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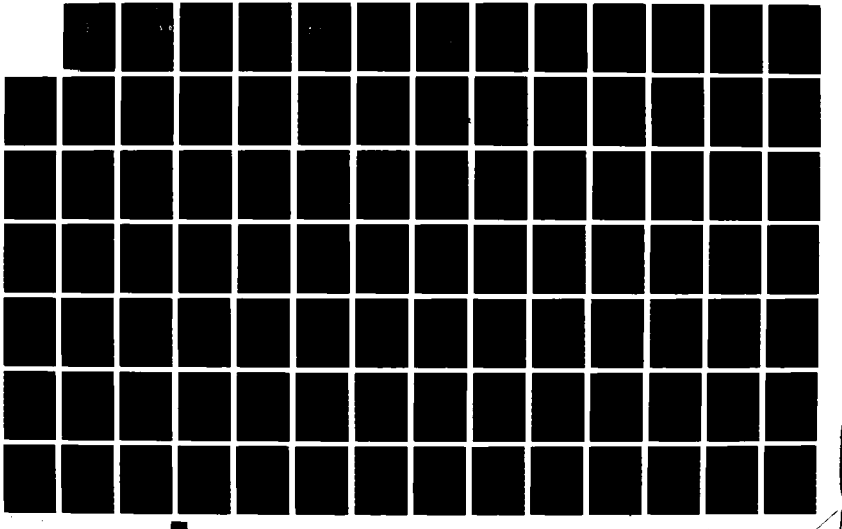

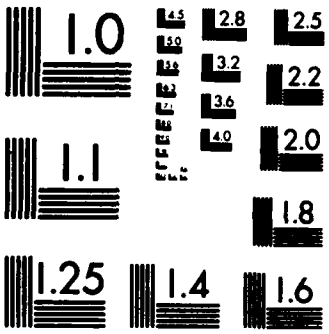

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AN ANALYSIS OF THE PERCEPTIONS OF DIVISION SENIOR COMBAT ARMS LEADERS OF THE TACTICAL COMPETENCE OF DIVISION SIGNAL OFFICERS AND ASSISTANT DIVISION SIGNAL OFFICERS

A thesis presented to the Faculty of the U.S. Army Command and General Staff College in partial fulfillment of the requirements for the degree

MASTER OF MILITARY ART AND SCIENCE

by

PAUL D. HUGHES, MAJ, USA
B.A., Colorado State University, 1975

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This study is a descriptive analysis of the perceptions of active component division commanding generals, chiefs of staff, and G3s of the tactical competence of their Division Signal Officers (DSOs) and Assistant Division Signal Officers (ADSOs). This study sought to answer four questions: (a) how do division commanding generals, chiefs of staff, and G3s perceive the essentialness of tasks that DSOs and ADSOs should perform; (b) how do divisions' senior leaders perceive the effectiveness of their DSOs and ADSOs in performing the surveyed tasks; (c) what is the difference between the perceived essentialness of the surveyed tasks and the perceived effectiveness of the DSO and ADSO in performing those tasks; and (d) what relationship exists between respondents' duty positions and perceptions of the DSOs' and ADSOs' effectiveness in performing the surveyed tasks.

This study was designed to use a mail survey of all 54 officers in the target population. A list of 20 tasks that tactically competent DSOs and ADSOs should perform was extracted from

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Field Manual 101-5: Staff Organization and Operations and Field Manual 100-5: Operations. A researcher-developed instrument was used to collect data about the perceptions of the essentialness of DSO and ADSO tasks and the effectiveness with which those tasks were being performed by the DSOs and ADSOs. The instrument employed the semantic differential item technique.

Results of this study showed: (a) 18 of 20 tasks used in this survey were perceived as highly essential; (b) the DSOs and ADSOs very effectively performed their tasks; (c) DSOs and ADSOs effectively perform tasks considered essential by division senior combat arms leaders; and (d) a significant relationship ($p=.02$) existed between the respondents' duty positions and their perceptions of performance effectiveness only for one ADSO task.

The study concludes that, if the tasks derived from the doctrinal manuals are accepted indicators of tactical competence, then (a) current DSOs and ADSOs are tactically competent, and (b) DSOs and ADSOs need to be tactically competent in order to provide signal support to their divisions.

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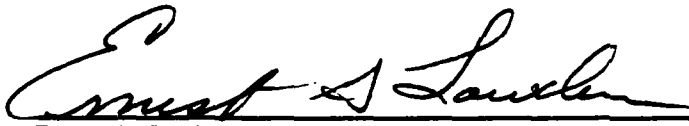

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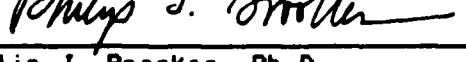

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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the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

ABSTRACT

AN ANALYSIS OF THE PERCEPTIONS OF DIVISION SENIOR COMBAT ARMS LEADERS OF THE TACTICAL COMPETENCE OF DIVISION SIGNAL OFFICERS AND ASSISTANT DIVISION SIGNAL OFFICERS, by Major Paul D. Hughes, USA, 119 pages.

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CHAPTER I

INTRODUCTION TO THE STUDY

The AirLand Battlefield presents many new challenges to today's Army, one of which is the need to establish and maintain effective command and control over forces deployed across vast distances. Additionally, command and control must be viable in all types of conditions, such as nuclear, chemical, and electronic warfare operations. The Army is confronted with a variety of threats throughout the world, each having an inherently different level of potential conflict and posing a different set of difficulties for effective command and control.

Communications plays an essential role in the effective practice of command and control because of its capability to promptly transmit and receive the orders and directions of commanders over long distances. Since the founding of the U.S. Army Signal Corps in 1861, tactical communications has been wedded to the movements of unit headquarters and the focus of communicators has been on the technical aspects of support. Prior to World War II, communicators did not need to be cognizant of

events along or across the frontline because the state of communications technology, based primarily on wire and cable lines, focused the communicators' attention backwards over ground that friendly forces contolled. Even after the introduction of radios, this mind-set remained dominant in tactical communications doctrine until the events of the Yom-Kippur War in 1973 exposed tactical communications to the harsh realitites of modern warfare. Fluid battlelines, intense combat, massive artillery fires, and extensive electronic warfare characterized the Yom-Kippur War, and many tactical doctrinal developers have viewed this war as the prime example of modern warfare.

Today's tactical doctrine, as described in Field Manual 100-5: Operations (Department of the Army [DA], 1986), stresses the integration of communications operations within the overall operational scheme of the division. This integration provides a new force multiplier to the division with which it conducts deep, close, and rear operations. Effective integration of the division's major communications provider, the division signal battalion, requires the involvement of the Division Signal Officer (DSO) and the Assistant Division Signal Officer (ADSO) in planning division tactical operations.

Background

Communications is an integral part of the AirLand Battlefield and it contributes significantly to the success or failure of the force by providing the means through which command and control, synchronization, and agility are exercised (McKnight, 1981). One of the key actors in AirLand Battle communications is the division signal battalion. Effective employment of this battalion in support of

division operations is the responsibility of the DSO and the ADSO. The DSO, the special staff officer for signal support, also commands the division signal battalion and the ADSO is the representative of the DSO in the division G3 section.

Special staff responsibilities for both the DSO and ADSO are described in Appendix A of Field Manual 101-5: Staff Organization and Operations (Department of the Army [DA], 1984). Additionally, Field Manual 100-5: Operations (DA, 1986) clearly indicates that commanders, as well as their representatives on senior level staffs, are responsible for understanding the AirLand Battle doctrine and its inherent operations (deep, close, and rear). Therefore, the combination of special staff and commander responsibilities define the appropriate tasks that these two officers should perform. A composite list of these tasks is found in the survey instrument (Appendix A).

The division G3 is the coordinating staff officer responsible for integrating all special staff groups, including the ADSO and his/her office, into the overall planning and execution of division operations. The G3 is responsible to the division chief of staff for developing and executing division-level plans, operations, and training. The special staff offices are centrally located with the G3 and provide technical and professional assistance in preparing plans, executing operations, and developing training programs in their respective areas of expertise.

The area of expertise for both the DSO and ADSO is presumed to be the tactical signal support the division receives primarily from the division signal battalion. The development of the DSO's expertise began with attendance at the Signal Officers Basic Course. At various times

during his career, the DSO continued his professional development by attending the Signal Officers Advanced Course, completing the Command and General Staff Officers Course, and attending the Pre-Command Course. The ADSO's professional training included the Signal Officers Basic Course and the Signal Officers Advanced Course. The ADSO may have completed the Command and General Staff Officers Course, but would not have attended the Pre-Command Course. A review of the programs of instruction for these courses revealed many classes on technical signal subjects, but suggested that minimal emphasis has been placed on training a signal officer for participation in planning and conducting division tactical operations.

In recent years, signal support for division operations has focused on improving the division's command, control, and communications (C3) function. In spite of the efforts that have gone into this, C3 is not satisfactorily supporting the demands of the modern battlefield (Starry, 1981). In addition to this assessment, several division signal battalions have developed internal ad hoc organizations in their attempts to improve the technical aspects of their signal support. The DSOs directed these reorganizations because they recognized the inadequacy of the tactical signal support they were providing their divisions. Dissatisfaction with the DSO's tactical signal support has also been expressed by several division commanders (Menetrey & McCahan, 1980; Prillaman, 1982; Wetzel, Pierson & Keane, 1981). The combination of these indicators points to possible dissatisfaction with the tactical competence of DSOs and ADSOs on the part of the signal battalion's primary customers, the division senior combat arms leaders.

Problem Statement

If customer dissatisfaction with the tactical competence of Division Signal Officers and Assistant Division Signal Officers does exist, then the central problem may be the ability of the Signal Corps to fulfill its basic mission of providing communications between the commander and his subordinate units.

Purpose

One step towards eliminating dissatisfaction is understanding its nature (Mager & Pipe, 1984). Before efforts are undertaken to identify possible solutions, it would be beneficial to gain a broader information base from which to more accurately ascertain that a problem with customer dissatisfaction does, indeed, exist. If customers are dissatisfied with the tactical competence of DSOs and ADSOs, is it caused by what signal officers do, how they are doing it, or a combination of the two? The purpose of this study was to survey and analyze the perceptions of division senior combat arms leaders on the tactical competence of Division Signal Officers and Assistant Division Signal Officers.

Research Questions

The specific questions addressed in this study were:

1. How do division commanding generals, chiefs of staff, and G3s perceive the essentialness of tasks that Division Signal Officers and Assistant Division Signal Officers should perform?

2. How do division commanding generals, chiefs of staff, and G3s perceive the effectiveness of their Division Signal Officers and Assistant Division Signal Officers in performing the surveyed tasks?

3. What is the difference between the perceived essentialness of the surveyed tasks and the perceived effectiveness of the Division Signal Officers and Assistant Division Signal Officers to perform these surveyed tasks?

4. What relationship exists between a respondent's duty position and his perceptions of the Division Signal Officer's and Assistant Division Signal Officer's effectiveness in performing the surveyed tasks?

Significance of the Study

The results of this study may serve the needs of both the Signal Corps and the Army in two important areas:

1. Findings may suggest training needs for division signal officers and their staffs and, therefore, suggest and guide curriculum development of professional programs.

2. Findings may help present and future DSOs and ADSOs analyze their performances in terms of task essentialness and effectiveness, thereby helping them improve their support for the division.

Operational Definitions

The following were considered the definitions for terms used throughout this study:

Essentialness is a measure of the degree to which division senior combat arms leaders perceive a need for performance by their DSOs and ADSOs of certain defined tasks.

Effectiveness is a measure of the degree to which division senior combat arms leaders perceive the production by their DSOs and ADSOs of proper or desired results.

Division senior combat arms leaders are the commanding general, chief of staff, and G3 for any division and are considered to be the primary customers of the division signal battalion's support.

Division Signal Officer (DSO) is an officer assigned as the division signal battalion commander with the additional duty of division special staff officer responsible to the commanding general for planning and providing the division's tactical signal support.

Assistant Division Signal Officer is the officer assigned by the Division Signal Officer to represent him in planning and coordinating tactical signal support for tactical operations planned by the G3, and in advising the division staff on signal matters.

Tactical signal support is that service provided by a division signal battalion to facilitate electronic communication betweeen the division commander, his headquarters, and the division's major subordinate commands and separate battalions.

Tactical competence is the assumed ability of an individual to properly, promptly, and efficiently perform appropriate tasks in planning, coordinating, executing, and supporting tactical operations.

Tactical knowledge is that body of facts, concepts, rules, and principles that must be applied to plan, coordinate, execute, and support tactical operations.

Tactical operations refer to performance or practice of acts or series of acts designed to initiate or execute a division's wartime mission.

Assumptions

The following assumptions were made:

1. Members of the target population are capable of evaluating the tactical competence of the division signal staff independently of the signal staff's technical expertise.

2. Experience is used by Army officers as the basis of their perceptions.

3. If a task is deemed to be essential by division senior combat arms leaders, it is expected to be performed effectively.

4. The tasks selected for use in this study are the majority of the critical tasks that must be accomplished to plan reliable signal support for a division's operation.

5. The survey instrument was completed by the specific individual to whom it was mailed.

Limitations

This study was limited by the following:

1. Reliability of the instrument was not ascertained, and, therefore, results should be interpreted with caution.

2. Results may have been biased since 30% of the population did not respond to the survey.

3. Attempts to generalize the results of this study to future commanding generals, chiefs of staff, and G3 officers must be made with extreme caution since many population characteristics that may affect the study's results, such as age, combat experience, recency of combat, command experience, and pre-commissioning source (Officer Candidate School, Reserve Officer Training Corps, or United States Military

Academy), were not identified. Without a description of the population's characteristics, it is difficult to determine whether the sample is represenetive of this population or future populations of division senior combat arms leaders.

Delimitations

To help facilitate this study, only the 18 active component divisions were utilized. Additionally, the eligible population was limited to division commanding generals , chiefs of staff , and G3s. Finally, the perceptions of task essentialness and of the DSOs' and ADSOs' effectiveness in performing those tasks were limited to the context of a division tactical operation.

Summary

Communications is critical to the effectiveness of the command and control structure of the U.S. Army. For command and control to be effective in a division involved in a tactical operation, both the Division Signal Officer and the Assistant Division Signal Officer should possess some level of tactical competence. However, it was not known what perceptions were held by division senior combat arms officers concerning the tactical competence of their DSOs and ADSOs in supporting division operations. This study served as a step in the exploratory process by surveying and analyzing the perceptions of division senior combat arms leaders regarding the tactical competence of their Divison Signal Officers and Assistant Division Signal Officers.

CHAPTER II

SURVEY OF THE LITERATURE

This chapter describes the importance of tactical signal support to the AirLand Battle doctrine. Officer skills, both tactical and technical, are important to the success of this support. However, a review of the various programs of instruction shows that the training of signal officers emphasizes technical over tactical skills. Finally, the new doctrine for division signal battalions, and the Division Signal Officer (DSO) and Assistant Division Signal Officer (ADSO) roles as staff officers are discussed. Literature pertaining to the DSO's and ADSO's tactical competence could not be found. However, this chapter demonstrates that the signal officer's training program does not balance tactics training with technical training.

Communications Needs in the AirLand Battle

It has long been recognized that communications plays a key role in the Army's success on the battlefield (Association of the US Army, 1939). The introduction of AirLand Battle doctrine and its three interrelated operations has reinforced this role of communications (McKnight, 1981). The AirLand Battle doctrine places a premium on the Army's ability to effectively command and control units on a nonlinear battlefield through flexible and reliable communications systems. In spite of its importance to the force's synchronization and agility in

practice, many commanders delegate responsibility for command, control, and communications to the supporting signal officer and his unit. This "benign neglect" by commanders, based more on a lack of understanding than on deliberate avoidance of the problem, has created a perceived self-importance on the part of the Signal Corps that, in turn, has generated the development of communications procedures that inhibit effective information management (Starry, 1981, p.2).

Pressed to provide effective command and control to their units, many commanders have turned to their signal staffs to solve the problem (Starry, 1981). The lack of understanding on the division signal staff's part concerning the division's command and control needs during tactical operations has led to a "technician's" solution to the problem and usually has resulted in even greater problems (Prillaman, 1982, p.36). To overcome the lack of tactics training and the ability to forecast tactical needs, many division signal battalions have created a solution by designing a multichannel system that has saturated the division's command and control network with multichannel access (Bowman, 1982; Hogan & Ruth, 1977; Menetrey & McCahan, 1980; Savage, 1979; Wetzel et al., 1981). Although these actions are an important part of the technical solution to the problem of providing the commander with communications, they tend to emphasize the technical employment of the battalion over its tactical deployment.

The rapidly increasing proliferation of high technology on the battlefield has resulted in many new force-multipliers, especially in the arena of command, control, communications, and intelligence. The success of the Army in battle depends on these force-multipliers, but

they are only as effective as the communications systems that link them together (Hilsman, 1979). As new families of communications systems are designed and fielded to achieve this needed linkage, the office in the Department of the Army charged with their development, the Office of the Assistant Chief of Staff for Automation and Communications, has established several goals that must be met in order to successfully field the equipment (Valletta, 1980). The need for signal officers to be trained to employ new communications systems in support of the tactical mission is not one of them. The result of this oversight allows systems to be fielded under the rubric of being a "force-multiplier" in hopes that its capabilities will improve the capabilities of the supported force. It can be argued that the failure to train signal officers in integrating the systems' capabilities with the tactical doctrine of the supported force results in the failure of signal units to adequately complement the other parts of the supported force, thereby creating a stronger "whole." By not possessing the ability to complement the force, signal units could become millstones around the necks of the supported units.

Signal Doctrine and Staff Operations

The basis for the tactical communications doctrine is Field Circular 11-50 (Heavy): Combat Communications in the Division (Heavy) (United States Army Signal Center and Fort Gordon [USASC&FG], 1984). This circular discusses the types of communications means found in the armored or mechanized infantry divisions from the squad level to the division signal battalion level. Additionally, the circular addresses the communications needs of the various headquarters of the division and

its subordinate units. It is this circular that has generated the need for the DSO and ADSO to become more involved in the division's tactical planning. The tactical signal support doctrine described in Field Circular 11-50 (Heavy) (USASC&FG, 1984) has freed the battalion's major signal nodes from the major headquarters locations of the division: the division main command post, the division alternate command post, and the division support command headquarters. These major nodes no longer co-locate with these headquarters, but, rather, separately position themselves on the battlefield so that they can best support the division's scheme of maneuver.

Although the tactical signal support doctrine has changed, the duties and responsibilities of the DSO and ADSO have not. Their duties are described in Field Manual 101-5: Staff Organizations and Operations (Department of the Army [DA], 1984), the Army's doctrinal source for staff organizations and operations at the battalion level and higher. The descriptions of the DSO's and ADSO's duties are such that they allow the DSO and ADSO to operate in a knowledge vacuum concerning the division's tactical scheme of maneuver. Of particular importance to this study is the relationship described between the G3, a primary staff officer, and the ADSO, a special staff officer representing the DSO. Appendix A of the manual lists both the G3's duties and responsibilities and the ADSO's supporting duties and responsibilities. In this appendix, specific tactical operations duties for ADSOs are identified and include planning, coordination, implementation, or reporting in the following areas: (a) electronic warfare, (b) deception operations, (c) troop movements, (d) communications, and (e) location of command posts.

Although these duties and responsibilities are part of the ADSO's activities under the new tactical signal support doctrine, Field Manual 101-5 (DA, 1984) neglects to define the ADSO's expanded role in the area of tactical operations planning and the integration of a scheme of communications with a scheme of maneuver.

Need for Officer Proficiency in Tactics

The ability to successfully prosecute a war, at the tactical, operational, or strategical level, depends on the proficiency of all officers, regardless of their specializations, in the fundamentals and intricacies of war.

> The officer corps must be composed primarily of those who are, first and foremost, leaders and skilled practitioners on the battlefield. The expertise needed here reaches far beyond the span of any specific specialty, single discipline, or parochial interest (Richardson, 1984, p.29).

Instead of developing specialists, "a key segment of the officer corps must know how to think about war in broad terms and not only what to think in terms of functionally defined doctrinal prescriptions" (Wass de Czege, 1984, p.9).

In order to develop tacticians, officers must be schooled in the areas of tactics, organizations, terrain, logical thinking, decisionmaking, staff techniques and procedures, doctrine, time management, time and space factors, and the human dimension (Tate, 1981). Tate (1981) further states:

> In all our efforts, we must strive to develop tacticians who can think, analyze, and decide. The ability to understand the essence of tactical judgment and apply it can result in better training, with the chances of success on the battlefield being greater (p. 14).

When discussing tactics as it relates to a highly specialized, technically-oriented branch of the Army, the discussion must address the role that technology plays on the battlefield. The history of tactical development, according to Porreca (1979), has shown two noteworthy trends in this regard:

> 1. Advanced technology and the lethality of the modern battlefield could render force ratios even less meaningful as a determinant of victory or defeat (p. 22).
>
> 2. The marriage of advanced technology and the lethality of modern weapons increases the importance of understanding and adhering to the classical principles of war (p. 22).

Although the need to train signal officers to support tactical operations has been identified (Beaton & Anderson, 1982), the lack of such training has inhibited effective communications (McQuaid, 1977). Past commanders of signal and combat units have recognized the need for their ADSOs to stay near the G3 and keep abreast of the tactical situation (Hogan, 1978; Schumaker, 1980). However, despite their proximity to the G3s, the ADSOs' usefulness in the planning process is negligible because of their lack of training (Long, 1979).

Tactical Training for Signal Officers

The training and development of the DSOs' and ADSOs' expertise in tactical signal support began with the officers' attendance of the Signal Officers Basic Course. The purpose of this course was to train the officers in the doctrine and skills necessary to perform the duties of a division signal battalion Forward Communications Support Company platoon leader (US Army Signal Center & Fort Gordon, 1986a). This type of platoon was designed to provide communications support to one of a division's maneuver brigades when the brigade deployed on a tactical operation. The officer received four hours of instruction on the subject, "Tactical Operations;" however, the learning objectives listed for the class do not mention division or brigade level operations. Since this officer's future assignment was to provide tactical signal support to a maneuver brigade, the review of the SOBC program of instruction (POI) suggested that the officer was not fully trained to understand the supported brigade's various operations. Therefore, the quality of the tactical signal support might not be as effective as it could have been.

The next course both the DSO and ADSO would have attended was the Signal Officers Advanced Course (SOAC). The stated purpose of SOAC is "to prepare Signal Corps company grade officers for assignments to staff positions at signal battalion, signal brigade, and company level command" (US Army Signal Center & Fort Gordon, 1986b, p.3).

The mission of the division signal battalion is to "install, operate, and maintain a division communications system" to provide tactical signal support to various division and subordinate units'

headquarters (USASC&FG, 1984, p.4-4). As it was with the platoon leader who attended the SOBC, the officers who attended the SOAC received little instruction on division-level operations, the level of operations their battalion would have supported. The depth of instruction about division-level operations was confined to a 40-hour practical exercise in which the students developed a tactical signal support plan for a division defensive operation. All other tactics instruction dealt with the general concepts of the offense and defense, and a battalion-level combat simulation game. The number of hours allotted to the instruction of technical subjects totaled more than 130 hours in SOAC. This imbalance of instructional hours resulted in the assignment of company-grade signal officers, who might not be tactically competent to support division operations, to division signal battalion staff and company command positions.

The Command & General Staff Officers Course (CGSOC) typically is the next step undertaken by the DSO, and perhaps the ADSO, in the development of their tactical signal support expertise. The CGSOC prepares its students "for duty as field grade commanders and principle staff officers at division and higher echelons" (United States Army Command and General Staff College [USACGSC], 1986, p.47). A review of the CGSOC curriculum reveals that of the 211-hours spent on tactics instruction no time is allocated to provide instruction on tactical signal support.

Officers selected to command division signal battalions are required to attend the USACGSC Pre-Command Course (PCC), which includes signal-specific instruction conducted at the US Army Signal Center.

Included in the PCC is a 12-hour class on "systems proficiency" which requires the officer to analyze a division commander's guidance and then develop a concept for supporting the division with tactical communications(US Army Signal Center & Fort Gordon, 1987). Compared to these hours, 30 hours are dedicated to technical skills.

Summary

In summary, the survey of the literature revealed a lack of material that critically analyzed the Signal Corps' ability to provide tactical signal support, its officers tactical competence, or the effective integration of tactics with signal officer education. Such a vacuum reinforces the need for this exploratory study.

CHAPTER III

METHODOLOGY

In this chapter, the methodological plan used in the conduct of this study is explained. The description of the plan is presented in terms of its population, instrumentation, and data collection techniques.

Population

The commanding generals, chiefs of staff, and G3s of the 18 active component divisions were surveyed for their perceptions concerning the essentialness of selected tasks performed by their Division Signal Officers (DSOs) and Assistant Division Signal Officers (ADSOs) and the effectiveness with which the DSOs and ADSOs perform these tasks. Thus, the total population consisted of 54 officers. The commanding generals, chiefs of staff, and G3s were selected as the study's population because they plan, direct, and evaluate their divisions' operations. Additionally, they task their division signal battalions to support these operations and establish communications priorities.

Instrumentation

The instrument was a researcher-developed tool that was based on the semantic differential item technique of the Army Research Institute for Behavioral and Social Sciences Questionnaire Construction Manual (Babbitt & Nystrom, 1985). This technique was employed because of its

ability to assess both the content and intensity of the respondents' perceptions. Additionally, this technique allowed a respondent to indicate a perception concerning an issue without having to verbalize it. Evidence has been produced attesting to the validity, reliability, and sensitivity of this technique (Babbitt & Nystrom, 1985).

The scale in each response row presented two bipolar adjectives with seven blanks between them. The adjectives were not defined in the instrument; rather, they were left to the interpretations of the respondents. A respondent indicated a perception by marking an "X" in the blank that most closely corresponded with the respondent's view. An example of a response row follows.

Not Effective ___:___:___:___:___:___:___ Effective

The survey instrument was organized into three sections. The first section asked for selected demographic information. Included in this section were items addressing respondents' overall perceptions about recent experiences with their DSOs and ADSOs.

The next section specifically addressed the DSO's tasks. This section was further divided into two subsections. The first subsection asked for the respondents' perceptions regarding the essentialness of the DSO's tasks while the second subsection asked for the respondents' perceptions of the DSO's effectiveness in performing those tasks. Both subsections surveyed the same tasks, and the list of tasks was presented in the same order in both subsections.

The third section surveyed perceptions about the ADSO's tasks. This section was organized in the same fashion as the section pertaining to the DSO.

The last items of the survey instrument consisted of two open-ended items designed to elicit the respondents' perceptions of the major strengths and weaknesses in their DSOs' and ADSOs' knowledge of division operations. Although responses to these items were considered part of the respondents' overall perceptions, the two open-ended items were placed at the end of the survey because they required written responses and were inconsistent with the scaled responses of the other items dealing with overall perceptions.

Detailed instructions for completing the survey, and an example of how to mark an item, were provided at the beginning of the instrument (see Appendix A). These instructions also asked the population to answer the survey items from the context of their divisions being fully deployed and engaged in a training exercise. Respondents recorded their perceptions concerning each task on scales used in conjunction with the semantic differential item technique.

Survey of Demographic Characteristics

The initial portion of the survey instrument was designed to obtain information for describing certain demographic characteristics of the respondents. These characteristics included the type of assigned division, length in present duty position, number of contacts the respondent had with the DSO and ADSO, and the ADSO's rank. This information was considered potentially useful in determining whether any relationships existed between the respondents' characteristics and the respondents' perceptions.

These characteristics were surveyed with multiple choice and short answer items. The multiple choice response format was used for items having a limited range of answers. Short answer items were developed to survey those demographic characteristics which had an indeterminate range of responses.

Survey of Perceptions

Perceptions in three areas were surveyed. These areas were (a) the overall support for the divisions provided by the DSOs and ADSOs, (b) the essentialness of selected tasks performed by the DSOs and ADSOs, and (c) the effectiveness of the DSOs and ADSOs in performing those tasks. The tasks selected for the survey instrument were extracted from Appendix A, "Staff Relationships," of Field Manual 101-5, Staff Organization and Operations (DA, 1984) and from Field Manual 100-5, Operations (Department of the Army [DA], 1986). Field Manual 101-5 defined the staff relationships between division staff and special staff members as well as the roles and tasks performed by the DSO and ADSO in support of the G3's operations planning. Field Manual 100-5 defined the three operations a division and its staff must contend with when employing the AirLand Battle doctrine.

Overall perceptions. The population was surveyed for general perceptions of the overall support provided by DSOs and ADSOs during division operations. The areas surveyed included perceptions of (a) DSOs' and ADSOs' effectiveness during the divisions' last training exercises, (b) DSOs' and ADSOs' abilities to support division operations with timely, reliable, tactical signal support, (c) the need for DSOs and ADSOs to have additional training to prepare them to meet the

population's expectations for job performance, and (d) overall confidence in their DSOs and ADSOs. Additionally, the survey's two open-ended items were included in this area of perceptions and asked the population to comment on the major strengths and weaknesses of their DSOs' and ADSOs' knowledge of division operations.

Perceptions of task essentialness. The essentialness of selected tasks performed by the DSOs and ADSOs was surveyed through the use of the semantic differential scales previously described. The majority of the tasks were extracted from Field Manual 101-5, Staff Organization and Operations (DA, 1984). It was selected as the source of tasks to be included in the survey instrument since the manual is the doctrinal authority on staff operations. The remaining tasks were drawn from the AirLand Battle doctrinal manual, Field Manual 100-5, Operations (DA, 1986), because the tasks dealt with this doctrine's three different operations. The tasks that were surveyed consisted of the DSOs' and ADSOs' abilities to (a) analyze the three operations of the AirLand Battle and (b) perform a variety of other staff officer functions that support the G3's operations (refer to the "Essentialness of DSO Functions" and "Essentialness of ADSO Functions" sections in Appendix A). The DSO's task list had six tasks in common with the ADSO's list. These common tasks concerned (a) the three operations of the AirLand Battle doctrine, (b) a division's command and control (C2) relationships, (c) the planning of tactical signal support operations, and (d) the ability to coordinate plans. The remaining two tasks for the DSO were pertinent only to him because of his rank and position. This made a total of eight tasks for the DSO. The ADSO's task list

included six tasks more than the six common tasks, for a total of 12 tasks. These six additional tasks were more pertinent to the ADSO than the DSO because of the ADSO's unique requirements as a division special staff officer.

Perceptions of DSO and ADSO effectiveness. Once the essentialness of the tasks had been rated, the population's members were asked to rate how effectively the DSO and the ADSO performed the tasks. Each of the tasks for the DSO and the ADSO were again listed, and the respondent was to indicate perceptions of effectiveness by marking one of seven blanks between the adjectives, "Not effective" and "Effective" (refer to the "Effectiveness of DSO Functions" and "Effectiveness of ADSO Functions" sections in Appendix A).

Validation

Estimates of the survey instrument's face validity were gathered from 10 combat arms officers of whom four were students in the Command and General Staff Officers Course and six were faculty members in the Center for Army Tactics. These 10 officers ranged in grade from major to promotable lieutenant colonel. They reviewed the survey instrument for content clarity and provided written feedback to the researcher. As a result of their comments, the instrument's instructions provided greater detail than had originally been devised. Additionally, an example item was added to demonstrate the method of marking the semantic differential scale and to explain the rationale for selecting the blank marked in the example. Feedback from this group also resulted in the creation of two open-ended items.

The survey instrument was also reviewed by the Chief of the Evaluation and Standardization Office, Directorate of Academic Operations, Command and General Staff College, to ensure that its design was appropriate for this study's purpose. This review was necessary before the instrument could be submitted for approval to the Soldier Support Center of the Military Personnel Center.

Ethical Considerations

The instrument, accompanied by a letter of justification (Appendix B), was submitted to the Soldier Support Center, Military Personnel Center, for approval. The Soldier Support Center telephonically approved the instrument for disseminiation outside the Training and Doctrine Command. This organization's responsibility in approving the survey instrument was to protect Army units from becoming targets of unauthorized research.

The population was informed that their responses, individual identities, and unit identities would remain confidential. This was achieved by ensuring that the completed surveys were seen only by the researcher. Additionally, the results of the study were reported only as group data. Finally, the instrument contained a statement that participation in the study was voluntary.

Data Collection

The Secretary of the General Staff of each division was called and asked to provide the names of the division's commanding general, chief of staff, and G3. These names were requested so that the survey instrument could be mailed to each individual at his official duty address. This was done to avoid the handling and answering of the

survey instrument by personnel who were not members of the target population. By mailing the survey instruments directly to the target population and avoiding interference by unauthorized personnel, the chances that the survey instrument would be completed by the intended officer would be maximized.

Included with each survey instrument was a cover letter addressed to each individual and signed by the Deputy Commandant of the Command and General Staff College (Appendix C). A return envelope with first-class postage attached was included with each instrument in order to expedite the respondent's reply. All return envelopes were coded to identify the duty position of the respondent; to address the survey to a division commanding general and then ask him to identify his duty position was thought to be unprofessional.

The survey instruments were mailed to the target population on 21 February and participants were asked to return them by 21 March. Notices were mailed on 22 March reminding the population of the suspense date. These notices were mailed on 22 March, the day after the suspense date, to facilitate timely responses without alienating the population by appearing impatient with slowness in returning the instrument to the researcher.

Summary

The methodology used in the study was presented in this chapter. The population was identified as the 54 officers who were serving as the commanding general, the chief of staff, or the G3 of each of the 18 active component divisions. The researcher-developed survey instrument was designed to gather the officers' perceptions on the essentialness of

DSO and ADSO tasks, and the effectiveness with which these tasks were performed by the division signal staff officers. The semantic differential item technique was employed in constructing the instrument. Estimates on the instrument's face validity were provided by a group of combat arms officers who were asked to review the instrument for clarity. The instrument, accompanied by a cover letter and a return envelope, was mailed directly to the individual members of the population at their duty addresses.

CHAPTER IV

DATA ANALYSIS

The data analysis process and the data collected from the returned survey instruments are presented in this chapter. The collected data consisted of the respondents' background characteristics, overall perceptions, perceptions of essentialness and effectiveness, and written comments. The data were analyzed to determine a rank-ordering of the respondents' perceptions of Division Signal Officer (DSO) and Assistant Division Signal Officer (ADSO) task essentialness. Comparisons of task essentialness data and performance effectiveness data were made to identify differences. The perceptions of effectiveness were also compared to the respondents' duty positions to determine if any relationship existed between them. The respondents' written comments were analyzed and included to amplify other results.

Identification of the Sample

Fifty-four survey instruments were mailed to the population's members; 38 instruments were returned, representing a 70% return rate. Thirteen (72%) of the commanding generals, 16 (88%) of the chiefs of staff, and 9 (50%) of the G3s returned the survey instruments. The data from an instrument returned by one chief of staff were not analyzed because there were notes attached to the instrument indicating that it had not been completed by the intended individual.

Because only 70% of the instruments were returned, the missing 30% represent an element of possible bias in the study. However, the adequacy of return rates for mailed survey instruments remains controversial, and the response rates in this study are probably sufficient to preclude serious question of the results because of response bias (Baddie, 1973).

Of the 18 active component divisions, responses were received from personnel in 15 divisions. The number of returns from each type of division and duty position is displayed in Table 1.

Data Analysis Process

An ordinal scoring system was used to assign values to each blank in the semantic differential scale response row. The lowest number was assigned to the blank next to the negatively worded adjective, and the highest number was assigned to the blank next to the positively worded adjective, as shown in the following example.

Not Effective ___:___:___:___:___:___:___ Effective

(1) (2) (3) (4) (5) (6) (7)

Responses with the values of 1 or 2 were classified as "low"; values of 3, 4, or 5 were classified as "limited"; values of 6 or 7 were considered "high". Items that were not marked at all were not included in the analysis of the data causing a reduction in the sample size for some items.

The scores from items in the "Essentialness of DSO Functions" and "Essentialness of ADSO Functions" sections of the instrument were used to answer the question concerning perceptions of the essentialness of tasks that DSOs and ADSOs should perform. Means of scores for the

Table 1

Number of Returned Instruments for Each Division Type and Duty Position

Division Type	Respondent Category			
	CG	C/S	G3	Total
Mechanized Infantry	6	6	4	16
Armored	2	4	2	8
Light Infantry	2	3	1	6
Air Assault	1	1	1	3
Airborne	1	1	1	3
Motorized Infantry	1	1	0	2
TOTAL	13	16	9	38

Note. CG refers to commanding generals and C/S refers to chiefs of staff.

total sample and for each subgroup (commanding generals, chiefs of staff, and G3s) for each of the items were computed and used for determining relative rank-orderings of task essentialness. Within each respondent category, the item with the highest mean score was ranked as number 1, the second highest mean score ranked as number 2, and so on until all items had been ranked. In case of tied mean scores, both items were assigned the same number. The relative rank of an item for each respondent category was compared. Differences of two or more in the ranked positions were considered observable, but not measurable, and became the basis for further discussion.

The scores from items in the "Effectiveness of DSO Functions" and "Effectiveness of ADSO Functions" sections of the instrument were used to answer the question concerning perceptions of the effectiveness of DSOs and ADSOs in performing the surveyed tasks. Means of scores for the total sample and for each subgroup (commanding generals, chiefs of staff, and G3s) for each of the items were computed and used for determining relative rank orderings of effective performance. The method for assigning ranks and for making comparisons between respondent categories was the same as that used in rank ordering the items in terms of essentialness.

The modes and medians of responses were used to answer the question concerning differences between perceived task essentialness and perceived effectiveness of the DSOs and ADSOs to perform the tasks. The mode of essentialness responses for a particular task was compared to the mode of effectiveness responses for the same task. A difference of two or greater was considered an observable, but not statistically

measurable, difference. If the responses to an item were multimodal, the median scores for that item were analyzed.

A chi-square was used to test whether there existed any relationship between respondents' duty positions and their perceptions of the DSOs' and ADSOs' effectiveness in performing the surveyed tasks. The scores from all items were manually transcribed from each survey instrument to a worksheet and then entered into a computer. The data were analyzed using the crosstabs routine in the general statistics program of version 9.0 of the Statistical Package for the Social Sciences (Nie, Hull, Jenkins, Steinbrunner & Brent, 1975). Results were analyzed in terms of a null hypothesis: There will be no significant relationship between a respondent's duty position and his perceptions of the Division Signal Officer's and Assistant Division Signal Officer's effectiveness in performing the surveyed tasks. The significance level was set at .05.

The two open-ended items were analyzed through thematic content analysis. The responses were reviewed by the researcher and categorized by themes. No attempt was made to draw conclusions from the written responses. The replies were useful only in gaining insights about the DSOs' and ADSOs' knowledge of division operations.

Respondent Background Data

The background data used in the study included the length of time the respondents had spent in their present duty positions, the number of contacts the respondents had with their DSOs and ADSOs, and their ADSOs' ranks. This information was useful in determining variables that may have influenced perceptions about task essentialness or performance effectiveness.

Time in Current Duty Position

Overall, most (25) of the sample had served in the current duty positions for less than one year. Of the 13 commanding generals (CGs) in the sample, 7 had served in that position for less than one year; of the 15 chiefs of staff (C/Ss), 9 had served less than one year; and all nine of the G3s had served less than one year. Five CGs and six C/Ss had served in their current duty positions between one and two years. Only one commanding general had served in that duty position for more than two years. The fact that 25 of the 37 respondents had served less than one year in their current duty positions might have impacted on their familiarity with the DSO's and ADSO's duties.

Amount of DSO Contact

The respondents reported the number of times they had contact with the DSO over a 30 day period. These data are presented in Table 2. Results indicated that the CGs had more contact with the DSOs than did the C/Ss or G3s. The contacts between the CG and the DSO might have been the result of a command relationship rather than a special staff relationship.

Amount of ADSO Contact

The respondents reported the number of times they had contact with the ADSO over a thirty day period. These data are described in Table 2. Results indicated that the C/Ss and G3s had more contact with the ADSOs than did the CGs. When these results were compared with the results from the amount of DSO contact, the data suggested that there was more reliance on the ADSO than the DSO as the principal signal advisor to the division staff.

Table 2

Amounts of Contact Between Respondents and Their Division Signal Officers or Assistant Division Signal Officers

Respondent Category	Amounts of Contact			
	Range	Mean	Median	Mode
Division Signal Officer				
Commanding Generals	0 - 45	11.85	5	3 & 4
Chiefs of Staff	0 - 30	8.93	5	3
G3 Officers	0 - 20	5.00	3	3
Assistant Division Signal Officer				
Commanding Generals	0 - 65	10.85	5	0
Chiefs of Staff	2 - 30	11.53	10	5 & 15
G3 Officers	0 - 40	11.11	7	*

* Every response was cited only once.

Last Officer Consulted Regarding Signal Issues

The analysis of this data revealed that 11 CGs contacted their DSO while the other two contacted either their ADSO or G3. Six C/Ss contacted the DSOs, eight contacted their ADSOs, and one contacted his G3. All nine G3s contacted their ADSOs. These results were consistent with the results of the previous two questions.

ADSO Rank

The responses of the chiefs of staff were used to determine this characteristic because this subgroup was the largest of the three subgroups and, therefore, more representative of the divisions. Of the 15 C/Ss who responded to this item, 12 reported that their ADSOs were majors, two reported that captains served as ADSOs, and one reported that a British major served as the ADSO. These results have suggested that the majority of ADSOs have had between 11 and 16 years of signal-related experience.

Respondents Overall Perceptions

The responses to items dealing with overall perceptions indicated that the DSOs and ADSOs were performing their duties in a highly effective manner (see Table 3). The following specific perceptions were suggested by the data.

1. The DSOs and ADSOs performed with high effectiveness in supporting the last division-level Field Training Exercise or Command Post Exercise.

Table 3

Overall Perceptions of the Tactical Competence of Division Signal Officers and Assistant Division Signal Officers

Survey Item	Respondent Category					
	CG		C/S		G3	
	Mo	Me	Mo	Me	Mo	Me
Effectiveness of DSO during last Field Training Exercise or Command Post Exercise	7	6	6	6	7	7
Effectiveness of ADSO during last Field Training Exercise or Command Post Exercise	7	6	6	6	7	7
Confidence in DSO's future support	7	7	6	6	7	7
Confidence in ADSO's future support	7	7	6	6	7	7
Amount of additional training needed for the DSO	2	2	2	2	1	1
Amount of additional training needed for the ADSO	2	2	2	2	1	1
Confidence in DSO in combat	7	7	6&7	6	7	7
Confidence in ADSO in combat	7	6	6	6	7	7

Note. CG refers to commanding generals, C/S refers to chiefs of staff, DSO refers to Division Signal Officer, and ADSO refers to Assistant Division Signal Officer.

2. There was high confidence in the DSOs' and ADSOs' future support of division operations.

3. The DSOs and ADSOs needed little additional training to fulfill job expectations.

4. There was high confidence in the DSOs' and ADSOs' abilities to perform effectively in a combat role.

Essentialness of Tasks

The frequencies of scores for each item concerning task essentialness were tabulated and are presented in Appendix D. It is noteworthy that responses clustered around the high scores. Of the 292 total responses for the eight items dealing with DSO task essentialness, three responses were categorized as low whereas 232 were high. Of the 444 total responses for the 12 items dealing with ADSO task essentialness, none were low and 387 were high.

Relative Rankings for DSO Tasks

Although respondents generally perceived all but one of the DSO tasks as highly essential, it is unlikely that they were all absolutely equal in essentialness. Therefore, the means of scores for each item were used to rank order the tasks along a continuum from most essential to least essential. Within each respondent category, the item with the largest mean score was assigned a rank of 1, the item with the second largest mean score a rank of 2, and so on until all items had been ranked. Items with equal mean scores were given the same rank. Since all the tasks were considered highly essential, a "least essential" rank cannot be interpreted as unessential. Additionally, only the property of order is implied; no interpretations can be made regarding the amount

of essentialness of each task or the amount of difference in essentialness between tasks.

The data provided by all respondents suggested that the most essential task for the DSO was the planning of tactical signal support operations. The relative rankings for the essentialness of the other DSO tasks are presented in Table 4.

Rankings for DSO tasks in the CG subgroup. Several observations were made concerning the rank ordering of DSO task essentialness that emerged from the data collected from commanding generals. The most notable observation was that the two tasks perceived as least essential concerned the signal officer functioning as the DSO and as the signal battalion commander (see Table 4). However, it was noted that the planning and tactical analysis tasks normally associated with a commander's duties were clustered in the top three rankings for task essentialness. On the other hand, the ADSO tasks that ranked highest in essentialness for the CG subgroup were concerned with the advising and coordinating functions generally associated with the special staff officer role. This pattern suggested that it was more important for the signal lieutenant colonel to be concerned with command roles because the CGs in this sample viewed the special staff functions as related more to the ADSOs' responsibilities.

The rank of the task, "analyze deep operations," was higher for the CGs than for the other respondent categories. Since the CGs receive extensive training in deep operations during the pre-command course that occurs just prior to assuming division command, they may have possessed more insight into the value of deep operations than the other

Table 4

Relative Rank Orders for the Essentialness of Division Signal Officers' Tasks

Task	Respondent Category			
	Total Sample	CG	C/S	G3
Plan signal support	1	1	3	1
Analyze close operations	2	3	2	1
Determine C2 relationships	2	2	1	2
Analyze rear operations	3	3	5	2
Coordinate plans	4	5	5	3
Function as commander	5	7	4	4
Analyze deep operations	6	4	6	5
Function as DSO	7	6	7	6

Note. CG refers to commanding generals, C/S refers to chiefs of staff, C2 refers to command and control, and DSO refers to Division Signal Officer.

respondents. Therefore, they might have had fuller appreciation for the role of the DSO in analyzing deep operations and providing signal support based on that analysis.

Rankings for DSO tasks in the C/S subgroup. The rank ordering of the DSO tasks for the C/S subgroup revealed two noteworthy findings. First, the C/Ss perceived the ability of their DSOs to analyze the division's command and control relationships based upon the division's task organization as the most essential task (see Table 4). The ability to effectively coordinate actions on the fast-paced battlefield has depended upon the staff officer's understanding of the command relationships in existence at any given time during an operation. An understanding of the division's task organization by the DSO may have been considered essential for this reason. The importance of this task received support from both the CG and G3 subgroups in which the task ranked as second in essentialness.

Within this subgroup, the task, "analyze rear operations," ranked lower in essentialness than it was ranked for the total sample, but the task, "analyze close operations," was perceived with a degree of essentialness consistent with the total sample (see Table 4). It appeared that the C/Ss focused more on close operations than rear operations. A possible explanation for this focus may be that the C/Ss oriented their staff's efforts towards the portion of the battle that bore the greatest potential for harming the division. Close operations are considered to be the operations that "bear the ultimate burden of victory or defeat" (DA, 1986, p.19).

The least essential task, according to the rank ordering made using the C/Ss perceptions, was "function as DSO." This may have resulted because the C/Ss were asked to compare the essentialness of two roles, DSO and battalion commander, that could conflict with one another's priorities. By responding that the commander's role was the more important of the two, the C/Ss may have been signalling that the battalion commander could accomplish more in support of the division's mission than could the DSO, especially since the ADSO performs many of the staff officer responsibilities.

The other important finding concerned the task, "plan signal support." Among the C/Ss, this task was perceived as less essential than it was perceived in other respondent categories. The data indicated that the C/Ss perceived higher essentialness for the tasks, "determine C2 relationships" and "analyze close operations." This ranking followed a logical pattern in which it appeared that the C/Ss expected the DSOs to first determine who needs to communicate with whom, and under what conditions, prior to planning tactical signal support.

Rankings for DSO tasks in the G3 subgroup. The G3s' perceptions of essentialness for the task, "analyze close operations," were observably different from the perceptions of the CGs (see Table 4). Within the G3 subgroup, this task ranked as one of the most essential that the DSOs performed, whereas within the CG subgroup, the task ranked third. This difference may be explained by the respondents' varying frames of reference, with the CGs more likely to view operations from a broader perspective. Additionally, the G3 officer is directly accountable to the division's chief of staff. Since it appears that the

C/Ss tend to focus more on close operations, it is not surprising that perceptions of the G3s for this task would be similar.

Another noteworthy observation concerned the task, "coordinate plans." For the G3 subgroup, this task ranked higher than it was ranked for either the CG subgroup or the C/S subgroup. The division G3 is the coordinating staff officer responsible for integrating all special staff groups into the overall planning and execution of division operations. Therefore, it is logical that a task intimately linked to the nature of the G3s' duties would be considered very essential.

Relative Rankings for ADSO Tasks

As with the DSO tasks, all except one of the ADSO tasks were perceived by respondents as highly essential. Responses to items dealing with the essentialness of ADSO tasks were ranked in terms of relative essentialness using the same methods for rank ordering the DSO tasks. The relative rankings for the essentialness of ADSO tasks are presented in Table 5. Again, a rank of "least essential" should not be interpreted as unessential, and only the property of order is implied.

The data provided by all respondents suggested that the two most essential tasks for the ADSO were (a) the advising of the G3 on the locations of division command posts and (b) the advising of the G3 on the availability of signal assets to support units. The signal characteristics of proposed locations would have had an impact on the effectiveness of communications and the amount of assets committed to that support. Furthermore, the practice of attaching corps units to divisions has required that the division signal battalion provide communications support to the attached units because the currently

Table 5

Relative Rank Orders for the Essentialness of Assistant Division Signal Officers' Tasks

Task	Respondent Category			
	Total Sample	CG	C/S	G3
Advise G3 on signal assets	1	1	1	2
Advise G3 on CP locations	1	1	2	1
Analyze close operations	2	4	4	2
Participate in G3 analysis	2	2	5	4
Understand graphic symbols	2	2	3	5
Determine C2 relationships	3	3	6	2
Coordinate plans	3	3	5	4
Plan signal support	4	6	3	3
Understand CG's intent	5	5	6	3
Analyze rear operations	6	7	7	2
Analyze deep operations	7	6	8	2
Advise G3 on signal security	8	6	8	6

Note. CG refers to commanding generals; C/S refers to chiefs of staff; CP refers to command post; C2 refers to command and control.

fielded multichannel systems at both corps and division are not compatible.

When the ADSO tasks were rank ordered in each respondent category, the task, "advise G3 on signal security," ranked either last or next-to-last in every subgroup. Current doctrine states that this task should be part of a division's overall operations security (OPSEC) plan (DA, 1984). However, the data suggested that this task was perceived to be the least essential ADSO task of the 12 tasks addressed in the survey. Therefore, two concerns arise.

1. Do the division senior combat arms leaders consider signal security to be a highly meaningful part of the OPSEC program?

2. If so, who is the officer considered most essential for advising the division senior combat arms leaders on the possible consequences of a signal security compromise?

Rankings for ADSO tasks in the CG subgroup. Several observations were made about the rank orders of task essentialness for the CG subgroup. First, the task, "analyze close operations," ranked lower in essentialness in the CG subgroup than it was ranked for the overall sample (see Table 5). Additionally, in the CG subgroup, all tasks related to analyzing the operations of the AirLand Battle ranked lower in essentialness than the signal-oriented tasks. The data seemed to indicate that, for the commanding generals in this sample, it was more essential for the ADSO to offer technical advice instead of tactical analysis.

Another noteworthy observation concerned the task, "plan signal support." In the CG subgroup, this task ranked lower in essentialness than the task, "coordinate plans," and also ranked lower when compared to its ranking in the overall sample. These data suggested that the commanding generals in this sample perceived it to be more essential for the ADSO to coordinate signal support rather than to plan it, perhaps because of the special staff relationship that the ADSO has with the division's primary coordinating officer, the G3. An additional explanation is that when a commanding general is involved in the execution of a division operation, a large degree of his flexibility rests on well-coordinated signal support plans (DA, 1986).

Rankings for ADSO tasks in the C/S subgroup. There were three notable observations concerning the C/S perceptions of ADSO task essentialness. First, the rankings for the tasks, "analyze close operations"and "participate in G3 analysis," were observably lower than the tasks were ranked in the total sample (see Table 5). Additionally, the technical and staff-officer related tasks, except for "advising G3 on signal security," ranked higher in essentialness than any of the tactical analysis tasks. Based on these results, it appeared that the C/Ss, at least in this sample, were more concerned with the ADSOs' technical advice rather than his tactical analysis.

The second observation concerned the C/Ss' perceptions of the task, "coordinate plans." Within the C/S subgroup, this task was ranked as less essential than it was ranked in other subgroups. This task also ranked below the task, "plan signal support," in the C/S subgroup. These rankings suggested that the C/Ss in this sample wanted their ADSOs

to plan the tactical signal support over coordinating the plans with appropriate commanders and staffs. This is consistent with a trend in the data from the C/S subgroup indicating more emphasis on the ADSO's role as a technical rather that tactical advisor to the division.

A third observation concerned the task, "determine command and control (C2) relationships." This task ranked observably lower in the C/S subgroup than it was ranked when responses from the total sample were considered. This suggested that the C/Ss did not perceive this task as essential as did the CGs or G3s. A possible explanation for the difference in perceptions may lie in the respondents' differing frames of reference regarding the role of the ADSOs in determining changing C2 relationships for the purpose of improving the signal support. The C/Ss are directly in charge of the divisions' main command posts (DA, 1984) and, as such, concern themselves with the communications links between the main command posts and subordinate brigades. On the other hand, the CGs and G3s, who normally design the divisions' task-organizations and accompanying C2 relationships (DA, 1984), were likely to be more aware of the ADSOs' importance in establishing the signal support required by these C2 relationships.

Rankings for ADSO tasks in the G3 subgroup. The G3 subgroup was the only one in which analysis of the three operations of the AirLand Battle for the purpose of determining signal support consistently and uniformly ranked very high in essentialness (see Table 5). Within the G3 subgroup, the three tasks all ranked equally, with only the task of advising the G3 on command post locations ranking above the tactical analyses tasks. There seems to be a clear indication that the G3s in

this sample consider tactical competence to be a very necessary part of the ADSO's role during division training exercises.

Effective Performance of Tasks

The frequencies of scores for each item concerning performance effectiveness were tabulated and are presented in Appendix D. As it was with the responses to the task essentialness items, the responses to the performance effectiveness items clustered around the high scores. Of the 296 total responses to the eight items dealing with DSO performance effectiveness, only one response was categorized as low, whereas 237 responses could be categorized as high. Of the 432 total responses to the 12 ADSO performance effectiveness items, there were no responses that could be categorized as low, while 339 responses were high.

Relative Rankings for DSO Tasks

Although the indication was that all tasks were performed highly effectively by the DSOs, it seemed likely that accomplishment of some tasks would be more effective than others. Therefore, the means of scores for each item were used to rank order the tasks along a continuum from most effective to least effective. Within each respondent subgroup, the item with the largest mean score was assigned the value of 1, the item with the second largest mean score a rank of 2, and so on until all items had been ranked. Items with equal mean scores were given the same rank. Since performance on all tasks was considered highly effective, a "least effective" rank cannot be interpreted as ineffective. Additionally, only the property of order is implied; no interpretations can be made regarding the amount of effectiveness for a task or the amount of difference in performance effectiveness between tasks.

The data provided by all respondents suggested that the most effectively performed task was the analyzing of close operations for determining signal support requirements. Overall, the least effectively performed task was the analyzing of deep operations for determining signal support requirements. The relative rankings for effectiveness in performing the other DSO tasks are presented in Table 6.

Rankings for DSO tasks in the CG subgroup. The rank ordering of tasks in the CG subgroup indicated that the DSO role was perceived to have been more effectively performed than the role of signal battalion commander (see Table 6). The performance of the role as a commander ranked as the least effectively performed task of the eight tasks surveyed, while the role of the DSO was ranked as the second most effectively performed task. Functioning as the signal battalion commander was also the task considered by the CGs in this sample to be the least essential task performed by the signal officer. Additionally, those tasks that can be considered as supportive of the DSO role--planning signal support, determining command and control relationships, and coordinating plans (DA, 1984)--were also perceived as more effectively performed than tasks considered supportive of the commander's role, i.e., analysis of deep and rear operations (DA, 1986). The only task supportive of the commander's role that ranked higher than any tasks supportive of the DSO's role was "analyze close operations," and it ranked the highest of all tasks. The high degree of effectiveness for this task is not surprising since, historically, signal officers have been trained and practiced in analyzing and planning for tactical signal support in the main battle area,

Table 6

Relative Rank Orders for Effectiveness of the Division Signal Officers in Performing Tasks

Task	Respondent Category			
	Total Sample	CG	C/S	G3
Analyze close operations	1	1	1	3
Plan signal support	2	2	4	1
Function as DSO	2	2	3	2
Function as commander	3	6	2	1
Determine C2 relationships	4	3	5	4
Coordinate plans	5	3	4	5
Analyze rear operations	6	4	3	5
Analyze deep operations	7	5	6	6

Note. CG refers to commanding generals, C/S refers to chiefs of staff, C2 refers to command and control, and DSO refers to Division Signal Officer.

the area designated the close operations area in the AirLand Battle doctrine (US Army Signal Center and Fort Gordon [USASC&FG], 1976).

Rankings for DSO tasks in the C/S subgroup. The rank ordering of the tasks in the C/S subgroup indicated that the battalion commander role was perceived to have been more effectively performed than the DSO role (see Table 6). The performance effectiveness of the battalion commander role ranked second, just behind the task "analyze close operations," while performance effectiveness in the DSO role ranked third. One task considered supportive of the commander role, analyzing rear operations, ranked ahead of any task considered supportive of the DSO's role, such as planning signal support, coordinating plans, or determining C2 relationships (DA, 1984). The least effectively performed task, according to the C/Ss' perceptions, was analyzing deep operations.

An obvious difference existed between the C/Ss' perceptions and the CGs' perceptions. The C/Ss perceived their signal officers as more effective commanders than as DSOs, while the opposite was true for the CGs. This result reinforced the idea of differing frames of reference among the respondents. The implication of these differing frames of reference is that they could cause a conflict between the priorities of the commander and DSO roles.

Rankings for DSO tasks in the G3 subgroup. The ordering of the tasks in the G3 subgroup indicated that the signal officers were very highly effective in filling both the role of commander and the role of DSO, ranking first and second, respectively (see Table 6). Within the G3 subgroup, the ability to analyze close operations did not rank as

high as it did in both the CG and C/S subgroups. However, the G3s were the only subgroup in which effective performance for the task, "planning signal support," ranked first.

Relative Rankings for ADSO Tasks

As with the DSO tasks, the respondents generally perceived that all ADSO tasks were performed with high degrees of effectiveness. Responses to items dealing with the effective performance of ADSO tasks were ranked in terms of relative effectiveness using the same methods for rank ordering the DSO tasks. The relative rankings for effectiveness in performing ADSO tasks are presented in Table 7. Again, a rank of "least effective" should not be interpreted as ineffective, and only the property of order is implied.

The data provided by all respondents suggested that the task most effectively performed by the ADSO was the advising of the G3 on the availability of signal assets to support units. The task perceived by the total sample to have been performed with the least amount of effectiveness was that of advising the G3 on the possible consequences of a signal security compromise.

Rankings for ADSO tasks in the CG subgroup. Rankings within the CG subgroup showed that the two most effectively performed tasks were (a) advising the G3 on the availability of signal assets and (b) advising the G3 about Command Post locations (see Table 7). It also appeared that the CGs in this sample considered the ADSOs to be competent staff officers, as suggested by the rankings for the tasks, "participate in G3 analysis," "understand CG's intent," and "understand graphic symbols." Ranked along with these three tasks was the task,

Table 7

Relative Rank Orders for Effectiveness of the Assistant Division Signal Officers in Performing Tasks

Task	Respondent Category			
	Total Sample	CG	C/S	G3
Advise G3 on signal assets	1	2	1	1
Advise G3 on CP locations	2	1	2	3
Participate in G3 analysis	3	4	1	3
Understand graphic symbols	4	3	4	2
Understand CG's intent	4	5	2	2
Analyze close operations	5	6	3	1
Coordinate plans	5	5	2	3
Determine C2 relationships	6	8	5	1
Plan signal support	7	10	3	4
Analyze deep operations	8	9	6	3
Analyze rear operations	8	7	7	4
Advise G3 on signal security	8	5	6	5

Note. CG refers to commanding generals; C/S refers to chiefs of staff; CP refers to command post; C2 refers to command and control.

"advise G3 on signal security." The CG respondent category was the only subgroup in which this task did not rank last or next to last; instead, the task was ranked fifth out of ten ranks. The task that ranked as the least effectively performed was "planning signal support," suggesting that, while the ADSOs provide effective advice to the G3, they are not as effective in the actual planning of tactical signal support. Of the three tasks dealing with the operations of the AirLand Battle, two, analyzing deep and rear operations, fell very low in the ranked list of tasks, thus suggesting that the ADSOs are not as effective in analyzing tactical operations as they are in other tasks. In short, the ranking of the CGs' perceptions of the ADSOs' effectiveness indicated that the CGs perceived their ADSOs to have been highly competent technical staff officers, but not as effective in their abilities to analyze operations for the purposes of planning signal support.

Rankings for ADSO tasks in the C/S subgroup. The ranking of tasks in the C/S subgroup indicated that the ADSOs were highly competent technical staff officers, but not as effective in analyzing deep or rear operations (see Table 7). The order of the tasks in the C/S subgroup followed a pattern similar to the order of the tasks in the CG subgroup with two exceptions: (a) the task, "plan ignal support," ranked markedly higher in the C/S subgroup than in the CG subgroup and (b) the task, "advise G3 on signal security," ranked markedly lower in the C/S subgroup than in the CG subgroup. Consistent with the CG subgroup, the C/Ss perceived that the ADSOs were technically competent, but were not as effective in their abilities to analyze tactical operations based on the AirLand Battle doctrine.

Rankings for ADSO tasks in the G3 subgroup. As in the CG and C/S subgroups, performance effectiveness in analyzing tactical operations ranked lower than the ADSOs effectiveness in analyzing and planning signal support operations (see Table 7). However, the ranks for the ADSOs' effectiveness in analyzing close operations and determining C2 relationships were much higher in the G3 subgroup than in the other two respondent categories. On the other hand, the ADSOs' effectiveness in advising the G3s on command post locations ranked relatively lower in the G3 subgroup than in the other respondent categories. Like the CGs and C/Ss, it appeared that the G3s perceived the ADSOs as technically competent staff officers, but less effective in their abilities to analyze AirLand Battle tactical operations.

Comparisons of Task Essentialness and Performance Effectiveness

An assumption made for this study was that expectations concerning essentialness were directly related to expectations of effectiveness. To determine if signal officers were effectively performing tasks considered essential by division senior combat arms leaders, comparisons were made between the modes of essentialness responses for a particular task and the modes of effectivenss responses for the same task.

The responses for each subgroup were analyzed for each task by subtracting the modes of essentialness from the modes of effectiveness. A positive difference meant that the modes of effectiveness were higher than the modes for essentialness. A negative difference indicated that modes of effectiveness were less than the modes for essentialness. Differences between the modes of two or more were considered to be

observable differences and indicative of a strong difference between the respondents' perceptions of essentialness and effectiveness.

This analysis required a total of 80 comparisons (see Appendix E). These 80 comparisons revealed observable differences for only two tasks. Differences were noted in the CG subgroup for the DSO task, "function as DSO," and in the G3 subgroup for the ADSO task, "advise G3 on signal security." Both differences were positive, thus indicating that the signal officers were performing effectively in areas not considered as highly essential as other tasks. Because the results of these comparisons were positive and no comparisons revealed negative differences, there were no tasks perceived as essential for which the signal officers were not also performing effectively. Therefore, the practical significance of these findings is minimal.

Relationships Between Duty Positions and Perceptions of Effectiveness

A chi-square analysis of the data revealed no significant relationships between respondents' duty positions and their perceptions of the DSOs' effectivenss in performing the surveyed tasks (see Table 8). When the responses for the ADSO's tasks were analyzed (see Table 9), a significant relationship between respondents' duty positions and perceived performance effectiveness was found only for the task of coordinating plans ($\underline{X}^2$=18.02, $\underline{df}$=8, $\underline{p}$=.02). Cramer's contigency coefficient was computed for the data from this one task. Further analysis using the Cramer's contingency coefficient indicated a moderately strong relationship between respondents' duty positions and perceptions of the ADSOs' effectiveness in coordinating plans (Φ=0.58).

Table 8

Chi-square Analysis of Respondents' Duty Positions Versus Their Perceptions of Effectiveness of the Division Signal Officers in Performing Tasks

Task	X^2	df
Analyze deep operations	4.711	8
Analyze close operations	4.551	4
Analyze rear operations	1.295	4
Determine C2 relationships	2.521	6
Plan signal support	9.259	6
Coordinate plans	4.923	6
Function as Division Signal Officer	3.640	4
Function as battalion commander	6.143	8

Note. C2 refers to command and control. None of the chi-square values is significant at the .05 level.

Table 9

Chi-square Analysis of Respondents' Duty Positions Versus Their Perceptions of Effectiveness of the Assistant Division Signal Officers in Performing Tasks

Task	X^2	df
Analyze deep operations	8.258	8
Analyze close operations	10.606	6
Analyze rear operations	9.006	8
Determine C2 relationships	11.647	8
Plan signal support	13.509	8
Coordinate plans	18.022*	8
Participate in G3 analysis	4.457	6
Understand graphic symbols	9.590	8
Advise G3 on signal assets	6.333	8
Advise G3 on command post locations	5.812	6
Advise G3 on signal security	5.871	8
Understand the CG's intent	9.499	8

Note. C2 refers to command and control, and CG refers to commanding general.

*Significant; $p < .05$

Analysis of Open-Ended Items

Twenty-six of the respondents answered the open-ended item that requested comments about the DSOs' and ADSOs' major strengths in their knowledge of division operations. Eighteen of the respondents answered the item requesting comments about the DSOs' and ADSOs' major weaknesses in their knowledge of division operations.

No conclusions were made on the basis of these comments. The responses only served to offer insights about the sample's perceptions of the tactical competence of the DSOs and ADSOs.

The responses were read by the researcher and analyzed for major themes. The responses to both open-ended items centered around the following three themes:

1. Signal operational abilities,
2. Combined arms knowledge, and
3. Staff operations.

Several of the returned instruments contained comments that were unrelated to the DSOs' and ADSOs' knowledge of division operations. All of these unrelated comments were positive in nature and addressed officer professionalism, leadership, and teamwork. Since these comments were not germane to the topic of the questions, they were not considered during the analysis of responses for major themes.

Signal Operational Abilities

Several strengths in the area of signal operational abilities were identified. Four respondents indicated that their signal officers were proficient in planning fixed-scenario signal support for routinely practiced deployment operations, such as Return of Forces to Germany (REFORGER). The value of the DSO and ADSO in planning and managing automated systems received positive comments from one respondent. Another respondent stated that the DSO and ADSO did a very effective job in planning signal support over the difficult terrain upon which the division operated.

There were also some weaknesses in signal operational abilities. Two respondents from the light infantry divisions stated that the signal officers were ineffective in integrating frequency-modulated radio communications into the divisions' operations. Another respondent stated that the DSO and ADSO were unable to plan and execute signal support in joint operations. The resistance of the DSO in moving established nodes in spite of tactical considerations was noted by another respondent. While not a reflection of the DSOs' and ADSOs' personal abilities, six respondents complained that their divisions could not be assured of sustained communications due to insufficient equipment in the signal battalion.

Combined Arms Knowledge

The only strength in combined arms knowledge specifically identified was a comment by one respondent indicating that the signal officers provided effective support for the division's close operations. However, some weaknesses in this area were noted. Two respondents

indicated that their ADSOs lacked experience in tactical units and did not understand tactical operations. Another respondent wrote that both the DSO and ADSO did not comprehend the AirLand Battle doctrine and were unable to identify its signal support requirements. One other respondent stated that his signal officers could not anticipate displacements of division command posts.

Staff Operations

Five respondents stated that their DSOs and ADSOs worked well with the divisions' staffs and/or the signal staff at corps headquarters. However, one respondent indicated that the division's DSO and ADSO were not aggressive in seeking information concerning the division's operations. Inability of the signal staff to plan operations in a flexible manner was another comment. A third weakness in the area of staff operations was identified by one respondent who stated that the DSO and ADSO could not properly task-organize the signal battalion's assets to support division operations.

Summary

The data collected from the survey instruments were used to answer the study's four research questions. An ordinal scoring system was used to assign values for responses to the items in the survey instruments. Means of scores for the total sample and for each subgroup (commanding generals, chiefs of staff, and G3 officers) for each of the items were computed and used for rank ordering tasks in terms of relative essentialness. The rankings were used in answering the first research question, "How do division commanding generals, chiefs of staff, and G3s perceive the essentialness of tasks that division signal

officers and assistant division signal officer should perform?" Overall, all tasks, except for the DSO task, "function as DSO," and the ADSO task, "advise G3 on signal security," were perceived as highly essential.

Means of scores were also used for rank ordering tasks in terms of relative performance effectiveness. The rankings as well as data gathered about the respondents' overall perceptions addressed the second research question, "How do commanding generals, chiefs of staff, and G3s perceive the effectiveness of their division signal officers and assistant division signal officers in performing the surveyed tasks?" The overall perceptions were that the DSOs and ADSOs were highly effective in the performance of their tasks.

In order to answer the third research question, "What is the difference between the perceived essentialness of the surveyed tasks and the perceived effectiveness of the division signal officers and assistant division signal officers to perform these surveyed tasks," the modes and medians of essentialness responses for a particular task were compared to the modes and medians of effectiveness for the same task. Of the 80 comparisons that were made, there were only two observable differences.

A chi-square was used to test whether there existed any relationship between respondents' duty positions and the perceptions of DSOs' and ADSOs' effectiveness in performing the surveyed tasks. Only for the ADSO's task, "coordinate plans," was there a significant relationship ($p=.02$).

The important findings emerging from the data analysis are reported in the following chapter. Additionally, conclusions based on the findings from this study, as well as recommendations for further study, are discussed in the next chapter.

CHAPTER V

FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

This chapter has three purposes. First, the important findings of the study are reviewed. Second, conclusions based on these findings are discussed. Finally, recommendations for further research are presented.

Findings

The purpose of this study was to survey and analyze the perceptions of division senior combat arms leaders on the tactical competence of their Division Signal Officers (DSOs) and Assistant Division Signal Officers (ADSOs). Data were collected and analyzed to determine (a) task essentialness, (b) performance effectiveness of DSOs and ADSOs, (c) differences, if any, between task essentialness and the DSOs' and ADSOs' performance effectiveness, and (d) relationships between respondents' duty positions and perceived performance effectiveness of DSOs and ADSOs.

The study's population consisted of the commanding generals, chiefs of staff, and G3 officers of the 18 active component Army divisions. Of the 54 members of the population, 38 responded by completing and returning the survey instrument that had been mailed to them.

The important findings from this study were:

1. The DSO task, "function as DSO," and the ADSO task, "advise G3 on signal security," were perceived by the division senior combat arms leaders to be of limited essentialness. All other tasks used in this survey were considered by the divisions' senior combat arms leaders to be highly essential.

2. The divisions' senior combat arms leaders perceived that their DSOs and ADSOs were highly effective in performing their tasks.

3. There were no tasks perceived as essential for which the signal officers were not also performing effectively.

4. There was a significant and moderately strong relationship between respondents' duty positions and their perceptions of the ADSOs' effectiveness in performing the task, "coordinate plans."

5. The divisions' senior combat arms leaders perceived the Signal Corps lieutenant colonels to be signal battalion commanders first, and then DSOs.

6. The divisions' senior combat arms leaders reported that they more frequently sought the ADSO than the DSO for signal advice.

7. The CGs had more contact with their DSOs concerning signal related issues; the C/Ss and G3s had more contact with the ADSOs.

Conclusions

The results of this study apply only to those division commanding generals, chiefs of staff, or G3s the active component divisions who served during the time this study was conducted. Attempts to generalize these results to a larger population must be done with caution.

The results of the study led to the following conclusions:

1. If the tasks from the doctrinal manuals (DA, 1984, 1986) are accepted indicators of tactical competence, then the DSOs and ADSOs are tactically competent.

2. If the tasks from the doctrinal manuals (DA, 1984, 1986) are accepted indicators of tactical competence, then DSOs and ADSOs need to be tactically competent in order to provide the necessary tactical signal support to their divisions.

Recommendations

The following recommendations are intended to further focus future research on the subject of the tactical competence of DSOs and ADSOs:

1. To extend the results of this study to other populations, the study should be replicated using the active component divisions.

2. Consideration should be given to investigating the tactical competence of signal officers assigned to reserve component divisions.

3. Officers serving as DSOs and ADSOs should be surveyed to determine their perceptions of essentialness for the tasks used in this study.

4. In an effort to further define tactical competence for DSOs and ADSOs, divisions' senior combat arms leaders should be surveyed with more open-ended methods to determine if there are any tasks that should be added to or deleted from the list of tasks used in this study.

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APPENDIX A

Survey Approval Authority: Soldiers Support Center-NCR
Survey Control Number: ATNC-AO-87-08

SURVEY OF DIVISION SIGNAL STAFF TACTICAL KNOWLEDGE

Command and General Staff College
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Telephone: AV 552-3320
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POC: MAJ Paul D. Hughes
LTC Al Patterson
Dr. Ernest G. Lowden

February 1987

Your survey questionnaire will be treated as confidential. Only persons involved in preparing the information for analysis will have access to it. Information will not be disclosed to others or used for any other purpose. Only group statistics will be reported.

Your participation in the survey is voluntary. Failure to respond to any question will not result in any penalty. However, your participation is encouraged so that the data will be complete and representative.

INSTRUCTIONS

1. Use this booklet to record your answers by either circling the appropriate response, marking a X on a continuous scale, or, when requested, by writing in your response.

2. Answer all questions from the perspective of your current duty position.

3. Many survey items present a statement concerning various tasks. These tasks are divided into two sections, one dealing with the DSO's tasks and the other with the ADSO's tasks. Each section is further subdivided into two sub-sections, one dealing with task essentialness and the other with task effectiveness. Each sub-section consists of a series of statements concerning the tasks performed by the DSO or ADSO.

4. Following each statement is a row of several blanks bordered by adjectives describing extremes of perceptions. Please place a X in the appropriate blank that describes your perception. Make sure that the X is clearly marked in only one blank. For example:

DURING THE SUPER BOWL, HOW ESSENTIAL IS IT THAT THE QUARTERBACK BE ABLE TO PERFORM THE FOLLOWING TASKS?

1. Analyze the pass defense of the opposing team within the 20 yard line.

Not Essential___:___:___:_X_:___:___:___Essential

Since the respondent's team relies on running plays within the 20 yard line, the letter X is placed to indicate the perception that this task has limited essentialness.

5. All information provided will be kept confidential. Results will only be presented in summary form and will not be attributable to either you or your division. This confidentiality will be strictly adhered to by both the MMAS candidate and his committee.

6. Upon completion please put the booklet in the enclosed, self-addressed envelope and mail it no later than 21 March 1987. Thank you for your cooperation.

BACKGROUND INFORMATION

Responses to the following questions will provide background information about yourself, your division, and your division signal officers.

Please circle the letter that describes your response.

1. This division is a:

   a. mechanized division.
   b. armored division.
   c. light infantry division.
   d. airmobile division.
   e. airborne division.
   f. motorized infantry division.

2. I have served in my current duty position for:

   a. less than 6 months.
   b. at least 6 months but less than 12 months.
   c. at least 12 months but less than 24 months.
   d. at least 24 months but less than 36 months.
   e. more than 36 months.

3. How many times have you been in contact with the Division Signal Officer (DSO) concerning tactical communications issues during the last thirty days? _____.

4. How many times have you been in contact with the Assistant Division Signal Officer (ADSO) concerning tactical communications issues during the last thirty days? _____.

5. What rank is the officer assigned to your staff as the ADSO?

   a. Major.
   b. Captain.
   c. Other (please specify):_____

6. The staff officer I last turned to concerning tactical communications issues was the:

a. DSO.
b. ADSO.
c. Other (please specify):_____.

Please place a X in the blank that describes your perception.

7. How effectively did your DSO support the division s operation during the last division-level FTX or CPX?

Not Effective___:___:___:___:___:___:___Effective

8. How effectively did your ADSO support the division's operation during the last division-level FTX or CPX?

Not Effective___:___:___:___:___:___:___Effective

9. How confident are you that the DSO could support the division s operations with timely and reliable communications after he received the division's operations briefing?

Not Confident___:___:___:___:___:___:___Confident

10. How confident are you that the ADSO could support the division s operation with timely and reliable communications after he received the division's operations briefing?

Not Confident___:___:___:___:___:___:___Confident

11. How much additional training, if any, does the DSO need in order to meet your expectations of an officer serving in that position?

None___:___:___:___:___:___:___Very Much More

12. How much additional training, if any, does the ADSO need in order to meet your expectations of an officer serving in that position?

None___:___:___:___:___:___:___Very Much More

13. If your division were to be deployed to a combat zone next week, how confident are you that the DSO would be able to perform his duties effectively?

Not Confident___:___:___:___:___:___:___Confident

14. If your division were to be deployed to a combat zone next week, how confident are you that the ADSO would be able to perform his duties effectively?

Not Confident___:___:___:___:___:___:___Confident

THE DIVISION SIGNAL OFFICER

The purpose of this section is to determine the perceptions you hold about your Division Signal Officer's level of knowledge concerning division tactical operations and his role in planning the necessary signal support. Your perceptions will be examined through your responses to a series of questions regarding the essentialness of tasks which FM 101-5, Staff Organization and Operations, lists as selected operations activities and relationships which support the G3's operations. Additionally, your perception concerning the effectiveness of the DSO in fulfilling these activities will be examined. Please place yourself in the context of your division being fully deployed and engaged in a training exercise when answering these questions. It is important that you answer the following questions from the perspective of your current duty position.

ESSENTIALNESS OF DSO FUNCTIONS

This sub-section asks you to rate specific functions performed by a DSO in terms of how essential they are to a DSO's performance during a tactical exercise. Remember to respond to these items from the context of your division being fully deployed and engaged in a training exercise.

DURING A TRAINING EXERCISE, HOW ESSENTIAL IS IT THAT THE DSO BE ABLE TO PERFORM THE FOLLOWING TASKS?

1. Analyzes the division's deep operation for tactical signal support requirements.

Not Essential___:___:___:___:___:___:___Essential

2. Analyzes the division's close operation for tactical signal support requirements.

Not Essential___:___:___:___:___:___:___Essential

3. Analyzes the division's rear operations for tactical signal support requirements.

Not Essential___:___:___:___:___:___:___Essential

4. Analyzes the division's command and control relationships based on the division's task-organization.

Not Essential___:___:___:___:___:___:___Essential

5. Plans the division's tactical signal support operations.

Not Essential___:___:___:___:___:___:___Essential

6. Coordinates plans with appropriate commanders and staffs.

Not Essential___:___:___:___:___:___:___Essential

7. Primarily functions as the Division Signal Officer.

Not Essential___:___:___:___:___:___:___Essential

c. Primarily functions as the division's Signal Battalion Commander.

Not Essential___:___:___:___:___:___:___Essential

EFFECTIVENESS OF DSO FUNCTIONS

This sub-section asks you to rate a DSO in terms of how effective he is in performing the specific functions described by FM 101-5 that support the G3's operations while the division is engaged in a training exercise.

BASED ON HIS PERFORMANCE IN A TRAINING EXERCISE, HOW EFFECTIVELY HAS THE DSO PERFORMED THE FOLLOWING TASKS?

9. Analyzes the division's deep operations for tactical signal support requirements.

Not Effective___:___:___:___:___:___:___Effective

10. Analyzes the division's close operations for tactical signal support requirements.

Not Effective___:___:___:___:___:___:___Effective

11. Analyzes the division's rear operations for tactical signal support requirements.

Not Effective___:___:___:___:___:___:___Effective

12. Analyzes the division's command and control relationships based on the division's task-organization.

Not Effective___:___:___:___:___:___:___Effective

13. Plans the division's tactical signal support operations.

Not Effective___:___:___:___:___:___:___Effective

14. Coordinates plans with appropriate commanders and staffs.

Not Effective___:___:___:___:___:___:___Effective

15. Performs as the Division Signal Officer.

Not Effective___:___:___:___:___:___:___Effective

16. Performs as the division's Signal Battalion Commander.

Not Effective___:___:___:___:___:___:___Effective

THE ASSISTANT DIVISION SIGNAL OFFICER

The purpose of this section is to determine the perceptions you hold about your Assistant Division Signal Officer's (ADSO) knowledge of division-level tactical operations and his role in planning the necessary signal support. Your perceptions will be examined through your responses to a series of questions regarding the essentialness of tasks which FM 101-5, Staff Organization and Operations, lists as selected operations activities and relationships which support the G3's operations. Additionally, your perceptions concerning the effectiveness of the ADSO in fulfilling these tasks will be examined. Please place yourself in the context of your division being fully deployed and engaged in a training exercise when answering these questions. Additionally, it is important that you answer the questions from the perspective of your current duty position.

ESSENTIALNESS OF ADSO FUNCTIONS

This sub-section asks you to rate specific functions performed by a ADSO in terms of how essential they are to his performance during a training exercise. Remember to respond to the questions from the context of your division being fully deployed and engaged in a training exercise.

DURING A TRAINING EXERCISE, HOW ESSENTIAL IS IT THAT THE ADSO BE ABLE TO PERFORM THE FOLLOWING TASKS?

17. Analyzes the division's deep operation for tactical signal support requirements.

Not Essential___:___:___:___:___:___:___Essential

18. Analyzes the division's close operation for tactical signal support requirements.

Not Essential___:___:___:___:___:___:___Essential

19. Analyzes the division's rear operations for tactical signal support requirements.

Not Essential___:___:___:___:___:___:___Essential

20. Analyzes the division's command and control relationships based on the division's task-organization.

Not Essential___:___:___:___:___:___:___Essential

21. Plans the divison's tactical signal support operations.

Not Essential___:___:___:___:___:___:___Essential

22. Coordinates plans with appropriate commanders and staffs.

Not Essential___:___:___:___:___:___:___Essential

23. Participates in the G3's mission analysis process.

Not Essential___:___:___:___:___:___:___Essential

24. Understands the graphic symbols used on division operational overlays.

Not Essential___:___:___:___:___:___:___Essential

25. Advises the G3 on the availability of signal assets required to support units.

Not Essential___:___:___:___:___:___:___Essential

26. Advises the G3 on the signal characteristics of proposed locations for the division command posts.

Not Essential___:___:___:___:___:___:___Essential

27. Advises the G3 on the possible consequences of a signal security compromise.

Not Essential___:___:___:___:___:___:___Essential

28. Demonstrates an understanding of the division commanding general's intent for an operation.

Not Essential___:___:___:___:___:___:___Essential

EFFECTIVENESS OF ADSO FUNCTIONS

This sub-section asks you to rate a ADSO in terms of how effective he is in performing the following specific functions described by FM 101-5 that support the G3's operations while the division is engaged in a training exercise.

BASED ON HIS PERFORMANCE IN A TRAINING EXERCISE, HOW EFFECTIVELY HAS THE ADSO PERFORMED THE FOLLOWING FUNCTIONS?

29. Analyzes the division's deep operation for tactical signal support requirements.

Not Effective___:___:___:___:___:___:___Effective

30. Analyzes the division's close operation for tactical signal support requirements.

Not Effective___:___:___:___:___:___:___Effective

31. Analyzes the division's rear operations for tactical signal support requirements.

Not Effective___:___:___:___:___:___:___Effective

32. Analyzes the division's command and control relationships based on the division's task-organization.

Not Effective___:___:___:___:___:___:___Effective

33. Plans the division's tactical signal support operations.

Not Effective___:___:___:___:___:___:___Effective

34. Coordinates plans with appropriate commanders and staffs.

Not Effective___:___:___:___:___:___:___Effective

35. Participates in the G3's mission analysis process.

Not Effective___:___:___:___:___:___:___Effective

36. Understands the graphic symbols used on division operational overlays.

Not Effective___:___:___:___:___:___:___Effective

37. Advises the G3 on the availability of signal assets required to support units.

Not Effective___:___:___:___:___:___:___Effective

38. Advises the G3 on signal characteristics of proposed locations for the division's command posts.

Not Effective___:___:___:___:___:___:___Effective

39. Advises the G3 on the possible consequences of signal security compromises.

Not Effective___:___:___:___:___:___:___Effective

40. Demonstrates an understanding of the division commanding general's intent for an operation.

Not Effective___:___:___:___:___:___:___Effective

41. From the perspective of your current position, what do you perceive to be the major strength of your signal staff's knowledge of division-level operations? (Please write your response below or on the back of the page).

42. From the perspective of your current position, what do you perceive to be the major weakness of your signal staff's knowledge of division-level operations? (Please write your response below or on the back of the page).

Thank you for your participation.

APPENDIX B

ATZL-SWO-E 15 Jan 1987

Subject: Request for Survey Approval

Thru: Deputy Commandant
USACGSC
ATTN: ATZL-SWO-E (Mr. Guerrero)
Ft. Leavenworth, KS 66027-6900

To: Deputy Commander, Soldier Support Center
ATTN: ATNC-MOA (Dr. Brady)
200 Stovall Street
Alexander, VA 22332-0400

1. The enclosed survey has been developed by myself, MAJ Paul Hughes, as a part of the requirements to earn a Master of Military Art and Science (MMAS) degree while attending the Command & General Staff College. The following information is presented IAW AR 600-46.

a. Survey title: Survey of Division Signal Staff Tactical Knowledge.

b. Sponsoring office: Director, Graduate Degrees Program, Command & General Staff.

c. Thesis committee: LTC Al Patterson, USACGSC, ATTN: ATZL-SWK, AV 552-2618; MAJ(P) Al Schenk, USACGSC, ATTN: ATZL-SWT-C, AV 552-2112; Dr. Ernest G. Lowden, USACGSC, ATTN: ATZL-SWO-E, AV 552-3320; COL E. Uitzthum, USACGSC, ATTN: ATZL-SWD-GD, AV 552-2741; and MAJ Paul Hughes, MMAS Candidate, AV 552-3320.

d. MMAS Program: The MMAS program requires participating students to compose a thesis on an approved subject dealing with military art and science. The thesis must be supported by scholarly research utilizing reviews of the literature, statistical analysis, survey instruments, or other methodologies approved by the thesis committee. During Term I of the academic year (4 Aug 86 - 19 Dec 86), the student prepares drafts of his proposal and reviews the literature. Term I is also used to devise and develop the desired methodology for the research. Term II (5 Jan 87- 5 Mar 87) is spent conducting the research and Term III (6 Mar 87- 5 Jun 87) in compiling and analyzing the data prior to finishing the thesis. The student's thesis is due by mid-April prior to the student's oral defense and comprehensive examination.

e. Study Description:

(1) Many Division Signal Officers (DSOs) and their Assistant Division Signal Officers (ADSOs) entered the Army when the tactical signal doctrine employed the division signal battalion in a passive support role. The battalion's major sites were always located with the major headquarter elements of the division, such as the division main command post (CP), the alternate division CP, and the division support command (DISCOM) headquarters. These major sites moved whenever the headquarters element moved on the battlefield. This relationship did not require the DSO or ADSO to be fully cognizant of the division commander's scheme of maneuver or of his intent.

(2) Today, the efficacy of tactical signal operations is heavily dependent upon the DSO's and ADSO's knowledge of division tactical operations. Under newly-developed signal doctrine, the major signal sites are now independently positioned by the DSO at locations from which signal support can be provided to the division fighting on the AirLand Battlefield. This positioning of the sites must be accomplished within the framework of the commander's intent and his scheme of maneuver.

(3) Today's signal officers serving as either a DSO or ADSO in active component divisions received their last tactics training in pre-AirLand Battle tactical doctrine. This training took place during their Advanced Course which occurred between the officer's fourth and eighth year of service. By the time these officers attained the rank of lieutenant- colonel and were assigned as both a division signal battalion commander and DSO, they will have had between 15 and 17 years in service. The lack of tactics training between their Advanced Course and their assignments as battalion commanders/DSOs may result in the officer's inability to properly support their divisions' operations. The possible failure on the part of the DSO and ADSO to fully recognize the signal requirements of a tactical operation and provide for them may create negative impressions about the tactical competence of signal officers in the minds of the division's senior combat arms officers, specifically, the commanding general, the chief of staff, and the G3.

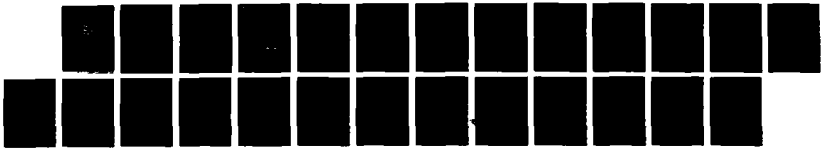
f. Justification:

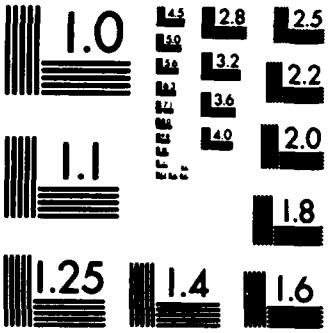
(1) This study proposes to determine the essentialness of the functional operations activities and relationships of the division signal staff officers as defined by FM 101-5, Staff Organization and Operations, and the effectiveness of the DSO and ADSO in these activities and relationships as determined by the division commanding general, the chief of staff, and the G3. The results of this study will provide the Signal Corps concerning the efficacy of their tactics training in their officer courses and the expectations of division senior [illegible]

(2) The survey findings will remain confidential and will be presented as a summary in the final thesis so that individuals cannot be identified. The thesis will be presented to the Graduate Degrees Program, USACGSC.

AD-A184 898 AN ANALYSIS OF THE PERCEPTIONS OF DIVISION SENIOR COMBAT ARMS LEADERS OF T..(U) ARMY COMMAND AND GENERAL STAFF COLL FORT LEAVENWORTH KS P D HUGHES 05 JUN 87 2/2

UNCLASSIFIED F/G 15/6 NL





g. Background research: To date, my research has not identified any literature addressing this study's subject.

h. Target population: All officers serving as the Division Commander, Division Chief of Staff, and Division G3 in all active component divisions will be surveyed.

i. Data analysis: Data will be analyzed by determining the frequency of responses by all respondents to all survey items. The next analysis will determine the frequency of responses by each type of respondent (meaning the commanding general, chief of staff, or G3) to all survey items. The third analysis will determine the frequency of responses by each type of respondent for each item relating to the DSO, and then the ADSO. Finally, signal officer tasks will be analyzed in terms of overall essentialness and compared to the overall effectiveness of the DSO and ADSO.

j. Administrative procedures: The instrument will be mailed directly to each member of the target population, along with a cover letter and self-addressed return envelope. The officer will be given 30 days to respond. Approximately 15 days after the survey has been mailed a post-card reminder will be sent to each officer. An additional reminder will be mailed to each member of the target population 25 days after the survey has been mailed.

k. Enclosures: Enclosed are the cover letter (Encl 1) and survey instrument (Encl 2).

l. Distribution of results: The summary of the data, conclusions, and recommendations will be incorporated in the final thesis and submitted to the Director, Graduate Degrees Program, USACGSC. A copy will be available to MILPERCEN upon request.

m. Desired release of data by MILPERCEN: Data may not be released by MILPERCEN without the permission of the Director, Graduate Degrees Program, USACGSC.

2. Request immediate approval of the instrument. Due to the time constraints imposed by the MMAS program and school year, delays in approval will seriously hamper any efforts to collect data from an appropriate population. Further, request that the approval be transmitted telephonically, followed by written approval.

3. Points of contact are listed in paragraph 1c of this letter.

Encl: as

Paul D. Hughes
MAJ, SC
MMAS Candidate

APPENDIX C

DEPARTMENT OF THE ARMY
U S ARMY COMMAND AND GENERAL STAFF COLLEGE
FORT LEAVENWORTH KANSAS 66027-6900

REPLY TO
ATTENTION OF

ATZL-SWD-GD

12 February 1987

SUBJECT: Survey of Division Signal Staff Tactical Knowledge

1. The attached survey was developed by a candidate in this year's U.S. Army Command and General Staff College's Master of Military Art and Science Program. Its purpose is to elicit your perceptions about your division signal staff's knowledge of division-level tactical operations and the Signal Officer in planning such operations.

2. Because each of you depends upon effective communications, you can provide valuable information on your signal staff's tactical knowledge. Even though you may not be in the official rating scheme of these officers, please respond to all the survey's questions because your position allows you to evaluate the communications provided by these officers in support of your operations.

3. When the survey is completed, please return it in the enclosed self-addressed envelope no later than 21 March 1987. The survey information will not be attributable to either you or your division and will appear only in summary form. Thank you for your support.

Frederick M. Franks, Jr.

2 Encls
1. Survey
2. Return Envelope

FREDERICK M. FRANKS, JR.
Major General, U.S. Army
Deputy Commandant

APPENDIX D

D-1

Frequency of Responses for Items Regarding Perceptions About Division Signal Officers' Functions

Score[a]	Number of Responses							
	Total Sample		CG		C/S		G3	
	Ess	Eff	Ess	Eff	Ess	Eff	Ess	Eff
Analyze Deep Operations								
2	1	0	0	0	0	0	1	0
3	1	1	0	0	1	1	0	0
4	3	3	0	1	2	1	1	1
5	6	8	2	2	4	4	0	2
6	10	11	4	5	4	5	2	1
7	16	14	7	5	4	4	5	5
Analyze Close Operations								
4	1	0	0	0	1	0	0	0
5	2	4	1	3	1	1	0	0
6	10	13	3	3	4	7	3	3
7	24	20	9	7	9	7	6	6

(table continues)

Score[a]	Number of Responses							
	Total Sample		CG		C/S		G3	
	Ess	Eff	Ess	Eff	Ess	Eff	Ess	Eff
Analyze Rear Operations								
4	1	0	0	0	1	0	0	0
5	5	11	0	4	4	5	1	2
6	13	10	5	3	5	5	3	2
7	18	16	8	6	5	5	5	5
Determine Command and Control Relationships								
4	0	1	0	0	0	1	0	0
5	2	5	0	2	0	2	2	1
6	13	12	4	5	8	5	1	2
7	22	19	9	6	7	7	6	6

(table continues)

Score[a]	Number of Responses							
	Total Sample		CG		C/S		G3	
	Ess	Eff	Ess	Eff	Ess	Eff	Ess	Eff
Plan Signal Support								
3	1	0	0	0	1	0	0	0
4	1	1	0	0	0	1	1	0
5	1	3	0	2	1	1	0	0
6	5	13	1	4	4	8	0	1
7	28	20	11	7	9	5	8	8
No Response	1	0	1	0	0	0	0	0
Coordinate Plans								
3	1	0	1	0	0	0	0	0
4	1	2	0	1	0	0	1	1
5	6	7	1	2	4	4	1	1
6	12	8	2	2	8	5	2	1
7	16	20	8	8	3	6	5	6
No Response	1	0	1	0	0	0	0	0

(table continues)

Score[a]	Number of Responses							
	Total Sample		CG		C/S		G3	
	Ess	Eff	Ess	Eff	Ess	Eff	Ess	Eff
Function as Division Signal Officer								
2	1	0	0	0	1	0	0	0
3	3	0	0	0	1	0	2	0
4	4	0	1	0	2	0	1	0
5	9	7	5	3	3	4	1	0
6	6	8	2	2	3	4	1	2
7	13	22	4	8	5	7	4	7
No Response	1	0	1	0	0	0	0	0
Function as Commander								
1	1	1	1	1	0	0	0	0
4	1	1	0	0	0	1	1	0
5	8	4	5	2	2	2	1	0
6	10	7	0	3	7	3	3	1
7	16	24	6	7	6	9	4	8
No Response	1	0	1	0	0	0	0	0

Note. CG refers to commanding generals, C/S refers to chiefs of staff, "Ess" refers to essentialness, and "Eff" refers to effectiveness.

[a]Scores ranged from 1 to 7; for scores not listed, there were zero responses.

D-2

Frequency of Responses for Items Regarding Perceptions About Assistant Division Signal Officers' Functions

Score[a]	Number of Responses							
	Total Sample		CG		C/S		G3	
	Ess	Eff	Ess	Eff	Ess	Eff	Ess	Eff
Analyze Deep Operations								
3	1	1	0	0	1	0	0	1
4	1	3	0	1	1	2	0	0
5	7	5	3	3	4	2	0	0
6	9	14	3	4	5	7	1	3
7	19	13	7	4	4	4	8	5
No Response	0	1	0	1	0	0	0	0
Analyze Close Operations								
3	0	1	0	0	0	0	0	1
5	3	5	3	3	0	2	0	0
6	9	13	1	4	7	8	1	1
7	25	17	9	5	8	5	8	7
No Respone	0	1	0	1	0	0	0	0

(table continues)

Score[a]	Number of Responses							
	Total Sample		CG		C/S		G3	
	Ess	Eff	Ess	Eff	Ess	Eff	Ess	Eff
Analyze Rear Operations								
3	0	1	0	0	0	0	0	1
4	1	2	1	0	0	2	0	0
5	6	8	4	4	2	3	0	1
6	9	11	1	3	7	6	1	2
7	21	14	7	5	6	4	8	5
No Response	0	1	0	1	0	0	0	0
Determine Command and Control Relationships								
3	0	1	0	0	0	0	0	1
4	1	2	0	1	1	1	0	0
5	1	6	0	3	1	3	0	0
6	11	11	5	3	5	7	1	1
7	24	16	8	5	8	4	8	7
No Response	0	1	0	1	0	0	0	0

(table continues)

Score[a]	Number of Responses							
	Total Sample		CG		C/S		G3	
	Ess	Eff	Ess	Eff	Ess	Eff	Ess	Eff
Plan Signal Support								
3	0	1	0	0	0	0	0	1
4	1	3	1	2	0	0	0	1
5	2	5	1	3	1	2	0	0
6	10	11	4	2	4	8	2	1
7	24	16	7	5	10	5	7	6
No Response	0	1	0	1	0	0	0	0
Coordinate Plans								
3	0	1	0	0	0	0	0	1
4	0	1	0	0	0	0	0	1
5	3	4	1	3	1	1	1	0
6	10	12	3	3	6	9	1	0
7	24	18	9	6	8	5	7	7
No Response	0	1	0	1	0	0	0	0

(table continues)

Score[a]	Number of Responses							
	Total Sample		CG		C/S		G3	
	Ess	Eff	Ess	Eff	Ess	Eff	Ess	Eff
Participate in G3 Analysis								
3	0	1	0	0	0	0	0	1
5	3	7	1	3	1	3	1	1
6	9	7	2	2	6	4	1	1
7	25	21	10	7	8	8	7	6
No Response	0	1	0	1	0	0	0	0
Understand Graphic Symbols								
3	0	1	0	0	0	0	0	1
4	0	1	0	0	0	1	0	0
5	4	5	2	2	0	2	2	1
6	7	9	0	3	6	6	1	0
7	26	20	11	7	9	6	6	7
No Response	0	1	0	1	0	0	0	0

(table continues)

Score[a]	Number of Responses							
	Total Sample		CG		C/S		G3	
	Ess	Eff	Ess	Eff	Ess	Eff	Ess	Eff
Advise G3 on Signal Assets								
3	0	1	0	0	0	0	0	1
4	0	1	0	0	0	1	0	0
5	1	4	1	2	0	2	0	0
6	6	6	1	2	4	3	1	1
7	30	24	11	8	11	9	8	7
No Response	0	1	0	1	0	0	0	0
Advise G3 on Command Post Locations								
3	0	1	0	0	0	0	0	1
4	1	0	0	0	1	0	0	0
5	1	4	1	1	0	3	0	0
6	3	11	1	3	2	5	0	3
7	32	20	11	8	12	7	9	5
No Response	0	1	0	1	0	0	0	0

(table continues)

	Number of Responses							
	Total Sample		CG		C/S		G3	
Score[a]	Ess	Eff	Ess	Eff	Ess	Eff	Ess	Eff
Advise G3 on Signal Security								
3	1	1	0	0	1	0	0	1
4	1	3	0	1	1	1	0	1
5	12	8	4	2	4	5	4	1
6	8	8	1	2	5	4	2	2
7	15	16	8	7	4	5	3	4
No Response	0	1	0	1	0	0	0	0
Understand Commanding General's Intent								
3	1	1	1	0	0	0	0	1
4	0	1	0	1	0	0	0	0
5	5	4	2	2	3	2	0	0
6	6	11	0	2	4	7	2	2
7	25	19	10	7	8	6	7	6
No Response	0	1	0	1	0	0	0	0

Note. CG refers to commanding generals, C/S refers to chiefs of staff, "Ess" refers to essentialness, and "Eff" refers to effectiveness.

[a]Scores ranged from 1 to 7; for scores not listed, there were zero responses.

APPENDIX E

E-1

Differences Between the Total Sample's Perceived Essentialness of Tasks and Their Perceived Effectiveness of Division Signal Officers in Performing the Tasks

Task	Essentialness		Effectiveness		Difference	
	Mo	Me	Mo	Me	Mo	Me
Analyze deep operations	7	6	7	6	0	0
Analyze close operations	7	7	7	7	0	0
Analyze rear operations	7	6	7	6	0	0
Determine command and control relationships	7	7	7	7	0	0
Plan signal support	7	7	7	7	0	0
Coordinate plans	7	6	7	7	0	+1
Function as the Division Signal Officer	7	6	7	7	0	+1
Function as battalion commander	7	6	7	7	0	+1

E-2

Differences Between the Commanding General's Perceived Essentialness of Tasks and Their Perceived Effectiveness of Division Signal Officers in Performing the Tasks

Task	Essentialness		Effectiveness		Difference	
	Mo	Me	Mo	Me	Mo	Me
Analyze deep operations	7	7	7	6	0	-1
Analyze close operations	7	7	7	7	0	0
Analyze rear operations	7	7	7	6	0	-1
Determine command and control relationships	7	7	7	6	0	-1
Plan signal support	7	7	7	7	0	0
Coordinate plans	7	7	7	7	0	+1
Function as the Division Signal Officer	5	*	7	7	+2	*
Function as battalion commander	7	6	7	7	0	+1

* Not calculated because ordinal nature of data and even number of cases precluded an exact median

E-3

Differences Between the Chiefs of Staff Perceived Essentialness of Tasks and Their Perceived Effectiveness of Division Signal Officers in Performing the Tasks

Task	Essentialness		Effectiveness		Difference	
	Mo	Me	Mo	Me	Mo	Me
Analyze deep operations	5	6	6	6	+1	0
Analyze close operations	7	7	6	6	-1	-1
Analyze rear operations	6	6	5	6	-1	0
Determine command and control relationships	6	6	7	6	+1	0
Plan signal support	7	7	6	6	-1	-1
Coordinate plans	6	6	7	6	+1	0
Function as the Division Signal Officer	7	6	7	6	0	0
Function as battalion commander	6	6	7	7	+1	+1

E-4

Differences Between the G3 Officers' Perceived Essentialness of Tasks and Their Perceived Effectiveness of Division Signal Officers in Performing the Tasks

Task	Essentialness		Effectiveness		Difference	
	Mo	Me	Mo	Me	Mo	Me
Analyze deep operations	7	7	7	7	0	0
Analyze close operations	7	7	7	7	0	0
Analyze rear operations	7	7	7	7	0	0
Determine command and control relationships	7	7	7	7	0	0
Plan signal support	7	7	7	7	0	0
Coordinate plans	7	7	7	7	0	0
Function as the Division Signal Officer	7	6	7	7	0	+1
Function as battalion commander	7	6	7	7	0	+1

E-5

Differences Between the Total Sample's Perceived Essentialness of Tasks and Their Perceived Effectiveness of Assistant Division Signal Officers in Performing the Tasks

Task	Essentialness		Effectiveness		Difference	
	Mo	Me	Mo	Me	Mo	Me
Analyze deep operations	7	7	6	6	-1	-1
Analyze close operations	7	7	7	6	0	-1
Analyze rear operations	7	7	7	6	0	-1
Determine command and control relationships	7	7	7	6	0	-1
Plan signal support	7	7	7	6	0	-1
Coordinate plans	7	7	7	*	0	*
Participate in G3 analysis	7	7	7	7	0	0
Understand graphic symbols	7	7	7	7	0	0
Advise G3 on signal assets	7	7	7	7	0	0
Advise G3 on Command Post locations	7	7	7	7	0	0
Advise G3 on signal security	7	6	7	6	0	0
Understand commanding general's intent	7	7	7	7	0	0

* Not calculated because ordinal nature of data and even number of cases precluded an exact median

E-6

Differences Between the Commanding General's Perceived Essentialness of Tasks and Their Perceived Effectiveness of Assistant Division Signal Officers in Performing the Tasks

Task	Essentialness		Effectiveness		Difference	
	Mo	Me	Mo	Me	Mo	Me
Analyze deep operations	7	7	6&7	6	*	0
Analyze close operations	7	7	7	6	0	-1
Analyze rear operations	7	7	7	6	0	-1
Determine command and control relationships	7	7	7	6	0	-1
Plan signal support	7	7	7	6	0	-1
Coordinate plans	7	7	7	**	0	**
Participate in G3 analysis	7	7	7	7	0	0
Understand graphic symbols	7	7	7	7	0	0
Advise G3 on signal assets	7	7	7	7	0	0
Advise G3 on Command Post locations	7	7	7	7	0	0
Advise G3 on signal security	7	7	7	7	0	0
Understand commanding general's intent	7	7	7	7	0	0

*Not calculated due to bimodal data

** Not calculated because ordinal nature of data and even number of cases precluded an exact median

E-7

Differences Between the Chiefs' of Staff Perceived Essentialness of Tasks and Their Perceived Effectiveness of Assistant Division Signal Officers in Performing the Tasks

Task	Essentialness		Effectiveness		Difference	
	Mo	Me	Mo	Me	Mo	Me
Analyze deep operations	6	6	6	6	0	0
Analyze close operations	7	7	6	6	-1	-1
Analyze rear operations	6	6	6	6	0	0
Determine command and control relationships	7	7	6	7	-1	0
Plan signal support	7	7	6	6	-1	-1
Coordinate plans	7	7	6	6	-1	-1
Participate in G3 analysis	7	7	7	7	0	0
Understand graphic symbols	7	7	6&7	6	*	-1
Advise G3 on signal assets	7	7	7	7	0	0
Advise G3 on Command Post locations	7	7	7	6	0	-1
Advise G3 on signal security	6	6	5&7	6	*	0
Understand commanding general's intent	7	7	6	6	-1	-1

*Not calculated due to bimodal data

E-8

Differences Between the G3 Officers' Perceived Essentialness of Tasks and Their Perceived Effectiveness of Assistant Division Signal Officers in Performing the Tasks

Task	Essentialness		Effectiveness		Difference	
	Mo	Me	Mo	Me	Mo	Me
Analyze deep operations	7	7	7	7	0	0
Analyze close operations	7	7	7	7	0	0
Analyze rear operations	7	7	7	7	0	0
Determine command and control relationships	7	7	7	7	0	0
Plan signal support	7	7	7	7	0	0
Coordinate plans	7	7	7	7	0	0
Participate in G3 analysis	7	7	7	7	0	0
Understand graphic symbols	7	7	7	7	0	0
Advise G3 on signal assets	7	7	7	7	0	0
Advise G3 on Command Post locations	7	7	7	7	0	0
Advise G3 on signal security	5	6	7	6	+2	0
Understand commanding general's intent	7	7	7	7	0	0

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