Percentage (%)of responses:</i>	68%	8%	0%	0%	1%	--
15. The exams(s) questions were easy to understand.	151	27	4	1	2	1.25
<i>Percentage (%)of responses:</i>	63%	11%	2%	0%	1%	--
16. Classes were completed during the time scheduled.	216	16	4	--	1	1.12
<i>Percentage (%)of responses:</i>	90%	7%	2%	--	0%	--

Section II of the AAR is concerned with duration. Students are asked to rank each statement as to how they felt about the time spent on the particular training event. Each option assigned a numerical ranking with “1” representing much more time is needed for the training; to “5” much less time is needed. The optimal score was “3” meaning time is adequate. Students could only select one answer.

Question 17, The training overall was...

Nine percent (22) of the respondents believed much more time was needed; ten percent (24) believed training needs more time; seventy-two percent (173) said that time is adequate; six percent (14) believed it needs less time; and two percent (4) said that training needs much less time. The mean score was 2.81 which indicated that the average response was time is adequate.

Question 18, Classroom training...

Eight percent (20) of the respondents believed much more time was needed; ten percent (23) believed training needs more time; seventy-two percent (172) said that time is adequate; eight percent (19) believed it needs less time; and one percent (2) said that training needs much less time. The mean score was 2.83 which indicated that the response was time is adequate.

Question 19, Hands-on training...

Nine percent (22) of the respondents believed much more time was needed; thirteen percent (30) believed training needs more time; seventy-two percent (171) said that time is adequate; and five percent (13) believed it needs less time. The mean score was 2.74 which indicated that the response was time is adequate.

Question 20, Field training...

Eleven percent (26) of the respondents believed much more time was needed; eleven percent (26) believed training needs more time; sixty-three percent (151) said that time is adequate; three percent (7) believed it needs less time; and one percent (3) said that training needs much less time. The mean score was 2.69 which indicated that the response was time is adequate.

Question 21, Exam(s) ...

Five percent (11) of the respondents believed much more time was needed; three percent (6) believed training needs more time; seventy-one percent (169) said that time is adequate; ten percent (23) believed it needs less time; and three percent (6) said that training needs much less time. The mean score was 3.03 which indicated that the response was time is adequate.

Question 22, Open/free time...

Five percent (12) of the respondents believed much more time was needed; seven percent (16) believed training needs more time; eighty-one percent (194) said that time is adequate; three percent (7) believed it needs less time; and one percent (2) said that training needs much less time. The mean score was 2.87 which indicated that the response was time is adequate. See Table 4.

Section III of the AAR asked students to reflect on the difficulty of the training and the course's examination. The numerical rankings were "1" much too difficult, to "5" much too easy. The optimal score was "3" indicating that the training and examination was just right.

Table 4

Total Participants, Mean and Percentage for Section II of the Questionnaire

Question	Likert Scale					Mean
	Needs much more time	Needs more time	Time is adequate	Needs less time	Needs much less time	
	1	2	3	4	5	
17. The training overall was...	22	24	173	14	4	2.81
<i>Percentage (%)of responses:</i>	9%	10%	72%	6%	2%	--
18. Classroom training...	20	23	172	19	2	2.83
<i>Percentage (%)of responses:</i>	8%	10%	72%	8%	1%	--
19. Hands-on training...	22	30	171	13	--	2.74
<i>Percentage (%)of responses:</i>	9%	13%	72%	5%	--	--
20. Field training...	26	26	151	7	3	2.69
<i>Percentage (%)of responses:</i>	11%	11%	63%	3%	1%	--
21. Exam(s) ...	11	6	169	23	6	3.03
<i>Percentage (%)of responses:</i>	5%	3%	71%	10%	3%	--
22. Open/ free time...	12	16	194	7	2	2.87
<i>Percentage (%)of responses:</i>	5%	7%	81%	3%	1%	--

Question 23, The training overall was...

Two percent (5) of the respondents believed the training was much too difficult; three percent (6) believed it was too difficult; seventy-eight percent (187) said that it was just right; ten percent (25) said that training was too easy; and five percent (12) believed it was much too easy. The mean score was 3.14 which indicated that the response was just right.

Question 24, The exam(s) was...

Two percent (4) of the respondents believed the exam was too difficult; seventy-four percent (178) said that it was just right; seven percent (16) said that the exam was too easy; and four percent (10) believed it was much too easy. The mean score was 3.14 which indicated that the response was just right. See Table 5.

Section IV of the questionnaire asks the participant to judge the entire block of training, from start to finish. Each ranking was assigned a numerical ranking with “1” being the highest, i.e., “Very good” to “5” being the lowest “Very bad.”

Question 25, The training overall was...

Sixty-seven percent (159) of the respondents believed the training overall was very good; twenty-four percent (58) believed it was good; seven percent (16) said it was average; zero percent (1) said it was bad; and zero percent (1) believed it was very bad. The mean score was 1.41 which indicated that the response was very good. See Table 6.

Section V of the AAR provides the instructor the flexibility to ask supplementary questions not included on the questionnaire. No additional questions were posed to students; therefore Section V was not used for this research study.

Table 5

Total Participants, Mean and Percentage for Section III of the Questionnaire

Question	Likert Scale					Mean
	Much too difficult	Too difficult	Just right	Too easy	Much too easy	
	1	2	3	4	5	
23. The training overall...	5	6	187	25	12	3.14
<i>Percentage (%)of responses:</i>	2%	3%	78%	10%	5%	--
24. The exam(s) was...	1	4	178	16	10	3.14
<i>Percentage (%)of responses:</i>	0%	2%	74%	7%	4%	--

Table 6

Total Participants Mean and Percentage for Section IV of the Questionnaire

Question	Likert Scale					Mean
	Very good	Good	Average	Bad	Very bad	
	1	2	3	4	5	
25. The training overall...	159	58	16	1	1	1.41
<i>Percentage (%)of responses:</i>	67%	24%	7%	0%	0%	--

Open-Ended Questions

The AAR consisted of five open-ended questions that permit students the opportunity to answer with their opinions. Sections VI through X are open-ended questions.

Section VI, List any instructors that did an outstanding job.

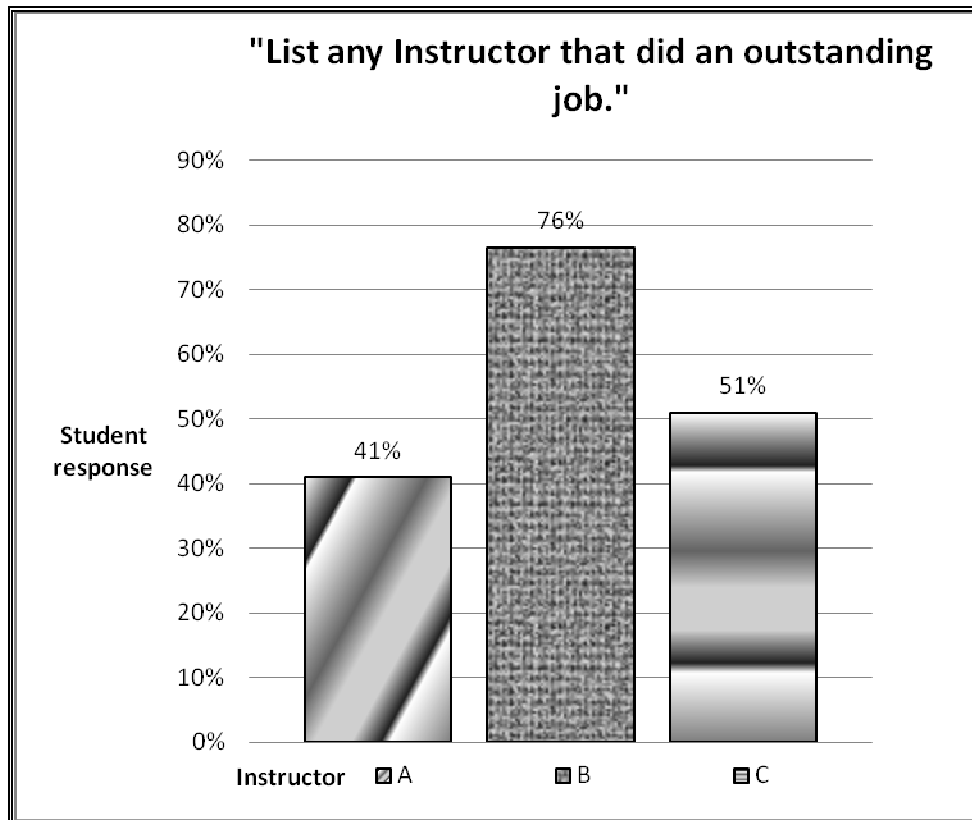
At both institutions, the staff consisted of three senior instructors and one assistant instructor. Senior instructors administer the course and train the majority blocks of instruction. Depending upon the class size and the number of classes convened during a week, an assistant instructor will lend a hand and assist students who need help while the senior instructor is on the platform training the course. The senior instructors were the ones evaluated for this study and are listed as instructor A, B and C.

Instructor A had 18 occurrences to this statement out of 44 students in attendance among his or her courses. This provided Instructor A with a 41 percent assessment response. Instructor B had 65 occurrences to this statement out of 85 students in his or her course; providing Instructor B with a 76 percent rating. Instructor C had 56 occurrences to this statement out of 110 students, providing Instructor C with a 51 percent assessment rating. See Table 7.

Section VII, List any instructors that did a poor job.

From 239 AARs, one student responded to this statement with Instructor C as the only instructor who did a poor job. The student commented that the instructor was “going too slow and had the class sitting around.”

Table 7
Section VI of the Questionnaire: Instructor Performance



Section VIII, What were the easiest things to learn during the training?

One hundred twenty-four participants or 52 percent answered this question.

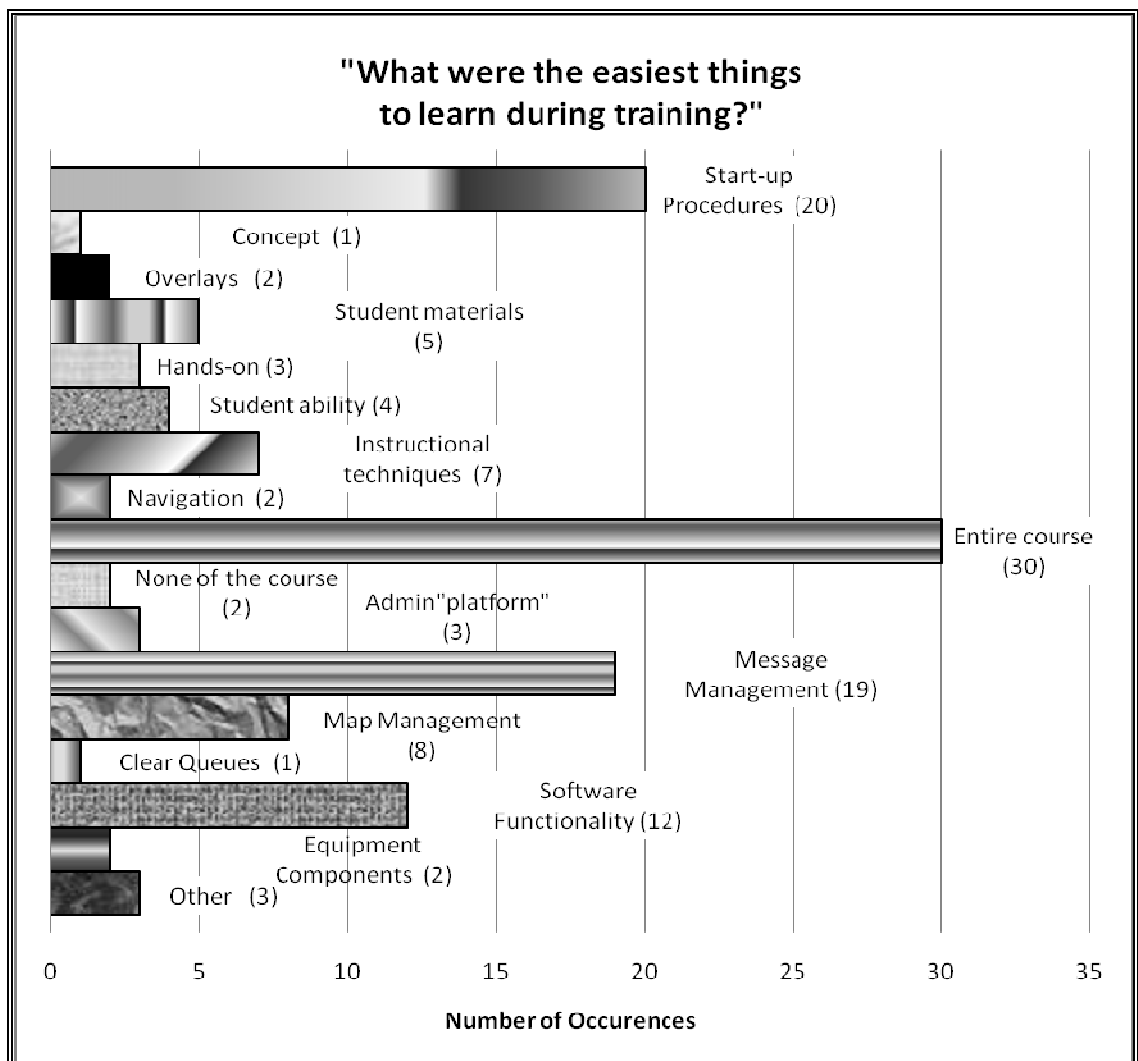
Students that responded to this question were able to express their opinion on the various components of lessons they believed were the easiest to comprehend. Thirty participants indicated that the entire course was easy. One student mentioned "...everything covered was understandable."

The next highest clustering of comments came from 20 students who regarded learning the system's start up and shut-down procedures were the easiest lesson to learn. This was followed by 19 respondents that considered the Message Management block of

instruction or the sub-components therein were the easiest. Seven students attributed their success to the instructor's technique or the course's design.

Miscellaneous comments not coinciding with comparable groupings were regarded as an "other" category. Three comments from respondents were grouped into this category. One student mentioned "plugging in the coordinates" as the easiest thing to learn, another stated "to pay attention closely" and the third mentioned "pressing apply." See Table 8.

Table 8
Section VIII of the Questionnaire: Course Simplicity



Section IX, What were the hardest things to learn during the training?

One hundred four students or 44 percent responded to this question. The most frequent responses came from 27 students or 26 percent believing the overlay portion of the course was the most difficult. Twenty-four respondents thought nothing in the course was hard, while two students believed the entire course was difficult. As one student revealed, he or she was “not a computer person.” Also, 13 students considered learning the software’s functions were the hardest to learn. Some observations to this assemblage of remarks included: “grouping knowledge first time around,” “some of the menus can be confusing” and to “learn all the tabs and where to find everything I need.” See Table 9.

Section X, If you could change the training you just received, in any way, what would you do to make it better?

One hundred three students or 43 percent responded to this question. The most frequently occurring response came from 27 participants who responded with “nothing,” indicating that students believed the course should not be changed. One respondent replied, “If it’s not broke, don’t fix it,” while another mentioned the training was “good and relevant.” The next highest grouping was from 21 students who suggested that the actual tactical system should be incorporated into training with a practical exercise, field usage or as a culminating capstone event. Eleven respondents mentioned improving the instructors’ training techniques. Such remarks consisted of: “faster tempo,” “move a little faster” and “too fast, slow down.” Eight students requested additional training, increasing the training hours or “more time, more hands on.”

Miscellaneous comments considered an “other” category included six remarks where students commented on the temperature of the classrooms, the size of students’

workstations, more free time to discover the software on their own and purchasing new computers or equipment. See Table 10.

Table 9
Section IX of the Questionnaire: Course Difficulty

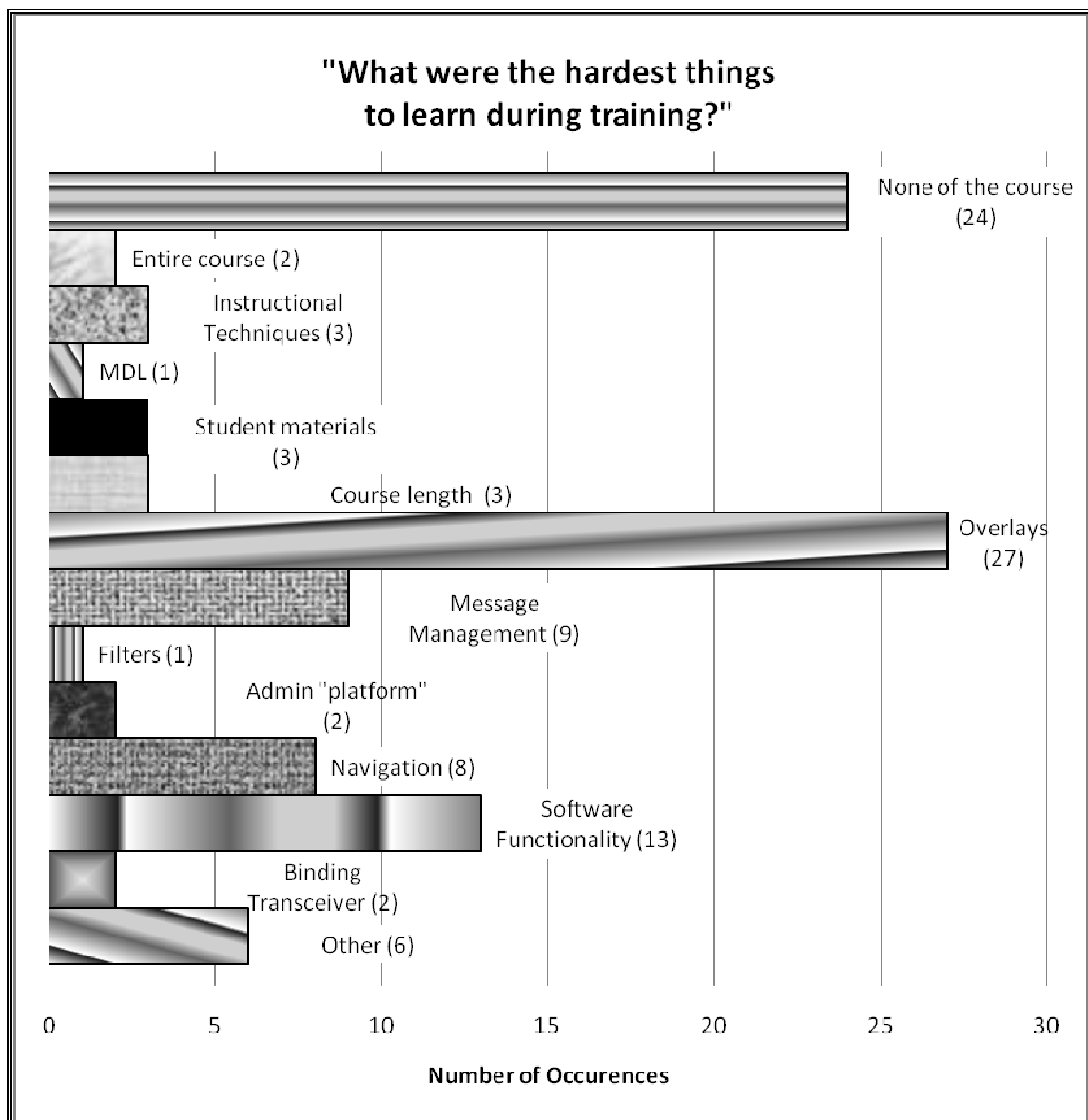
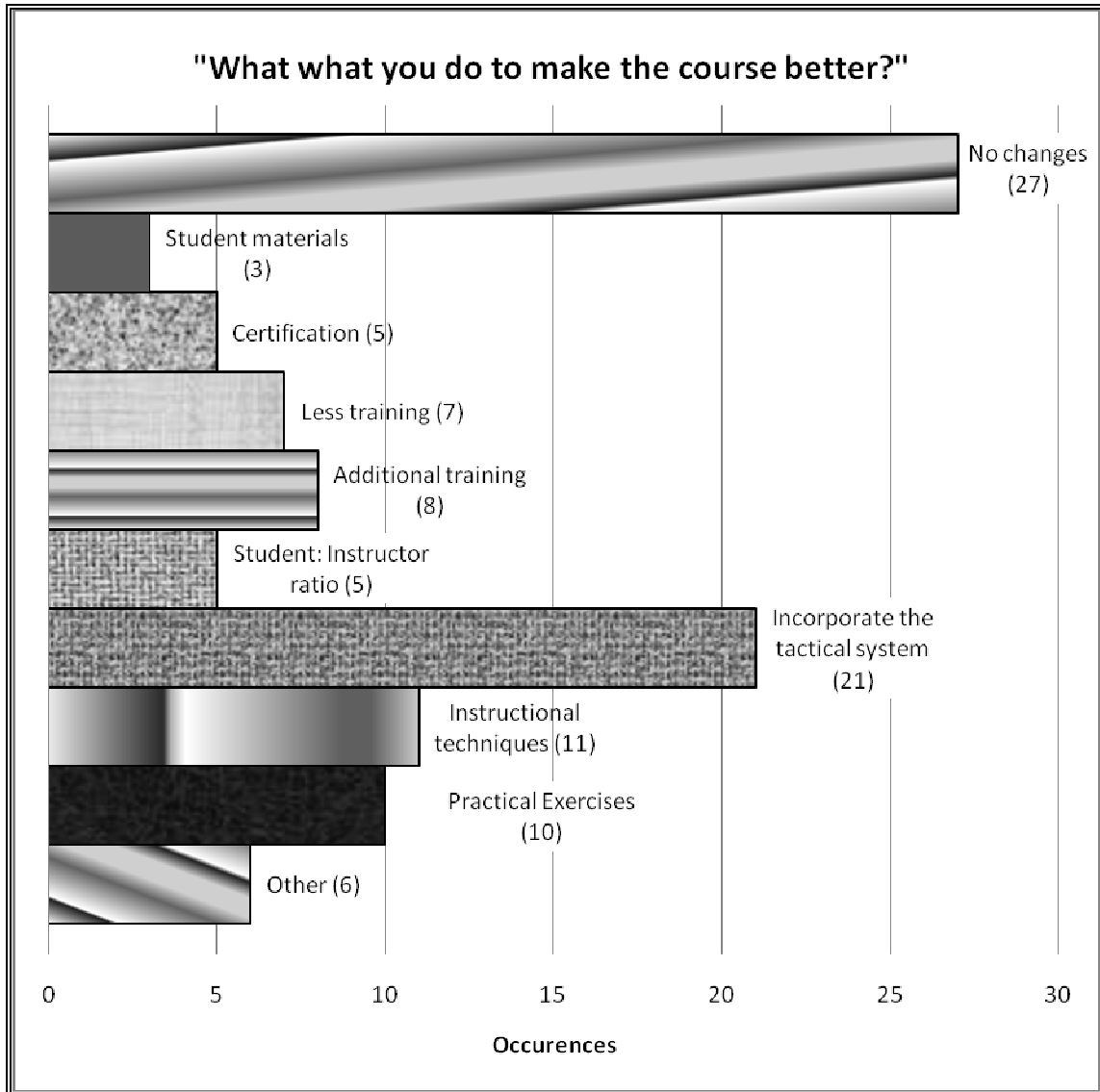


Table 10

Section X of the Questionnaire: Suggestions to Improve Training



Lastly, the AAR questionnaire incorporated a comments section where students may offer additional remarks.

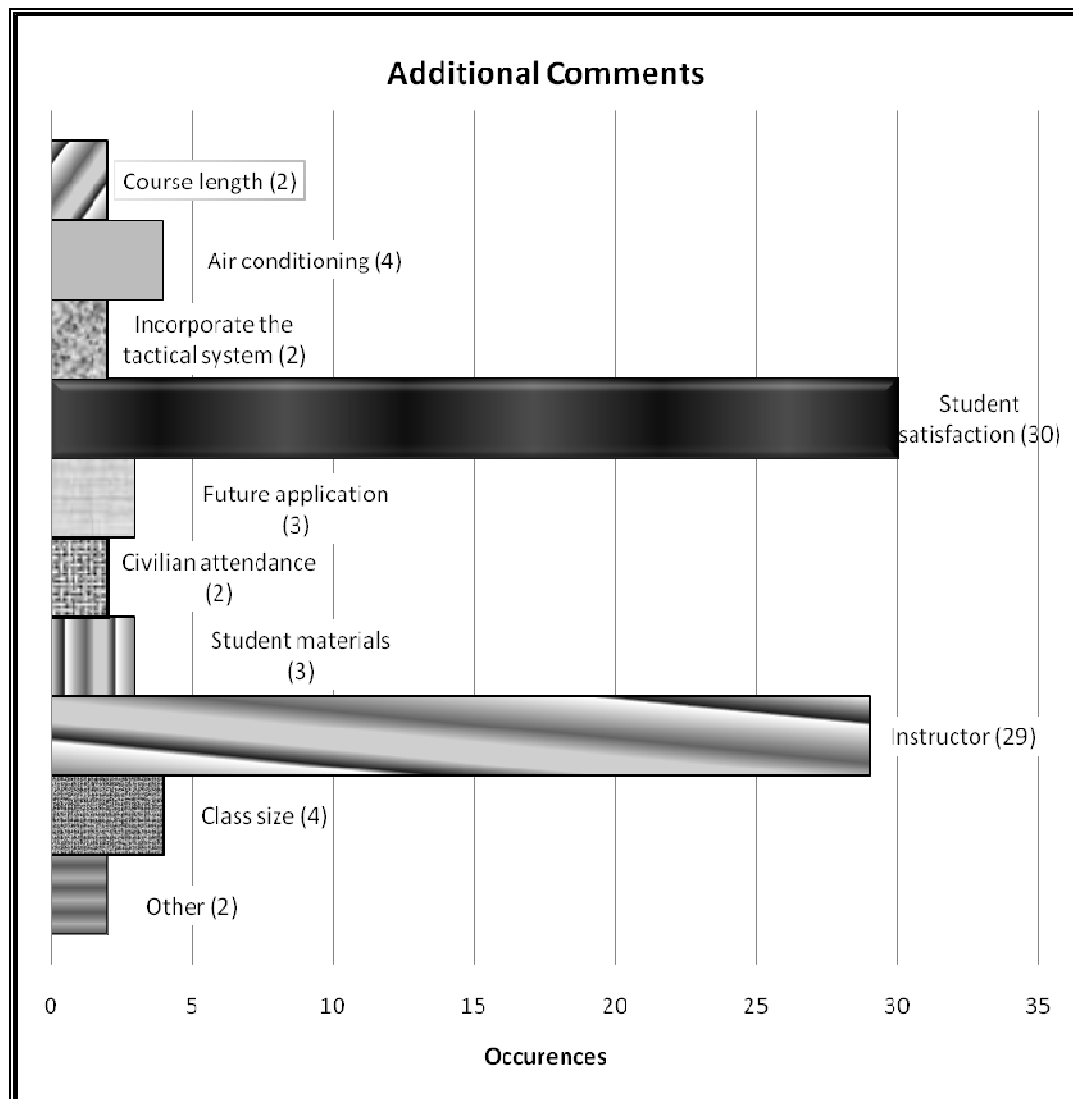
Comments Section

Eighty-one students or thirty-four percent responded to this question. The most frequently occurring remarks centered on students' satisfaction - good or bad - for the

course. Twenty-nine respondents commented on their instructor's performance. All comments were positive to this grouping with the exception of one student who revealed that "instructors could not be heard at the rear of the class on some occasions."

Three students remarked on the future application of the system. Two of these students stated confidence in their skills in using the FBCB2, while one student questioning the likelihood of ever using FBCB2 in his or her military occupation as a supply warehouseman. See Table 11.

Table 11
Student Comments



Summary

This chapter discussed the relevant findings and statistical analysis of the data obtained from an After Action Review (AAR) questionnaire. The questionnaire was administered to 252 students among two institutions with 239 students completing the questionnaire. The AAR was comprised of 25 closed-ended and five open-ended questions. In addition, students had the opportunity to offer their viewpoint of the course through an open-ended comment section. The results of the AAR were analyzed using a narrative account of students' remarks and tabulated by way of tables and graphs.

The data received and tabulated in Chapter IV will be summarized in Chapter V with conclusions and recommendations for future studies offered based on the findings of this study.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter summarizes the information contained in the study, draws conclusions based upon the findings and makes recommendations for future studies.

Summary

The purpose of this study was to determine if different teaching methods lead to improved short term student comprehension conducted during the Force XXI Battle Command Brigade and Below (FBCB2) digital platform battle command course. The following research questions guided this study:

- (1) Does the instructional method reinforce the lesson's objective?
- (2) Does the trainer use training techniques to associate battle command content with a soldier's military occupation?
- (3) Does the instructional method engage the learner?
- (4) Does the teaching practice facilitate a change in behavior by the learner?
- (5) Does the instructional method contribute to student mastery as evaluated through practical exercises or the end of course examination?

FBCB2 trainers routinely use a standardized Training Support Package (TSP) provided by the FBCB2 project manager's office as the principal lesson plan in teaching the course. The TSP also provides training tips and background information on instructing the program. The directions contained in the TSP for teaching the use and application of FBCB2 software are universal to every NCO or leader of the Army; but the approaches, experiences and relational information contained in the TSP are not central

to Sustainment soldiers' occupational tasks. Therefore trainers of Quartermaster and Transportation students have modified certain TSP instructions. They have changed the order of lessons and included job-centered learning activities - all help to make FBCB2 authentic to their Sustainment warfighters' future missions and promote soldier confidence in his or her ability to use the system. As a result, this study was conducted to evaluate these training methods and learning activities of FBCB2 instruction. These methods are intended to focus on improving short term student comprehension, achieve student satisfaction with the course and relate instruction to Sustainment soldiers' missions and occupational tasks.

The population for this study was 252 students among two institutions: the Quartermaster Center and School and the Transportation School. Of the total population, 239 students participated in the questionnaire; a response rate of 95 percent. Such participants were of varying ages and educational backgrounds enrolled in the Sustainment Center of Excellence (SCoE) resident Professional Military Education (PME) course as a student in the Basic Officer Leader Course (BOLC) or as a student in the Basic Non-commissioned Officer Course (BNCOC). The study was conducted among different scheduling periods of the varying PME agendas.

The instrument used to gather data was an After Action Review (AAR) student questionnaire. The AAR consisted of 25 closed-ended statements and five open-ended questions. Measurement of the closed-ended questions followed a Likert Scale design. The responses were analyzed and tabulated to determine insight into successful instructional methods and training techniques on FBCB2 comprehension.

Conclusions

The research questions and findings from the AAR were examined and then compared. The study revealed the following conclusions:

Does the instructional method reinforce the lesson's objective?

Several questions on the AAR embraced this research question. Out of the close-ended questions, Question 6 asked the student if the instructor presented the training well. The mean was 1.15 with eighty-seven percent or 209 participants agreeing with the statement as always. Next, the examination is built upon the course's terminal and subsequent enabling learning objectives. Question 14 asked participants whether the exam covers the materials presented during class. The mean was 1.17 indicating that students believed this always occurred. Additionally, one of the course terminal learning objective tasks is for the student to operate the FBCB2 system. Of the open-ended questions, 30 students believed the entire course was straightforward and easy to learn. Consequently the aim of this terminal learning objective was achieved through the use of varying instructional approaches. In addition, there were remarks linking instructor teaching methods with student mastery of the lessons.

Does the trainer use training techniques to associate battle command content with a soldier's military occupation?

The open-ended question comment section of the AAR afforded students the capability to speak about their FBCB2 training experiences. Three responses from students centered on the future application of the system within their military occupational specialty or "MOS." Two of the three remarked upon their proficiency and confidence in using FBCB2 and understanding the system's battle command capabilities.

The other soldier thought the course was interesting but also commented that most soldiers in his MOS would not use the system at their work or during a deployment. Still, a grouping entitled “student satisfaction” had observations from students about the usefulness of the system: “very informative,” “...very useful in times of combat,” “useful class” and “I felt (sp) comfortable enough to return to my unit as a user level trainer.” The consensus from the respondents is they have linked FBCB2 with their MOS and possible future missions as convoy commanders, platoon sergeants of a convoy or while monitoring and communicating with blue forces on the road from their station inside a command post.

Does the instructional method engage the learner?

This research question is embedded in the close-ended Questions 2 through 4, as well as instructor performance in Question 6. Question 2: “the training was well organized.” Data indicated a mean of 1.17; a strong value whereby students thought this statement always occurred. In Question 3, “the training was interesting,” the data denoted a mean of 1.46, meaning participants believed this always occurred. And in Question 4, “the training was challenging,” data indicated a mean of 1.95. This is value is .05 percent from the measurement of “usually;” thus indicating that current learning activities may need to be evaluated and modified to become even more stimulating or interactive to the learner.

Regarding instructor performance, Question 6 asks the student if the instructor(s) presented the training well. Data collected indicated 87 percent of participants thought this always occurred, a mean of 1.15. Since the objective of this research study was to use varying teaching methods to engage learners and affect student comprehension,

instructor performance is vital in realizing this particular outcome. Data confirmed this to be the case.

In all the open-ended questions, several students commented about their instructor. Most notable of the open-ended questions was the data obtained in the additional comments section. Twenty-nine students offered remarks on instructor performance, of which 28 comments were of a positive nature. This indicated that instructors made a strong impact on students; students recognize the staff was committed to their success in learning FBCB2.

Does the teaching practice facilitate a change in behavior by the learner?

To facilitate a change of behavior, students must first identify what task(s), condition(s) and standard(s) exist so they can focus their energies and work to achieve the learning objective. Question 1 asked the participant if objectives were presented at the beginning of the training. In this regard, 87 percent of the population agreed that this statement always occurred - a mean of 1.14. This signifies the students do understand what is required of them to meet the standard. After this factor, the focus is then placed on the teacher - the extent to which the instructor had mastery of the lesson and how well he or she presented the training. In Question 5, "the instructor(s) knew the subjects well," the data indicated a mean of 1.06 demonstrating that participants believed this always occurred. This query correlates with Question 6, whether the instructor(s) presented the training well. As previously noted, data collected to this question denoted a mean of 1.15, indicative of this statement always occurring.

Trainer performance is fundamental to this study, however the data received from the previous three questions does not fully answer whether the teaching practice achieved

a change in behavior. So more representative of whether such an act occurred may be determined by inquiring about their entire FBCB2 training experience. Question 23 raises the question of student attitude towards overall training. Data collected indicated 78 percent of participants thought training was just right, a mean of 3.14. Question 25 asked the same question but the choices posed were different. Respondents thought training was very good, a mean of 1.41.

Overall, students felt the FBCB2 training was worthwhile. Nevertheless there was no direct question on the AAR to this research question; therefore a direct answer to the question is indistinguishable. For this reason, the researcher looked at the open-ended questions and found seven occurrences grouped as instructor technique under the topic, “What were the easiest things to learn during the training?” Respondents openly attributed instructor teaching methods to their comprehension of the lessons. Such comments included: “well taught so it all seemed easy,” “the instructor made everything easy to learn because he took the time to go back” and “most of the training was taught step-by-step making it all pretty easy to understand.” Clearly the students felt the instructors’ approaches helped them understand the lessons and attain the objective. Thereby a combination of all questions, when analyzed together represents a change of behavior had occurred attributable to the teaching practice used.

Does the instructional method contribute to student mastery as evaluated through practical exercises or the end of course examination?

The teaching methods and techniques used for delivering FBCB2 instruction consisted of a research assignment, several performance-generated student practical exercises (PEs), a test review and incorporation of a student led panel. A practical

exercise was used as the starting point for the student panel. Soldiers performed the PE as an individual exercise finding solutions to the questions while using their system's line-of-sight tools. Once completed, they presented their findings to the student led panel. Soldiers had to defend their reasons as to why they selected a particular course of action over the other. This is a key element in the military decision-making process. The instructor acted as facilitator and mentor over the exercise.

The effectiveness of the instructional strategies were measured by observing students' successful completion of practical exercises (obtaining a GO rating) with the different instructional strategies used; strategies other than conference or demonstration methods. For instance, one course lesson supported the terminal learning objective on initializing the FBCB2 system, conducting preventative maintenance checks and services (PMCS) and recognizing the main components and peripheral equipment of the FBCB2. The lesson was taught through a combination of approaches so as to deliver training in an intriguing manner. One method incorporated PowerPointTM. This illustrated the system's main components. Then the instructor lectured on the component's features. When one component was discussed, the instructor passed training aids around the classroom so students can physically see and touch and become familiar with the FBCB2 tactical equipment - a training tool that is helpful for kinetic learners.

Later on, instructors employed a different instructional approach by pointing students to their pocket guides so as to follow step by step procedures on conducting PMCS and initializing their systems. This pre-step was echoed soon thereafter when students had to do the same at their workstations. An hour later, a research assignment was handed out whereby the student, using his or her reference material as a resource,

discovered solutions to questions on the topics covered by the instructor. This strategy encouraged the student to become responsible for his or her learning by reading and discovering information through independent work. Thus in assigning a research task, students were able to ascertain information on their own; information that they might not have learned via lecture, conference or demonstration methods. To reinforce learning, instructors asked questions to illicit student feedback. This is known as “Checks on Learning.” A Check on Learning is a variation of the discussion method but is designed to pull students into the lesson by routinely querying them about the subject matter.

Short term student mastery of FBCB2 was evaluated by way of two avenues: practical exercises and the end of course examination. All practical exercises had a “GO/NO GO” rating. The instructor checked the work of the students once the PE was complete. If a student receives a NO GO on the step, then the instructor works with the student so he or she understands the mistake that they made so as to prevent the same event from occurring later on.

This instructional strategy supports learning by doing. Each practical exercise builds upon previous learning conducted among the course. The goal is for the student to perform the action required by the learning objective. This is a significant change from when the course was originally established. The original course had one practical exercise and one examination. The PE was provided on the third day of the course giving students a 2 ½ hour time limit to complete the exercise. The examination was and continues to be four hours in length.

The researcher also interviewed the FBCB2 instructors for this research project. They point out that a main problem with the original course occurred by the third day -

students had difficulty remembering how to perform certain tasks taught on the first and second days of the course. Using part learning as an instructional model, PEs were created to separate the lessons from one another and reinforce the tasks just learned. In evaluating the effectiveness of these instructional strategies, from the AAR, Question 9 asked whether the written material helped the students learn the subjects. Seventy-four percent of respondents indicated that it did, a mean of 1.32.

At both institutions, only the Quartermaster Center and School provided an examination to the students. The Transportation School had conflicts in their training schedule; there was not enough time in the schedule to provide a fourth day of training. One hundred thirty-five students were administered the examination at the QMC&S and all 135 students passed the exam, a 100 percent success rate. Out of these same students, 129 completed an AAR. Question 14 of the AAR inquired whether the exam covered the materials in class. Data collected to this question denotes a mean of 1.17, indicative of this statement always occurring. Next, the exam was evaluated for its degree of difficulty; this was posed as Question 24. Seventy-four percent of respondents believed the exam was just right, a mean of 3.14.

From the open-ended questions, the researcher found the most helpful observations came from the comments section of the AAR. There were 30 incidences categorized together as “student satisfaction.” One respondent commented, “I really enjoyed this class especially the practical exercises” and another revealed, “Well presented and informative info.” A third student found usefulness in the student workbook; “Materials given will be used for future reference.”

The data retrieved from both the open-ended and closed-ended questions clearly showed a link with the various instructional methods that trainers used and the evaluation of student learning via practical exercises and the end of course examination.

Recommendations

Due to the large volume of data obtained from the AARs, the researcher was able to determine if different teaching methods lead to improved short term student comprehension and satisfaction of the FBCB2 training program. The results of this study showed that the FBCB2 courses at the Transportation and Quartermaster Schools were well-structured and professional battle command training programs. Students have been eager to learn the system and readily understand the subject matter due in large part to the teaching methods and the techniques used for delivering instruction at the two institutions. But caution is warranted of the training programs becoming too systematic. Instructors rely on the demonstration method quite often; i.e., they demonstrate the system's functions while students follow along. The demonstration method is the most expeditious and understandable means in teaching computer software programs. And student proficiency is attained through the use of self-guided practical exercises, role-playing and conducting a student-led panel after they have been taught the lesson.

The challenge for the instruction teams is not to have the training programs progress in a manner where students now consider the training to be "too easy;" but rather to strike a balance between stimulating students' minds and helping them build self-confidence by not making the training overly difficult.

One such manner might be to incorporate a capstone exercise in addition to the examination. Students have asked for field training or implementation of an end-of-

course exercise that would allow them the ability to use the FBCB2 skills they have learned and apply it in a simulated training event. Such a feat may be accomplishable at the Logistic Training Exercise (LTX) at Fort A.P. Hill; but a great deal of development, coordination, collaboration with the Noncommissioned Officer Academy and the SCoE training developers have to be accomplished first. Funding and manpower are also issues: (1) ensuring there are enough tactical systems to use for students to communicate with; and (2) having mentors guide students using the FBCB2 as part of a battle staff exercise. A more achievable approach might be to add such an event to the distribution management exercise at the new Army Logistics University (ALU) on Fort Lee.

This study was limited to the Transportation and Quartermaster schools. Another component of the U.S. Army sustainment umbrella is the Ordnance School currently located at Aberdeen Proving Grounds, Maryland. The FBCB2 instructors there also train to the BNCOC and BOLC courses. Perhaps further research can include the Ordnance branch to see how their curriculum associates the FBCB2 program and centers it on ordnance core capability tasks. What is intriguing about this aspect is that under the Department of Defense 2005 Base Realignment and Closure (BRAC) report, the BRAC committee recommended and Congress approved the Ordnance and the Transportation Schools moving to Fort Lee in 2010. Fort Lee will then become the institutional home base of Sustainment warfighters. Perhaps an additional study can be conducted before consideration of whether the FBCB2 programs will be consolidated as one program of study under the ALU at Fort Lee or left as three separate curriculums at different locations on Fort Lee.

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APPENDIX A

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AIMS STUDENT EVALUATION (AIMS CONTRACT)

This form gives you the chance to rate the block of training you just completed. You are not required to put your name on the form so tell us what you really think about the training. Your responses will be used to improve the training for future soldiers.

DIRECTIONS

1. Use a No. 2 pencil only.
2. Erase clearly if you make a change.
3. Do not fold form.
4. Fill circle with a dark mark.

Incorrect — ☐ ☒ ☒ ☒ ☒
Correct — ☐ ☐ ☐ ☐ ☐

5. Put written comments only in boxes provided.
6. Information for blocks to the right will be provided by your instructor.

Course No.

Class No.—Yr.

Sec

Block No.
F B C B 2

EVENT IDS				

EVENT IDS				

1. USING THE RATING SCALE TO THE RIGHT, TELL US HOW OFTEN EACH OF THE FOLLOWING THINGS HAPPENED DURING THE BLOCK OF TRAINING YOU JUST COMPLETED.

1. = Always
2. = Usually
3. = Sometimes
4. = Seldom
5. = Never
NA = Does not apply

TRAINING OVERALL

1. Objectives were presented at the beginning of training.
2. The training was well organized.
3. The training was interesting.
4. The training was challenging.

INSTRUCTORS

5. The instructor(s) knew the subjects well.
6. The instructor(s) presented the training well.
7. The instructor(s) were easy to understand.

WRITTEN MATERIAL

8. The written material was easy to read and understand.
9. The written material helped me learn the subjects.
10. The written material required was made available to me.

TRAINING AREAS/EQUIPMENT

11. The training areas (classrooms, bays, field areas) were good.
12. The equipment used in hands-on training worked well.
13. There was enough equipment for everyone to practice on.

EXAM(S)

14. The exam(s) covered the materials presented in class.
15. The exam(s) questions were easy to understand.

SCHEDULING

16. Classes were completed during the time scheduled.

1	2	3	4	5	NA
1	2	3	4	5	NA
1	2	3	4	5	NA
1	2	3	4	5	NA
1	2	3	4	5	NA
1	2	3	4	5	NA
1	2	3	4	5	NA
1	2	3	4	5	NA
1	2	3	4	5	NA
1	2	3	4	5	NA
1	2	3	4	5	NA
1	2	3	4	5	NA
1	2	3	4	5	NA
1	2	3	4	5	NA
1	2	3	4	5	NA

COMMENTS:

DO NOT WRITE OUTSIDE BOX

TRADCO FORM 559, SEP 90

TURN PAGE OVER

APPENDIX A

II. USING THE RATING

SCALE TO THE RIGHT,
TELL US HOW YOU FEEL
ABOUT THE TIME SPENT
ON EACH OF THE
FOLLOWING.

- 1 = Needs much more time
2 = Needs more time
3 = Time is adequate
4 = Needs less time
5 = Needs much less time

- | | | | | | |
|--------------------------------|---|---|---|---|---|
| 17. The training overall | 1 | 2 | 3 | 4 | 5 |
| 18. Classroom training | 1 | 2 | 3 | 4 | 5 |
| 19. Hands-on training | 1 | 2 | 3 | 4 | 5 |
| 20. Field training | 1 | 2 | 3 | 4 | 5 |
| 21. Exam(s) | 1 | 2 | 3 | 4 | 5 |
| 22. Open/free time | 1 | 2 | 3 | 4 | 5 |

III. USING THE RATING

**SCALE TO THE RIGHT,
TELL US HOW YOU FEEL
ABOUT THE DIFFICULTY OF
THE TRAINING AND EXAM(S).**

- 1 = Much too difficult
2 = Too difficult
3 = Just right
4 = Too easy
5 = Much too easy

23. The training overall was 1 2 3 4 5
24. The exam(s) was 1 2 3 4 5

IV. USING THE RATING SCALE TO THE RIGHT, RATE THE TRAINING OVERALL.

- 1 = Very good
2 = Good
3 = Average
4 = Bad
5 = Very bad

25. The training overall was ① ② ③ ④ ⑤

V. COMPLETE THIS SECTION ONLY IF THE INSTRUCTOR PROVIDES ADDITIONAL QUESTIONS.

- | | | | | | | | | | | | | | |
|-----|---|---|---|---|---|----|-----|---|---|---|---|---|----|
| 26. | 1 | 2 | 3 | 4 | 5 | NA | 36. | 1 | 2 | 3 | 4 | 5 | NA |
| 27. | 1 | 2 | 3 | 4 | 5 | NA | 37. | 1 | 2 | 3 | 4 | 5 | NA |
| 28. | 1 | 2 | 3 | 4 | 5 | NA | 38. | 1 | 2 | 3 | 4 | 5 | NA |
| 29. | 1 | 2 | 3 | 4 | 5 | NA | 39. | 1 | 2 | 3 | 4 | 5 | NA |
| 30. | 1 | 2 | 3 | 4 | 5 | NA | 40. | 1 | 2 | 3 | 4 | 5 | NA |
| 31. | 1 | 2 | 3 | 4 | 5 | NA | 41. | 1 | 2 | 3 | 4 | 5 | NA |
| 32. | 1 | 2 | 3 | 4 | 5 | NA | 42. | 1 | 2 | 3 | 4 | 5 | NA |
| 33. | 1 | 2 | 3 | 4 | 5 | NA | 43. | 1 | 2 | 3 | 4 | 5 | NA |
| 34. | 1 | 2 | 3 | 4 | 5 | NA | 44. | 1 | 2 | 3 | 4 | 5 | NA |
| 35. | 1 | 2 | 3 | 4 | 5 | NA | 45. | 1 | 2 | 3 | 4 | 5 | NA |

DO NOT WRITE OUTSIDE BOX

VI. LIST ANY INSTRUCTORS THAT DID AN OUTSTANDING JOB.

VII. LIST ANY INSTRUCTORS THAT DID A POOR JOB.

VIII. WHAT WERE THE EASIEST THINGS TO LEARN DURING THE TRAINING?

IX. WHAT WERE THE HARDEST THINGS TO LEARN DURING THE TRAINING?

X. IF YOU COULD CHANGE THE TRAINING YOU JUST RECEIVED, IN ANY WAY, WHAT WOULD YOU DO TO MAKE IT BETTER?

TRADCO FORM 559, SEP 90

Thank you for your cooperation.

