Is Open Book Testing Viable within a Military Occupational Producing School 25 Uniform, Signal Support Systems Specialist, at Fort Gordon, GA.

by

Edwin C. Cierpial Jr.

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Dr. James Lehmann

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DN: cn=Dr. James Lehmann, c=US
Date: 2009.05.12 13:28:18 -07'00'

James Lehmann, Ed.D.

The Graduate School

University of Wisconsin-Stout

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The Graduate School
University of Wisconsin-Stout
Menomonie, WI

Author: **Cierpial, Edwin C. Jr.**

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ABSTRACT

Streamlining testing procedures has been an issue in the training of soldiers in recent years in 369th Signal Battalion at Fort Gordon, GA. The grant is to study the viability of "Open Book Testing Method" versus "Closed Book Testing method" in the training of civilians into soldiers within the U.S. Army 15th Signal Brigade, Fort Gordon GA. The study aims to find best practices of the two testing methods in-order to implement and standardize best testing practices for soldiers. All soldiers will take the same test. Approximately 35 soldiers will take a test using the open book test method and 35 soldiers will take a test using closed book test method. They will be surveyed and results of the test will be analyzed and reported to the Chief Instructor of the 25 Uniform school house, Dean of Academics, and the Commanding Officer of the 369th Signal Battalion.

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Menomonie, WI

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Chapter I: Introduction

The School of Telecommunications and Technology resides in Burkhart Hall, Fort Gordon, Georgia. The school is responsible for teaching one of the Army's premier Signal Corps Military Occupational Specialty (MOS). The 25 Uniform Signal Support Systems Specialist, original designated as 31 Uniform (U) in 1989. The 25 Uniform (U) MOS was created in 2002 by the Army after conducting a realignment of all military occupational specialties. This realignment was to reduce confusion for administrative people and to align the enlisted MOS under the Officer Corps military occupational series designators (DOA, 2002). Prior to this, in 1987 an intensive study was conducted by the Department of the Army to streamline and modernize its communication infrastructure and military occupational specialties. This resulted in the 1989 task redistribution and MOS change to 31U. The philosophy used during this review and restructuring period was "how to do more with less" and to capitalize on advances in Information Technology.

The Army originally had four separate Signal MOS's residing within the tactical units in each of its 24 Combat Divisions handling role specific communication functions. Some of these job positions were integrated as low as the platoon level and all the way up to the division level. These MOS's were 31 Kilo (K) Combat Signaler, 31 Victor (V) Radio Repairmen, 31 Charlie (C) Radio Teletype Technician, 31 Golf (G) Communications Section Chief. These positions were critical for setting up the organizational communication infrastructure in both war and garrison operations.

The 31 Kilo Combat Signaler job was to provide both short and long range communication support to the unit commander. At the company level all communication

tasks are done by them. Daily job tasks done by the 31K to support the unit commander include: (a) install all communications equipment as necessary, (b) operate voice communication equipment as a radio/telephone operator (RTO) as needed, and (c) perform preventive maintenance checks and services (PMCS) on all signal equipment in accordance with the unit maintenance plan. In field and garrison operating environments a 31K performs troubleshooting procedures on installed combat radios and telephones, switchboards, associated wire, and cable connected to those communication systems. As directed by the commander the 31K trains newly assigned RTO's on using the unit's vital Frequency Modulated (FM) and Amplitude Modulated (AM) Radio's which falls under their purview. Most company level organizations had several of these 31K soldiers assigned to support these critical needed training, operating and communication support functions. At battalion and higher headquarters elements this job specialty increases into squad and platoon strength elements with as many as 60 personnel assigned, in order to perform the huge increase of communication mission requirements and support needed by commanders at those levels.

The 31 Victor Radio Repairmen's job was performing organizational maintenance support of all signal equipment at the battalion unit level and above. In support of the unit maintenance program the 31V assisted unit level maintainers in performing preventive maintenance checks and services (PMCS). Specific supporting tasks of PMCS performed by the 31V while assisting operators conducting PMCS: (a) troubleshooting defective signal equipment, (b) conducting on-the-spot repairs as necessary, (c) placing orders for missing or defective parts. Other daily, weekly or as necessary duties performed by the 31V include: (a) accepting broken signal equipment from unit level operators for direct

support repair, (b) turning in of all accepted broken communications equipment requiring repair to direct support, third-shop or depot maintenance to the respective facilities; (c) picking up repaired equipment from respective maintenance facilities, and (d) issuing repaired equipment back to unit level operators. In performance of proving organizational maintenance equipment support a 31V may come into contact with the following items: (a) combat telephones, (b) switchboards, (c) FM Radios and (d)AM Radios. Because of the very specific job functions performed by a 31V it is deemed only four of these soldiers per unit were needed to support units of 900 personnel and corresponding equipment.

The 31 Charlie Radio Teletype Technician's job focused solely on supplying long range radio communications to specifically assigned units in the form of three man radio team. A 31C radio team supplied this battlefield critical communications support for commanders at battalion unit levels and above. Daily tasks performed by the individual 31C on assigned equipment include: (a) installing the equipment at a field site, (b) operate assigned equipment, (c) perform PMCS on assigned equipment, and (d) perform troubleshooting procedures on assigned equipment should it fail during operation. A 31C's job was performed from within radio shelters on a radio teletype communication terminal. The radio shelter was mounted on tactical vehicle which towed an equipment trailer carrying: (a) electrical generators, (b) camouflage support systems, (c) fuel for the generators and vehicle, (d) water, and (e) personal assigned equipment. A 31C radio team would never be assigned below battalion level as units below this level have no need for such long range communications support. A battalion, brigade or division headquarters

unit is supported by two 31C radio teams, this enable on system to be in operation while the other is having PMCS conducted on it.

The 31 Golf job was directly supporting the unit Commander with reliable, planned, and redundant communication support systems. To assist the Commander's ability to command and control units during combat the 31G plans, supports or assists the following communication functions within the unit: (a) courier service, (b) radio and wire voice communications, and (c) digital information processing. The Commander expects the 31G to provide all three Signal Corp MOS's within the organization the following: (a) job assignments, (b) job scheduling, (c) training, (d) professional development assignments and (e) mentorship. There is never more than one 31 Golf per organizational element below battalion to conduct the unit mission. At battalion level and higher headquarters more than one 31G is assigned the unit because of the need to managed the multiple communication teams for the Signal Officer in charge. When multiple types of communications teams exist per unit each major communication area has a 31G assigned the section chief. Duties performed by a 31G as a section chief for the Signal Officer are the following: (a) implement the signal officers signal infrastructure plan, (b) manage assigned teams to support the signal infrastructure plan, (c) report team readiness, and (d) advise the signal officer if more resources are needed to implement an assigned plan. The communication teams by area a 31G can be expected to lead as a section chief are the following: (a) Radio, (b) Wire, and (c) Long Range Communications.

In 1989, all of these MOS's were combined to make a new MOS called 31 Uniform (U). Retraining of the old and training for the new soldiers enlisting in the Army started along with the realignment of the signal schools. Originally 31V and 31G were

trained at Fort Sill, Oklahoma while the 31K and 31C were trained at Fort Gordon, Georgia. Now the new MOS would be trained solely at Fort Gordon, Georgia. The Department of the Army (DOA) wanted to streamline the Signal Corps to do more modern critical communication support tasks. During the realignment DOA wanted to add several additional tasks to the critical tasks list for this new job. In order to make these changes a critical task board had to be held. The function of this critical task selection board is to perform job analysis in accordance with USASC&FG 350-7 (2003):

> Job analysis is the process used to identify individual tasks (including leader tasks) that a job incumbent must perform to successfully accomplish his/her mission and duties as well as survive on the battlefield. Job analysis is the most critical phase of the systems approach to training (SAT) process; it is a minimum essential requirement before the development of individual training products. A new job analysis begins when needs analysis identifies a training development requirement to create a new job or merge, divide, or consolidate jobs. A job analysis revision begins when needs analysis resulting from unit feedback, new doctrine, new or improved equipment, new systems, or lessons learned identify a change in tasks performed in a job. (p. 3)

After a critical task selection board (CTSB) was set up and held the appropriate job analysis was conducted. During the review numerous tasks were combined from the three MOS and tasks supporting equipment which no longer existed in the inventory was deleted. After doing job analysis the CTSB found and deemed officially there was enough room for more tasks to be assigned to the new 31U MOS. Properly performed job analysis enabled DOA to officially replace the 31K, 31V and 31G MOS with the 31U MOS. The CTSB ruling supported the DOA want to assign new roles and functions to the 31U. The new tasks assigned by the ruling to the 31U MOS to perform are the following: (a) installing, troubleshooting, and repairing of Commercial Computers Off the Shelf (COTS); (b) the installation and maintenance of Local Area Networks (LAN), (c) the

installation and maintenance of Wide Area Networks (WAN), and (d) associated computer related peripherals, devices and equipment.

Total combined training time the old four MOS's received was 40 weeks and 3 days using the 80/20 rule of critical task training. This 80/20 rule means a soldier should be considered a fully capable and 100% trained individual on all assigned tasks which a 10 level job is required to perform within the Army, after graduating training and spending 6 months training in a active duty unit. The Army before the first Gulf War expected soldiers to be trained on 80% of the critical tasks which were needed to be performed by a active duty soldiers only at Army accredited training schools, while the other 20% of the need critical tasks would be learned "On-The-Job" (OJT) at the soldier's new unit. The whole purpose of the 80/20 rule is to give the soldier enough training to be highly effective upon getting to the unit without major hindrances to readiness or unit training programs. The 80/20 rule additionally allows the Army to push more classes of Initial Entry (IET soldiers through training per FY with fewer training resources and costs. The 31Uniform (U) MOS Program of Instruction (POI) has been streamlined to a new training standard. Only the most critical tasks are now taught to IET soldiers at the School of Telecommunication and Technology (STT) still located on Ft Gordon, Georgia. Training for the 31U now lasts 19 weeks and 4 days; this is given to soldiers while temporary stationed there for their advanced individual training. This shorten format was following the new POI guidelines by the Army which stated training shall be conducted under the 60/40 rule of critical task training. This new rule reduces the amount of training time at the school house while increasing training time to 1 year in the first active duty unit before a soldier is consider 100% trained at the 10-level. The 60/40 rule

was implemented to rush badly needed signal soldiers to active units that were deployed to hostile environments during this time frame. Additionally to replace hundreds of signal soldiers who left the service just before and after the first Gulf War. The 60/40 rule of training was implemented to fill these huge gaps in unit manpower levels and readiness but has not been change since the filling of those shortages. This compress training schedule requires student to not miss almost any training or face the chance of being recycled into a new class to make up training. This recycling action causes delays in soldiers reaching active duty units thus causes manpower shortages and reduced training.

The Army is always changing dramatically, so when the Army ordered another realignment to occur so quickly on the heels of another came as no surprise. Yet this order affected the whole Army not just the Signal Corps. A realigned MOS number structure sequence was laid out jointly by the Army G-3 and Army G-1; the Army G-1 human resource command implemented it quickly. The changes the realignment brought to the 31U enlisted MOS was to bring the 31 series number under the 25 numerical career series designator of the Signal Officers. The realignment did not result in the 25U enlisted MOS in receiving any changes to the POI or the critical task list. The purpose of this realignment was three-fold, (a) to help the human resource personnel of the Army (G-1) to streamline assignments, (b) reduce the number of MOS to track for manpower purposes and process evaluations faster, and (c) enable the Training and Doctrine Command G-3 to project school assignments easier and reallocate instructor resources.

The School of Telecommunication and Technology (STT) supports all of the training and testing for the 25 Uniform Signal Support Systems Specialist MOS. Training received by all 25 Uniform 10-level soldiers is conducted within the three distinct

training branches: The Tactical Computer Communications Branch (TACCOM), The Combat Net Radio Branch, and the System Integration Branch (SIB). The three branches training schedule allows for progressive training to occur through an 11 annexes of training. This part of training is scheduled to take 18 weeks and 4 days to complete. Training is conducted in this manner to enable a curriculum flow ending in a 1 week cumulative field training exercise. The field training exercise is a graded event measuring the soldier's newly acquired skills in an actual operational field environment.

Statement of the Problem

Soldiers are failing consistently in taking end of annex tests. These failures are causing the soldier not to complete their individual training and graduate. Untrained soldiers cannot graduate and join a permanent party unit as a much needed trained and ready replacement. Hale (2008) stated "Military historians will tell you the first three months of combat are the most dangerous time for Soldiers and their survivability in a theatre of operations" (p. 13). This first 100 days of danger assumes the soldier is trained properly. A trained soldier has learned to adapt, survive and deal with the environment called "war", for an untrained soldier this learning curve can be a death sentence. Training soldiers is a constant evolving system as lessons learned from combat, training, and academia is applied. By understanding the big picture we are able to focus on the little things affect it (Burley, 2008). A soldier should never enter the battlefield untrained and untested as they will be hindrance to the unit mission and a hazard to themselves. A soldier must be trained and tested before being put into harms way.

The Soldierization process of transformation, integrating, training and certifying a civilian who volunteered to serve in a Military Occupational Specialty is a long process.

The process can take from as little as 20 weeks to as long as 1 year in accordance with Training & Doctrine Regulation 350-6. During this conversion time these volunteers go through a full Soldierization process. The volunteers will be physically and mentally tested numerous times before earning the full title and right to be respectfully called "Soldier". The United States of America as it prepares Sailors, Soldiers, and Airmen to face enemies abroad, the U.S. military finds itself under new pressure on the home-front. "It's being told to close or curtail the use of training facilities..." (Paige, 2001, p. 36). How does the Army ensure learning occurs during training space and budget constraints?

Students need to be assessed for specific reasons and in approved ways. According to Liftig (2008) "Teachers must monitor and assess student learning and then adjust their instruction to fit student needs, empowering themselves to do whatever it takes and for however long it takes to get student on board with what is being taught" (p. 1). The taking of a test or examination in a classroom is an accepted method of assessing learning. In designing examinations/tests assessing student progress/performance, care needs to be taken to make it honestly clear before the test what specific purposes are being served by each test (Petress, 2007). There are numerous testing strategies that are employed such as: quiz, pop quiz, final, hands-on, multiple-choice, true/false, and essays, all of which are primarily closed book testing methods. Taking a standardized test to assess learned knowledge is an accepted method in American school systems. The U.S. Army follows these testing strategies and methods in its military occupational school system. Even though proponents acknowledge one-size-fits-all standardized testing is an imperfect tool for assessment (Nagourney, 2002).

Testing is a prevalent in the education process but using the wrong testing methodology and over testing causes problems. Gunzelmann, (2005) stated "The misunderstanding of testing develops toxic conditions for everyone affected by test scores: students, teachers, administrators, and the entire school system and community" (p. 215). Everyone associated with the education process should understand these toxic conditions of tension, fear and anxiety. According to Kirkland (1971) "There is considerable tension and anxiety associated with the taking of test" (p. 316). So when students take a test the situation can be very stressful causing a student to do less than optimal on it; when a soldier fails enough tests they may be force to reclassify to a new MOS job field or be processed out of the military. Finding out why soldiers are failing requires military instructors to evaluate several elements which might involve looking at the soldiers: (a) age, (b) education background, and (c) individual learning type. If the soldier is not the problem then instructors need to look at the entire educational process which includes: (a) POI, (b) training schedules, (c) lesson plans, (d) how training is conducted, (e) practical exercises, and (f) tests. Somewhere in the educational process there exists a relevant disconnect in the process that needs to be found. A tool for finding relevant disconnects in testing is test item analysis. Using test item analysis tells educators numerous things from finding the "facility value and discrimination index can provide specific data, such as the quality of the test item, how well the good and poor students and even the individual student respond to the item" (Xiao-Fan, 2000, p.48). Once instructors have analyzed the test, using test item analysis several things can be surmised, (a) a bad test question exists, (b) the student lacks understanding of the material trained, or (c) the testing methodology needs fixing. Each attrited soldier costs the

taxpayer tens of thousands of dollars. Fallout other than dollar signs from test failure is the very real possibility of ending the soldier's career dreams when they fail a non-critical or non-life threatening test. Soldiers train for a stressful profession called war but should non-warrior tasks be tested in a stressful way? Traditional tests attempt to show what an individual does or does not know, rather than a way of learning, reasoning or problem solving (Gunzelmann, 2005). Changing the testing methodology to open book testing method: (a) may reduce stress, (b) time needed for training to test, and (c) overall training time because there would no longer be teaching of memorization but information referencing and application. Extant data on this subject is limited and needed to provide feasibility. Is open book testing a viable option to implement within the 25 Uniform Military Occupational Specialty (MOS) producing school and if so will it affect: anxiety of testing, reduce attrition and lower training losses and cost?

In government every function has a tax dollar has a cost assigned to it. The United States Army is totally funded by the American Citizen's tax dollars. Soldiers cost the American people thousands of dollars to (a) recruit, (b) train, (c) equip, (d) pay, and (f) retain. The focus for this study is on the immense cost to the government from soldiers who are separated before completing their first term of service or even the first 6 months. Estimated costs to the tax payer for recruiting, training, and screening for basic skills are estimated at $20,000 per person (Clark, Mahmoud, Krauss, Kelly, Grubb, & Ostroski, 1999). Due to inflation and the demands from the field for advance technology and soldiers that can use the technology this number has swollen. The modern battlefield brings the average cost of recruiting, training and equipment of a soldier today in 2008 to

roughly $120,000 per person. To save the tax payer's money the Army needs to find way to reduce the number of trainee's lost in training to test failures.

Purpose of the Study

The commander needs to reduce the number of Initial Entry Trainees earning negative title of failure and possibly a bad conduct discharge. An overreliance of using and limiting the school house to only two types of testing methodologies is believe to be the problem. The school house uses the closed book test method and a performance base hands-on test in a final field training exercise. For all tests conducted after soldiers receive training on information technology classes the closed book testing method is the sole method use in the 25 Uniform MOS Course. Conventional closed-book tests demonstrate only what students can do with whatever they have been able to memorize in the allotted time available for studying and is temporary knowledge at best (Feller, 1994). There exist other behaviors besides rote memory recitation that can be assessed and different testing methods.

Learning is about changes in behavior. Skinner (2008) stated "Learning is often described as a relatively permanent change in behavior or behavioral potential brought about by experience…" (p. 309). For a soldier to survive in diverse environments their training should be about affecting a permanent individual change. Petress (2007) maintained "testing needs to be seen by instructors and students as a learning experience focusing on what students know" (p. 1101). The kind of testing soldiers should have in non-combat related training is called open-book testing method. Open book testing involves testing the soldier in a non-stressful situation and involves using the same reference material or journal notes they would use or reference on the job. Clark, Fox, &

Schneider (1998) study showed test performance is inversely related to test anxiety. Following the findings of Clark, Fox, and Schneider a soldier who is less stressed out by the test instrument should perform better on the assessment. The benefits of open-book testing includes: (a) reduced test anxiety, (b) reduced cheating, (c) greater information retention, (d) familiarity with the material used to troubleshoot, maintain, and repair equipment and (e) improved information resourcing skills.

This study is significant to military and civilian leaders, soldiers and taxpayers. The significance of this open-book testing on training to the military is estimated at $120,000 dollars per retained soldier in the original volunteered for MOS. Specific cost savings breakdown would be in the following areas: (a) recruiting, (b) transportation, (c) training aids and equipment replacement and (d) reduced number of training personnel needed to conduct testing. Woodyard (2006) noted "it is virtually impossible to cheat on open book tests because students demonstrate ability to use the material" (p.18). The main job of having test monitors is to observe students for cheating. Using the open-book method the Army could reduce the need for additional test monitors in the examination room. By reassigning monitors to other duties or deleting unneeded positions expected savings could rise an additional $ 45,000 dollars per position annually.

The first objective of this research is to see if the open book testing method is a viable procedure to be used in Army Signal schools at Fort Gordon, GA. The second objective is to find a direct and positive correlation from testing students using the open book testing method. The third objective is to make recommendations on best testing practices to the Battalion Commander, the Division Chief of the 25 Uniform MOS Course of Instruction, and the Dean of the School of Telecommunication and

Technology. The intent of this study is by conducting the study it will provide enough data to encourage a possible change in testing policy or authorization for a full case study to be performed.

Assumptions of the Study

This study's program evaluation within the School of Telecommunication and Technology of the 25 Uniform MOS course was affirmed on the validity of the following three assumptions,

(1) All respondents' will answer both surveys completely and truthfully. To enable the researcher to perform accurate data analysis. To provide an assessment of the value of open book testing over the current closed book method.

(2) The instructor will teach the class the same way regardless if there is a book with handouts included allow during test taking or not.

(3) The grades recorded on the FG-6548 are factual and from the proper sample groups.

Definition of Terms

Attrition or Attrited. Attrition is the premature separation of a soldier from service, or separation before the service obligation is completed. A soldier can be attrited for the following conditions: by failing to pass exams, adjust to military life, undisclosed medical problems or because the soldier can not pass physical test. It is not necessarily equivalent to retention or reenlistment.

Battle Buddy Team. A battle buddy team consists of two or three soldiers in the same platoon that are of the same sex. This is to reduce chances of sexual harassment or

trainee abuse. "Buddy teams are essential elements of Soldierization as Soldiers begin the development of teamwork and team spirit" (TRADOC, Regulation 350-6, 2007, p. 128).

Battalion Commander. The battalion commander is the individual responsible for the overall management of a group of training divisions (USASC&FG Regulation 350-5, 2003, p. 49).

Crypto-graphic Access Card. A Crypto-graphic Access Card (CAC) is the primary identification card used in the U.S. Army for soldier identification. The card has a picture of the student on the exterior, their individual name and rank. All other personal information is encrypted on an imbedded computer chip on the card. The CAC Card is the primary identification card used in the U.S. Army for soldier identification. The card has a picture of the student on the exterior, their individual name and rank. All other personal information is encrypted on an imbedded computer chip on the card.

Enlisted. An enlisted person is a civilian who enters the United States Army in the pay grades E-1 thru E-9 by voluntary contract. Enlisted soldiers are the doers of most physical labor and tasks within the organization.

Department of the Army Pamphlet (DA PAM). A DA PAM is a book describing policy on a wide range subject, problem, or issue. From this DA PAM Standard Operation Procedures (SOP) are formed on how to conduct day to day business. A DA PAM is meant to be broad guidelines flexibility for local commanders to change as the situation is necessary.

Gate-keeping. Gate-keeping is the process of administering standardize test administered to all students. If the student does not pass the assessment successfully they may not progress in the education system.

Go or no-go. Go or No go is a condition or state of operability of a component or system: "go," functioning properly; or "no-go," not functioning properly. Alternatively, a critical point at which a decision to proceed or not must be made (TRADOC, Regulation 350-6, 2007, p. 129).

Job analysis. Job analysis is a process used to identify individual tasks (including leader tasks) a job incumbent must perform to successfully accomplish his/her mission and duties as well as survive on the battlefield (USASC&FG, Regulation 350-7, 2003).

Military Occupational Specialty (MOS) (enlisted). The MOS is a grouping of duty positions requiring similar qualifications, and the performance of closely related duties (DOA, Department of the Army Pamphlet 611-21, 2007, p. 50).

Organizational Level Maintenance: Organizational level maintenance is the first level of direct support maintenance conducted by select MOS on equipment above operator level PMCS. Organizational level maintainers have the authority from the unit commander to do the following to put equipment back into operation: (a) open equipment, (b) replace defective parts, (c) order new parts, (d) clean and service equipment to organizational levels and (d) turn in and pick up equipment which can not be repaired at the organizational level to the next higher level maintenance facilities called direct support.

Officer. Officers are the planners and supervisor in the Army and they receive a commission from the President of the America to perform there duties.

Preventive Maintenance Checks and Services(PMCS). Preventive maintenance checks and services are done by individual equipment owners and operators to ensure the equipment is maintained, functional and mission ready. Every piece of Army equipment

has a manual and is required to have PMCS preformed as directed. Checks a operator/owner of the equipment does comes from the equipment's technical manual and can consist of the following operator required maintenance scheduled checks: (a) pre-checks, (b) during checks, (c) daily checks, (d) weekly checks, (e) monthly checks, (f) semi-annual checks and (g) annual checks. The operator ensures all PMCS checks are done and recorded on the proper maintenance forms and cover a host of items: (a) equipment completeness, (b) equipment cleanliness, (c) equipment is lubricated if required, (d) equipment is calibrated as required. Each unit commander is to have a plan to ensure all required maintenance is pull on the appropriate schedule and is properly supervised to ensure it occurs as directed.

Program of instruction (POI). A Program of instruction is a document covering a course/phase of training. A requirements document which provides a general description of course content, duration of instruction, and methods and techniques of instruction; and it list resources required to conduct peacetime and mobilization training (TRADOC, Regulation 350-70, 1999, ¶ Section II).

Regulation. Regulations are books containing rules a commanded can add to but not taken away from. It is enforceable under the Uniform Code of Military Justice and must be obeyed.

Retention. Retention refers to maintaining the number of soldiers, whether it is within the first service obligation or after the reenlistment decision. Reenlistment, similar to retention, is the act of a soldier "signing up" to serve again after a first obligation or to lengthen a current obligation.

Soldiers. The term "Soldier" or "Soldiers" is always capitalized by order of the Secretary of the Army to denote its importance in Army writing. Additionally it can be a generic term to either define all "Soldiers" or a "Soldier" of a specific rank. Lastly it can also be used a term of address when rank of an individual is not know.

Soldierization. Soldierization is the tough, comprehensive process which transforms volunteers into soldiers. Results from the total immersion in a positive environment active, involved leadership establishes. This environment sets high standards, provides positive role models, and uses every training opportunity to reinforce basic soldier skills (TRADOC, Regulation 350-6, 2007, p. 130).

Student Spot Report Sheet. A Student spot report sheet is an informal communication system for students. A spot report consists of a small form used by students to let school officials of know about both good and bad things that happen daily. These are collected and reviewed by the division chief and discussed, implemented or investigated as necessary.

Training and Doctrine Command (TRADOC). TRADOC is the organization in the Army responsible for the missions of taking care of "recruits, trains and educations the Army's Soldiers; develops leaders; supports training in units; develops doctrine; establishes standards; and build the future Army" (DOA, Army Regulation 10-87, 2007, p. 9).

Trainee or Initial Entry Trainee (IET). All personnel are given the title of Trainee or Initial Entry Trainee if they are undergoing Initial Entry Training (Basic Combat Training, or Advance Individual Training). Also included are those in-processing at the reception station, awaiting training in Fitness Training Units, receiving English or foreign

language training, and/or those have completed training and remain in a holdover status. For purposes of this regulation, trainee also includes prior service soldiers, soldiers undergoing reclassification training, and personnel from other services undergoing IET at TRADOC service schools and major subordinate commands (TRADOC, Regulation 350-6, 2007, p. 131).

Warrant Officer. A warrant officer is an officer appointed by warrant by the Secretary of the Army based on a sound level of technical and tactical competence. The warrant officer is the highly specialized expert and trainer who, by gaining progressive levels of expertise and leadership, operates, maintains, administers, and manages the Army's equipment, support activities or technical systems for an entire career-field or branch (DOA, Department of the Army Pamphlet 611-21, 2007, p. 53). Warrant officers may serve in the capacity of a unit commander in select units or when no commissioned officer is able to take command readily.

Limitations of the Study

The scope of study is on (a) Oral testing method, (b) Close-book testing method, and (c) Open-book testing method. The limitations of the study include,

(1) A full pilot study was not conducted to validate the survey instruments.

(2) Researcher is limited to surveying only two courses.

(3) Time allowed for data collection was 12 hours at the end of each class examination period.

(4) Researcher was not allowed to monitor instructor teaching methodologies.

(5) Researcher was not allowed to interact with students in the classroom setting.

(6) Study is done in only one branch of the three branches of the school so

findings may not be relevant to other areas, branches or school-houses.

Hypotheses

The study focuses on three hypotheses,

(1) There will be a significant difference between test pass rates that were achieved with the use of books and those achieved without books

(2) There will be a significant student preference for the use of open book testing method over the closed book method

(3) A significant difference in the anxiety levels for the open book method over the closed book method.

Methodology

In Chapter 2 a literature review of testing history is provided within both the military and civilian academic community. Chapter 3 discusses the methodology used for the study. In Chapter 4 an analysis of the data collected is provided. Lastly, Chapter 5 will provide a discussion on the limitations, recommendations and the conclusions of the study.

Chapter II: Literature Review

Assessments

Goals are an essential piece of an individual's psychological make up. Angelo and Cross (1998) stated "Goals are ends we work toward, destinations we set out for, results we strive to achieve. But goals are far more than terminal points" (p.13). As a learning community instructors, teachers, professors, school boards, parent and teacher associations all want to know: (a) what are students learning, (b) how students respond to different teaching approaches and (c) what methods are best? Having measurable educational goals for students is a difficult task. The task is difficult because educational measurements are not a phenomenon of nature (Popham, 2000). Politicians and educators have created educational goals and have required students to be assessed by them.

Gathering of information on measurable goal obtainment is a long process. "To gather this needed information to answer these questions assessments must be conducted. Assessment permeates every aspect of our lives, and is a natural and automatic activity" (Rowntree, 1987, p. 4). Teachers are assessing students from the moment classroom activities start. "Assessment is a process that focuses on student learning, that involves reviewing and reflecting on practice as academics..."(Palomba & Banta, 1999, p. 1). Teachers are busy at all educational levels conducting assessments on students. Many teachers come to education from different fields of study. Teachers may or may not teach students in similar courses the teacher was trained in. Different fields of study favor different assessment methods; some are highly used or preferred over others. But what should all this assessment stuff really be aligned with? Assessment is closely linked to all educational institutions goals and mission statement. Thus a definition of assessment will

vary and may not work well in all environments or campuses (Palomba & Banta, 1999). So students coming from different institutions may or may not have been assessed in your institutions assessment testing methods.

The standard types of assessments are formative and summative. Formative tests are taken during the learning to assess whether students have mastered the subject material or lesson taught for a specific period (Pimsleur, 1975). These are usually not graded or recorded in a grade book. "Formative assessment has a single clear purpose: that of helping learning and teaching. If it does not serve this purpose it is not, by definition, formative" (Harlan, 2007, p. 19). Formative assessment can be looked at as a check on learning. An issue with formative assessment is students may be afraid to speak out for the fear of being wrong. Summative assessment sums up a period of time with some type of final exam or achievement test (Pimsleur, 1975). Summative assessments are graded and recorded in the student's records. Additionally summative assessment focuses on school policy requirements for reporting of grades to parents or sending reports to higher state and federal agencies (Harlan, 2007). An issue with summative assessment is student may have increased levels of anxiety before, during and after the assessment.

Students can be assessed in and outside of the classroom. Yet the educator's focus is on classroom assessment. Classroom assessment directly helps the educator obtain feedback on how well students are learning in the classroom environment (Angelo & Cross, 1998). Assessments should be given with an appropriate amount of time for the average student to complete the assessment. Feedback should be provided to the student either immediately after the assessment or at a set time period. Feedback should not be

delayed if the presentation of new material builds on prior learned skills. A student needs to understand the assessment process and why it benefits them? "By conducting assessments of student learning teachers can then refocus time and energy to remediation, additional exercises or break the learning into smaller pieces for better understanding. Teachers should select the appropriate assessment method for what has been learned and how it will be applied. "Assessment methods should therefore be used to measure what students can do with what they know, rather than what they know" (Struyven, Dochy, Janssens, Schelfhout & Gielen, 2006, p. 203). This is not always the case though. Phillips and Lowe (2003) stated "However, examinations are still the dominant form of assessment in many disciplines and institutions" (p. 419). So writing, implementing an examination takes time, careful thought, a good road map of what you are going to assess and provide timely feedback. Good assessment provides information about a student's knowledge by evidence of producing a grade or number relative to other students in the course (Ramsden, 2003). Another feedback method used by teachers which works well in and out of the classroom is the giving or sending home of weekly, monthly and quarterly progress reports.

History of Testing

Formal testing in society according to the historian Dubois informs us as far back as 2200 B.C., Chinese Emperors tested people for fitness to hold governmental positions (1973). Early history shows us the foundation of academic rigor and the initial purpose of tests or examinations were to conduct a winnowing process by which to reduce the number applicants for jobs, by enforcing levels and difficulty for taking exams. Testing conducted was done at two levels; level one was conducted at the province, level two at

the capital. The result of this type of testing was to place only the best qualified individual into a job. Testing in the education environment differs greatly in scope and purpose from this winnowing process.

As societies have grown the need for educated individuals have increased thus policy makers use educational assessment for three main purposes: gate-keeping, accountability and instructional diagnosis (Nagy, 2000). These policies are to ensure students and teachers are held to a standardize process and evaluation system. Popham (2000) stated "Educational testing is a process by which educators use students' responses to specially created or naturally occurring stimuli in order to make inferences about students' knowledge, skills or affective status" (p. 3). Teachers need to know what students know and have learned from within and out of the classroom.

Testing students shows us where they are in the instructional process. Written tests are valuable tools show proof of learner's knowledge at a specific instance (Miller & Miller, 1999). Verbal tests or checks on learning are seldom recorded. Tests encourage students to study and master skills and provide feedback to professors and teachers on their mastery of the course (Wankat, & Oreovicz, 1999). Tests can be used as an offensive or defensive tactic when it comes to students learning. The defensive tactics of tests show to others the teacher is doing something. Tests are also something tangible to show others; results from students taking tests are the products of what students should know and be able to do (Orzolek, 2006). Offensive tactics of tests enable the teacher to plan future tests and learning for students. Tests take many forms and levels; in the classroom controlled by the teacher students may have quizzes, unit tests, and quarter or semester exams. Exams controlled by government but administered by teachers are

commonly referred to standardized tests. A standardized spelling test was the first comparative study conducted on the use of standardized testing by Rice in the late 1880's. The sample size was 33,000 students (Popham, 2000). The first recorded examinations in schooling are noted to have happen during the Middle Ages and done orally. The earliest written exam happened at the University of Bologna in 1219 and was for law students (Popham, 2000). Today tests are an integral part of most colleges, universities and schools. Thousands of tests are administered every day to students in and out of classrooms, and most of the tests are constructed by faculty members themselves (Jacobs & Chase, 1992). Testing formats come in many names and formats but the study addresses only three major examination methods types: (a) Oral testing, (b) Closed book testing and (c) Open book testing.

Oral Testing Method

Oral testing was originally a cost savings measure by early educational institutions. Bangert-Drowns, Kukik and Kulik (1991) "Before the middle of the 19th century, writing materials were scare in schools, and teachers had to use time-consuming oral recitations to check on student progress" (p. 89). The oral method is one of the original academic testing methods to assess student knowledge. Conducting an oral examination requires very little in the way of resources or planning. Procedures for conducting oral examinations are quite simple Hermann (1975):

> ...the candidate appears before the three committee members and is interrogated by two professors for half an hour. The professors normally concentrate on three areas of special preparation which were agreed upon beforehand. This group of examiners then decides upon the final grade, which in some of the Lander can be changed or adjusted at the end of the examination period when the committee compares the candidates, sometimes about thirty of them in one period. (p.44)

With procedures so simple, why conduct anything else other than oral examinations in the first place? The benefits of using an oral examination for the teacher or professor is to assess if a student can (a) conduct critical thinking, (b) present materials clearly (c) articulate their findings logically and (d) confidently display mastery of the subject materials under pressure and examination. Thus saying where is the oral test method best applied? According to Hay (1996) universities are the major users of the oral testing method:

> Oral examinations are used most commonly as a supplement to written examinations or to explore issues emerging from an Honours, Master's or PhD thesis. They may require you to give a brief presentation and then engage in a discussion/answer questions with examiners about the content of your written work. (¶ 1.5)

An additional benefit of testing using the oral exam method is the committee can dismiss the student, fail them outright or have the student reappear at a later date. This is done when the student has not shown sufficient mastery of subject materials or has not found significant findings. An unspoken reason for using the oral examination method in higher learning institutions is to see how a candidate may perform in field as a teacher, professor or lecturer.

Several concerns are noted for using oral examinations. Oral examinations are difficult to handle for large classes, highly stressful, take at least 20 minutes per student to assess student knowledge in a course and the body of examiners and questions to be asked is relatively small (e.g., Haines, 2004; Hermann,1975). With high student test populations oral exams bring out other security concerns for using in the K-12 environment. How do you properly segregate students? Students who have taken the exam must be segregated from those waiting to take the exam or those who are taking the

exam; in order to not compromise the test. To maintain test integrity one could need as many as three rooms and as many as five teachers or professors. To monitor and administer the examination requires a lot logistics or and prepare multiple version of the test or specific test questions. Oral examination test protocols could require one teacher to monitor the untested and send them to the exam room. One to three teachers are needed to conduct the examination and possibly shuttle students back and forth from the exam room. Have one teacher to monitor the tested students in a separate room to ensure they do not talk or interfere with the untested or those testing. Another option to lessen the teacher and room requirement is to institute an honor code for oral examinations. The honor code would require students to remain quiet and not talk about the exam. Students failing to abide by the honor code could be punished or forced to take the exam again at a later date. The logistics, the talkative nature of children, and space requirements hinder using oral examinations in a K-12 environment. A school building has a fix amount of limited space, available teachers and it is hard to keep children quiet for extended periods. Rarely do you see consideration of the testing methodology in use while a school is being designed such as sound proof rooms. Main considerations in school designed are current student population size and available funding. Another drawback of oral exams is the subjective nature of the assessment. How can a fair grading rubric be created that fits this exam methodology for all individuals? Each individual is different and will handle the stress of being put on the spot differently. A person at any education level trying to pass this type of exam can be hard pressed to pass at times. Difficulty in passing can happen if a board member (a) is pressured by someone, (b) motivated by a personnel agenda, (c) has a particular dislike of the individual testing or other board members, the

mentor of the individual; or (d) the topic presented. Oral exams are not full proof against the biases of the examiners or uncontrollable internal/external pressures of other people. Such inherent weaknesses can reduce the validity of oral examination scores or place undue pressure on all participants. Consideration to use oral examinations should entail strict guidelines for examiners, examinees and a thorough review process/appeal process.

Closed Book Testing Method

Test taking or examinations has traditionally been conducted using the closed-book method. Closed book exams have been labeled traditional exams by educators. Traditional examinations are meant to be formal, end-of-year, timed examination to which students respond "...set in advance and answered in examination centre's where invigilators (examination supervisors) prevent communication between students and prohibit the use of notes or other revision aids" (Harris, 2005, p. 1). Closed book exams can be administered by anyone entrusted to do so with little instruction. University and K-12 learning environments show examinations continue to be dominated by closed book tests, invigilated pen and paper tests in most educational systems, for example (a) United States of America, (b) United Kingdom, and (c) Scotland (e.g., Williams & Wong, 2009; Fry, Ketteridge & Marshall, 2009; Bryce & Humes, 2003; Harris, 2005; Macdonald, 2002). A formal definition of the closed book method is stated by Hay (1996):

> The most common form of examination is the closed-book model which requires that you answer questions on the strength of your wits and ability to recall information. No information other than that provided by the examiner for the purposes of the test is permitted. (¶. 2)

The closed book method in use is not totally pure in application as the need for devices may be required in taking tests in some disciplines. Shine, Kiravu and Astley (2004) stated "In Close Book examinations engineering candidates are not allowed to have

within the examination room any material except their answer books, drawing equipment, and computational tools (calculators), the last of which are invariably supposed to be non-programmable" (p. 197). The length of closed book exam is not typically long. A closed book exam is usually given in one period or setting (Brown, 1981). Once an exam is conducted the material covered in the exam is considered closed unless a high percentage of the students fail the assessment. The teacher will then look at the test instrument or a specific test question as being bad. In cases of high test failure or no one obtaining a perfect score the teacher will make a decision to either curve the test or throw it entirely out. A different choice available to teachers instead of creative test recording is to research where there is a gap in the understanding of a certain learning objective. Then retrain the learning objective and plan to do the assessment again.

Agencies conducting traditional examinations primarily use the closed book method in conjunction with grade or promotion advancement assessments called gate-keeping. The benefit of conducting traditional exams is they are cost effective, timely and a fair assessment stating all students can do a certain task (Phillip, Brown & Smith, 2005). If students have passed the assessment then new material is immediately started and lessons continue as usual. Another benefit of using a closed book exam is the teacher can test the student's organizational skills and the ability to complete a given task in a set period of time (Clift & Imrie, 1981). Extant an unstated use of closed book exams is they are reusable as long as the text book has not been changed or the test instrument has been compromised.

A systemic problem has arisen in why educators only use the closed book testing method. Crawford, Bodine and Hoglund (1994) stated "Nearly all tests are closed-book

examinations on the assumption that knowledge remembered is superior to knowledge looked up" (p. 215). Is one form of knowledge better than another one? Major concerns by test critics noted countering this statement given for closed book method exams, (a) they considered them a poor test instrument, (b) does not support student learning as it does not show understanding and (c) because real-life or real-world situations are not tested or evaluated (e.g., Ackoff, 1974; Macdonald, 2002; Wisker & Brown, 1996). Other issues come about with the using of closed book exams. Unfortunately closed book exams typically have high failure rates and subsequently high course failure rates (Knight, 1995). Many have tried to explain this issue. This in part can be caused by the state of mind of the student and their preparation for taking the exam (Phillip, Brown, & Smith, 2005). An educator needs to reduce barriers to effective learning. "Students sometimes experience high level of anxiety before or during the examination, and this can impair their performance in the examination" (Clift & Imrie, 1981, p. 45). By not addressing student anxiety concerns effectively a rise of other issues has occurred. Because of this high rate of failures and student laziness it creates an environment conducive to a high rate of cheating for this method; security systems must be implemented and force a highly controlled testing environment (Ramsden, 2003). Costs of securing test environments have gone from just having an assistant teacher to help monitor students are (a) implementing security cameras, (b) a no cell-phone policy in classrooms, (c) no Ipods or mp3 players allowed in the room and (d) multiple version of test be given. This in reality increases the cost of using this methodology and creates undue burden on the faculty.

Studies further argue this closed book standardized testing policy just does not work at all. Olson (2002) noted "Analysis of these data reveals that if the intended goal of high stakes-testing policy is to increase student learning then that policy is not working" (p. 14). Should the goal of testing be one of passing the test or understanding what you are being tested on? Many teachers stuck in using this methodology feel they are teaching the test or must, for example, Weisman (2000) stated "Ask Texas teachers, and they will tell you what's screwy: They are teaching their students how to take the Texas Assessment of Academic Skills" (p. 16). The critics of this testing methodology are not limited to the K-12 arena only. Proponents for the problem based learning in university programs find issue with a closed book test. Boud & Feletti (1998) stated "It is self defeating to tell students we value critical reasoning and self direction then offer a multiple-choice closed book examination" (p. 222). Teaching students to think critically is a major part of enabling them to analyze a situation and find possible solutions. Being part of project-team requires higher thinking to assist the team in finding solutions to problems on the job. Closed book testing has not proven itself as a totally successful testing method, regardless of the extended length of use within the civilian education community.

Open Book Testing Method

When thinking about implementing the open book testing method implementers realize in use it is very simple. Phillips (1995) stated it best "A professor should do two things, one have a good book for teaching the class and then test out of that book not out of one's mind or experience" (p. 484). Assessments given to students should be solvable. A formal definition of open book testing comes from Miller, Imrie and Cox, (1998) stated

"In an open-book examination' students are allowed to take into the examination room books or other resource material which they may need for the examination" (p. 199). Hay (1996) further defined the method "In open book exams you are permitted to consult reference materials such as lecture notes, textbooks and journals. Sometimes the range of texts you may consult will be limited by your examiner" (¶ 3). Why should an examiner limit reference material? The limiting of reference material can be used to (a) reduce possible answers, (b) reduce exam testing time, and (c) shape the focus of the assessment. This then becomes what is called a restricted book examination using the open book method (Clift & Imrie, 1981). Test security is minimal yet needed to encourage students to study. An open book exam normally means students will not see the test beforehand and it is graded more stringently than a closed book exam (Heffernan, 2005). A properly constructed open book exam requires students not only to use the book but apply the knowledge to formulate an answer.

Open book examinations are not a newly minted methodology for testing. Open book tests have been considered viable in the American education system for some time. Especially for use in the upper grades of high school which have test gaps not covered by standardized tests (Thomas, 1922). Open book exams have not been limited to one specific field of study. Open book exams continued to branch into all disciplines and subjects as noted by Wheeler's use of an open book vocabulary test to teach Composition I to freshman in1963 (Wheeler, 1963). Teachers in some disciplines tend to openly favor the open book test method. Major users of open book exams can be seen in science and math courses at all levels of education. Why do science, math, and other teachers use open book testing? This can be caused by the need to reference materials residing in

tables, graphs, equations or formulas (Brown, 1981). By the using of the open book testing method of assessment has caused some examinations given to be considered more realistic. The open book test can test actual job skills needed by both programmers and information technology professionals on the job (Carter, English, Ala-Mutka, Dick, Fone, Fuller & Sheard, 2003). Teachers see both education and application occurring simultaneously when using the open book testing method.

The future of open book testing method looks secure and applicable even in new learning environments. As universities continue to master technology and delivery methods to teach students using the World Wide Web has enabled the open book test to move into the online environment. U21Global is a joint venture of 21 colleges around the world to form an online School of Business. The U21 Global group has developed a new exam instrument since early 2003 called Open-Book Open Web (OBOW) exam. The OBOW exam uses real-life case analysis as part of the test. Students download tow OBOW and must turn in electronically their answers within 24 hours (Lam, Williams, & Chau, 2007). At times another closely related testing method gets lumped into open book exams which are open note exams. Open note exams are similar to open book exams. Open note exams follow the same testing procedures but no books are brought into the classroom during the test, only the notes either prepared by the student, teacher or crib notes (Phillip, Brown & Smith, 2005). The areas and possibilities for using open book exams are still very open.

There are a few extra considerations when using traditional open book exams teachers should prepare for and remember. Phillip, Brown and Smith (2005) listed several major concerns, (a) students will need more space depending on the amount and size of

resources being used, (b) a standard resource list needs to be supplied to students early, if students are issued materials they need to be informed in advance to bring them to class for the test and (c) as the teacher if you are holding the resources then you need time to issue and collect them back all to have an equable testing situation (p. 41). A major factor needed for successful use of using the open book testing method is being straight and truthful with the students. "Students are always looking for an edge in assessing what is going to be on a test...be careful not to send the message that your assessment is going to be based on your texts if it is not" (Hartman & Glasgow, 2001, p.64). A teacher or professor should not purposely confuse the student when an assessment is to be given. The goal of an assessment is to find where student are at in their learning not to play tricks on them. A teacher should prepare and train as appropriate students for the testing methodology they are going to be tested by.

The benefits of students using the open-book examination method are validated by the simple fact they have actual real-world use in duty performance of job applications. Open book testing stresses the importance of retrieval skills and the knowing where to find and access information and not the importance of memorizing facts (e.g., Stalnaker, 1934; Haines, 2004; Phillip, 1998; Phillip, Brown & Smith, 2005). A major factor for using the open book testing method is if educators want to change the testing environment for students in the pre, during, and post environment. Zeidner (1994) stated "The salient reason cited for preferring open book exams is that access to open books and other reference materials provides students with an enhanced sense of confidence and control thus decreasing anxiety during the exam by 39%" (p. 45). Providing a safe, nurturing environment which encourages learning is better than

mentally torturing students for no reason. Other studies confirm reduced fear, test anxiety and stress for those students assessed by open book testing method (e.g., Baillie& Toohey, 1997; Crooks, 1988; Feldhusen, 1961, Francis, 1982; Ioannidou, 1997; Jehu, Pincton, Cher, (1970); Maharg, 1999; Michaels & Kieren, 1973; Struyven, Dochy & Janssens, 2008; Theophilides & Dionysiou, 1996; Theophilides, & Koutselini, 2000; Tussing, 1951; Weber, McBee, Krebs, 1983). By reducing anxiety levels caused by testing, students would be less likely to feel the need to cheat in order to pass. Stopping cheating or the need to enforce draconian testing environments measures is a major cost and time saving benefit. An immediate savings comes from the fact there would be no longer a need to maintain multiple test versions, because each student is required to pull the information from the book not their head, arm or sleeve. Another benefit gained by using open book exams is teachers can overcome plagiarism concerns when grading assignments (Knight, 1995). A hidden benefit though students might rarely say openly to love to take tests, students have shown in studies to favor open book exams by 71% over other testing methods (e.g., Theophilides & Dionysiou, 1996; Jensen & Moore, 2009; Zeidner, 1994). Looking at testing from a student perspective is a consideration seldom done. A teacher should remember it is truly a nightmare for a student to receive a test coming only from his instructor's head. A student taking an open book test requires the use of critical thinking skills to pass. "Why would they then be required to take a final exam with a format diametrically opposed to everything we have been preaching and practicing all year" (Becker, 1995, p. 484). Students know not everything in the world is either black or white. A student should be tested on the understanding of the material presented and information which can be reliably referenced. A teacher is a human being

and can not always remember everything or be correct all the time. A few studies have paid attention to student likes and dislikes of testing at all levels of education (e.g., Struyven, Dochy, Janssens, 2008; Williams & Wong, 2009). In looking at student preferences evidence to see all the populations open book testing can affect become evident.

Evidence supports open book testing when addressing the needs for students with both physical and real learning disabilities. Students with physical disabilities or learning disabilities welcome the flexibility the open book test provides (Phillip, Brown, & Smith, 2005). Anderson (2003) Suggested a step further is teachers should considered the combining of both open book exam and open notes exam as a possible accommodation for students with auditory difficulties or visual difficulties. When all students are tested using the same instruments teachers can focus on other possible student needs. Previous studies show not everyone implements good ideas as summarized and noted by Nelson (2002):

> Although testing adaptations are important for the success of students with disabilities, researchers have found that adaptations are not always made by general education teachers (e.g., Bender, Vail, & Scott, 1995; Gajria, Salend, & Hemrick, 1994; Putnam, 1992; Zigmond, Levin, & Laurie, 1985). Researchers have noted that although teachers may regard a particular testing adaptation to be desirable (i.e., potentially beneficial to students with disabilities in general education classrooms), they may not view it as feasible (i.e., practical to implement), especially in case of an adaptation that needs to be individualized or that is time-consuming (e.g., Bender et al., 1995; Ellett, 1993; Gajria et al., 1994; Jayanthi, Epstein, Polloway, & Bursuck, 1996; Putnam, 1992). (p. 42)

Faculty at all levels can restrict or impede implementing good ideas.

An administrator must be watchful in what is suggested to them or what is told to other to be implemented, successful implementation requires constant follow-up.

Open book exams are not perfect in every situation and do have legitimate concerns noted. These concerns can be mitigated when using open book examinations if appropriate planning and training is conducted: (a) limited desk space, (b) during time of budget crunches and shortfalls will all the students have the same books and (c) will students know how to access information quickly instead of spending all their allotted time searching (e.g., Hartley, 1998; Phillip, 1998; Phillip, Brown, & Smith, 2005). Societies unfortunately have class systems even in American; government defines these classes: (a) below poverty level, (b) poor, (c) lower middle class, (d) middle class, (e) upper middle class and (f) rich. Clift & Imrie (1981) noted a potential problem for the disadvantage students "Open book examination will favor those students who can borrow or buy most books" (p. 48). This is an important consideration for many educators depending on where students are located because not every government system supplies student's free books. In many societies' parents are responsible for buying the students books from a vendor for each grade attended. The problem from this practice for teachers and students alike is different version of a required and needed book for class may exist. Different book editions bought by parents may be drastically different and not support the open book test designed by the teacher. A student may fail an open book exam because a page is different between versions. When constructing an open book exam teachers must ensure either standardized texts are shared and used or the test is generic to both editions. These issues can increase test preparation time and test graded. Another major problem in taking open book exams is if students prepare for the exam in the traditional closed book method and struggle with trying to remember supposed memorize information (Phillip, Brown, & Smith, 2005). Students need to be taught how to take an open book

examination and not given one without being trained as this could result in a negative testing experience. Two studies have shown both a benefit and dissenting opinion of the benefits of open book testing as noted by Crook (1988):

> These studies have shown that students tend to be less anxious about open book tests, and to prepare somewhat less thoroughly for them. Predictably, the students who rely most on using their notes and/or textbooks during the test tend to be among the lower achievers. Studies to date have demonstrated no clear benefit in levels of student achievement arising from open book tests (Boniface, 1985; Francis, 1982). (p. 448)

Additional arguments stated open book examination does not always results in higher achievement on the given assessment (e.g., Ioannidou, 1997; Michaels & Kieren, 1973). A curious side benefit of using open book testing was found and noted by Phillips (2006):

> An unforeseen benefit of the open-book tests was the ability to focus the students' attention on certain pieces of information that they would not have been exposed to except through the readings. Some of the questions from the open-book tests have initiated impromptu discussions upon return and review of the tests. These impromptu discussions that are generated during review are eagerly anticipated by the class members and me. (p. 581)

The open book method uses are still being discovered by students, teachers and faculty in all levels of education. Open book testing is not a perfect or totally refined system yet. Further studies and refining testing instruments is needed before a final judgment should be made.

Early Military Education Systems

Having a trained military fighting force is considered a major deterrent for war but it takes time to develop. The military elite historically were not only professional, but social (Janowitz, 1960). Traditions, tactics and history are studied by professional soldiers to enable a soldier not to repeat the past. "On the eve of the industrial revolution the officer corps of Europe were the inheritors and preservers of a chivalric tradition of

arms handed down from the middle ages" (Janowitz, p. 5). The fledgling colonies relied on the motherland land for everything to include defense. During the early years of the 13 American Colonies there were no formal institutions for the training of officers who could lead a local militia or larger armed force. Military Leadership was provided by England in American military units, who lead and trained local militias supplemented their forces in numerous wars: King Williams War 1689-1697, Queen Anne's War 1702-1713, King George's War 1744-1748, and during the French and Indian Wars of 1754-1763 (Forman, 1965). Being a military hero in the past allowed individuals to rise above meager beginnings and start dynasties. During four centuries of transition from medieval warfare to disciplined standing forces and fire tactics, the nobility and gentry succeeded generally in retaining their leadership of armies (Barnett, 1967, p. 15). During and after the revolution this lack of official officer training though address by Adams, Hancock, Washington, Hamilton, and Knox would not fully change until the Presidency of Thomas Jefferson in 1802.

The founding of the colonies first military academy established a permanent officer education system which is still in existence today. Patton (1937) stated "at the time of its founding, the Academy had to provide whatever general education the future officers of the army might need since there was little opportunity for general education anywhere in the United States, particularly in the rapidly expanding country of the frontier" (p. 425). The creating and selecting the location for the first military academy in the United States of America took 19 years of arguing and debating. The United States Military Academy of West Point was founded in 1802 to create an educated and professional Officer Corps for the fledgling United State Army. The founding was

partially based on George Washington statements in "Sentiments on a Peace Establishment (1783)" as "A Peace Establishment for the United States of America may in my opinion . . . Academies, one or more for the Instruction of the Art Military; particularly those Branches of it which respect Engineering and Artillery, which are highly essential, and the knowledge of which is most difficult to obtain" (Fitzpatrick, 1931, p. 55). West Point is known for training young men into capable officers through a select training program. Academies developed and followed this specific training theory where the officers were 'gentlemen' and needed to be educated and trained as gentlemen. Once trained, the officer was expected to be the trainer and leader for his unit. Armies of the 1700-1800s periods in France, Britain and America followed this "gentlemen" theory for their officer corps whereas the other ranks were considered peasantry or riff-raff (Barnett, 1967). Even though the 13 Original Colonies had thrown off the chains of oppressive England, the colonial leadership at the time still retained a lot of the English traditions for training soldiers. Barnett (1967) "But it is this indoctrination, together with drill and discipline, that turns civilians into soldiers" (p. 23). The Soldierization process used then, is still used today with only a few modifications: (a) hazing is not authorized, (b) no striking trainees, (c) no verbal abuse of the individuals family or upbringing, and (d) don't ask and don't tell policy is enforced.

Today the military has several ways to produce the needed officer corps for the Army. This can be done by attending an individual attending: (a) military academies, (b) reserve officer training corps, (c) officer candidate school, and or receiving (d) a battlefield commission by a military representative or Presidential appointment. All of today's officers receive formal approved training. Earlier military officers were either

graduates of West Point Academy; battlefield commissioned, or directed Presidential appointments. The Army of old had many a different types of officers serving, some with approved military training, some with actual war experience and some without any training. The lack of an approved standardized training led to severe gaps in unit effectiveness and readiness for many years.

West Point was the first military academy approved to train military officers. The school's academic programs today as in the past had strict enrollment procedures which are still sound and review by numerous modern agencies. West Point Military Academy is accredited by Commission on Higher Education of the Middle States Association of Colleges and Schools. USMA was first accredited by Middle States in 1949 and has been reaccredited each successive decade. The last Middle States accreditation site visit occurred in 1999. The next site visit is scheduled to occur during FY2010. Additional accrediting procedures, granting of degrees, staffing and powers come under the purview of the Secretary of the Army. "Under conditions approved by the Secretary of the Army grants the Superintendent of USMA to confer the degree of Bachelor of Science upon graduates of the Academy (Section 4353(a), Title 10, United States Code (10 USC 4353(a)))" (AR 210-26, 2002, p. 14). Access to West Point is very controlled and limited, the enrollment procedures are noted in DOA (2002) "the number of cadets at the Military Academy and the sources from which they may be nominated and appointed are prescribed in Sections 4341a, 4342–4344, and 4347, Title 10, United States Code (10 USC 4341a, 4342–4344, and 4347)" (DOA, AR 210-26, 2002, p. 10). All soldiers coming into the academy must be recommended by someone within set criteria. Recommending authorities can come from U.S. Congressional sources, Military, the Vice

President and President all may directly have civilians attend straight out of high-school and up until the age of 23. Military enlisted personal wishing to attend the academy must be recommended by both the Military and U.S. Congressional sources (DOA, AR 210-26, p. 10). Cadets may or may not come from a military family, a military prep academy, or they may be appointed by civilian officials. A major stipulation in receiving a free military focused degree is the cadet must become an active duty commission or reserved commissioned officer. Today's officer corps all comes out of or goes through officially approved training at some point in their career path.

United States Army Enlisted Education Systems

From 1776 to 1824 the military education system had a major gap in the training program. Prior to 1825 the Enlisted Corps of the Army had no formal structure, rank, or selection processes outside of the individual regimental command. In 1825 a policy change by War Department occurred and a formalized rank system was standardized and the procedures by which Noncommissioned Officers were picked by the Regimental Commander (DOA, FM 7.22.7, 2002). All training prior and during this particular timeframe was done on-the-job; there was no formal training system outside of the regiment. In 1824, the Artillery School was established at Fort Monroe, Virginia, beginning the comprehensive system of service schools in existence today. Originally the Artillery School narrowly opened doors to only to train Officers, several years later the door widened fully to teach both enlisted soldiers and Noncommissioned Officers (NCO). The second school opened for the training of all ranks due to advances in technology was the Signal School in 1870. Interest in forming other schools lacked support for many years. Since then the Army has constructed 22 Military Occupational Schools for enlisted

soldiers representing each major branch within the Army under the Training and Doctrine Command. Training received by soldiers is task and skill oriented with numerous hours of repetition of hand on training. DOA (2002) noted "Army leaders thought experience and not the classroom made a good NCO" (FM 7.22.7, chap. 1). You cannot know or learn the terror of being shot at until it actually happens. Training of soldiers should be realistic as possible to the conditions they will face.

With the large scale ramp up of the United States of America's Armed Forces into WWI the Corporal became the primary trainer for new recruits. New recruits were called boots and received initial Army training called Boot Camp. The rise of NCO to take the helm of training left Officers to focus on command functions. Graduates from "boot camp" were then sent to units as replacements or as the basis of entire new units with the addition of senior leadership. Still something essential was lacking, General Pershing seeing this order the creation of the first special school for the training of Noncommissioned Officers. No official academy existed until 1947 when the first Noncommissioned Officer Academy was established. In 1952 an Army Regulation was created to standardize all Academies and training (DOA, FM 7.22.7, 2002). This was the first official push to start encouraging the NCO Corps to obtain standardized training and ensure each NCO had a high-school education. A sidebar of this initiative was for the NCO to be granted or earn credits for a two year college degree for attending the training. This occurred when the American Council of Education (ACE) awarded credits for the training. Prior to all of this there was no education requirement for soldiers to have a high-school diploma or formalized testing procedures for training.

Training and Testing

Training soldiers for war is an enormous task formally managed both by the TRADOC Unit Commanders and the FORSCOM Unit Commanders equally. TRADOC Command focuses on individual task oriented training of soldiers for (a) basic and advance individual training, (b) mandatory professional development, (c) self development training, plus (d) new equipment fielding, training and testing. The FORSCOM Commander and his subsequent unit level Commanders ensure soldiers are trained and tested in the collective unit specific war-time tasks required of the unit in battle. "Commanders are ultimately responsible for the training, performance, and readiness of their Soldiers, Army civilians, and organizations" (DOA FM 7-0, 2008, chap. 2). Commanders at all levels can be relieved from Command Positions for failing to maintain a trained and effective fighting unit.

The principles of Army training provide a board basic foundation to guide the Commander and his Noncommissioned Officers to plan, prepare, execute and assess effective training and testing. The roles each of these professionals for training are stated by DOA, (2008) in FM 7-0:

> NCOs are the primary trainers of enlisted Soldiers, crews, and small teams. Officers and NCOs have a special training relationship; their training responsibilities complement each other. This relationship spans all echelons and types of organizations. NCOs are usually an organization's most experienced trainers. Their input is crucial to a commander's overall training strategy (see paragraph 4-93) and a vital ingredient of the "top-down/bottom-up" approach to training. This approach is characterized by direction from commanders ("top-down") and subsequent input from subordinate officers and NCOs ("bottom-up"). (chap. 2)

NCOs conduct, evaluate and remediate if needed all soldier training and testing. This occurs until the standard is met, told to stop or the soldier is discharged from service. At

times due to current real world missions causes a lack of military personnel to train soldiers. In such cases the use of contractors and civilians is authorized to trained soldiers. As long as the instructor has passed the Army Instructor Training Course or the Installation Staff Contractor Training Course and obtain a certificate of graduation prior to giving instruction to soldiers (TRADOC, Reg 350-6, 2007). Any certified instructor may test basic and advance entry trainees in a test lab, classroom or training site. Army (2006) stated in Fort Gordon Regulation 350-22 a test is defined as:

> A means of examination, trial, or proof; a series of questions or problems designed to determine knowledge or competency. A device, technique, or measuring tool used to: Determine if a student or group can accomplish the objective to the established standard. Determine if training does what it is designed to do, efficiently and effectively. Measure the skill, knowledge, intelligence, abilities, or other aptitudes of an individual or group. Collect data, as a basis for assessing the degree that a system meets, exceeds, or fails to meet the technical or operational properties ascribed to the system. (p. 19)

Most tests in the military are designed keeping in mind the terminal learning objective of a task. The terminal learning objective is what a soldier must be able to perform in peace and war. The Army has three types of testing for students in training according to TRADOC (2007) Regulation 350-6:

> Hands-on, performance-oriented testing is the norm throughout TRADOC. Situational based, written open book reference tests (when used), must require the Soldier to not only extract data, but also apply the data to specific situations they are likely to encounter on the job. Use closed book, knowledge based written tests only if it is necessary to verify the learner's knowledge as a prerequisite for later performance testing, where the knowledge is applied (as a building block to later tests). All testing is conducted in an environment that would replicate the Soldier's duty position in the unit, as far as safety and environmental considerations will allow and IAW test administration instructions. (p. 47)

Performance oriented tests are assessed in a "go" or "no go" fashion unless it is a reference test and then a weight based score is given to receive a go for the test. Testing

is done to the same standard every time to ensure consistency, accuracy and military standards are met.

Soldiers must obtain their advance individual training diploma or face the consequences of failing to meet the standards. "Attaining Army standards is the gauge for successful completion of IET. Commanders will exhaust retraining and counseling procedures before making a determination a Soldier's performance and potential justify a new start or separation from the service" (TRADOC Reg 350-6, 2007, p. 66).
Once a soldier fails out from the 25 Uniform MOS Course they are not released from their contract with the United States Army. If deemed trainable by the commander the soldier can be retrained in another field. Upon failing and deemed trainable the soldier is allowed to pick a new MOS from a list based on the critical shortages present within the Army. Soldiers refusing to reclassify to a new less technical MOS to fulfill the remaining service contract with the Army may face punishment or have a MOS picked by the Army for the individual. Once a soldier picked a new MOS they will be sent to see an In Service Army Recruiter for processing. An assessment is conducted by the In Service Army Recruiter of the soldier's abilities; the soldier may or may not be allowed to keep the prior choice made at the unit. If the soldier failed the assessment conducted by the In Service Recruiter, a list is generated by the recruiter of five less technical MOS. The list is offered to the soldier and the soldier may pick from that list. Once a soldier picks a new MOS to be trained on, processing to the new location happens in a couple of days. The cost of moving one soldier to another installation is estimated by the government at $5,000. The soldier's belongings are packed up, movement orders are supplied, and a ticket is supplied for a bus or plane to the new duty location for the MOS picked. The

soldier once in-processed to the new duty station is enrolled in training. The soldier receives new learning material but is being assessed using the same testing policy. Should a soldier fail to graduate from this new MOS the soldier is then released from their contract by using chapter discharge proceedings. A soldier chaptered by the Army must pay back any bonuses they may have received for enlisting. Additionally depending on a soldier's behavior and conduct at the time discharge can affect the discharges rating level. A soldier could receive one of the levels of a discharge from the Army (a) honorable, (b) other-than -honorable conditions or (c) a bad conduct discharge (BCD). A young man or woman who receives a bad conduct discharge has a permanent record which follows them forever saying "I was a failure." The Army needs to reduce the number of recruits earning a lifetime negative title.

Key faucets of effective leadership are (a) taking responsibility for actions, (b) planning, (c) implementation, and (d) follow up. Effective leadership transforms human potential into effective performance in the present and prepares capable leaders for the future but this is not currently happening within the 25 Uniform MOS course (AFFD, 2004). In the last 2 years the 25 Uniform MOS course has experienced a one out of five failure rate for students in the first 9 weeks of training within the TACCOM Branch of instruction. A maximum class size is scheduled and defined by Training and Doctrine Command to begin training with 35 student "soldier". Students receive 9 weeks and 4 days of intensive computer technology training within the TACCOM Branch. Students passing all seven end-of-annex module closed book exams will go into the next phase of 25U MOS training residing in the Combat Net Radio Branch. Alternatives must be found to reduce the failure rate during this period of training because the Army is losing too

many valuable human-resources in a time when every budget dollar counts. The division chief of the 25 Uniform Signal Support Systems Specialist course needs to (a) clearly indentify the problem, (b) find alternatives, (c) plan changes, (d) implement changes, and (e) follow up. These actions need to be transparent to the student in training and happen simultaneously. The "Bottom line" is training must happen continuously so civilians who volunteer to earn a Army MOS can graduate and join the active Army forces as a soldier. Where does this leave oral exam testing? Oral exams are not to be conducted on students in a training status. The use of oral exams for students in training was deemed to time consuming. This is because the Army recruits some 80,000 new soldiers a year. The Army must get these individuals trained and deployed quickly too active duty units or reduce unit readiness and mission effectiveness occurs. Oral exam testing is conducted within the Army but it is used only in a limited fashion, (a) promotion boards, (b) removal "competency" boards, and (c) professional competitions. Enlisted soldiers competing for the ranks of E-5/Sergeant and E-6/Staff Sergeant must appear before a board consisting of the entire battalions First Sergeants and the Command Sergeant Major. Soldiers will be tested on appearance, conduct, military knowledge and current events. Scoring is done by each panel member and then a total score is calculated and posted to a soldier's promotion packet. The board appearance is meant to be a stressful situation to see how a soldier will handle themselves. All other promotion boards in the Army are conducted by using a soldier's Official Military Personnel File (OMPF) and no physical presence is required.

A commander is responsible for ensuring soldiers who get promoted are responsible, capable and trustworthy to perform at the ranks held. If a soldier is believed

by the commander not to be proficient in their assigned duties a removal board may be held (DOA, AR 600-8-19, 2008). A removal "competency" board can result in a soldier being demoted, reclassified or separated from the Army. Oral exam testing is the main method used during a removal board. A soldier deemed not fit for duty will appear before a five member panel removal board. A removal board consists of senior enlisted personnel in the ranks of E-8 and above and one field grade officer. The service member appearing before the board will be asked questions on, (a) general military knowledge, (b) MOS specific questions, (c) leadership scenarios, (d) current events and (e) duties performed in unit. After the soldier is tested using the oral exam method and departs the board, the waiting for a decision to be rendered by the board begins. In order for the board members to render an unbiased decision, everything about the soldier will be reviewed. Evidence reviewed by the board to aid in rendering a decision can include but is not limited to a soldier's (a) counseling packet, (b) witness statements, (c) question witnesses, (d) question character witnesses, (e) review past evaluations, (f) review education records and in special cases (g) medical records or have a medical officer testify. This lengthy review is done to ensure the military is not at fault in their leadership responsibilities to adequately train and support the soldier. After ensuring the military is not at fault for the soldier's condition, a review of the soldier's leadership is conducted. Reviewing a soldier's leadership is conducted in two parts. The first part is to ensure the soldier was not failed by the unit leadership in the explaining or assigning tasks to the soldier. The second part is to ensure there was no hostile work environment present due to personality conflicts. Should the Army, the soldier's leadership, and no medical reason can be found at fault then a decision will be rendered against the soldier.

The military has a very competitive environment and each unit commander likes to be able to brag about assigned soldiers. Professional competitions take many paths (a) sports events, (b) units readiness and inspection rating scores, and (c) soldier of the month boards. Of these three professional competitions only the soldier of the month boards uses oral exam testing. Soldier of the month boards comes in three types: (a) unit soldiers of the month boards, (b) Audie Murphy board, and (c) Sergeant Morales board. These boards are conducted in the same manner as promotion boards. The soldier of the month boards have several levels and the winner of the final board is named soldier of the year. Soldiers who participate in the soldiers of the month boards can be from junior enlisted ranks and Noncommissioned Officer rank from Corporal up to Staff Sergeant. The Audie Murphy and Sergeant Morales boards are restricted to only Noncommissioned Officers. Noncommissioned Officers do not compete against each other in these boards but seek to pass these boards to join an elite club.

The education environment has changed drastically in the last 30 years with the introduction of computers. No one can deny the rapid change in technology can be overwhelming; keeping up with changes is daunting for institutions of higher education (Lane & Yamashiro, 2008). At the United States Army Signal Center the 369th Signal Battalion has a high failure rate in its information technology classes. Testing done within the School of Telecommunications and Technology is hands on performance based testing or closed book tests. These testing methodologies have been in use since the schools founding. No open book, open note or oral exams are conducted within the school. Even though open book testing is authorized for use, officials at the school have not tried using it before now.

Chapter III: Methodology

Chapter 2, discussed theory and uses for and against the using of each testing methodology. A thorough review of past research on assessment, history of testing, oral examination, closed book examination, open book examination, history of military education, and military testing theories and approaches, to provide for a conceptual foundation for the reason to change testing methodology. The study specifically looked into how these testing methodologies are used. The review of literature shows an apparently large opening still existing between full linking of military testing policies and institutions using the open book testing method. Building on this review, it is proposed to show a linking of several factors influencing grades and passing rates. These include soldier's trust in open book methodology and reduce anxiety during testing. In Chapter 3 the focus is on the methodology of the study. Sections to be addressed include subject selection and description, instrumentation, data collection procedures, data analysis, and limitations.

Subject Selection and Location Description

A survey study was conducted on U.S. Army soldiers at the School of Telecommunications and Technology, building 29610 Burkhart Hall on Fort Gordon, GA 30905. The soldiers were asked to complete a survey assessing general course information and ten questions on open book testing methods. This method of research design uses a survey instrument to collect quantitative data from United States Army personnel. Due to the limited access granted and the constraints put on the study by the Judge Advocate General's Office of Fort Gordon and the Unit Commander of the 369th Signal Battalion a qualitative research design method was discarded. As a qualitative

research design was deemed too time consuming and inappropriate for this topic given the time allotted for this study. There is a limited potential threat to external validity generalization concerning the homogenous nature of the organizational culture of the Army since no civilian school or organization is structured or controlled in such a closed door manner.

The target sample population for the study was two 25U 10-level classes. The classroom where the soldiers will be taught will remain the same for the study. But the classes will be taught two weeks apart in order to ensure same instructor is available to teach both classes. The classroom has 35 desks for students to sit at while the instructor is conducting conference style method of instruction. After each conference period is conducted it is followed up with a practical exercise to reinforce the training. The instructor will be lecturing with the assistance of a computer with a remote operated video show projector attached to it for showing power point presentations. When the instructor moves into conducting the practical exercise by using the step-by-step hands-on method of instruction for training soldiers will be at the large workbenches along the walls of the classroom. Soldiers will sit three or four per workbench maintaining the same sex battle-buddies. The classrooms walls are the same sand color; the floors have the same sand colored tile. All workbenches are the same natural wood color, and all desks are the same gray steel color with flat white tops. The chairs are 5-legged OSHA required chairs for safety and are all blue in color. The classroom is lighted the using fluorescent lighting overhead and windows are covered to reduce glare on the presentations and security requirements of the material covered. Conducting the training will be the same style for each class studied so to limit any training distracters and reduce

unwanted variables. The instructor will not be changed other than for medical emergencies for the two classes in the study. This is to limit the human variables of different teaching styles out as much as possible. Material will be put out the same way in both classes.

The two classes evaluated are projected to have 32-35 students from fiscal year 2009 Class 25U10-09, day shift students only. The range of ages for the group is 18-26. All students will have completed basic training at Fort Jackson, South Carolina. Soldiers will have either a high school diploma or GED equivalency. A general education score of at least 55 on the Armed Services Vocational Aptitude Battery (ASVAB) test with a computed average score of 100 in the General Electronics part of the ASVAB test is required. Though at times some soldiers do enter the service with higher educational qualifications; those described prior are the minimum base requirements to enter the service and obtain this job specialty.

Each class is given a 3-ring binder for each student to use as reference book at the beginning of training. The book consists of the following: (a) all lessons plans, (b) slideshows printed in 6 per page note fashion, (c) instructions for conducting all of the practical exercises, (d) additional references such as manuals, glossaries, and quick reference charts are included. The material is arraigned in the book as it will be trained by day; the class is two week module consisting of 80 hours of training. Students will be instructed to only write on the slideshow pages within the books. The books may leave the class with the student every night but must be return each morning to class for the next day of training. On testing day one group will be taken into the testing lab but told to leave the books in the classroom, this group will test using the closed book method.

Group two on testing day will be told to bring the books into the testing room to be used while taking the test.

Both groups are scheduled for 2 hours in the 35 person capacity testing lab to take a 50 question test. Both tests given are identical and will be conducted on a computer loaded with the tests. Testing policy requires the student to login to the computer with an individual CAC Card. Then students must log into the test site using name and social security number. Where social security number is entered into the computer software leaves the box visual blank to prevent identity theft. These procedures also prevent others from taking the test for the soldier. The computers used in testing have no access to the World Wide Web they are on an intranet contained to the testing lab and test server room. The test server is located within a locked room adjacent to the testing lab. Only the test proctor and chief instructor has access to the server room. The room has wired embedded security glass for all windows to hinder access. Windows facing the testing lab are clear to allow for monitoring of examinees from within the server room. The test lab and server room windows to the outside are covered to prevent compromising the test and prevent things occurring outside to distract students while taking the exam.

Instrumentation

Data collected from both sample groups will be in three formats. First both sample groups test scores will be collected from their Fort Gordon Form 6548 Student Status and Grade Record Card. This will occur after the instructor has officially posted individual grades supplied to him from the test proctor in the form of an automated test score report. Second both classes will fill out a double sided survey instrument. One side will consist of the standard Fort Gordon (FG) 351-R-E Student Evaluation of Training,

which is normally used as a spot critique of the course, branch or module just completed, it contains 30 questions. The other side of the survey consists of 10 questions created for this study specifically. Neither side of the survey will be weighted. Third a drop box will be set up in the classroom so soldiers can submit an anonymous Student Spot Report Sheet. This data collection method is to give the soldiers another chance to write comments that an instructor will not access to only the chief instructor opens the lock box. The surveys will be collected from the top right corner on the first desk in each row after the instructor put the entire class on break. At the end of the duty day after the students have left the building the drop box will be checked to collect any anonymous Spot Report Sheets.

Data Analysis

A number of statistical analyses were used in this study to test three hypotheses. In order to test the three stated hypotheses a t-test was conducted using the Statistical Program for Social Sciences; version 12.0, (SPSS, 2002) was used to analyze the collected survey data. Using SPSS allowed for descriptive statistics of both groups to be generated. Descriptive statistics generated by SPSS were the sample mean, the median and mode, the standard deviation, the variance, and the minimum and maximum range. Percentage analysis was used to conduct analysis of the samples pass and failure rates.

Limitations

Major weaknesses of this study were first there was no pilot study conducted. A pre-test of the total survey was not conducted due to the need to minimize the presence of the study, the impact on the school curriculum and soldier training. All survey instruments should be pre-tested in order to work out the kinks in the survey instrument:

(a) to ensure a survey device is understandable, (b) clear in its questioning, (c) follows a logical sequence, and (d) printed clearly enough for participants to be able to read it. As O'Sulliavan, Rassel, and Berner, (2003) noted "They should determine if the questions seem reliable" (p. 234). The survey instrument was reviewed by the course director and deemed appropriate for the data the organization was looking to find from the study. Second weakness in the study is the survey instrument was not constructed to produce empirical data conducive for using in factor analysis to help build variables and test a causal model. The third weakness comes from the fact that the researcher was not allowed to change the test instrument in any way. The fourth major design weakness of the study beyond the researchers control was only two classes were selected and allowed to participate in the study. Additionally the study was confined to only one of the three training branches available in the school house. Lastly the fifth major weakness in the study was the researcher was not allowed to monitor instructor teaching methodologies or interact with the student in the classroom.

Summary

In Chapter 3 a clearly defined methodology for the study was laid out. Defined was the sample, location of the study, the process of how data was collected and from whom. In Chapter 4 a detailed analysis of data collected is provided.

Chapter IV: Results

Chapter 3 discussed the methodology of this study. A total 70 surveys were prepared but only 46 distributed. Of the 46 surveys distributed, 46 surveys were returned for an overall 100 percent response rate for the study. In the next two chapters, the study will analyze survey data on open book testing and in what areas specifically shown by use of descriptive statistics to report findings. Chapter 4 will discuss and present descriptive statistics covering the questionnaire items and characteristics of the respondents. Chapter 5 will provide a summary by discussing: limitations, conclusions and recommendations.

Item Analysis

Both of the sample groups of respondents' at the time of the survey had only 23 actual students, not the projected student course load of 35. The gender for the entire soldiers' who in-processed the course for training ended up being males only. Each class lost 12 soldiers' in basic training due to injuries or soldiers unable to adapt to military life and were discharged from service.

The collecting of perfect data from even a captive audience was hard. Even when the students are going nowhere, until they are released by the instructor to go on break or to go home at the end of the day of training. This has proven much harder than expected. A total of 23 surveys were passed out to each sample group after being tested by the instructor. The researcher provided each sample group of soldiers with a small five minute briefing on how the research would not affect the classes: grade standing, graduation or individual careers. Explanations were provided on how the study may affect future testing methodologies and procedures within the 25 U Course. Soldiers were

instructed to read the cover letter and if they wanted to participate each individual had a number two pencil at their test workstation to fill in the questionnaire. Students were told not to start until the researcher and instructor left the test room. Soldiers' were instructed to put their filled or unfilled questionnaires on the top right corner of the first desk in each row when finished. Students were informed by the instructor of the locked suggestion box on the back of the door and only the division chief had access to the box and the suggestions put into the box. After reading the cover letter soldiers asked numerous questions the concerns fell into three major categories: confidentially, changes and benefits. After addressing the concerns and answering the specific questions the researcher told students the surveys would be only picked up after the students left the room. After asking one more time if there were any questions and receiving none the researcher left the room with the instructor so soldiers could start.

Grade Analysis

Descriptive statistics is conducted on both samples, analysis of the grades is provided in Table 1 and Table 3. Grades were recorded from student's FG 6548; this was done for both open book and closed book test groups. The first class tested used the open book method. The class was allowed to use the reference books with handouts during testing.

Table 1

Percentage Analysis of Grades for Students Using Open Book Test Method

Grades	Frequency	Percent in each Range
100 – 95	5	21.70%
94 – 90	7	30.40%
89 – 85	5	21.70%
84 – 80	3	13.00%
79 – 75	0	.00%
74 – 70	3	13.00%
69 – 65	0	.00%
	23	100%

A percentage analysis of the open book test group grades is shown in table 1. The open book test group recorded an overall 86.8% passing rate. The standard for this assessment was students needed to score above 80% to pass. This class recorded a 13% failure rate for this open book exam. Three students failed to obtain the minimum passing score of 80% on this assessment. Only one student received the maximum score on the test of 100%. Four students did score a 95% or better on their test. Other descriptive statistics were the median and mode for this group was 90 and the range was 30, the maximum was 100, and the minimum was 70.

Table 2

T-test for Students using the Open book test method

N	Mean	Std. Deviation	Std. Error Mean	T	dF	sig dif	Mean Difference	95% Confidence Interval Difference Lower	Upper
23	86.3043	8.28709	1.72798	49.945	22	.000	86.30435	82.7207	89.8880

The results of conducting a t-test on the open book test sample group N is 23 is in Table 2, note the mean was 86.3043, the standard for error was 1.72798 for the test group. The test group had an 8.28709 standard deviation. The t score was 49.945 with 22 degrees of freedom.

The second class tested using the closed book testing method. The class was not allowed to use the reference books with handouts during testing. Descriptive statistics analysis is conducted on grades recorded from the FG 6548 for this class.

Table 3

Analysis of Grades for Students Using Closed Book Test Method

Grades	Frequency	Percent in each Range
100 – 95	9	39.10%
94 – 90	4	17.40%
89 – 85	3	13.00%
84 – 80	2	8.70%
79 – 75	0	.00%
74 – 70	4	17.40%
69 – 65	1	4.30%
	23	100%

A percentage analysis of the closed book test group grades is shown in Table 2. The closed book test group recorded a 78.2% passing rate, with a score above 80%. This class recorded a 21.7% failure rate for this closed book exam. Five students failed to obtain the minimum passing score of 80% on this assessment. Four students received the maximum score on the test of 100%. Five students did score a 95% or better on their test. Other descriptive statistics for this class are the median 90 and mode for this group was 95 and the range was 35, the maximum was 100, and the minimum was 65.

Table 4

T-test for Students using the Closed book test method

N	Mean	Std. Deviation	Std. Error Mean	T	dF	sig dif	Mean Difference	95% Confidence Interval Difference Lower	Upper
23	86.7391	11.24204	2.34413	37.003	22	.000	86.73913	81.8777	91.6006

The results of conducting a t-test on the closed book test sample group N is 23 is in Table 4, note the mean was 86.7391, the standard for error was 2.34413 for the test

group. The test group had an 11.2404 standard deviation. The t score was 49.945 with 22 degrees of freedom.

Survey Analysis

The response rate for the survey of the open book testing class was 100% for both the FG-351 and the 10 additional questions. Refer to Figures 1, 2 and 3 in Appendix D for full breakdown of responses by question for the open book test group. Key findings are as follows. First only 78% of students going into the exam felt they were adequately trained to take this exam. Second according to respondents 78% took additional notes during class. Third only 47% of students surveyed responded using the book and references during the test. The fourth major finding corresponds with finding 3 only 43% of student felt direct benefits from using the open book. Lastly 69% of the respondents believed everyone should use the open book test method.

The response rate for the survey of the close book testing class was 86.9% for the FG-351 and 100% for the additional 10 questions. Refer to Figures 4, 5, and 6 in Appendix E for a full breakdown of responses by question for the closed book test group. Key findings are as follows. First 91% of the students going into the exam felt they were adequately trained to take this exam. Second 65% of students believed having an open book to use on the test would have enabled the student to do better on the assessment. Lastly 69% of the respondents believed everyone should use the open book test method.

Chapter V: Discussion

In Chapter 4 analyses was conducted on grades and the survey instrument. The grant study was successfully conducted. Limitations of the study are stated along with conclusions and recommendations suggested in Chapter 5. A full briefing for the instructor, division chief and Commander of the 369th Signal Battalion was prepared and done in order to complete grant requirements. A grant request has been submitted for further studies into open book testing.

Limitations

This study's scope within the School of Telecommunications and Technology end up being focused only on the Close-book and the Open-book methods and how might the different testing methodology affect student retention rate in the course. There were several major weaknesses to this study were first there was no pilot study conducted. A pre-test of the total survey was not conducted due to the need to minimize the presence of the study, the impact on the school curriculum and soldier training. All survey instruments should be pre-tested in order to work out the kinks in the survey instrument: (a) to ensure a survey device is understandable, (b) clear in its questioning, (c) follows a logical sequence, and (d) printed clearly enough for participants to be able to read it. The second weakness was survey instrument was not constructed to produce empirical data conducive for using in factor analysis to help build variables and test a causal model. The third weakness comes from the basis of fact; the researcher was not allowed to change the test instrument in any way. The fourth major design weakness of the study beyond the researchers control was only two classes were selected and allowed to participate in the study. Additionally the study was confined to only one of the three training branches

available in the school house. Lastly the fifth major weakness of the study was the researcher was not allowed to monitor instructor teaching methodologies or interact with the student in the classroom.

Conclusions

The study focused on three research hypotheses:

(1) There will be a significant difference between test pass rates that were achieved with the use of books and those achieved without books.

(2) There will be a significant student preference for the use of open book testing method over the closed book method.

(3) A significant difference in the anxiety levels for the open book method over the closed book method.

The findings of the study will now be discussed.

End results are hypotheses one is found valid. When looking at hypotheses one, open book test results in Table 2 a mean of 86.3043 occurred this was not statistically significantly different than the closed book testing mean of 86.7391 in Table 4. These test results were similar to previous results in literature (e.g., Michaels & Kieren, 1973; Ioannidou, 1997). Now it can be argued this result is skewed because the open book test instrument was not allowed to be redeveloped for the new testing methodology. Additionally students were not trained for taking an open book test. To find hypotheses one valid one must look at the pass and failure rate for a better indicator of success and validation of hypotheses one. The open book test group had an 86.8% pass rate in Table 1 showing it is statistically significant compared to the 78.2% pass rate in Table 3 of the closed book test group. This 8.6% is a statistical significant difference and equates to two

soldiers passing the examination, thus saving the United States Army possibly $240,000 dollars.

End results are hypotheses two is found valid. Looking at results of student preferences from question 10 for hypotheses two testing showed 69% preferred open book testing over the 31% of those preferring the closed book testing method. This result is similar to previous studies showing 71% preferred open book testing (Zeidner, 1994). This finding might have been higher if students were more familiar with the open book testing methodology. Additionally the testing groups were new to the uniqueness of military culture and have not fully adapted yet or fully trust the environment within the United States Army. Another item that should be noted comes from verbal comments made by students. Those verbal comments support the possibility of a higher percentage of students preferring the open book testing method. Comments made were this was the first time either test group was surveyed or asked to participate in a study within the Army. The total unfamiliarity with the entire process may have reduced the findings for the study.

End results are hypotheses three is found not to be valid. Training and testing always brings about anxiety as can be seen by the looking at question one of the survey results in Figure 1 when compared to Figure 4. Only 78% of respondents in Figure 1from the open book test group felt adequately trained for the exam when compared to the 91% of respondents in Figure 4 from the closed test group. Now this statistically significant finding goes against current literature (e.g., Baillie& Toohey, 1997; Crooks, 1988; Feldhusen, 1961, Francis, 1982; Ioannidou, 1997; Jehu, Pincton, Cher, (1970); Maharg, 1999; Michaels & Kieren, 1973; Struyven, Dochy & Janssens, 2008; Theophilides &

Dionysiou, 1996; Theophilides, & Koutselini, 2000; Tussing, 1951; Weber, McBee, Krebs, 1983). The argument against the findings is students were not trained on how to take an open book exam. Students from both test groups have received multiple tests in the closed book testing method previously while in basic training, prior to coming to coming for advance individual training. Students have extensive experience using United States Army closed book test method so students were highly accustomed to using the method. Higher confidence levels for open book testing could be achieved with more familiarization and training with the testing methodology.

Because there was no pilot study done on the test instrument the data collected from the closed book test group is not very helpful in doing higher end statistical analysis. In Figure 6 located in Appendix E, shows closed book test students answered questions three through eight when they were not supposed to according to the survey instrument. Students from the closed book testing group were supposed to just skip to question nine. Additionally the survey instrument due to restraints on the study was only ten questions, this does not allow for proper variables to be constructed using factor analysis to conduct any type of modeling or regression analysis.

Recommendations

It is always easier to recommend and give advice then to implement the advice or accept the advice. The first recommendation is for the Commander to approve another grant to allow for a longer and bigger study to be conducted. In order to provide statistically significant data from which to draw any type of conclusions the study must have more than 35 respondents for each testing methodology. A recommendation is put forth to conduct open book/closed book testing on at least six classes for each testing

methodology. This would allow for a max student sample population 410 and allow for statistical significant findings to be supported by relevant and quantifiable data.

The second recommendation is for the division chief to allow the researcher to redesign the test instrument. Redesigning the test instrument specifically for the students using the open book testing methodology may result in higher test scores and completion rates. Using the open book test method on a test that was designed for the closed book test method does not best support the methodology or the student. Students should be trained at least three times on how to take an open book test by using an ungraded pre-test. This would optimize the results and allow for students to become properly familiarize the open book testing methodology. Lastly, higher exam scores could also be obtained if students could be trained or at least couched on how to study for an open book exam.

The third recommendation is to allow for a pilot study to be conducted with a redesigned survey instrument of 40 to 50 questions. A good pilot study should consist of at least two classes per testing methodology. With a possible total sample population of 70 students per testing methodology would provide statistically relevant results. This would allow for significant testing to occur with preliminary data and allow for changes to occur in the instrument for clarity, consistency and reliability.

A fourth and final recommendation is for future studies to occur by conducting research into causality. To do this there is a need to create a proper survey that allows for variable construction by using factor analysis. Then variables could be tested using AMOS on a proposed causal model, to see if open book testing and study habits affect overall grades and retention. This would further expand the literature base of open book

testing and enable further refining of the 25 U course curriculum, test instruments and the POI. All in order to speed trained soldiers to the field faster and better prepared.

In summary open book testing has shown some positive results with a possible benefit by saving of $240,000 dollars per test taken. If this trend were to continue just for this one class in the curriculum with the current 25 U class load of 1800 students a year, 52 classes per FY a possible savings $12,480,000 dollars could be saved. More savings for the Army could be realized by implementing the open book testing methodology throughout the entire 25 U curriculum. Valuable human-resources and recruitment dollars could be retained by the Army not just in this budget crunch environment. Additional side benefits of open book testing is this could reduce remediation time needed for instructors to retrain soldiers who have failed the test. Thus freeing instructor's schedules to conduct proper room, course and curriculum maintenance, and possibly conduct professional development. Open book testing looks to be viable within the 25 U Course. Finally looking at the results in a human perspective there is distinct possibility of 104 soldiers did not fail a test needed to graduate. Those 104 individuals would be able to move on in the United States Army Education System and possibly have careers in the Army. The use of open book testing could reduce the need for reclassifying or separating soldiers that have failed to obtain satisfactory test scores. Thus savings could be realized and found in the realm of reduce labor costs. The bottom line is savings could happen to individual soldier lives and dreams.

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Appendix A: Survey Cover Letter

This project has been reviewed by the UW-Stout IRB as required by the Code of Federal Regulations Title 45 Part 46

[date], 2009

Dear Participate,

My name is Dr. Edwin C. Cierpial Jr. I am a graduate student at University of Wisconsin-Stout (Stout). As part of my Stout program, I am researching the benefits of open-book testing and how it affects the attrition rate (NoGo rate) in the 25 Uniform Signal Support Systems Specialist Course. I believe it is our responsibility to find better ways to help Initial Entry Soldiers to certify in their Military Occupational Specialty. I am inviting you to participate in my research study by completing the attached questionnaire.

In addition to completing your organization's *Student Evaluation of Training Critique* please flip over the sheet and fill in the survey on the back. The survey will require only an additional 10 minutes or less to complete. There is no compensation for responding nor is there any known risk. In order to ensure confidentiality please ensure you do not put your name on any of the sheets handed out to you. Also, to insure confidentiality, do not add any marks to the sheets or attach them together in any manner.

If you choose to participate in this project, please answer all questions as honestly as possible. Participation in this survey is strictly voluntary and you may refuse to participate at any time. Do not start either the Student Evaluation of Training Critique or my survey until I leave the room. Completion of this survey and returning it will indicate your willingness to support this study. Upon completing the Student Evaluation of Training Critique and the survey sheet, drop it into the locked box in the back of the classroom and exit the classroom. These surveys will be collected after all students have exited.

Once the research is completed, I will provide the results and suggestions and recommendations to the Division Chief of the 25 Uniform Course of Training. UW-Stout instructors will also review the results since they will evaluate my research.

Thank you for your time in assisting in my educational endeavors. The data collected will provide valuable information and insight for my studies on open-book testing. If you have any questions please contact me at the number below.

Sincerely,
Edwin C. Cierpial Jr. Ph.D.
Army Management Staff College
Cell 7068369598 Work 7038054720
edwin.cierpial@us.army.mil

Appendix B: Survey Instrument

This project has been reviewed by the UW-Stout IRB as required by the Code of Federal Regulations Title 45 Part 46

Student Questionnaire FG 351-R-E STUDENT EVALUATION OF TRAINING

COURSE_____ CLASS NO_____PERIOD OF TRAINING: FROM____ TO ____ PREVIOUS MOS: _____

PLEASE RESPOND TO THE ITEMS BELOW. USE THE REVERSE OF THIS SHEET TO FULLY EXPLAIN ANY ESPECIALLY POSITIVE OR NEGATIVE RESPONSES

PART I. OVERALL COURSE

1. Overall Course Rating: ____Very Satisfied _____Satisfied _____Dissatisfied _____Very Dissatisfied

2. This course prepared me to perform the tasks
____very well
____fairly well
____not very well
____not well at all

3. Length of course
____too long
____long enough
____too short

4. Amount of Hands-on Time
____too much
____enough
____not enough

5. Amount of Theory/Conference Time
____too much
____enough
____not enough

6. Pace of training
____too rushed
____about right
____too slow

7. Amount of training time lost due to appointments, parades, details, etc.
____a great deal of time
____some amount of time
____little or no time

PART II. INSTRUCTORS

8. Stayed on the topic
____always
____sometimes
____never

9. Answered questions; were helpful
____always
____sometimes
____never

10. Lesson presentation
____easy to follow
____difficult to follow

11. Knew material
____very well
____fairly well
____not well

PART III. TRAINING MATERIALS (References, hand-outs, student guides)

12. Quantity
____too many
____enough
____not enough

13. Organized
____well
____fairly well
____not well at all

14. Up-to-date
____very current
____fairly current
____outdated
____no comment

PART IV. TRAINING EQUIPMENT

15. Enough to go around for training
____enough ____not enough

16. Condition (worked properly, reliable)
____good ____fair ____poor

PART V. TRAINING FACILITIES (Classrooms, Labs, Field Training Sites)

17. Lighting
____adequate
____inadequate

18. Ventilation
____adequate
____inadequate

19. Ability to hear instruction
____good, no noise distractions
____fair, some noise distractions
____poor, many noise distractions

20. Classroom/Lab Arrangement
____very well arranged
____fairly well arranged
____poorly arranged

21. Overall comfort
___very comfortable
___fairly comfortable
___uncomfortable

PART VI. UNIT SUPPORT

22. In-processing Procedures
____good
____fair
____poor
____N/A

23. Transportation
____good
____fair
____poor
____N/A

24. Housing/Billeting
____good
____fair
____poor
____N/A

Note: Items 25, 26, 27, and 28 pertain to DINING FACILITIES. Which DF did you use most often? _____

25. Crowdedness
____Not Crowded
____Overcrowded

26. Food Quality
____good
____fair
____poor

27. Time Spent Waiting
____no wait, always had time to eat
____medium wait, usually had time to eat
____long wait, never had time to eat

28. Overall Environment
____very comfortable
____comfortable
____uncomfortable

PART VII. PLEASE COMMENT BELOW (USE REVERSE IF NECESSARY)

29. Course strong points:

30. Recommendations for improvement:

FG FORM 351-R-E, 4 FEB 99 EDITION OF 1 AUG 98 MAY BE USED UNTIL SUPPLIES ARE EXHAUSTED

This project has been reviewed by the UW-Stout IRB as required by the Code of Federal Regulations Title 45 Part 46

Student Survey Questionnaire / A Survey on Testing Procedures

Instructions: Please mark only one answer per question. Completely blacken in the circle of your answer. If you change your mind place an "X" on the answer you do not wish to have and then completely blacken in the answer you want.

Question 1. I was adequately trained to take the performance test.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
O	O	O	O	O

Question 2. Were you supplied a handout?

Yes	No (If you Answer "No" Skip to Question 9)
O	O

Question 3. I took additional notes.

Very Often	Often	Sometimes	Rarely	Never
O	O	O	O	O

Question 4. I took the handout back to the barracks.

Very Often	Often	Sometimes	Rarely	Never
O	O	O	O	O

Question 5. I used the handout on the test.

Very Often	Often	Sometimes	Rarely	Never
O	O	O	O	O

Question 6. I brought the handout with me to class.

Very Often	Often	Sometimes	Rarely	Never
O	O	O	O	O

Question 7. The handout was easy to use.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
O	O	O	O	O

Question 8. I benefited from having the handout.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
O	O	O	O	O

Question 9. I would have performed better if I had a handout.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
O	O	O	O	O

Question 10. All students in all classes would do better if they had a handout.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
O	O	O	O	O

Appendix C: Clearance Letter

DEPARTMENT OF THE ARMY
HEADQUARTERS, UNITED STATES ARMY SIGNAL CENTER AND FORT GORDON
FORT GORDON, GEORGIA 30905-5000

REPLY TO
ATTENTION OF

September 24, 2008

Edwin C. Cierpial Jr.
710 Bellows Way APT 102
Newport News, VA 23602

Dear Dr. Edwin C. Cierpial Jr.:

I have reviewed your request to conduct a research project involving students within the 25 Uniform Course of instruction. I feel this project will be beneficial to the 25 Uniform Course as well as the participants. You have my permission to access student records and to conduct your survey with two classes of students. I have been assured all students will be notified and participation is voluntary and you have no supervisory capacity over these students. Also, once data is collected there will be no way to link the individual to the data in your report. You may conduct your research for one week after you have shown that the University of Wisconsin – Stout approval of your EDU 735 proposal.

Sincerely,

(Original Signed)
Bernice Edwin Driggers
GS-1712-12
Division Chief of the 25 Uniform Course

Appendix D: Open Book Survey Results

Figure 1 Open Book Testing Group FG-351 Survey Results Question 1-14

Q1	Very Sat		Satisfied		Dissatisfied		V/D		Blank/NA		Mean	S. Dev
	2	8.5%	19	83%	2	8.5%					5.75	8.883505
Q2	**Very Well**		**Fairly Well**		**N/V Well**		N/W		**Blank/NA**			
	4	17.5%	14	61 %	2	8.5%			3	13%	4.66	5.45893
Q3	**Too long**		**Long enough**		**Too short**				**Blank/NA**			
	3	13%	17	74%	3	13%					7.66	8.0829
Q4	**Too much**		**Enough**		**Not enough**				**Blank/NA**			
			17	74%	6	26%					7.66	8.62167
Q5	**Too much**		**Enough**		**Not enough**				**Blank/NA**			
	2	8.5%	16	70%	4	17.5%			1	4%	5.75	6.94622
Q6	**Too rushed**		**About right**		**Too slow**				**Blank/NA**			
	4	17.5%	16	70%	3	13%					7.66	7.23417
Q7	**A great deal**		**Some amount of time**		**Little or no time**				**Blank/NA**			
	1	4%	11	48%	11	48%					7.66	5.773503
Q8	**Always**		**Sometimes**		**Never**				**Blank/NA**			
	18	78%	5	22%							7.66	9.29157
Q9	**Always**		**Sometimes**		**Never**				**Blank/NA**			
	15	65%	8	35%							7.66	7.50555
Q10	**Easy to follow**		**Difficult to follow**						**Blank/NA**			
	21	91.5%	2	8.5%							11.5	13.43503
Q11	**Very Well**		**Fairly well**		**Not well**				**Blank/NA**			
	16	70%	6	26%	1	4%					7.66	7.637626
Q12	**Too many**		**Enough**		**Not enough**				**Blank/NA**			
			10	43%	13	57%					7.66	6.80685
Q13	**Well**		**Fairly well**		**Not well at all**				**Blank/NA**			
	9	39%	12	52%	2	8.5%					7.66	5.131601
Q14	**Very**		**Fairly current**		**Outdated**		**No com**		**Blank/NA**			
	3	13%	15	65%	3	13%	1	4%	1	4%	4.6	5.899152

Figure 2 Open Book Testing Group FG-351 Survey Results Question 15-28

Q15	Enough		Not Enough						Blank/NA		Mean	S. Dev
	22	96%	1	4%							11.5	14.84924
Q16	**Good**		**Fair**		**Poor**				**Blank/NA**			
	11	48%	12	52%							7.66	6.65832
Q17	**Adequate**		**Inadequate**						**Blank/NA**			
	22	96%	1	4%							11.5	14.84924
Q18	**Adequate**		**Inadequate**						**Blank/NA**			
	22	96%	1	4%							11.5	14.84924
Q19	**Good**		**Fair**		**Poor**				**Blank/NA**			
	12	52%	11	48%							7.66	6.65832
Q20	**Very well**		**Fairly well**		**Poorly arranged**				**Blank/NA**			
	11	48%	12	52%							7.66	6.65832
Q21	**Very comfortable**		**Fairly comfortable**		**Uncomfortable**				**Blank/NA**			
	8	35%	13	57%	2	8.5%					7.66	5.507571
Q22	**Good**		**Fair**		**Poor**		**N/A**		**Blank/NA**			
	6	26%	15	65%	2	8.5%					7.66	5.50757
Q23	**Good**		**Fair**		**Poor**		**N/A**		**Blank/NA**			
	5	22%	12	52%	2	8.5%	4	17.5%			5.75	4.349329
Q24	**Good**		**Fair**		**Poor**		**N/A**		**Blank/NA**			
	4	17.5%	10	43%	4	17.5%	5	22%			5.75	2.872281
Q25	**Not Crowed**		**Overcrowded**						**Blank/NA**			
	18	78%	5	22%							11.5	9.192388
Q26	**Good**		**Fair**		**Poor**				**Blank/NA**			
	12	52%	11	48%							7.66	6.65832
Q27	**No wait**		**Medium**		**Long wait**				**Blank/NA**			
	4	17.5%	17	74%	2	8.5%					7.66	8.144528
Q28	**Very comfortable**		**Comfortable**		**Uncomfortable**				**Blank/NA**			
	6	26%	15	65%	1	4%			1	4%	7.33	6.601767

Figure 3 Open Book Testing Group Additional Questions 1-10 Survey Results

Q1						
strongly A	**agree**	**Neutral**	**disagree**	**strongly d**	**Blank or NA**	
4	15	3	1			23
Q2						
yes	**no**					
15	8					23
Q3						
very often	**often**	**Sometimes**	**rarely**	**never**		
13	3	2			5	23
Q4						
very often	**often**	**sometimes**	**rarely**	**never**		
1	2			12	8	23
Q5						
very often	**often**	**sometimes**	**rarely**	**never**		
5	1	2	3	4	8	23
Q6						
very often	**often**	**sometimes**	**rarely**	**never**		
8	1	1	1	4	8	23
Q7						
strongly A	**agree**	**Neutral**	**disagree**	**strongly d**		
3	6	5	1		8	23
Q8						
strongly A	**agree**	**Neutral**	**disagree**	**strongly d**		
7	3	4	1		8	23
Q9						
strongly A	**agree**	**Neutral**	**disagree**	**strongly d**		
10	6	4		1	2	23
Q10						
strongly A	**agree**	**Neutral**	**disagree**	**strongly d**		
14	2	3	1	2	1	23

Appendix E: Closed Book Survey Results

Figure 4 Closed Book Testing Group FG-351 Survey Results Question 1-14

Q1	Very Sat		Satisfied		Dissatisfied		V/D		Blank/NA		Mean	S. Dev
	4	17.5%	16	70%					3	13%	4.66	6.61815
Q2	**Very Well**		**Fairly Well**		**N/V Well**		N/W		**Blank/NA**			
	4	17.5%	16	70%					3	13%	4.66	6.61815
Q3	**Too long**		**Long enough**		**Too short**				**Blank/NA**			
	5	22%	13	57%	2	8.5%			3	13%	5.75	4.99166
Q4	**Too much**		**Enough**		**Not enough**				**Blank/NA**			
			14	61%	6	26%			3	13%	5.75	6.02079
Q5	**Too much**		**Enough**		**Not enough**				**Blank/NA**			
	2	8.5%	16	70%	2	8.5%			3	13%	5.75	6.849574
Q6	**Too rushed**		**About right**		**Too slow**				**Blank/NA**			
	3	13%	15	65%	2	8.5%			3	13%	5.75	6.184658
Q7	**A great deal**		**Some amount of time**		**Little or no time**				**Blank/NA**			
	2	8.5%	9	39%	9	39%			3	13%	5.75	3.774917
Q8	**Always**		**Sometimes**		**Never**				**Blank/NA**			
	17	74%	3	13%					3	13%	5.75	7.63216
Q9	**Always**		**Sometimes**		**Never**				**Blank/NA**			
	11	48%	9	39%					3	13%	5.75	5.12347
Q10	**Easy to follow**		**Difficult to follow**						**Blank/NA**			
	18	78%	2	8.5%					3	13%	7.66	8.962886
Q11	**Very Well**		**Fairly well**		**Not well**				**Blank/NA**			
	15	65%	4	17.5%	1	4%			3	13%	5.75	6.291529
Q12	**Too many**		**Enough**		**Not enough**				**Blank/NA**			
			11	48%	9	39%			3	13%	5.75	5.12347
Q13	**Well**		**Fairly well**		**Not well at all**				**Blank/NA**			
	8	35%	11	48%	1	4%			3	13%	5.75	4.573474
Q14	**Very current**		**Fairly current**		**Outdated**		**No com**		**Blank/NA**			
	5	22%	11	48%	3	13%	1	4%	3	13%	4.66	3.847077

Figure 5 Closed Book Testing Group FG-351 Survey Results Question 15-28

Q15	Enough		Not Enough						Blank/NA		Mean	Standard Deviation
	20	87%							3	13%	7.66	10.78579
Q16	Good		Fair		Poor				Blank/NA			
	10		9	39%	1	4%			3	13%	5.75	4.42530
Q17	Adequate		Inadequate						Blank/NA			
	20	87%							3	13%	7.66	10.78579
Q18	Adequate		Inadequate						Blank/NA			
	19	83%	1	4%					3	13%	7.66	9.86576
Q19	Good		Fair		Poor				Blank/NA			
	15	65%	5	22%					3	13%	5.75	6.5
Q20	Very well		Fairly well		Poorly arranged				Blank/NA			
	14	61%	6	26%					3	13%	5.75	6.02079
Q21	Very comfortable		Fairly comfortable		Uncomfortable				Blank/NA			
	9	39%	11	48%					3	13%	5.75	5.12347
Q22	Good		Fair		Poor		N/A		Blank/NA			
	5	22%	10	43%	2	8.5%	2	8.5%	4	17.5%	4.6	3.28633
Q23	Good		Fair		Poor		N/A		Blank/NA			
	5	22%	6	26%	2	8.5%	7	30.5%	3	13%	4.6	2.07364
Q24	Good		Fair		Poor		N/A		Blank/NA			
	5	22%	8	35%	3	13%	4	17%	3	13%	4.6	2.07364
Q25	Not Crowed		Overcrowded						Blank/NA			
	16	70%	4	17.5%					3	13%	7.66	7.23417
Q26	Good		Fair		Poor				Blank/NA			
	7	30.5%	11	48%	2	8.5%			3	13%	5.75	4.11298
Q27	No wait		Medium		Long wait				Blank/NA			
	3	13%	15	65%	2	8.5%			3	13%	5.75	6.18465
Q28	Very comfortable		Comfortable		Uncomfortable				Blank/NA			
	3	13%	16	70%	1	4%			3	13%	5.75	6.89806

Figure 6 Closed Book Testing Group Additional Questions 1-10 Survey Results

Q1						
strongly A	**agree**	**Neutral**	**disagree**	**strongly d**	**Blank or NA**	
7	14		2			23
Q2						
yes	**no**					
5	18					23
Q3						
very often	**often**	**sometimes**	**rarely**	**never**		
6	3				14	23
Q4						
very often	**often**	**sometimes**	**rarely**	**never**		
	1			6	16	23
Q5						
very often	**often**	**sometimes**	**rarely**	**never**		
				7	16	23
Q6						
very often	**often**	**sometimes**	**rarely**	**never**		
2	3	1		2	15	23
Q7						
strongly A	**agree**	**Neutral**	**disagree**	**strongly d**		
1	2	3			17	23
Q8						
strongly A	**agree**	**Neutral**	**disagree**	**strongly d**		
3	1	2		1	16	23
Q9						
strongly A	**agree**	**Neutral**	**disagree**	**strongly d**		
10	5	3	2	3		23
Q10						
strongly A	**agree**	**Neutral**	**disagree**	**strongly d**		
12	4	4	2	1		23