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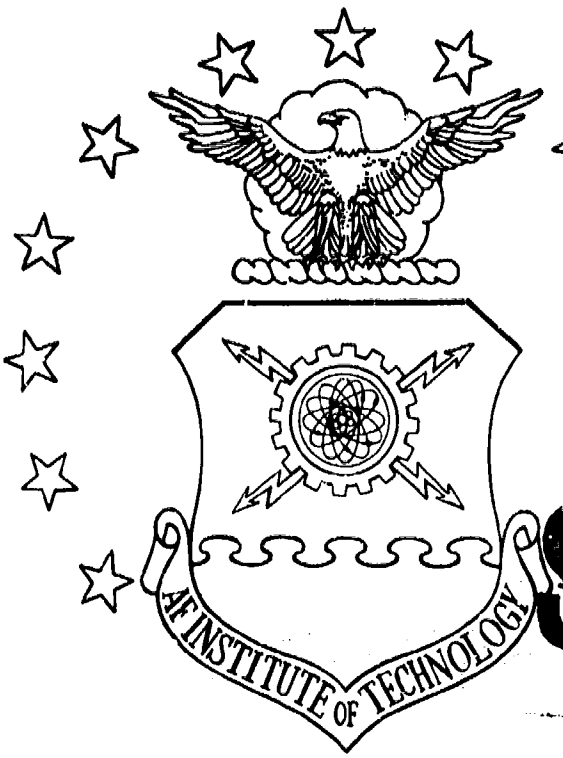

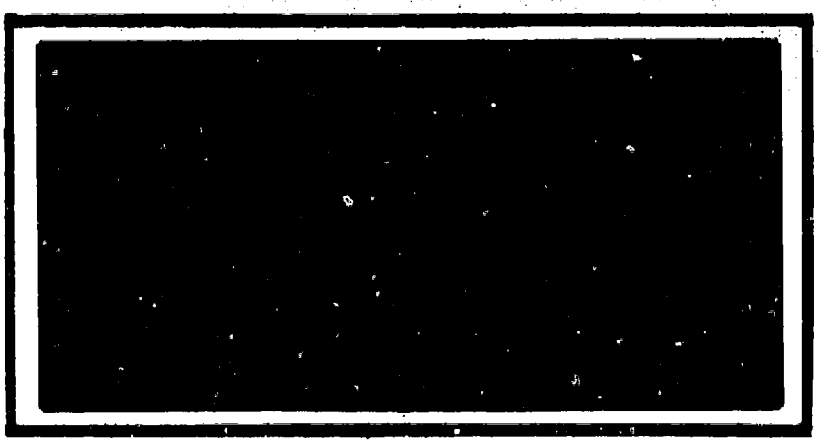

DEPARTMENT OF THE AIR FORCE

AIR UNIVERSITY

AIR FORCE INSTITUTE OF TECHNOLOGY

Wright-Patterson Air Force Base, Ohio

AFIT/GIR/LSQ/90D-5

A STUDY OF THE AIR FORCE'S CURRENT METHOD OF TRAINING INDIVIDUALS TO USE CONTRACTOR DEVELOPED SOFTWARE IN INFORMATION MANAGEMENT AND THE PERCEIVED EFFECTIVENESS OF THE TRAINING

THESIS

•Bruce F. Harmon, Captain, USAF•

•AFIT/GIR/LSQ/90D-5•

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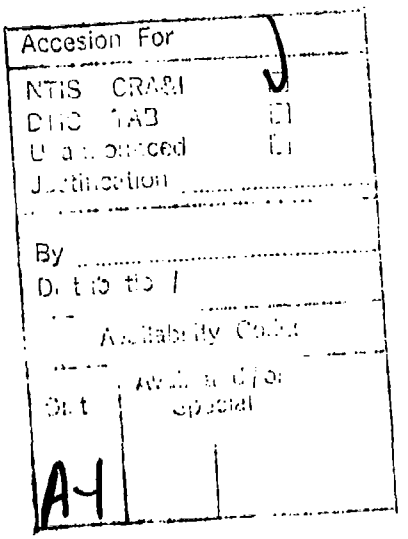

AFIT/GIR/LSQ/90D-5

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THESIS

Presented to the Faculty of the School of

Systems and Logistics of the Air Force

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In Partial Fulfillment of the

Requirements for the Degree of

Master of Science in

Information Resources Management

Bruce F. Harmon, B.S.

Captain, USAF

December 1990

Preface

The purpose of this research was to document statistically: 1) the Air Force's current methods of training individuals to use the automated information management systems; 2) middle management's perceived effectiveness of the quality of the training and upper level management support provided for these systems; 3) the user's perceived effectiveness of the training they received and, if training was not received, to document how the users learned to operate these software packages. This study provides an insight into the Air Force's current state of automated information management systems training.

A multiple case analysis of the major commands, separate operating agencies, and direct reporting units identified the various types of training provided throughout the Air Force on the use of automated information management systems. A self-administered questionnaire was used to collect the data from a sample of population of Chiefs of Information Management and enlisted information managers and reprographic managers. The SAS System for Statistical Analysis was used to determine frequency distributions and to analyze the effect of each major command, separate operating agency, and direct reporting unit on training.

Completion of this thesis would not have been possible without the help and support of others. I am especially gratefully to my thesis advisor, Lt Colonel Richard Peschke, for his support and guidance. I am also grateful to

Colonels William O. Nations and Edward A. Pardini, the Air Force's Directors of Information Management during the time this research was conducted. Their support allowed me to collect and analyze information that might not have otherwise been made available. I also wish to thank the information managers who took part in the pretesting phase of my survey questionnaire. Finally, I am forever indebted to my wife Joy and my children Christopher and David for their countless sacrifices. Their endless patience, support, and encouragement helped me through the tough times and gave me the strength to persevere and complete this research.

Bruce F. Harmon

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Abstract

The purpose of this research was to determine if the Air Force's current method of training untrained individuals to use contractor developed automated information management software is producing the desired levels of productivity and the effectiveness of the training.

The study found that greater emphasis must be placed on developing and supporting the use of a standardized training program for the managers and users of automated information management software. Due to the lack of quality training, the majority of survey respondents felt they could perform their jobs more efficiently and be more productive if they had some/more computer training.

The study recommended three possible means of correcting this training problem: 1) Include hands-on computer training in all Information Management technical training programs, going beyond the basics required to turn on a computer, including introductory training in basic operating system commands. 2) Development of initial and follow-on training programs, to be taught at all field training detachments, for all automated information management systems. 3) Development of professional continuing education courses to provide senior officer and enlisted information managers the training needed to effectively manage all forms of automated information management systems at all levels of command.

A STUDY OF THE AIR FORCE'S CURRENT METHOD OF TRAINING INDIVIDUALS TO USE CONTRACTOR DEVELOPED SOFTWARE IN INFORMATION MANAGEMENT AND THE PERCEIVED EFFECTIVENESS OF THE TRAINING

I. Introduction

General Issue

Since the creation of the Department of the Air Force in 1947, Air Force administrators have been faced with the same problem; finding the best way to manage the volumes of information required to support the mission. The introduction of the personal computer in the early 1980s further compounded the problem while, at the same time, providing a possible solution. Recognizing the value of computer generated information, the Air Force began struggling with the question of who would be responsible for developing and implementing policy to manage its information resources. The 1986 reorganization of the Department of Defense resulted in the creation of the Directorate of Information Management and Administration under the control of the Office of the Secretary of the Air Force. This new office, formerly the Directorate of Administration, was tasked with the management of all Air Force information resources (38).

Lacking any specific guidance, many innovative administrators throughout the Air Force created computer programs to help them better manage and control the information they were now responsible for managing. Realizing the potential of the personal computer and the need to set specific standards for the management of information, the Air Force Director of Administration released AFR 4-5, *Administration Automated Systems Management*, on 19 June 1986. This regulation stated that the goal of administrative systems management was "to ensure functional administration implements automated systems where feasible, and achieves maximum benefit from the use of those automated systems in support of operational missions" (10:1). To achieve this goal, Air Force senior information managers committed to automating many of the functions of information management. This commitment resulted in the development of three automated information management systems: the Publications Distribution Operating System (PDOS), the Records Information Management System (RIMS), and the Reprographics Automated Management System (RAMS).

The Air Force spent hundreds of thousands of dollars for contractors to develop these automated information management systems but failed to meet the provisions of AFR 4-30, *Records Maintenance and Disposition Orientation and Training Program*. AFR 4-30, states "the command record manager will establish a command management program ensuring continuing orientation and training at the command, base,

and job level" (16:2). AFM 4-205, *Publishing Distribution Office System (PDOS): R011/BZ End User Manual* and AFM 4-761, volumes 1 and 2, RAMS, make no mention of training requirements.

To meet the training needs associated with the implementation of these new systems, the contractor provided initial training to the major command (MAJCOM), separate operating agency (SOA), and direct reporting unit (DRU) functional managers for each automated information management system. These functional managers were then expected to: 1) develop MAJCOM/SOA/DRU specific training packages; and 2) train all MAJCOM/SOA/DRU functional managers down to and including base level. Although not tasked to do so, the Data Systems Design Office at Gunter Air Force Base, Alabama, provided follow-on training for each subsequent release of updated versions of these programs. This follow-on training was provided with the expectation that the MAJCOM/SOA/DRU functional managers would revise their current training programs and provide follow-on training to their functional managers (7).

Specific Problem

The specific problem for this research effort was to determine if the Air Force's current method of depending on its major commands, separate operating agencies, and direct reporting units to train individuals to use contractor developed software for information management produced the desired levels of effectiveness. This research further

determined the perceived effectiveness of these software packages from the user's viewpoint.

Research Objective

The objective of this research was threefold. The first was to document the current methods employed by the Air Force's major commands, separate operating agencies, and direct reporting units tc train individuals to use these information management software packages. Second, to document statistically, from the viewpoint of Chiefs of Information Management, the perceived effectiveness of this training and the quality of the support received from the major commands/separate operating agencies/direct reporting units. Finally, this research documents statistically the user's perceived effectiveness of the training they received. If training was not provided by the major command, separate operating agency or direct reporting unit, the research documents how the users learned to operate these software packages.

Hypotheses

The following hypotheses were investigated to solve the research problem:

H1: The major commands, separate operating agencies, and direct reporting units do not provide effective training to their headquarters and subordinate units on the proper use of contractor developed information management software packages.

H2: The majority of Air Force information managers have not received adequate training on the proper use of contractor developed information management software packages.

H3: Current training methods result in less than desired effectiveness from the users of contractor developed information management software packages.

H4: Information managers feel they could be more productive if they were properly trained to use the contractor developed information management software packages.

H5: Base level information managers do not provide training on the proper use of contractor developed information management software packages to all information managers assigned to their base.

H6: Information managers feel their lack of training on the use of contractor developed information management software packages hurts their chances for promotion.

H7: The users of contractor developed information management software packages are not satisfied with the effectiveness of the training they received on the use of these software packages.

Definitions

Information Systems -- User-machine systems for providing information to support operations, management, analysis, and decision-making functions in an organization (9:6).

Chief of Information Management -- An individual whose Duty Air Force Specialty Code is 70XX performing duty below MAJCOM/SOA/DRU level.

Enlisted Information Manager -- any Air Force enlisted member whose Duty Air Force Specialty Code is 702XX.

Enlisted Reprographic Specialist -- any Air Force enlisted member whose Duty Air Force Specialty Code is 703XX.

Publications Distribution Operating System -- a stand-alone microcomputer system that provides information managers an automated means for managing and distributing Air Force publications. The system was designed to "enhance the interface between base-level publishing distribution offices and the command-level publishing distribution offices systems with the Air Force Publishing Distribution Center" (14:1).

Records Information Management System -- a stand-alone microcomputer system that automates the labor intensive and time consuming tasks performed by Base Level Records Managers. It also tracks requests for information under the Freedom of Information Act and consolidates and prints required records management reports for use throughout the Air Force (5).

Reprographics Automated Management System -- a stand-alone microcomputer system that automates the management of print plants, duplication centers, and copier programs at base

level. It also automates supply and equipment management, produces numerous reports used throughout the Air Force to include Government Printing Office and Congressional Joint Committee on Printing semiannual and annual printing cost reports, and enhances personnel management (6).

Scope

This research explored the current methods employed by each MAJCOM/SOA/DRU to train its information managers and reprographic specialists to use the various automated information management systems in use Air Force-wide. A multiple case analysis, through the available literature and through inputs provided by each MAJCOM/SOA/DRU's Director of Information Management, provided an insight into the various methods used throughout the Air Force to provide this training. Secondly, a survey of all Chiefs of Information Management revealed their perceived effectiveness of the training and quality of the support they receive from their MAJCOMs/SOAs/DRUs. Finally, surveying the enlisted information managers and enlisted reprographic specialists, the primary users of these systems, provided an insight into the true effectiveness of these training programs.

Results of this research are applicable to all Air Force information managers and reprographic specialists; all MAJCOM/SOA/DRU Directors of Information Management and all Chiefs of Information Management were invited to participate in this research. However, the results of the analysis of the survey of enlisted members may not be applicable to all

enlisted Air Force information managers and reprographic specialists. Only enlisted members serving in the grade of airman first class and above were surveyed.

Organization of Thesis

This thesis is organized according to the guidelines provided in AFIT's Style Guide for Thesis and Dissertations.

Chapter I provides an introduction to the research including a discussion of the general issue that spawned the formation of the specific research problem, the hypotheses tested by the research, the objective of the research, definitions of key terms, and the scope of the research.

Chapter II contains a review of the literature relevant to the research.

Chapter III describes the methodology used to gather the information needed to test the hypotheses and details the methods used to analyze the data.

Chapter IV includes a detailed analysis of the data collected from the multiple case analysis and the surveys and provides the results of the tests of the hypotheses.

Chapter V summarizes the research, draws conclusions to the hypotheses based on the analysis of the data provided in chapter IV, recommends improvements to the Air Force's method of training users of automated information systems, and recommends areas of further research based on the findings of this research.

II. Background

No previous studies were located that evaluated how the Air Force trains individuals to use contractor developed software and the perceived effectiveness of the training. However, numerous studies relating the need for and the results of software training were found and are discussed below.

DEVELOPMENT HISTORY

Early in the 1980s, the Air Force realized the potential value of desktop computers and envisioned the positive results automation could have on day-to-day operations. To this end the Air Force began looking for areas in which to utilize this new resource. One of the results of this effort was the Air Force Automation Users Group's identification in June 1983 of the "publishing distribution office as its highest priority for automation within the administration (now information management) community" (40). The development of the Records Information Management System and the Reprographics Automated Management System also resulted from later decisions of the Air Force Users Group.

Publishing Distribution Office System

A 1 December 1983 letter from the Air Force Director of Administration to the Data Systems Design Office directed them to proceed with initial development of the Publications

Distribution Office System as outlined in Program Automated Data Processing Requirement (PAR) HAF-R86-1. The Publishing Distribution Office System Data Project Directive (DPD), DPD-HAF-R86-03, was approved on 13 December 1984, authorizing the expenditure of funds for software development. Contract F49642-83-C0026 was awarded to ARA Associates for development of the software. Expenditures as of 30 September 1989 were:

Total System Investment Cost:

Initial contractor development costs	$ 51,000.00
Software purchase costs	$ 8,141.75
Software maintenance costs	$130,211.50
Investment Total	$189,353.25

The Data Project Plan (DPP) describing the actions to be taken in support of the Publishing Distribution Office System Data Project Directive, dated 13 December 1984, was approved on 26 February 1985. Change 1 to the Data Project Plan was approved and distributed on 6 May 1985. Appendix C to this plan is the Test and Evaluation Plan. According to the Data Project Plan, Appendix C describes the requirements for the testing phase of the Publishing Distribution Office System project from the environmental system test through the system validation review. Neither a copy of this appendix nor a copy of Contract F49642-83-C0026 were found after a search of both the Air Force Director of Information Management's offices (the Air Staff functional office of primary responsibility) and the Standard Systems Center's offices (the system manager). These documents contain a

description of the level of effectiveness users should achieve when using this system. Lacking this description, effectiveness was measured using the defined expectations of airmen at a particular skill level according to Air Force Regulation 50-23 and Air Force Regulation 50-34.

Appendix H to the Data Project Plan contained the Training Plan. The plan states:

> The cadre approach will be used to provide initial PDOS training for MAJCOM-SOA functional representatives . . . . Following this "initial cadre" training, MAJCOM-SOA/DAs will provide subsequent initial PDOS training for individual MAJCOM-SOA units upon ADS implementation. (13:Appendix H)

The Training Plan also states that formal training necessary to support PDOS is the responsibility of Air Training Command. Air Training Command developed a self-paced programmed text, called the PDOS ETP, to provide users with ADS familiarization for use with the initial cadre training and future training. MAJCOM/SOA/DRU points of contact were tasked with ensuring that "all initial cadre and unit-level functional user personnel are provided an individual copy of the PDOS ETP" (13:Appendix H). Lastly, the Training Plan states that follow-on training will be conducted through on-the-job-training and using existing computer aided instruction. Again, an exhaustive search for any form of PDOS computer aided instruction was fruitless. A fact sheet provided by the system manager states:

> The Air Force Publishing Distribution Office Working Group finalized the PDOS functional specifications in July 1984. ARA Associates, a civilian contractor, accomplished development and

> delivered the system to the Standard Systems Center (SSC) in March 1984. SSC made the first Air Force-wide release of PDOS in November 1985. As of July 1989, SSC is supporting over 325 system users in all major commands, as well as the Air Force Reserves and Air National Guard. (40)

The fact sheet further states that because the Publishing Distribution Office System is an unfunded system, the burden of training is to be borne by the using commands (40).

Reprographics Automated Management System

In 1982 the Air Force identified a need for a Reprographics Management Information System (RMIS) to better manage the cost and production in reprographic functions throughout the Air Force. However, the Air Force was unable to obtain the funding needed to develop this system until 1985. At that time they reviewed their options for development and determined that Air Force Systems Command's existing, in-house developed, Reprographics Management Information System should provide the basis for the basic system upon which other modules could be added. A 26 July 1985 letter from the Air Force Director of Information to the Air Force Systems Command Director of Administration tasked them with converting their system into an Air Force standard system. The Information System Directive (ISD) approving the integration and standardization of reprographic management with the Air Force was approved on 26 January 1986. Attachments to this letter included a description of the training and other requirements needed to make the system an Air Force standard (17). The attachments

failed to describe the level of effectiveness users should achieve when using the system. Addressing training, the letter stated:

> Upon approval of standard software and documentation for RMIS, the contractor will prepare training materials and train MAJCOM-SOA cadre personnel in RMIS operation. The training materials will be provided to cadre personnel for subsequent user training to be conducted by the MAJCOM-SOA. (17)

An extensive search of the records maintained by the offices of the Air Force Director of Information Management (the Air Staff functional office of primary responsibility) and the Standard System Center (the system manager) revealed a lack of documentation detailing the events leading to the development of the Reprographics Automated Management System. It is therefore not possible to determine the level of effectiveness users of the system were expected to achieve. Lacking this description, effectiveness was measured using the defined expectations of airmen at a particular skill level according to Air Force Regulation 50-23 and Air Force Regulation 50-34.

The following information was obtained from a fact sheet developed by the system manager.

> The 1983 Automation Users Group identified the Reprographics Management System as the second major priority within the administration (information management) community. Subsequently, Air Force Systems Command contracted software system development to VERAC Inc., in August 1984. The Contractor delivered the system to the Standard Systems Center for maintenance and modification in September 1986. However, major problems in the software delayed RAMS' release to the field until June 1987. As of July 1989, the

Standard Systems Center is supporting over 120 users of the RAMS software. (42)

Expenditures as of 30 September 1989 were:

Total System Investment Cost:

Initial contractor development costs	$160,000.00
Software maintenance costs	$ 65,149.00
Software compilers	$ 710.00
Investment Total	$225,859.00

The fact sheet further states that because RAMS is an unfunded system, the burden of training is to be borne by the using commands (42).

Records Information Management System

The Records Information Management System (RIMS) was the third and last of the current automated standard systems developed for use within the Air Force information management community. It automates the labor intensive and time consuming records management tasks performed at base level.

The Information Systems Requirement Document (ISRD), HAF-R86-003, for the Records Information Management System was approved on 15 August 1986. This was followed by the approval of the initial Information Systems Directive (ISD) on 15 December 1986 which was revised on 24 February 1987. The Information Systems Directive directed the following actions:

a. Air Force Systems Command was tasked with developing a standard automated records management system

and establishing a program management office for the system (15).

b. All major commands and separate operating agencies who had developed or were developing a "similar system to cease their efforts and obtain the standard system" (15).

c. All major commands and separate operating agencies to fund for and receive initial RIMS user training and to then provide subsequent initial RIMS training for individual units within their command (15).

The Information Systems Directive does not address the level of effectiveness users should achieve when using the system.

An extensive search of the records maintained by the offices of the Air Force Director of Information Management (the Air Staff functional office of primary responsibility) and the Standard System Center (the system manager) revealed a lack of documentation detailing the events leading to the development of the Records Information Management System. It is therefore not possible to determine the level of effectiveness users of the system were expected to achieve. Lacking this description, effectiveness was measured using the defined expectations of airmen at a particular skill level according to Air Force Regulation 50-23 and Air Force Regulation 50-34.

The following information was obtained from a fact sheet developed by the system manager.

> Air Force Systems Command contracted RIMS initial development to VERAC Inc., in 1987. The contractor, now called Ball Systems Engineering Division, completed system development in August

1988. Air Force conducted environmental systems testing at Eglin, Langley, and Norton Air Force Bases in July through October 1988. In October 1989, the contractor turned over the completed RIMS software to SSC for maintenance and modification. SSC/SMELA released RIMS to the Air Force in February 1989 to about 600 users. As of July 1989, approximately 200 organizations have implemented the system. (41)

Expenditures as of 30 September 1989 were:

Total System Investment Cost:

Initial contractor development costs	$247,000.00
Software maintenance costs	$ 37,411.00
Investment Total	$284,411.00

The fact sheet further states that because RIMS is an unfunded system, the burden of training is to be borne by the using commands (41).

In summary, the growth of automated systems in the workplace and current manpower reductions further fuels the fire that says if information managers are to do more with less they must be provided with well defined and designed systems, and they must also be effectively trained to use the tools necessary to accomplish the task. All three systems were developed at a cost to the Air Force and the taxpayer of $699,623.25. Each system was developed with the support of the Air Force's senior information management leadership. The requirement to provide user training was delegated to each major command and separate operating agency; however, noticeably missing is the lack of a documented, predefined standard of user effectiveness.

DISCUSSION

Implementing Automated Information Systems

Implementing automated information systems involves much more than handing the hardware and software to the users. Cynthia Lassnoff found "meaningful productivity increases depend not only on an organization's equipment, but on the employees and managers who use it" (26:66). She also noted that "better performance and enhanced productivity are linked to productive training programs" (26:66). In the 15 August 1986 issue of *Government Computer News*, Brad Bass reviewed a General Services Administration survey stating the most widely reported problem facing microcomputer users was the lack of adequate training (1:61). Addressing the training issue, Matthew Lechleitner noted:

> Once new users are left alone with their computers, even the simplest questions can become major obstacles. Therefore, not only is training important, but follow-on training support is just as important. (27:74)

Surveys of management personnel often reveal that organizations do not consider training as an important issue. Some organizations, when faced with budget cutbacks, forget the benefits of training and put training at the bottom of the list of funding priorities. Training is viewed as a luxury, not as an activity that must be integrated into the heart of the organization if it is to achieve its goals. The decision to reduce training eventually results in increased errors, inefficiency, and a

reduction in work quality and productivity (26:8,66,68). By the time management realizes the existence of the problem it may be too late. Furthermore, they may fail to relate these changes to their earlier decision to reduce training.

In her analysis of two studies that assessed the views of managers and secretaries on the implementation and use of automation, Linda Kammire found "the single most important change that users of automated equipment recommend was more and better training" (24:42). This was viewed by both managers and secretaries as the step in the implementation process needing a higher priority in terms of money allocated and time spent. "One can conclude from this that although users of the new technologies ultimately reach a level of acceptance and comfort with it, these feelings could be achieved sooner and easier with more and better training" (24:42).

In her study on *Learning Experiences with Software/Editors: Productivity Effects*, Susan Myers hypothesized that the user's experience level with end-user software determined the level of training required to learn a new piece of software and could also predict productivity. Figure 1 graphically depicts the performance components she evaluated that affect the computer task and productivity. Her investigation revealed that "long term productivity losses may be the end result of suboptimal learning methods" and that "individual differences tend to be very important when choosing the optimal learning experience" (31:13).

These differences strongly affect not only the student's motivational level, but also the actual ability to learn which directly affects productivity.

The bottom line is that managers must realize and wholeheartedly support the need for vigorous training programs to meet the training needs of their employees and the predefined standards of productivity. "The costs of poorly trained workers are lost opportunities, low morale, reduced quality, inefficiencies . . . all of which can blow . . . productivity right out of the window" (26:71).

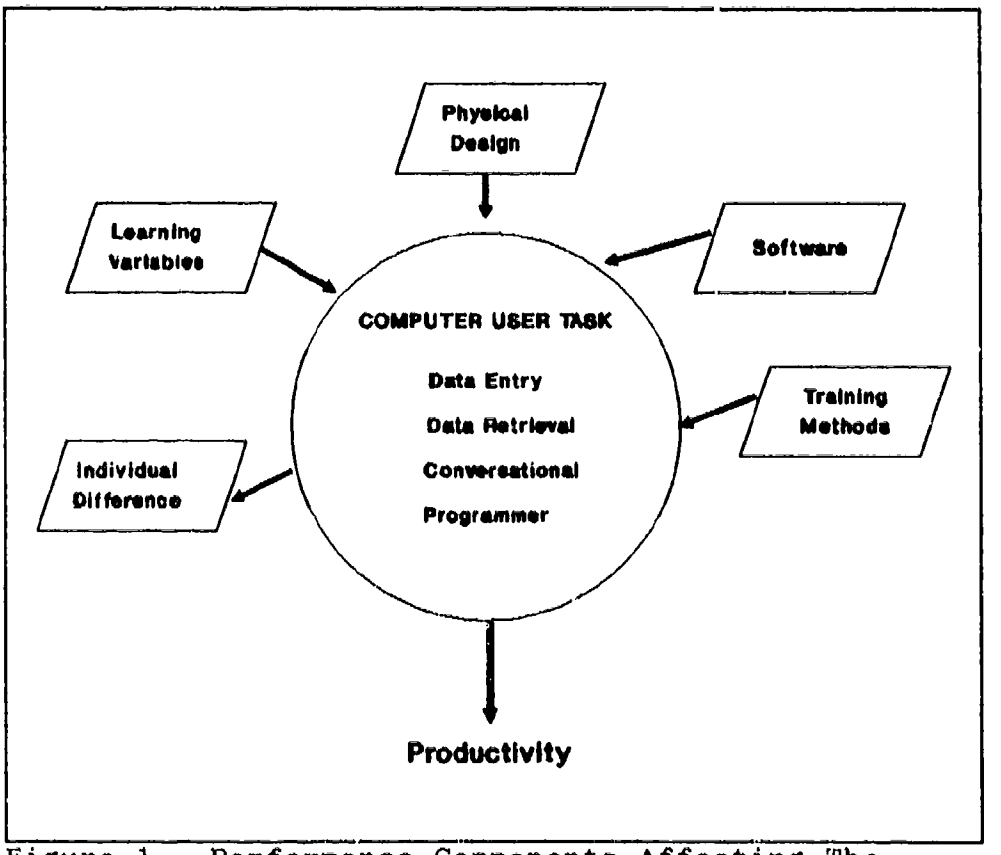

Figure 1. Performance Components Affecting The Computer Task (31:6)

The Need for Executive Support

Computers now impact every aspect of an organization, from the mailroom to the boardroom. To cope with the revolutionary growth in computer technology, top management involvement in the development and implementation of quality interactive training programs is essential.

The American Society for Training and Development estimates that U.S. businesses spend about $30 billion annually on education and training (36:18). Stuart Krasny, president of California-based SK&A Research predicts an increase in training expenditures of 5 percent per year for the next five years. He says computer-based training accounts for 30 percent of the corporate training dollar, and interactive video and teleconferencing for training purposes each account for 2 percent of the corporate training dollar (36:20). Furthermore, he expects the percentages for interactive video and teleconferencing to grow to about 8 and 4 percent respectively by 1992 (36:20).

For a training program to achieve success, it needs upper management's support (19:35, 20:26). Gibson and Kosinar point out that today, senior executives not only support training, they're also being trained. The need for executive training programs caused many organizations to develop and offer in-house training programs for all employees that focus on the needs and goals of the organization (25:25-26).

The Necessity for Software Training

Kearsley and Hunter define computer literacy as "all an individual needs to know about computers to function in our information-based society" (28:2). In today's information-based society, it is almost impossible for anyone to avoid the need to develop some degree of computer literacy. In the workplace, organizations spend billions of dollars annually to insure their employees use the latest, most up-to-date software available. Motivating this need to remain current with the latest software is management's desire to increase productivity. It is therefore management's responsibility to help the users of this software to learn to use it effectively by providing "effective" end-user software training.

Training should be the first step in the learning process. In their article, *The Influence of Training on Use of End-User Software*, Olfman and Bostrom state "research shows that end-user software is not easy to learn, and that the sophistication of the software interface can not substitute for effective training"(33:110). They define an effective training program as one that will "instill an accurate initial understanding of the software and a high motivation to continue to use the software, and one that will provide follow up and support for the user on the job" (33:110).

The necessity to provide effective training places its advocates in a dilemma. They must prove to management that the training program produces desired results and that the benefits of training are greater than the costs (35:34-42). To do so they must show the impact of training in terms of how it affects employee productivity and organizational effectiveness. Today, information systems and the software associated with these systems play a major role in achieving productivity, but only when the user can effectively use the software. Therefore, improving the training process provides competent and dedicated employees, resulting in increased employee productivity and organizational effectiveness (21:28-29,39:62).

A Comparison of Training Approaches

Tovar, Rossett, and Carter state "Every major organization . . . struggles with the issue of how training services should be organized to best serve a complex organization with many departments and diverse employees" (40:62). The underlying question is: Should the organization develop training services as a centralized unit, a decentralized unit, or a combination of the two?

Patricia Galagan reports that in 1984, IBM began a major restructuring of its in-house educational programs from decentralized management to centralized management. Today, with centralized management, education is on the same level as other key corporate functions, reporting directly

to top management (19:35). What brought about this major change?

IBM executives felt that to succeed, their people needed to know more and be able to do more than the competition, and that training was the key to success (19:36). Realizing they had no centralized approach to training, IBM decided to restructure from the ground up. Taking a systems approach to the problem, IBM involved its corporate managers, training experts, course designers, systems analysts, and system users to develop the new program. After implementing the new courses, IBM measured the quality of training by evaluating each student's reaction to the course, growth in knowledge and skill, and on-the-job improvement and found significant improvements in all areas (19:39).

Tovar, Rossett, and Carter performed a case study of the governmental training operation in San Diego county, California, and found that San Diego county just recently revised its training program. In contrast to IBM's new approach, the county's new approach to training consists of a combination of centralized control by the Training and Development Division with decentralized control at the departmental level.

While reviewing the structure of their training function, county administrators found, as a result of budget cutbacks in the late 1970s and early 1980s, ". . . most training and development functions had been distributed to

units throughout the county, although a small, centralized training group still functioned" (44:64). Similar to IBM, the county used the systems approach to solving their problem. They surveyed the training coordinators throughout the county and found that only 35 percent were satisfied with the services provided by the county's training department. They also found that 51 percent of the training coordinators wanted more centralized training services but that 71 percent displayed satisfaction with the current method of decentralized training (44:64-65). This resulted in developing a training program where the central training division develops "'generic training programs that pertain to all county units'" (44:64) and leaves the decision of who to train and when to train with the department's training coordinator. This differs from IBM's approach in that IBM's centralized training function tells its departments when an employee needs training. Although recently initiated, this new approach appears sound and headed for success.

An Interactive Approach to Training

Developers of interactive training technologies face two distinct challenges, developing programs that (a) allow the student to learn the material, while (b) interacting with the student in such a way as to keep the student interested in learning (2:13).

Charney and Reder conducted a study at Carnegie-Mellon University that sought "to find the optimal combination of written-instruction and on-line practice for learning a new

computer application" (3:297). The subjects of the experiment learned the commands of an electronic spreadsheet by reading the user-manual and then working training problems on-line.

> There were three forms of practice: (a) pure guided practice, in which the subjects were told exactly what keystrokes to type to solve the problems; (b) pure problem-solving, in which subjects solved problems without guidance; and (c) mixed practice, in which the first problem for a command was presented in guided form and two others in problem-solving form. (3:297)

In testing the students after a period of instruction, they discovered that the type of practice had a considerable bearing on the student's ability to learn. When tested, the students who participated in the guided practice produced the worst scores (averaging 47%) while those in the mixed and problem-solving groups were far superior (averaging 65% and 64%, respectively). They also found that the lower accuracy of the pure guided practice group was due to a real difference in learning. Also, there appears to be no benefit to working an example in guided practice before trying to solve problems independently; their was no real difference in accuracy between the pure problem-solving group and the mixed practice group (3:310-312).

The conclusions of the Carnegie-Mellon study have a real impact on the use of interactive training programs. For the student to learn, the training must consist of problem-solving. The computer industry's approach to training is to include step-by-step tutorials with its commercial software. As shown by those students in the pure

guided practice group, this type of instruction is inadequate.

Gina Burchard, a training supervisor for Electronic Data Systems, Inc., and Sam Dragga, an assistant professor of English at Texas A&M University feel it is important for developers of computer-based instructional programs to not loose sight of the fact that the audience is the student and not the machine. They surveyed a group of students on their reactions to developer's attempts to "humanize" the computer in closed-response (comparing the student's response to the programmed response) computer-based instruction programs (2:13). The students were presented with a list of 40 feedbacks frequently used in computer-based instruction and asked to evaluate the tone of each of the feedbacks (2:14).

The results of the survey showed a clear preference for the responses Correct and Incorrect, 89% and 88%, respectively (2:14). The results also showed that one of the best ways to hold the student's interest is to provide good, useful feedback. The students stated "a preference for feedbacks that 'sounded professional' and 'didn't accuse or patronize'" (2:15).

Knight, Acosta, and Anderson conducted a study that sought to answer the question: "Would the use of tutorial material prepared for use on the microcomputer result in significantly higher ACT scores than tutorial materials that were 'paper-bound'" (25:86). They divided the subjects, high school juniors and seniors, into two groups, those who

received a computerized tutorial program of instruction and those who received a non-computerized textbook tutorial program. The same instructor taught both groups (25:83-84).

The results of the study agreed with those of Charney and Reder--"the use of the computer obviously was superior to the textbook approach" (25:86). They also found "the constant use of the computer's diagnostic power provided a basis for self-directed problem solving and . . . resulted in a higher level of confidence" (25:86). Another result of this study supports Burchard's and Dragga's assertions that one of the best ways to hold the student's interest is to provide good, useful feedback (2:15). They found "the higher outcomes exhibited by the computer assisted group may be attributed to the degree of instant feedback provided by the computer" (25:86).

Anthony O. Putman, president of Descriptive Systems, believes that

> even our best training solutions typically have a missing piece. It's the piece that connects what training can do--develop competencies--to what we are expected to do--improve on-the-job performance. (34:36)

Putman feels the missing piece that's needed to create the complete training solution is a new approach called computer-based coaching (34:36).

The idea behind computer-based coaching is the transfer of the learning experience from the classroom to the workplace. This allows workers to further develop the skills they learned in the formal training environment while

also increasing their competence; "training improves competence but having competence and performing competently are two different matters" (34:36). Introducing the concept of computer-based coaching in the training environment can provide added benefit in the workplace. Computer-based coaching then is an on-the-job aid that makes it easier for someone to do a task competently. It also seems that computer-based coaching might just be the beginning of the next phase of computer-based training systems designed to support organizational managers.

Benefits of Interactive Training

Interactive training provides its users with two major benefits, a decrease in training time that results in substantial financial savings, and an increase in knowledge gained by each student when compared with more traditional training methods. A main selling point of interactive video in consideration of its high initial cost (programs can cost as much as $200,000) is its ability to demonstrate hands-on skills. The U.S. Army implemented an interactive video system to train computer repairman who maintain and repair disk drives on VAX minicomputers and cut training times for this program almost in half (36:21).

Not wanting to pay the costs associated with an interactive video system, Prudential Insurance Company invested in computer-based training systems to prepare its agents for the National Association of Security Dealers licensing exam. Prudential's agents increased their pass

rate from 68% to 90% using computer-based instruction instead of the classroom lecture method of instruction (36:21). They've also implemented computer-based instruction in all phases of management training, allowing their executives to simulate real-life situations.

A 1984 IBM study showed that interactive video was "about three times more effective at teaching than an instructor "(36:20) and, in the same report, consultants claimed "computer-based training teaches one third faster than standard, instructor-led classes" (36:20). A major impetus behind the success of computer-based training and interactive video is that it forces students to actively participate in their education. Another advantage is that computer-based training and interactive video programs deliver the same lesson, without variation, allowing managers to put more faith in their training programs because each employee receives the same information (36:20).

Conclusion

The revolutionary growth of the electronics industry and computer technology spawned the development of interactive training. Today, as a result of the growth of interactive training, people working in almost every occupation can receive training through one of the available interactive methods.

The body of literature covering interactive training is broad. There is no single publication dedicated to the various methods of interactive training. A review of the

literature did show that centralized management is currently the best approach to managing an organization's interactive training program. The literature also revealed that the use of interactive training will continue to grow in the future.

The literature stated that the initial development costs of an interactive training program are high but went on to show the cost effectiveness of interactive training. The interactive method most often used is computer-based training and it is most effective when the training involves problem solving. Interactive training uses range from teaching a student to perform a task to helping a senior executive make a critical decision. Interactive training has proven beneficial to its users by decreasing training times and increasing the knowledge gained by the student when compared with the more traditional classroom lecture method.

In all cases, those organizations who took the time to support and develop a strong automated systems training program benefitted from a more efficient and productive workforce. Although the responses from both surveys did not reveal a "best training method," they did reveal a strong correlation between the need for a strong training program and effective use of automated information management software.

III. Methodology

Introduction

The purpose of this research was threefold. The first was to document the current methods employed by the Air Force's major commands, separate operating agencies, and direct reporting units to train individuals to use the Records Information Management System, Reprographics Automated Management System, and the Publishing Distribution Office System. Second, to document statistically, from the viewpoint of Chiefs of Information Management, the perceived effectiveness of the training provided to use the Records Information Management System, Reprographics Automated Management System, and the Publishing Distribution Office System, and the quality of the support provided by their MAJCOM/SOA/DRU. Finally, this research documents statistically the user's perceived effectiveness of the training they received. If training was not provided by the major command, separate operating agency or direct reporting unit, the research documents how the users learned to operate these software packages.

A review of the current literature revealed that the Air Force has no definitive plan to train the users of these automated information management systems. Furthermore, Straub and Wetherbe found most present day information management systems were underutilized because the human

interface with the computer was too difficult for noncomputer-literate users to master (43:1334).

In 1988, Cheryl Coleman found that Air Force information management officers were required to perform tasks requiring computer skills, but "less than one-half of the officers perceive(d) themselves as computer literate" (4:vii). There exists today, no documented requirement to provide technical training to officer or enlisted information managers, or enlisted reprographic specialists (information management officers manage all Air Force reprographic offices) on the operation of microcomputers. The lack of this training requirement validates the concerns of corporate executives over the lack of/inadequacy of computer training being provided their employees (4:23). It also shows the need for effective training on the use and operation of microcomputers is not just an Air Force specific problem.

Justification For Research Approaches

A multiple case analysis of the major commands, separate operating agencies, and direct reporting units was determined to be the best means of discovering what types of training were provided throughout the Air Force on the use of contractor developed automated information management systems. This approach provided the researcher a means of identifying those MAJCOMs/SOAs/DRUs that were and were not providing training. The multiple case analysis also highlighted the similarities and differences in training

methods across the MAJCOMs/SOAs/DRUs. The information gained from this approach resulted in the further refinement of the hypotheses. It also helped define the relationship between the type and extent of MAJCOM/SOA/DRU training support and the users' perceived job effectiveness when using these automated information management systems. A copy of the letter requesting the MAJCOM/SOA/DRU inputs is at Appendix A.

A self-administered questionnaire proved the best method for collecting information from Chiefs of Information Management and the enlisted information managers and enlisted reprographic managers. This approach enabled the researcher to collect the data in a short period of time. Surveying each Air Force officer assigned as a Chief of Information Management provided information as to the quality and type of training and support they received from their MAJCOMs/SOAs/DRUs. The survey was also used to determine what efforts they are taking to train information managers and reprographic specialists.

A random sample of all enlisted information managers and enlisted reprographic specialists in the grade of airman first class and above provided insight into whether the respondents did or did not use these automated information systems. The survey also ascertained the respondents' perception of the effectiveness of the training and their opinions about their perceived promotability in relation to having or not having received training. For those who did

not receive training, the questionnaire determined the respondents' feelings about whether training would or would not improve their job effectiveness.

The results of these surveys were used to determine the real current state of training by comparing the results of the case analysis against the survey results.

Population

The population of interest for this research consisted of all Directors of Information Management at MAJCOM/SOA/DRU level, Chiefs of Information Management below MAJCOM/SOA/DRU level, and all enlisted Air Force information managers and reprographic specialists in the grade of airman first class or above. According to Major Patsy McClellan at SAF/AAI, there are 32 MAJCOM/SOA/DRU Information Managers (30). Interviews with Capt Jensen, SAF/AADH, and Capt Hebert, AFMPC/DPMRAD4, revealed there are approximately 140 officers at base level performing duty as Chief of Information Management, and there are approximately 21,000 enlisted information managers and approximately 530 enlisted reprographic specialists in the grade of airman first class and above (23,22).

Sample

A random sample of all enlisted information managers and reprographic specialists in the grade of airman first class or above was used for this research. A sample size of

400 was determined necessary in order to achieve a confidence/reliability level of 90% ± 10%.

> The figure 90% is the confidence coefficient and the ± 10% is the confidence interval. This confidence/reliability level means that if many samples of the same size and format were to be drawn from the same population, 90% or more of the confidence intervals of the samples (± 10 percentage points) would contain the true population mean. (8:1-2)

The sample was drawn from the active duty personnel files maintained by the Air Force Military Personnel Center, Randolph Air Force Base, Texas. *A Guide for the Development of the Attitude and Opinion Survey* provided the formula used to compute the maximum sample size from the known population to achieve the confidence/reliability level of 90% ± 10% (8:1). This formula is shown in Table 1.

Table 1

Formula for Calculating Maximum Sample Size

$$n = \frac{N(z^2) * p(1-p)}{(N-1) * (d^2) + (z^2) * p(1-p)}$$

where: n = sample size
N = population size
p = maximum sample size factor (.50)
d = desired tolerance (.10)
z = factor of assurance (1.645) for a 90% confidence level

A sample of 68 was determined acceptable based on a population of approximately 21,000 enlisted information managers (8:1). A sample of 68 was determined acceptable based on a population of approximately 530 enlisted reprographic specialists (8:1). Data collected from this sample provided the basis upon which to generalize the perceived adequacy of the training provided enlisted information managers and enlisted reprographic specialists and the enlisted member's perceived effectiveness of these automated information management systems in relation to the training they received.

A census of all Chiefs of Information Management was conducted. This data was used to (1) compare, based on the perceptions of the respondents, the level of support provided by each MAJCOM/SOA/DRU against the level of support reported by each MAJCOM/SOA/DRU Director of Information Management, (2) determine the respondents' perceived effectiveness of these automated information systems in relation to the support they receive from their MAJCOM/SOA/DRU headquarters, (3) determine the effect these automated information management systems have on the day-to-day operations of the respondents' information management function, and (4) determine the level of support each respondent provides the enlisted information managers and reprographic specialists in and attached to their organization.

Questionnaire Design

Two questionnaires were designed, one for all Air Force officers performing duties as Chief of Information Management and one for all enlisted information managers and enlisted reprographic specialists in the grade of airman first class or above. The use of two questionnaires allowed the researcher to survey the three populations on related but essentially different issues. Chiefs of Information Management are not responsible for operating these automated systems; however, they are responsible for training their enlisted information managers and reprographic specialists to use and operate these systems. Conversely, enlisted information managers and reprographic specialists are not responsible for providing training, but their ability to effectively use these systems is dependent on their receiving high quality training.

Prior to developing the questionnaires, a review of previous research into the adequacy of training methods used to train individuals to use automated systems was conducted. No Air Force studies relating to this topic were found and only one Navy study was located. Lt. Cynthia S. Lassnoff (USN) conducted a case analysis of the training requirements of Navy microcomputer users and found

> It is widely accepted that microcomputers are easy to use. Many people believe they can introduce micro-computer technology with little difficulty. State-of-the-art software . . . are purchased but are often underutilized . . . . Why? Because training receives insufficient emphasis. (26:7)

She concluded that "insufficient emphasis on training for microcomputer users must be corrected if improved levels of productivity are to be achieved" (26:80). To broaden the scope of the literature review, civilian studies were also reviewed.

The content validity of the questionnaires was verified by the researcher's advisor and a team of research experts assigned to the Air Force Institute of Technology. Content validity is a measure of how well the survey instrument covers the topic being investigated (18:95). The team of research experts first reviewed the questionnaires, then the questionnaires were pretested. The questionnaire for Air Force officers performing duties as Chief of Information Management was pretested by 10 Air Force Information Management officers assigned to the Air Force Institute of Technology. The questionnaire for enlisted information managers and reprographic specialists was pretested by 15 enlisted information managers assigned to the Air Force Institute of Technology. After minor adjustments, the questionnaire was again reviewed by the researcher's advisor and the team of research experts. The questionnaires were then sent to the Air Force Military Personnel Center for approval. A copy of the cover letters and approved questionnaires are attached at Appendices B and C.

A survey measurement instrument is reliable to the degree that it supplies consistent results (18:98). The variable measured by this research was the effectiveness of

training provided to users of automated information management systems. A variety of the items in the questionnaire measured the users' perceived effectiveness of the training. The Cronbach Alpha Coefficient was used to test the reproducibility of the measurement variable. Cronbach Alpha can range from 0 to 1. A value near or equal to 0 implies that the measurement instrument is unreliable. In contrast, the closer the measure is to 1, the stronger the reliability of the measurement instrument (8).

The Cronbach Alpha coefficient for this research was .97 for the measurement instrument sent to Chiefs of Information Management. The Cronbach Alpha coefficient for hypothesis four was .67. The Cronbach Alpha coefficient for hypohtesis five was .64. The Cronbach Alpha coefficient for hypothesis six was .94.

The Cronbach Alpha coefficient for this research for the measurement sent to enlisted information managers and reprographic specialists was .92. The Cronbach Alpha coefficient for hypothesis two was .99. The Cronbach Alpha coefficient for hypothesis three was .75. The Cronbach Alpha coefficient for hyupothesis four was .90. The Cronbach Alpha coefficient for hypothesis six was .68. The Cronbach Alpha coefficient for hypothesis seven was .96.

The survey instruments were composed of questions addressing these areas:

a. Questionnaire for base level Chiefs of Information Management:

(1) Demographic questions to collect data on age, rank, sex, and education;

(2) Experience and background questions to determine any prior computer experience, education, and teaching experience;

(3) Job related questions to determine the number of enlisted information managers and reprographic specialists in the rank of airman first class and above assigned to the base and the number assigned specifically to the base information management function;

(4) System related questions to determine what automated information management systems are available for use at each base, what systems are being used, and the type of system support received from the MAJCOM/SOA/DRU;

(5) Opinion questions to determine the perceived effectiveness of each system from a manager's perspective;

(6) Training related questions to determine if they provide systems training to the enlisted information managers and reprographic specialists assigned to their organization, the type, extent, and effectiveness of the training support provided by the MAJCOM/SOA/DRU;

b. Questionnaire for Enlisted Information Managers and Enlisted Reprographic Specialists:

(1) Demographic questions to collect data on age, rank, sex, and education;

(2) Experience and background questions to determine any prior computer experience and computer education;

(3) System related questions to determine what automated information management systems the individual uses and the type of system support received from their Chief of Information Management;

(4) Opinion questions to determine the perceived effectiveness of each system from the user's perspective;

(5) Training related questions to determine if they were provided the opportunity to receive training from their Chief of Information Management, the systems for which training was offered, and the method, extent, and perceived effectiveness of the training;

(6) Opinion questions for individuals who received systems training and those who did not to determine the perceived effect of training on the user's ability to use these systems and the user's perceived effect of training in relation to job effectiveness.

One hundred and forty two questionnaires were mailed to Chiefs of Information Management, 268 questionnaires were mailed to enlisted information managers, and 246 questionnaires were mailed to enlisted reprographic specialists. The expected return rate for each questionnaire was 50%. Ninety two Chiefs of Information Management responded to the questionnaire. Seven were returned unanswered and 85 useable responses were received.

The return rate of 60% was considered excellent. One hundred and sixty three enlisted information managers responded to the questionnaire. Four were returned unanswered and 159 useable responses were received. The return rate of 59% was considered excellent. One hundred and fifty two reprographic specialists responded to the questionnaire. Two were received unanswered and 150 useable responses were received. The return rate of 61% was considered excellent. No follow-up measures were determined necessary based on the excellent return rates.

Statistical Analysis

The SAS System for Statistical Analysis, version 5, was used to analyze the data. SAS is an integrated system designed specifically for data analysis (37). SAS supports a wide range of analytical procedures from simple descriptive statistics to complex multivariate techniques.

Data analysis consisted of several different tests. Descriptive statistics were used to categorize nominal level demographic data. Frequency distributions were conducted on each survey question and were used to analyze hypotheses three, four, seven, and eight. Cross tabulations, "the joint frequency distribution of the classifying variables," were used to analyze the effect of each MAJCOM/SOA/DRU on training (32:9.2). The General Linear Models (GLM) were used to conduct analysis of variance procedures to determine if significant differences in perceptions of training received and types of training existed depending on major

command, separate operating agency, or direct reporting unit of assignment. The GLM procedure uses the method of least squares to fit general linear models. This method was used in lieu of Analysis of Variance because there were an unequal number of observations within each MAJCOM/SOA/DRU. The Pearson product moment coefficient of correlation was used to measure the strength of the linear relationship between the user's perceived effectiveness in using the systems and the training they received to use the system. For this research, the alpha level of .05 was used. Detailed results of the data analysis are found in Chapter IV.

IV. Analysis of Questionnaire Responses

Introduction

The research problem to be solved by this thesis was to determine if the Air Force's current method of depending on its major commands, separate operating agencies, and direct reporting units to train individuals to use contractor developed software for information management produced the desired levels of effectiveness. The research further determined the perceived effectiveness of these software packages from the user's viewpoint. A multiple case analysis of the Directors of Information Management of the Air Force's major commands, separate operating agencies, and direct reporting units was determined to be the best method of discovering what types of training were provided throughout the Air Force on the use of contractor developed automated information management systems. A questionnaire survey was determined to be the most appropriate means of collecting data from the Chiefs of Information Management, enlisted information managers, and enlisted reprographics managers needed to solve the research problem. Chapter IV analyzes this data.

The response analysis is grouped by respondent. Part I contains the analysis of the responses provided by the MAJCOM/SOA/DRU Directors of Information Management. Part II contains the analysis of the responses provided by the Chiefs of Information Management. The response analysis is

grouped according to the seven sections of the questionnaire. Data from each section of the questionnaire are reported in a table followed by a general discussion of the frequency distributions for each question. Part III contains the analysis of the responses provided by the enlisted information managers and reprographic managers. The response analysis is grouped according to the seven sections of the questionnaire. Data from each section of the questionnaire are reported in a table followed by a general discussion of the frequency distributions for each question.

Part I - MAJCOM/SOA/DRU Responses

On 20 September 1989, Colonel William A. Nations, Air Force Director of Information Management and Administration, sent a letter to all major command, separate operating agency, and direct reporting unit Directors of Information Management requesting they provide the researcher information to support the development of this thesis. Due to the lack of responses to this letter, a follow-up letter was also sent on 14 November 1989. Copies of these letters appear in Appendix A. The results of their input follows.

MAJCOM/SOA/DRU Training Programs

Question: Does your MAJCOM/SOA/DRU provide training to your subordinate field units (NAF and below) on operating the Records Information Management System, the Reprographics Automated Management System and the Publishing Distribution Office System?

Analysis: The majority of major commands, separate operating agencies, and direct reporting units do not provide training to their field units on operating any of the automated information management systems. The Records Information Management System is the system receiving the most support with 30% of the major commands, separate operating agencies, and direct reporting units providing training to their subordinate field units. A complete listing of the responses received from the major command/separate operating agency/direct reporting unit Directors of Information Management appear in Table 2. Figure 2 displays a breakdown by percentage of the amount of automated information management system training being provided by the major commands, separate operating agencies, and direct reporting units providing training to their subordinate field units.

Table 2

MAJCOM/SOA/DRU Training Programs

COMMAND	RIMS	RAMS	PDOS
Accounting and Finance Center (AFAFC)	Yes	No	No
Air Force Academy (USAFA)	Yes	No	No
Air Force Audit Agency (AFAA)	No	No	No
Air Force Commissary Service (AFCOMS)	No	No	No
Air Force Communications Command (AFCC)	No	No	No
Air Force District of Washington (AFDW)	No	No	No
Air Force Engineering and Services Center (AFESC)	Yes	No	No
Air Force Inspection and Safety Center (AFISC)	Yes	No	No
Air Force Intelligence Agency (AFIA)	No	No	No
Air Force Logistics Command (AFLC)	No	No	No
Air Force Management Engineering Center (AFMEA)	No	No	No
Air Force Military Personnel Center (AFMPC)	No	No	No
Air Force Office of Special Investigation (AFOSI)	No	No	No
Air Force Office of Medical Support (AFOMS)	No	No	No
Air Force Office of Security Police (AFOSP)	No	No	No
Air Force Reserve Personnel Center (AFRPC)	Yes	No	No
Air Force Reserves (AFRES)	Yes	No	Yes
Air Force Space Command (AFSPACECOM)	No	No	No
Air Force Systems Command (AFSC)	Yes	Yes	No
Air Force Technical Applications Center (AFTAC)	Yes	No	No
Air Training Command (ATC)	Yes	Yes	Yes
Air University (AU)	Yes	No	No
Alaskan Air Command (AAK)	No	No	No
Civilian Personnel Management Center (AFCPMC)	No	No	No
Electronic Security Command (ESC)	No	No	No
Military Airlift Command (MAC)	No	No	Yes
National Guard Bureau (NGB)	No	No	No
Operational Test and Evaluation Center (AFOTEC)	No	No	No
Pacific Air Forces (PACAF)	No	Yes	Yes
Service Information and News Center (AFINSC)	No	No	No
Strategic Air Command (SAC)	No	No	No
Tactical Air Command (TAC)	No	No	No
Unites States Air Forces in Europe (USAFE)	No	Yes	Yes
Yes	10	4	5
No	23	29	28
Total MAJCOMs/DRUs/SOAs	33	33	33
Percentage of Commands Performing Training	30	12	15
Percentage of Commands Not Performing Training	70	88	85
Total Percentage	100	100	100

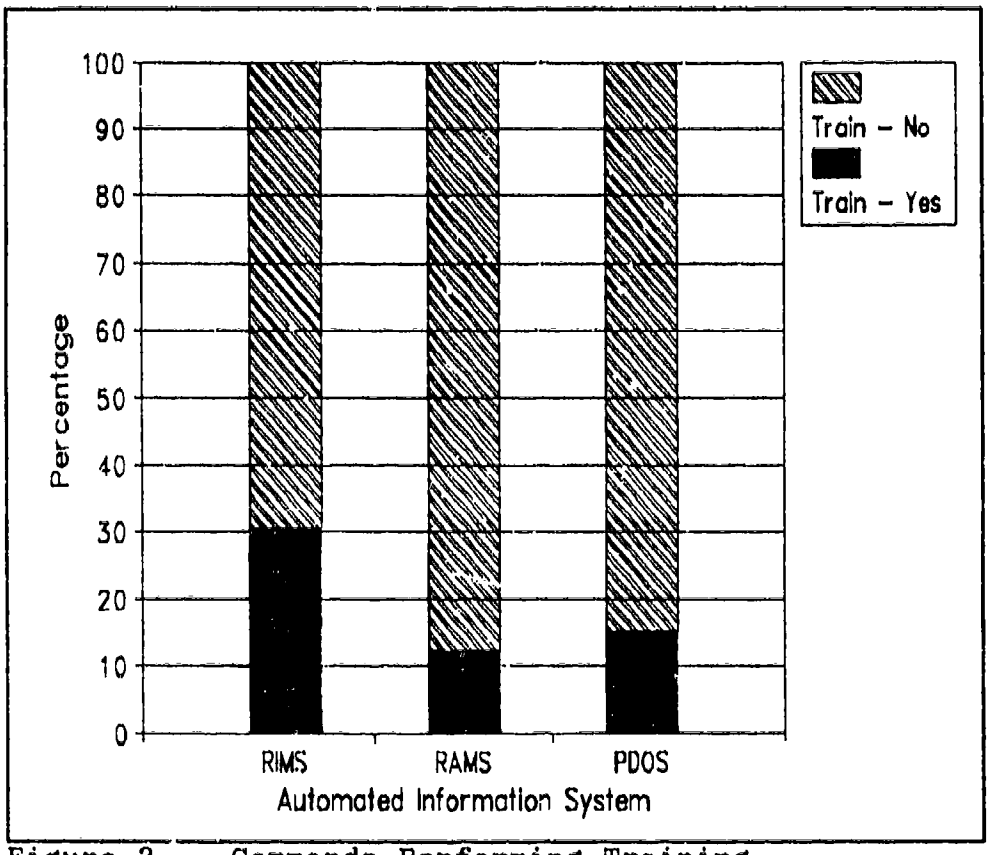

Figure 2. Commands Performing Training by Information System

Of the three automated information management systems, the Records Information Management System receives the most support with 30% of the major commands, separate operating agencies, and direct reporting units providing training to their subordinate field units. Also, 12% and 15% of the major commands, separate operating agencies, and direct reporting units provide training to their field units on the use of the Reprographics Automated Management System and the Publishing Distribution Office System, respectively.

Methods of Training

Question: What is the primary method you use to train Information Managers to use the Records Information Management System, the Reprographics Automated Management System, and the Publishing Distribution Office System?

Analysis: Of those major commands, separate operating agencies, and direct reporting units providing training to their subordinate units, in-house training by the MAJCOM/SOA/DRU functional information management staff is the most often used method of training for users of the Records Information Management System. In-house training consists of a major command, separate operating agency, or directing reporting unit functional information staff member visiting a base and providing on-the-job training to system users. The Air University information management staff, in its dual role as both the separate operating agency and base level information function, also provides training to those information managers assigned to Gunter Air Force Base. Those not providing training primarily depend on system users to train themselves using the system user's guides and other system documentation.

Users of the Reprographics Automated Management System and the Publishing Distribution Office System receive major command, separate operating agency, and direct reporting unit training in the form of staff assistance visits and telephone support when questions develop. Information Managers assigned to the United States Air Forces in Europe

(USAFE) were also provided formal classroom training on the operations of the Publishing Distributions Office System; a major command instruction team visited selected sites throughout the command offering system training to any information manager in USAFE who could attend. Those not providing training primarily depend on the base level Chief of Information Management to develop training programs using the system user's guides and other system documentation or else they expect the system users to train themselves using the system user's guides and other system documentation.

The response category "Depend on Host Base" revealed that, without exception, all Directors of Information Management depend on base level Chiefs of Information Management to train all information managers assigned to each base, regardless of command of assignment. A complete listing of the methods of training by automated information management system appear in Tables 3, 4, and 5. Table 6 provides a comparison of the training methods by automated information management system. Those major commands, separate operating agencies, and direct reporting units providing training to their subordinate field units are indicated with an asterisk (*). Figure 3 through Figure 5 display a breakdown by percentage of the methods used for training in each system.

Table 3

Methods of Training - RIMS

Method	MAJCOM/SOA/DRU
In-House By Functional Information Management Staff	* AF Reserve Personnel Center * AF Technical Applications Center * AF Inspection & Safety Center * AF Engineering & Services Center * US Air Force Academy * AF Accounting & Finance Center * Air University
Formal Classroom Instruction	* AF Reserves * AF Systems Command
Telephone	* Air Training Command
Depend on User's Guides & System Documentation	Electronic Security Command AF Logistics Command Military Airlift Command National Guard Bureau Pacific Air Forces AF Space Command Strategic Air Command Tactical Air Command US Air Forces in Europe
Depend of the Host Base Information Management Office's Staff	AF Audit Agency AF Civilian Personnel Management Center AF Commissary Service AF Office of Special Investigation AF Operational Test & Evaluation Center AF Service Information & New Center
Do not Use the System	AF Communications Command AF District of Washington AF Intelligence Agency AF Management & Engineering Center AF Military Personnel Center AF Office of Medical Support
Did Not Specify A Method	Alaskan Air Command AF Office of Security Police

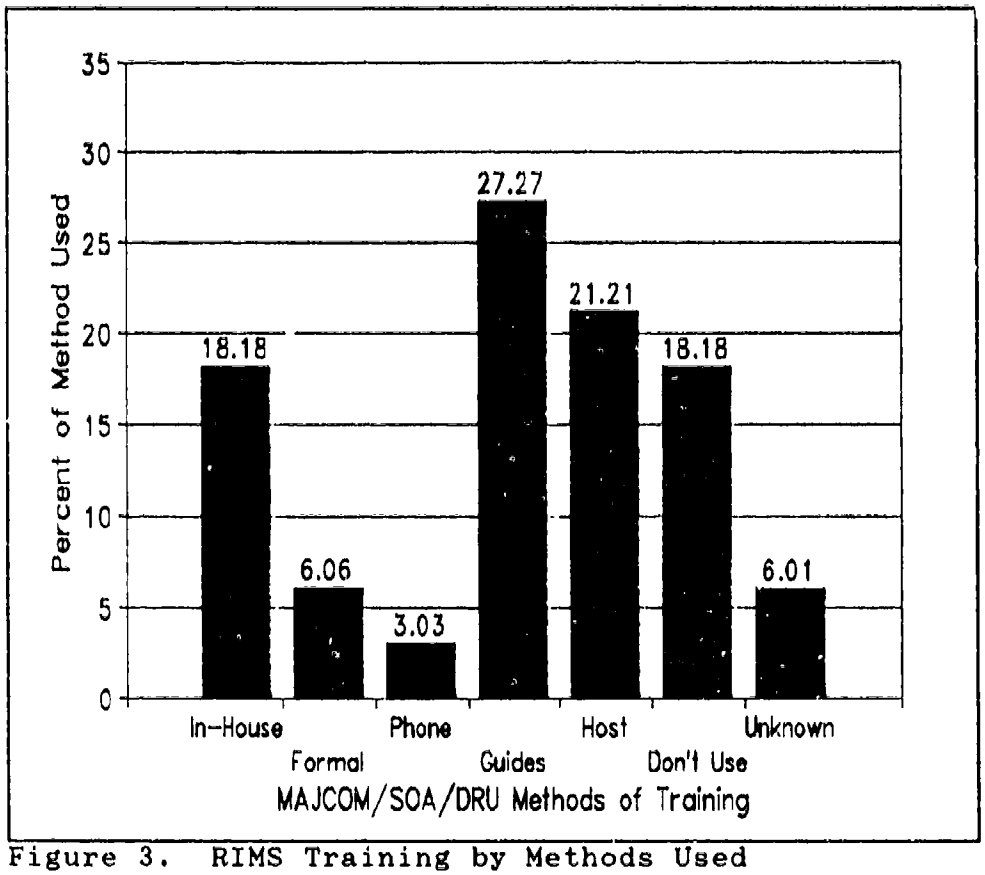

Figure 3. RIMS Training by Methods Used

As shown in Figure 3, 48.5% of the major commands, separate operating agencies, and direct reporting units depend on system users to train themselves using the system user's guides and other system documentation or else they depend on the base level Chief of Information Management to develop and provide the necessary training programs. The training method most often used by those major commands, separate operating agencies, and direct reporting units who do provide training to their subordinate field units is in-house training.

Table 4

Methods of Training - RAMS

Method	MAJCOM/SOA/DRU
Telephone	* Air Training Command
	* AF Systems Command
Staff Assistance Visits	* Pacific Air Forces
	* US Air Forces in Europe
Depend on User's Guides & System Documentation	Military Airlift Command
	AF Space Command
	Strategic Air Command
	Tactical Air Command
	AF Logistics Command
Depend on the Host Base Information Management Office's Staff	AF Audit Agency
	AF Civilian Personnel Management Center
	AF Commissary Service
	AF Communications Command
	AF Engineering & Services Center
	AF Inspection Safety Center
	AF Office of Special Investigation
	AF Operational Test & Evaluation Center
	AF Service Information & News Center
	AF Accounting & Finance Center
	Electronic Security Command
Do Not Use The System	Air University
	AF District of Washington
	AF Intelligence Agency
	AF Management Engineering Center
	AF Military Personnel Center
	AF Office of Medical Support
	AF Reserve Personnel Center
	AF Technical Applications Center
	AF Reserves
	National Guard Bureau
	US Air Force Academy
Did Not Specify A Method	Alaskan Air Command
	AF Office of Security Police

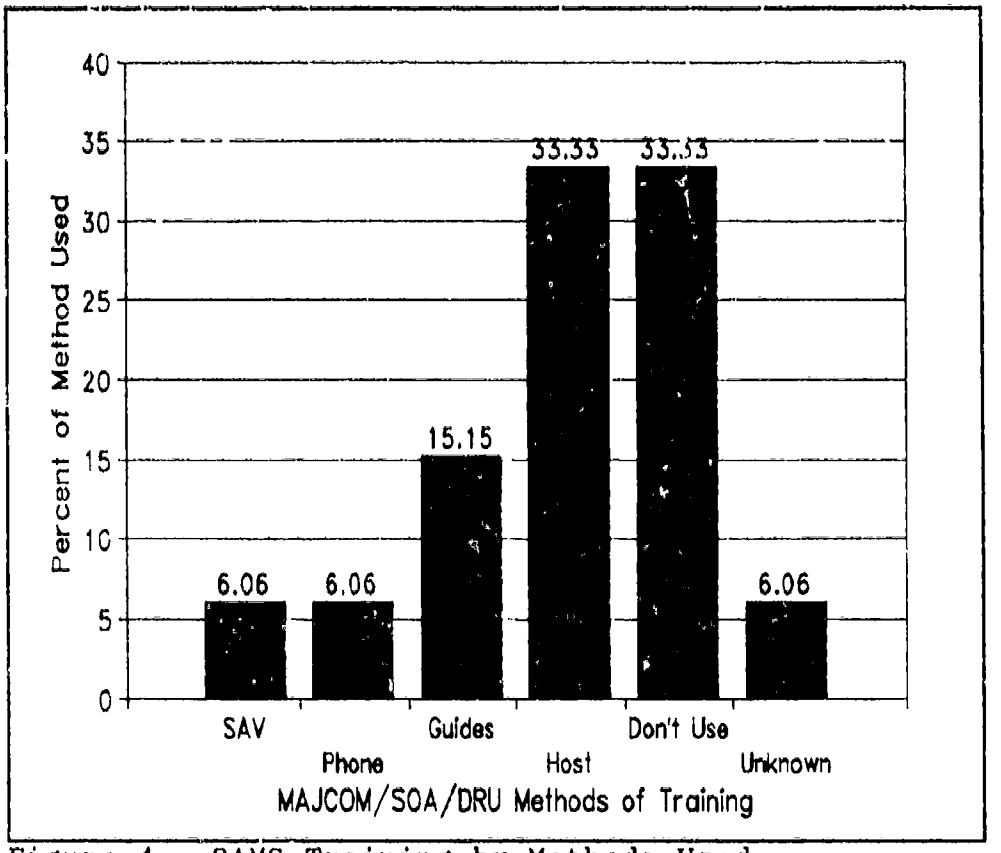

Figure 4. RAMS Training by Methods Used

As shown in Figure 4, 48.5% of the major commands, separate operating agencies, and direct reporting units depend on system users to train themselves using the system user's guides and other system documentation or else they depend on the base level Chief of Information Management to develop and provide the necessary training programs. Staff assistance visits and telephone support are the training methods used by those major commands, separate operating agencies, and direct reporting units who do provide training to their subordinate field units. It should also be noted that 39.3% of the major commands, separate operating agencies, and direct reporting units either do not use the

Reprographics Automated Management System or failed to specify a training method.

Table 5

Methods of Training - PDOS

Method	MAJCOM/SOA/DRU
Formal Classroom Instruction	* AF Reserves
Staff Assistance Visits	* Pacific Air Forces * US Air Forces in Europe
Telephone	* Air Training Command * Military Airlift Command
Depend on User's Guides & System Documentation	Strategic Air Command AF Systems Command Tactical Air Command AF Logistics Command Air University US Air Force Academy National Guard Bureau
Depend on the Host Base Information Management Office's Staff	AF Audit Agency AF Civilian Personnel Management Center AF Commissary Service AF Communications Command Electronic Security Command AF Engineering & Services Center AF Inspection Safety Center AF Office of Special Investigation AF Operational Test & Evaluation Center AF Service Information & News Center AF Accounting & Finance Center
Do not Use the System	AF District of Washington AF Intelligence Agency AF Management Engineering Center AF Military Personnel Center AF Office of Medical Support AF Reserve Personnel Center AF Technical Applications Center
Did Not Specify A Method	AF Office of Security Police Alaskan Air Command AF Space Command

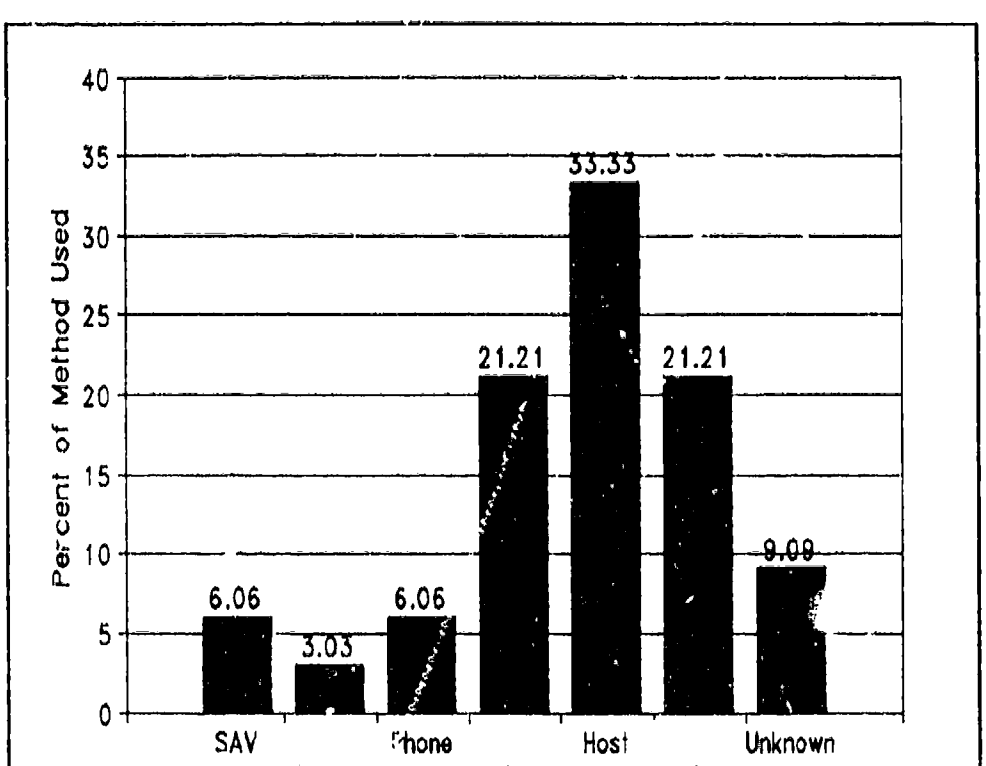

Figure 5. PDOS Training by Methods Used

As shown in Figure 5, 44.5% of the major commands, separate operating agencies, and direct reporting units depend on systems users to train themselves using the system user's guides and other system documentation or else they depend on the base level Chief of Information Management to develop and provide the necessary training programs. Staff assistance visits, formal classroom training, and telephone support are the training methods used by those major commands, separate operating agencies, and direct reporting units who do provide training to their subordinate field units. Again, note that 30.3% of the major commands, separate operating agencies, and direct reporting units

either do not use the Publishing Distribution Office System or failed to specify a training method.

Table 6

Comparison of Training Methods
By Automated Information Management System
Percent Used

Method	RIMS	RAMS	PDOS
* In-House By Functional Information Management Staff	18.18	0.00	6.06
* Staff Assistance Visit	0.00	6.06	0.00
* Formal Classroom Instruction	6.06	0.00	3.03
* Telephone	3.03	6.06	6.06
Depend on User's Guides & System Documentation	27.27	15.15	21.21
Depend on the Host Base Information Management Office's Staff	21.21	33.33	33.33
Don't Use the System	18.18	33.33	21.21
Did Not Specify a Method	6.06	6.06	9.09
Total	100.00	100.00	100.00

Part II - Chiefs' of Information Management Responses

Respondent Demographics

Part I of the questionnaire asked for demographic information about the respondents. The items include age, rank, sex, highest education level, years in current job, years of active military service, MAJCOM/SOA/DRU of assignment, current duty AFSC, current duty title, category of information management function of assignment, and total years of job experience in the 70XX AFSC. The frequency breakouts and general discussion of each demographic variable follow.

Age. Approximately 69.4% of the survey respondents were grouped in the 29-40 age groups. The frequency distribution of the respondents by age is shown in Table 7.

Table 7

Age of Respondents

Age	Frequency	Percentage
21-24	2	2.4
25-28	8	9.4
29-32	9	10.6
33-36	28	32.9
37-40	22	25.9
41-44	14	16.5
45 and Older	2	2.4
	85	100.0

Rank. Of the 85 questionnaire respondents, the largest single group by rank was captains, consisting of 60

respondents or 70.6% of the respondents. The smaller groups of second and first lieutenants is representative of the population rank distribution with respect to those officers filling positions as Chiefs of Information Management. The groups of major and lieutenant colonel are also representative of the population rank distribution. The frequency distribution of respondents by rank is shown in Table 8.

Table 8

Rank of Respondents

Rank	Frequency	Percentage
Second Lieutenant	4	4.7
First Lieutenant	2	2.4
Captain	60	70.6
Major	17	20.0
Lieutenant Colonel	2	2.4
	85	100.0

Sex. The respondents consisted of 25 females and 60 males. The frequency distribution of respondents by sex is shown in Table 9.

Table 9

Sex of Respondents

Sex	Frequency	Percentage
Female	25	29.4
Male	60	70.6
	85	100.0

Highest Education Level. Fifty four of the 85 respondents or 63.5% reported a master's degree or higher. The frequency distribution of respondents by education level is shown in Table 10.

Table 10

Education Level of Respondents

Education Level	Frequency	Percentage
Bachelor's Degree	12	14.1
Bachelor's Degree Plus	19	22.4
Master's Degree	45	52.9
Master's Degree Plus	9	10.6
Doctoral Degree	0	0.0
	85	100.0

Years in Current Job. Officers for the research sample were selected from the Atlas Statistical Summary inquiry data base using assignment to a position coded with Functional Account Code 11XX and serving in positions below the major command, separate operating agency, and direct reporting unit level. Sixty nine respondents or 81.2% reported having less than two years in their current job. This indicates that the majority of these Chiefs of Information Management assumed their positions after the original release date of each of the automated information management systems being studied. The frequency distribution of respondents by years in current job is shown in Table 11.

Table 11

Years In Current Job

Years	Frequency	Percentage
Less than 1 year	55	64.7
1 year but less than 2	14	16.5
2 years but less than 3	13	15.3
3 years but less than 4	2	2.4
4 years but less than 6	1	1.2
6 years or more	0	0.0
	85	100.0

Active Military Service. Of the 56 questionnaire respondents who answered this question, 52 or 92.8% had 10 or more years of active military service. Based on this fact, it can only be assumed that a large number of the 66 second lieutenant through captain respondents may have had prior enlisted service. The frequency distribution of active military service is shown in Table 12.

Table 12

Years of Active Military Service

Years	Frequency	Percentage
Less than 2	0	0.0
2 years but less than 4	0	0.0
4 years but less than 6	1	1.8
6 years but less than 8	1	1.8
8 years but less than 10	2	3.6
10 years but less than 12	2	3.6
12 years but less than 14	13	23.2
14 years but less than 16	7	12.5
16 years but less than 18	11	19.6
18 years but less than 20	5	8.9
20 years but less than 26	13	23.2
26 years or more	1	1.8
	56	100.0

Formal Teaching Experience. Fifty four or 64.3% of the respondents to this question do not have any formal teaching experience. The remaining 35.7% do have this experience and may therefore possess the qualifications necessary to develop and institute effective training programs. The frequency distribution of respondents based on their formal teaching experience is shown in Table 13.

Table 13

Formal Teaching Experience

Response	Frequency	Percentage
Yes	30	35.7
No	54	64.3
	84	100.0

MAJCOM/SOA/DRU of Current Assignment. All major commands, separate operating agencies, and direct reporting units with officers assigned below headquarters level to positions with Functional Account Code 11XX are represented. The frequency distribution of respondents based on MAJCOM/SOA/DRU of assignment is shown in Table 14.

Table 14

MAJCOM/SOA/DRU of Current Assignment

MAJCOM/SOA/DRU	Frequency	Percentage
AF Communications Command	2	2.4
AF Logistics Command	2	2.4
AF Reserves	1	1.1
AF Space Command	1	1.1
AF Systems Command	5	5.9
Air Training Command	9	10.6
Air University	2	2.4
Alaskan Air Command	2	2.4
Military Airlift Command	13	15.3
Pacific Air Forces	5	5.9
Strategic Air Command	21	24.7
Tactical Air Command	15	17.6
US Air Forces in Europe	7	8.2
	85	100.0

Years of 70XX Job Experience. Questionnaire respondents varied widely in their number of years of 70XX job experience. Forty respondents or 47% reported less than 10 years of 70XX job experience which supports the earlier assumption that many of the respondents had prior enlisted military service. Twenty eight or 32.9% of the respondents reported 10 years but less than 12 years of 70XX job experience while 17 or 20.1% reported 12 years or more experience. This distribution supports that of the population as reported in December 1989 by SAF/AADH. The frequency distribution of respondents based on years of 70XX job experience is shown in Table 15.

Table 15

Years of 70XX Job Experience

Years	Frequency	Percentage
Less than 2	3	3.5
2 years but less than 4	5	5.9
4 years but less than 6	12	14.1
6 years but less than 8	7	8.2
8 years but less than 10	13	15.3
10 years but less than 12	28	32.9
12 years but less than 14	6	7.1
14 years but less than 16	1	1.2
16 years but less than 18	4	4.7
18 years but less than 20	2	2.4
20 years but less than 26	4	4.7
26 years or more	0	0.0
	85	100.0

Duty AFSC. All information management officer AFSCs, 7034, 7016, and 7046, as defined in chapter III, were represented by the questionnaire respondents. One respondent reported a duty AFSC of 7024, executive support officer. The majority of respondents, 65 or 76.4%, were serving in positions requiring company grade functional information managers. This supports the reported fact that 60 respondents or 70.6% were captains. The frequency distribution of respondents based on duty AFSC is shown in Table 16.

Table 16

Duty AFSCs of Respondents

AFSC	Frequency	Percentage
7024	1	1.2
7034	65	76.4
7016	2	2.4
7046	17	20.0
	85	100.0

Category of Information Management Function of Assignment. It was the researcher's intention that the respondents consist mainly of officers filling information management positions at wing/base level. This population not only allows for analysis of the support provided by major command, separate operating agency, and direct reporting unit Directors of Information Management, but also an analysis of the support wing/base level Chiefs of Information Management provide the actual system users. A total of 74 or 88.1% of the respondents fill positions at the wing/base level. The frequency distribution of respondents based on category of information management function of assignment is shown in Table 17.

Table 17

Category of Information Management Function of Assignment

Category	Frequency	Percentage
Information Management (Wing/Base Level)	74	88.1
Information Management (Air Division/Numbered Air Force or Above)	10	11.9
	84	100.0

Average Number of Enlisted Information Managers Assigned. The respondents reported a total of 5052 information managers in the rank of airman first class and above assigned to their wing/base, air division, or numbered air force of assignment. They also reported a total of 1301 information managers in the rank of airman first class and above assigned directly to their functional area of information management. This provides an average of 59 information managers assigned to each wing/base, air division, or numbered air force and an average of 15 information managers assigned to each functional area of information management. As reported by AFMPC/DPMRAD4, there are approximately 26,000 enlisted information managers/reprographic specialists in the rank of airman first class and above. It therefore becomes difficult to believe the accuracy of the numbers reported by the respondents. The frequency distribution of respondents

based on number of information managers assigned in the rank of airman first class and above is shown in Table 18.

Table 18

Number of Enlisted Information Managers Assigned Airman First Class & Above

Category	Total	Average
Number in Wing, Air Division, or Numbered Air Force Headquarters	5052	59
Number directly assigned to the functional area of information management	1301	15

Computer Background/Experience

Part II of the questionnaire, containing questions 25 through 42, asked the respondents to provide information concerning their computer background and experience, and the source of their computer training. They were also asked to express their opinions concerning the use of computers and automated information management systems in the workplace.

Table 19 shows that more than 87% of the respondents have used a microcomputer at some time and of those 63.5% use a computer on the job. It also shows that 57.6% of the respondents use a computer at home. Noteworthy is the fact that almost 13% of the respondents have never used a microcomputer.

Table 19

Computer Background and Experience

Question	Frequency	Percentage
Never used a microcomputer		
Yes	11	12.9
No	74	87.1
	85	100.0
Use a computer at home		
Yes	49	57.6
No	36	42.4
	85	100.0
Use a computer on the job		
Yes	54	63.5
No	31	36.5
	85	100.0

Table 20 shows that 48.2% of the respondents have received some type of formal "hands-on" microcomputer training.

Table 20

Formal "Hands-On" Microcomputer Training

Response	Frequency	Percentage
Yes	41	48.2
No	44	51.8
	85	100.0

Table 21 indicates that the majority of the respondents' computer knowledge was self-taught and that only 28.2% of the respondents received any type of Air Force computer training. The table also highlights the fact that almost 13% of the respondents have never used a microcomputer. It should be noted that this table is an indicator of the lack of training and not of training effectiveness. This lack of Air Force provided training is alarming considering the charter of Air Force Information Management as stated in Secretary of the Air Force Order 560.1 (38). A crosstabulation showing source of training by MAJCOM/SOA/DRU of assignment is shown in Appendix D.

Table 21

Source of Computer Training

Question	Frequency	Percentage
Acquired computer skills through AF training		
Yes	24	28.2
No	61	71.8
	85	100.0
Acquired computer skills through civilian education		
Yes	24	28.2
No	61	71.8
	85	100.0
Computer knowledge is self-taught		
Yes	58	68.2
No	27	31.8
	85	100.0

Table 22 indicates that 51 or 60% of the respondents feel comfortable when using microcomputers. The respondents' opinions were measured on a continuous scale where 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, and 5 = strongly agree. It also shows that although they may feel comfortable when using microcomputers, 45.9% of the respondents consider themselves novice computer users while only 14.1% consider themselves experienced or expert users.

Table 22

Respondents Perceived Ability to Use Microcomputers

Question	Frequency	Percentage
Feel comfortable using a computer		
1	6	7.1
2	15	17.6
3	13	15.3
4	28	32.9
5	23	27.1
	85	100.0
Perceived Experience Level		
Non User	11	12.9
Novice	39	45.9
Intermediate User	23	27.1
Experienced User	9	10.6
Expert User	3	3.5
	85	100.0

Opinions about Microcomputers and Automated Information Management Systems in the Workplace

The following responses were crosstabulated by MAJCOM/SOA/DRU of assignment as indicated in Table 14.

The data in this collection of tables strongly states, in the opinion of the respondents, the need for more computer training among both the managers (Chiefs of Information Management) and the users (enlisted information managers and enlisted reprographics specialists). Table 25 shows that 95.2% of the respondents feel computer knowledge is important for managing automated information systems and Table 26 indicates that 83.5% of the respondents feel they could better manage these automated information functions if they had more computer training. Table 27 shows that 83.5% of the respondents either agree or strongly agree that automation of information management functions has increased the amount of computer knowledge they need to do their job effectively while Table 23 also indicates that 83.5% of the respondents feel they could perform their job more efficiently with some/more computer training. Further stressing the need for more computer training is Table 29 which shows that 43.5% of the respondents have job demands that they cannot effectively meet because they do not have an appropriate level of computer knowledge. Add to this the 31.8% of respondents who neither agree nor disagree that they have job demands they cannot effectively meet because they do not have an appropriate level of computer knowledge (possibly because they are unsure of the effectiveness they

would gain from more computer training) and the total could reaches 75.3%.

The respondents also clearly indicate a need for more computer training for the enlisted information managers and reprographic specialists assigned to their staff. Table 28 shows that 87% of the respondents feel automation of information management functions has increased the amount of computer knowledge members of their staff need to do their job effectively. Table 24 reveals that 89.4% of the respondents feel their staff could perform more efficiently with some/more computer training. Table 30 further supports the respondents' desire for more computer training for their staff in that 69% believe the members of their staff have job demands they cannot effectively meet because they do not have an appropriate level of computer knowledge.

Table 23

I Could Perform My Job More Efficiently
With Some/More Computer Training

MAJCOM/SOA/DRU	1	2	3	4	5
AF Communications Command	0	0	0	1	1
AF Logistics Command	0	0	0	1	1
AF Reserves	0	0	0	1	0
AF Space Command	0	0	0	0	1
AF Systems Command	0	0	1	3	1
Air Training Command	0	0	1	3	5
Air University	0	0	0	1	1
Alaskan Air Command	1	0	0	0	1
Military Airlift Command	1	3	3	1	5
Pacific Air Forces	0	0	1	1	3
Strategic Air Command	0	0	2	6	13
Tactical Air Command	0	0	1	6	8
US Air Forces in Europe	0	0	0	5	2
Total	2	3	9	29	42
Percentage	2.4	3.5	10.6	34.1	49.4

Table 24

My Staff Could Perform More Efficiently
With Some/More Computer Training

MAJCOM/SOA/DRU	1	2	3	4	5
AF Communications Command	0	0	1	0	1
AF Logistics Command	0	0	0	1	1
AF Reserves	0	0	0	1	0
AF Space Command	0	0	0	0	1
AF Systems Command	0	0	2	2	1
Air Training Command	0	0	0	2	7
Air University	0	0	0	1	1
Alaskan Air Command	0	0	0	1	1
Military Airlift Command	0	2	2	5	4
Pacific Air Forces	0	0	0	3	2
Strategic Air Command	0	0	1	5	15
Tactical Air Command	0	1	0	5	9
US Air Forces in Europe	0	0	0	3	4
Total	0	3	6	29	47
Percentage	0.0	3.5	7.1	34.1	55.3

Table 25

Computer Knowledge Is Important For Managing Automated Information Management Functions

MAJCOM/SOA/DRU	1	2	3	4	5
AF Communications Command	0	0	0	0	2
AF Logistics Command	0	0	0	1	1
AF Reserves	0	0	0	0	1
AF Space Command	0	0	0	0	1
AF Systems Command	0	0	0	3	2
Air Training Command	0	0	0	2	7
Air University	0	0	0	1	1
Alaskan Air Command	0	0	0	1	1
Military Airlift Command	0	2	2	1	8
Pacific Air Forces	0	0	0	2	3
Strategic Air Command	0	0	0	4	17
Tactical Air Command	0	0	0	4	11
US Air Forces in Europe	0	0	0	0	7
Total	0	2	2	19	62
Percentage	0.0	2.4	2.4	22.3	72.9

Table 26

I Could Better Manage Automated Information Functions If I Had More Computer Training

MAJCOM/SOA/DRU	1	2	3	4	5
AF Communications Command	0	0	0	1	1
AF Logistics Command	0	0	0	1	1
AF Reserves	0	0	0	0	1
AF Space Command	0	0	0	0	1
AF Systems Command	0	0	2	1	2
Air Training Command	0	1	1	2	5
Air University	0	0	1	1	0
Alaskan Air Command	1	0	0	0	1
Military Airlift Command	1	1	3	4	4
Pacific Air Forces	0	0	0	3	2
Strategic Air Command	0	0	2	6	13
Tactical Air Command	0	0	1	7	7
US Air Forces in Europe	0	0	0	2	5
Total	2	2	10	28	43
Percentage	2.4	2.4	11.8	32.9	50.6

Table 27

Automation Of Information Management Functions
Has Increased the Amount of Computer Knowledge
I Need To Do My Job Effectively

MAJCOM/SOA/DRU	1	2	3	4	5
AF Communications Command	0	0	0	1	1
AF Logistics Command	0	0	0	1	1
AF Reserves	0	0	0	1	0
AF Space Command	0	0	0	1	0
AF Systems Command	0	0	1	3	1
Air Training Command	0	0	0	3	6
Air University	0	0	0	1	1
Alaskan Air Command	0	0	1	1	0
Military Airlift Command	0	1	3	5	4
Pacific Air Forces	0	0	0	2	3
Strategic Air Command	1	1	2	5	12
Tactical Air Command	0	1	2	5	7
US Air Forces in Europe	0	1	0	3	3
Total	1	4	9	32	39
Percentage	1.2	4.7	10.6	37.6	45.9

Table 28

Automation Of Information Management Functions
Has Increased the Amount of Computer Knowledge
My Staff Needs To Do Its Job Effectively

MAJCOM/SOA/DRU	1	2	3	4	5
AF Communications Command	0	0	0	2	0
AF Logistics Command	0	0	0	1	1
AF Reserves	0	0	0	1	0
AF Space Command	0	0	0	0	1
AF Systems Command	0	0	0	5	0
Air Training Command	0	0	2	0	7
Air University	0	0	0	0	2
Alaskan Air Command	0	0	0	1	1
Military Airlift Command	0	1	2	4	6
Pacific Air Forces	0	0	0	3	2
Strategic Air Command	1	1	2	6	11
Tactical Air Command	0	0	0	9	6
US Air Forces in Europe	0	1	1	0	5
Total	1	3	7	32	42
Percentage	2	3.5	8.2	37.6	49.4

Table 29

I Have Job Demands That I Cannot Effectively Meet Because I Do Not Have An Appropriate Level Of Computer Knowledge

MAJCOM/SOA/DRU	1	2	3	4	5
AF Communications Command	0	1	0	1	0
AF Logistics Command	0	0	1	1	0
AF Reserves	0	0	0	1	0
AF Space Command	0	0	1	0	0
AF Systems Command	0	2	3	0	0
Air Training Command	2	1	3	2	1
Air University	0	0	1	1	0
Alaskan Air Command	1	0	0	1	0
Military Airlift Command	2	3	2	5	1
Pacific Air Forces	0	1	2	0	2
Strategic Air Command	1	1	7	6	6
Tactical Air Command	0	4	4	5	2
US Air Forces in Europe	1	1	3	1	1
Total	7	14	27	24	13
Percentage	8.2	16.5	31.8	28.2	15.3

Table 30

My Staff Has Job Demands That They Cannot Effectively Meet Because They Do Not Have An Appropriate Level Of Computer Knowledge

MAJCOM/SOA/DRU	Yes	No
AF Communications Command	1	1
AF Logistics Command	2	0
AF Reserves	1	0
AF Space Command	1	0
AF Systems Command	3	2
Air Training Command	7	2
Air University	2	0
Alaskan Air Command	1	0
Military Airlift Command	7	6
Pacific Air Forces	5	0
Strategic Air Command	15	6
Tactical Air Command	8	7
US Air Forces in Europe	5	2
Total	58	26
Percentage	69.0	31.0

System Awareness, Management, and Support

Part III of the questionnaire, questions 43 through 54, asked the respondents to identify their familiarity with the Records Information Management System, the Reprographics Automated Management System, and the Publishing Distribution Office System. This familiarity included whether they had ever heard of and managed these systems. If they had managed any of the systems, they were asked how long and their opinion as to the degree of support they received from their MAJCOM/SOA/DRU or other higher level of command (air division/numbered air force). These questionnaire responses were crosstabulated by MAJCOM/SOA/DRU of assignment as indicated in Table 14.

Table 31 indicates the percentage of respondents who are aware of the automated information management systems used today in Air Force Information Management. It should be noted that, based on their assignment as Chiefs of Information Management, each of the respondents should be aware of each of the systems.

Table 31

Automated Information System Awareness

Question	RIMS	RAMS	PDOS
Have You Ever Heard of RIMS, RAMS, or PDOS			
AF Communications Command	2	2	2
AF Logistics Command	2	2	2
AF Reserves	1	1	1
AF Space Command	1	1	1
AF Systems Command	4	4	4
Air Training Command	9	9	9
Air University	2	2	2
Alaskan Air Command	2	2	2
Military Airlift Command	13	11	13
Pacific Air Forces	5	5	5
Strategic Air Command	21	21	21
Tactical Air Command	15	15	15
US Air Forces in Europe	7	7	7
Total	84	82	84
Percentage	98.8	96.5	98.8

Table 32 shows the number of respondents who have ever, either in their current job or a previous job, managed any of the automated information management systems. The percentages for each of the three systems appears normal in that the majority of Air Force Chief of Information Management positions include managing each of the systems.

Table 32

Automated Information Systems Managed
Ever

MAJCOM/SOA/DRU	RIMS	RAMS	PDOS
AF Communications Command	0	0	0
AF Logistics Command	0	0	0
AF Reserves	0	0	0
AF Space Command	1	1	0
AF Systems Command	1	0	1
Air Training Command	7	7	7
Air University	1	0	1
Alaskan Air Command	2	2	2
Military Airlift Command	6	5	6
Pacific Air Forces	4	4	4
Strategic Air Command	15	14	14
Tactical Air Command	14	13	14
US Air Forces in Europe	7	6	7
Total	58	52	56
Percentage	68.2	61.1	65.9

Table 33 displays, by system, the number of Chiefs of Information Management who manage automated information management systems in their current job. Percentages are based on the total number of respondents who indicated they had managed one of these systems in Table 31. As such, only 3.4% of those respondents who indicated they had managed the Records Information Management System are not managing this system in their current job; only 5.8% of those respondents who indicated they had managed the Reprographics Automated Management System are not managing this system in their current job; and only 3.6% of those respondents who indicated they had managed the Publishing Distribution

Office System are not managing this system in their current job.

Table 33

Automated Information Systems Managed
Current Job

MAJCOM/SOA/DRU	RIMS	RAMS	PDOS
AF Communications Command	0	0	0
AF Logistics Command	0	0	1
AF Reserves	0	0	0
AF Space Command	1	1	0
AF Systems Command	1	0	1
Air Training Command	6	6	6
Air University	1	0	1
Alaskan Air Command	2	1	1
Military Airlift Command	6	5	6
Pacific Air Forces	4	4	4
Strategic Air Command	14	13	13
Tactical Air Command	14	13	14
US Air Forces in Europe	7	6	7
Total	56	49	54
Percentage	96.6	94.2	96.4

Table 34 shows that even though more than 94% of all respondents who have ever managed an automated information management system are doing so in their current job, 64.4% of them have been doing so for less than 12 months, further supporting the data presented in Tables 23, 25, 26, and 27.

Table 34

Length of System Management - Current Job

Time	Frequency	Percentage
Less than 6 months	15	25.4
6 months but less than 12	23	39.0
1 year but less than 2	14	23.7
2 years or more	7	11.9
	59	100.0

Table 35 shows only 37% of the respondents feel their MAJCOM/SOA/DRU or intermediate level of command keeps them fully informed about system changes and updates. The remaining respondents feel, at best, they are only given the information their MAJCOM/SOA/DRU or intermediate level of command feels they need. However, Table 36 indicates 88.7% of the respondents feel the level of system support provided by their MAJCOM/SOA/DRU is either excellent or good. Noteworthy is the fact that 100% of the respondents from Air Force Logistics Command, 50% of the respondents from Air Force Systems Command and 21.4% of the respondents from Strategic Air Command rated their support either fair or poor. A crosstabulation by MAJCOM/SOA/DRU showing the degree of information provided concerning system changes and updates is shown in Appendix D.

Table 35

Degree of MAJCOM/SOA/DRU or Intermediate Level of Command Information Provided Concerning System Changes & Updates Current Job

Response	Frequency	Percentage
Keep me totally informed	20	37.0
Give me only the information they think I need	27	50.0
Wait for me to ask for the information	6	11.1
Keep me in the dark	1	1.9
	54	100.0

Table 36

Level of System Support Provided By The MAJCOM/SOA/DRU Or Intermediate Level Of Command Current Job

MAJCOM/SOA/DRU	Excellent	Good	Fair	Poor
AF Communications Command	0	0	0	0
AF Logistics Command	0	0	1	0
AF Reserves	0	0	0	0
AF Space Command	0	1	0	0
AF Systems Command	0	1	0	1
Air Training Command	0	7	0	0
Air University	0	0	0	0
Alaskan Air Command	1	1	0	0
Military Airlift Command	1	5	0	0
Pacific Air Forces	1	1	0	0
Strategic Air Command	5	6	2	1
Tactical Air Command	7	5	0	0
US Air Forces in Europe	0	5	1	0
Total	15	32	4	2
Percentage	28.3	60.4	7.5	3.8

Table 37 displays, by system, the number of Chiefs of Information Management who managed automated information management systems in a previous job. Some of these respondents are also mananaging these systems in their current job. Percentages are based on the total number of respondents who indicated they had managed one of these systems in Table 31. As such, only 3.4% of those respondents who indicated they had managed the Records Information Management System managed this system in a previous job; only 5. 8% of those respondents who indicated they had managed the Reprographics Automated Management System managed this system in a previous job; and only 3.6% of those respondents who indicated they had managed the Publishing Distribution Office System managed this system in a previous job.

Table 37

Automated Information Systems Managed
Previous Job

MAJCOM/SOA/DRU	RIMS	RAMS	PDOS
AF Systems Command	0	0	1
Air Training Command	3	3	3
Alaskan Air Command	1	1	1
Military Airlift Command	1	0	1
Strategic Air Command	2	2	2
Tactical Air Command	3	2	2
Total	10	8	10
Percentage	17.2	15.4	17.9

Table 38 shows that of those respondents who have managed an automated information management system in a previous job, 82.6% of them did so for less than 24 months. One explanation for this is the relative newness of these systems.

Table 38

Length of System Management - Previous Job

Time	Frequency	Percentage
Less than 6 months	9	39.1
6 months but less than 12	4	17.4
1 year but less than 2	6	26.1
2 years or more	4	17.4
	23	100.0

Table 39 shows that 50% of the respondents felt their MAJCOM/SOA/DRU or intermediate level of command kept them fully informed about system changes and updates. The remaining respondents felt they were only given the information their MAJCOM/SOA/DRU or intermediate level of command felt they needed. However, Table 40 indicates 87.5% of the respondents believe the level of system support provided by their MAJCOM/SOA/DRU was either excellent or good. Noteworthy is that 100% of the respondents from Air Force Systems Command rated their support as poor. A crosstabulation by MAJCOM/SOA/DRU showing the degree of information provided concerning system changes and updates is shown in Appendix D.

Table 39

Degree of MAJCOM/SOA/DRU or Intermediate Level of Command Information Provided Concerning System Changes & Updates Previous Job

Response	Frequency	Percentage
Keep me totally informed	4	50.0
Give me only the information they think I need	4	50.0
Wait for me to ask for the information	0	0.0
Keep me in the dark	0	0.0
	8	100.0

Table 40

Level of System Support Provided By The MAJCOM/SOA/DRU Or Intermediate Level Of Command Previous Job

MAJCOM/SOA/DRU	Excellent	Good	Fair	Poor
AF Communications Command	0	0	0	0
AF Logistics Command	0	0	0	0
AF Reserves	0	0	0	0
AF Space Command	0	0	0	0
AF Systems Command	0	0	0	2
Air Training Command	0	4	0	0
Air University	0	0	0	0
Alaskan Air Command	1	0	0	0
Military Airlift Command	0	0	0	0
Pacific Air Forces	1	0	0	0
Strategic Air Command	3	2	0	0
Tactical Air Command	3	0	0	0
US Air Forces in Europe	0	0	0	0
Total	8	6	0	2
Percentage	50.0	37.5	0.0	12.5

Training Methods and Quality of Training - Current Job

Part IV of the questionnaire, questions 65 through 73, asked the respondents who manage automated information management systems in their current job to define the methods they use to train their staff. It also asked that each respondent identify the information managers they train by information management function of assignment, and rate the quality of the training they provide and their staff's ability to use the systems.

Table 41 reveals that 57.9% of the respondents provide some type of systems training, either through formal classroom training or on-the-job training. Many of the respondents, 29.8%, expect users of the systems to teach themselves using the system user's guides and other applicable documentation. Seven percent of the respondents depend on the base level information management staff to provide training to their system users. This group is made up of respondents who are not assigned duties as Chief, Base Information Management such as those working as an air division or numbered air force Chief of Information Management. A crosstabulation showing the method of training provided by MAJCOM/SOA/DRU is shown in Appendix D.

Table 41

Automated Information Management System
Training Methods - Current Job

Training Method	Frequency	Percentage
Formal Classroom	2	3.5
In-house by local information management staff	31	54.4
Phone calls to MAJCOM/SOA/DRU staff	2	3.5
Self-taught	17	29.8
Trained by local base information management staff	4	7.0
Training is not provided	1	1.8
	57	100.0

Tables 42 and 43 indicate the frequency of systems training provided by the respondents for both initial and follow-on training. In both instances, the large majority of respondents, 75.9% and 77.2% respectively, reported they had no set schedule. This is noteworthy because only 1 respondent, 1.8%, reported not having a method of training.

Table 42

Frequency Of Systems Training - New Users
Current Job

MAJCOM/SOA/DRU	Monthly	Quarterly	Semi Annually	Annually	No Set Schedule
AF Communications Command	0	0	0	0	0
AF Logistics Command	0	0	0	0	1
AF Space Command	0	1	0	0	0
AF Systems Command	1	0	0	1	0
Air Training Command	0	0	0	0	6
Air University	0	0	0	0	1
Alaskan Air Command	0	0	0	0	2
Military Airlift Command	0	0	0	1	5
Pacific Air Forces	1	0	0	0	3
Strategic Air Command	1	2	0	0	11
Tactical Air Command	3	1	0	1	9
US Air Forces in Europe	1	0	0	0	6
Total	7	4	0	3	44
Percentage	12.1	6.9	0.0	5.2	75.9

Table 43

Frequency Of Systems Follow-On Training
Current Job

MAJCOM/SOA/DRU	Monthly	Quarterly	Semi Annually	Annually	No Set Schedule
AF Communications Command	0	0	0	0	0
AF Logistics Command	0	0	0	0	1
AF Space Command	0	0	0	0	1
AF Systems Command	1	0	0	1	0
Air Training Command	0	1	0	0	5
Air University	0	0	0	0	0
Alaskan Air Command	0	0	0	0	2
Military Airlift Command	0	0	0	1	5
Pacific Air Forces	1	0	0	0	3
Strategic Air Command	1	0	0	2	11
Tactical Air Command	1	1	0	2	10
US Air Forces in Europe	0	1	0	0	6
Total	4	3	0	6	44
Percentage	7.0	5.3	0.0	10.5	77.2

Table 44 displays the functional area of assignment of information managers who receive automated information management system training. Only 29.8% of all respondents train all information managers assigned to their functional area. Only 33.3% indicated that they provide training to all information managers assigned to their wing/base, air division, numbered air force, or other intermediate level of command.

Table 44

Who Receives Automated Information Management Systems Training - Current Job

Group	Frequency	Percentage
Only information managers directly assigned to the information management function (All Systems)		
Yes	17	29.8
No	40	70.2
	57	100.0
All information managers assigned to the Wing, Air Division, or Numbered Air Force not directly assigned to the information management function		
Yes	19	33.3
No	38	66.7
	57	100.0

Table 45 relates that 50% of the respondents felt they did not need to provide any type of automated information management training. This figure supports the data reported in Tables 42 and 43 and may answer the question as to why the majority of respondents had no set training schedule.

Table 45

Perceived Need to Provide Automated Information Management Systems Training - Current Job

Response	Frequency	Percentage
Yes	29	50.0
No	29	50.0
	58	100.0

Tables 46 and 47 indicate the respondents perception of the automated information management systems training they provide and the ability of the staff to use these systems after receiving training. In Table 46, 32.1% of the respondents rated their training as only fair while the remainder rated their training as either adequate or above average. Table 47 shows that the respondents may possibly have underrated the training they provide in table 45. Even though 67.9% rated their training either adequate or above average, 96.5% rated their staff's ability to use the systems after training as either adequate or expert.

Table 46

Perception of Training Provided
Current Job

MAJCOM/SOA/DRU	Poor	Fair	Adequate	Above Average	Outstanding
AF Communications Command	0	0	0	0	0
AF Logistics Command	0	0	1	0	0
AF Space Command	0	1	0	0	0
AF Systems Command	0	1	1	0	0
Air Training Command	0	1	1	4	0
Air University	0	0	1	0	0
Alaskan Air Command	0	1	1	0	0
Military Airlift Command	0	2	2	2	0
Pacific Air Forces	0	2	2	0	0
Strategic Air Command	0	4	7	2	0
Tactical Air Command	0	6	5	2	0
US Air Forces in Europe	0	0	6	1	0
Total	0	18	27	11	0
Percentage	0.0	32.1	48.2	19.6	0.0

Table 47

Perception of Staff's Ability To Use Automated
Information Management Systems After Training
Current Job

MAJCOM/SOA/DRU	Poor	Adequate	Expert
AF Communications Command	0	0	0
AF Logistics Command	0	0	1
AF Space Command	0	1	0
AF Systems Command	0	2	0
Air Training Command	0	4	2
Air University	0	1	0
Alaskan Air Command	0	1	1
Military Airlift Command	0	2	4
Pacific Air Forces	1	3	0
Strategic Air Command	0	6	7
Tactical Air Command	0	9	5
US Air Forces in Europe	1	4	2
Total	2	33	22
Percentage	3.5	57.9	38.6

Table 48 shows the large majority of respondents, 84.9%, felt they could not recommend implementation of their automated information management systems' training for Air Force-wide implementation.

Table 48

Respondent's Recommendation for Air Force-wide Implementation of their Training Program Current Job

Response	Frequency	Percentage
Yes	8	15.1
No	45	84.9
	53	100.0

Training Methods and Quality of Training - Previous Job

Part V of the questionnaire asked the respondents who stated they managed one of the automated information management systems in a previous job to define the methods they used to train their staff. It also asked that each respondent identify the information managers they trained by function of information management of assignment, and rate the quality of the training they provided and their staff's ability to use the systems.

Table 49 reveals that 35.7% of the respondents provided on-the-job training when they managed automated information management systems in a previous job. Half of the respondents expected users of the systems to teach themselves using the system user's guides and other

applicable documentation. More than seven percent of the respondents depended on the base level information management staff to provide training to their system users. This group is made up of respondents who are not assigned duties as Chief, Base Information Management such as those who worked as an air division or numbered air force Chief of Information Management. A crosstabulation showing the method of training provided by MAJCOM/SOA/DRU is shown in Appendix D.

Table 49

Automated Information Management System
Training Methods - Previous Job

Training Method	Frequency	Percentage
Formal Classroom	0	0.0
In-house from local information management staff	5	35.7
Phone calls to MAJCOM/SOA/DRU staff	1	7.1
Self-taught	7	50.0
Trained by local base information management staff	1	7.1
Training was not provided	0	0.0
	14	100.0

Tables 50 and 51 indicate the frequency of systems training provided by the respondents for both initial and

follow-on training when they managed automated information management systems in a previous job. As with those who manage these systems in their current job, the large majority of respondents, 90.5% and 86.3% respectively, reported they had no set schedule.

Table 50

Frequency Of Systems Training - New Users
Previous Job

MAJCOM/SOA/DRU	Monthly	Quarterly	Semi Annually	Annually	No Set Schedule
AF Communications Command	0	0	0	0	0
AF Logistics Command	0	0	0	0	1
AF Reserves	0	0	0	0	0
AF Space Command	0	0	0	0	0
AF Systems Command	0	0	0	0	0
Air Training Command	0	0	0	0	6
Air University	0	0	0	0	0
Alaskan Air Command	0	0	0	0	1
Military Airlift Command	0	0	0	0	1
Pacific Air Forces	0	0	0	0	2
Strategic Air Command	2	0	0	0	4
Tactical Air Command	0	0	0	0	4
US Air Forces in Europe	0	0	0	0	0
Total	2	0	0	0	19
Percentage	9.5	0.0	0.0	0.0	90.5

Table 51

Frequency Of Systems Follow-On Training
Previous Job

MAJCOM/SOA/DRU	Monthly	Quarterly	Semi Annually	Annually	No Set Schedule
AF Communications Command	0	0	0	0	0
AF Logistics Command	0	0	0	0	1
AF Reserves	0	0	0	0	0
AF Space Command	0	0	0	0	0
AF Systems Command	0	0	0	0	0
Air Training Command	1	0	0	0	5
Air University	0	0	0	0	0
Alaskan Air Command	0	0	0	0	1
Military Airlift Command	0	0	0	0	1
Pacific Air Forces	0	0	0	0	2
Strategic Air Command	2	0	0	0	4
Tactical Air Command	0	0	0	0	4
US Air Forces in Europe	0	0	0	0	0
Total	3	0	0	0	18
Percentage	13.7	0.0	0.0	0.0	86.3

Table 52 displays the functional area of assignment of information managers who receive automated information management system training. Only 23.1% of the respondents trained all information managers assigned to their functional area. Only 28.6% indicated they provided training to all information managers assigned to their wing/base, air division, numbered air force, or other intermediate level of command. Current system managers reported training 33.3% of all information managers, indicating a slight improvement in the percentage of respondents who are providing training.

Table 52

Who Received Automated Information Management Systems Training - Previous Job

Group	Frequency	Percentage
Only information managers directly assigned to the information management function		
Yes	3	23.1
No	10	76.9
	13	100.0
All information managers assigned to the Wing, Air Division, or Numbered Air Force not directly assigned to the information management function		
Yes	4	28.6
No	10	71.4
	14	100.0

Table 53 relates that 64.3% of the respondents felt they did not need to provide any type of automated information management training. This figure is larger than that reported by those who currently manage these systems, indicating a slight shift toward a more positive need to provide training.

Table 53

Perceived Need to Provide Automated Information Management Systems Training - Previous Job

Response	Frequency	Percentage
Yes	5	35.7
No	9	64.3
	14	100.0

Tables 54 and 55 indicate the respondents perception of the automated information management systems training they provided and the ability of the staff to use these systems after receiving training. Table 54 shows 26.3% of the respondents rated their training as only fair while the remainder rated their training as either adequate or above average. Table 55 shows the respondents may have again possibly underrated the training they provided. Even though 73.7% rated their training adequate or above average, 95.2% rated their staff's ability to use the systems after training as either adequate or expert.

Table 54

Perception of Training Provided
Previous Job

MAJCOM/SOA/DRU	Poor	Fair	Adequate	Above Average	Outstanding
AF Communications Command	0	0	0	0	0
AF Logistics Command	0	0	1	0	0
AF Space Command	0	0	0	0	0
AF Systems Command	0	0	0	0	0
Air Training Command	0	0	4	2	0
Air University	0	0	0	0	0
Alaskan Air Command	0	0	1	0	0
Military Airlift Command	0	0	1	0	0
Pacific Air Forces	0	1	0	0	0
Strategic Air Command	0	1	1	4	0
Tactical Air Command	0	3	0	0	0
US Air Forces in Europe	0	0	0	0	0
Total	0	5	8	6	0
Percentage	0.0	26.3	42.1	31.6	0.0

Table 55

Perception of Staff's Ability To Use Automated
Information Management Systems After Training
Previous Job

MAJCOM/SOA/DRU	Poor	Adequate	Expert
AF Communications Command	0	0	0
AF Logistics Command	0	1	0
AF Space Command	0	0	0
AF Systems Command	0	0	0
Air Training Command	0	4	2
Air University	0	0	0
Alaskan Air Command	0	0	1
Military Airlift Command	0	1	0
Pacific Air Forces	0	2	0
Strategic Air Command	0	0	6
Tactical Air Command	1	3	0
US Air Forces in Europe	0	0	0
Total	1	11	9
Percentage	4.8	52.3	42.9

Table 56 shows the large majority of respondents, 92.9%, felt they could not recommend implementation of their automated information management systems training for Air Force-wide implementation.

Table 56

Respondent's Recommendation for Air Force-wide Implementation of their Training Program Previous Job

Response	Frequency	Percentage
Yes	1	7.1
No	13	92.9
	14	100.0

System Effectiveness and Support

Part VI of the questionnaire asked the respondents to describe their opinion of the effectiveness of the automated information systems they manage or have managed. Respondents also identified the sources of support their staff used when they needed help in using the systems.

Table 57 strongly indicates the dependence of most system users on their MAJCOM/SOA/DRU automated information management systems managers. Sixty one percent of the respondents stated their staff goes to the MAJCOM/SOA/DRU system manager for help in using the system. As previously indicated in Figure 3, 48.5% of major commands, separate operating agencies, and direct reporting units depend on system users to train themselves using the system user's

guides and other system documentation, or else they depend on the local Chief of Information Management to develop and provide training. The data presented in table 56 therefore suggests the major commands, separate operating agencies, and direct reporting units who depend on these methods of training need to reconsider their training approach. Further supporting this statement is that only 5.1% of the respondents reported their staff depends on the system documentation and user's guides for help in using the systems. A crosstabulation by MAJCOM/SOA/DRU showing the source of the respondents' staff's source of real help in using automated information management systems is shown in Appendix D.

Table 57

Source of Staff's Real Help In Using Automated Information Management Systems

Source	Frequency	Percentage
You	2	3.4
A coworker	10	16.9
Base level RIMS, RAMS, or PDOS system manager	2	3.4
MAJCOM/SOA/DRU RIMS, RAMS, or PDOS system manager	36	61.0
A recognized expert in another MAJCOM/SOA/DRU	6	10.2
System documentation and user's guide	3	5.1
	59	100.0

Table 58 shows most of the respondents feel task accomplishment, both their's and their staff's, has improved since the implementation of automated information management systems. Table 59 further shows the respondent's desire for the development of more automated information management systems.

Table 58

Respondent's Perception of Improved Task Accomplishment Based on Use of Automated Information Management Systems

Question	Frequency	Percentage
Do you consider the use of these automated information system(s) an improvement over the nonautomated method of performing the same task?		
Yes	58	96.7
No	2	3.3
	60	100.0
Has/did your staff's overall work performance improve since/once they started using these system(s)?		
Yes	52	86.7
No	8	13.3
	60	100.0

Table 58 (Cont)

Question	Frequency	Percentage
How would you compare the speed and accuracy with which your staff performs/performed their daily tasks using the automated system(s) against how they perform/performed without the assistance of a computer?		
Speed and accuracy have decreased	4	6.8
Speed has decreased but accuracy has increased	5	8.5
Speed has increased but accuracy has decreased	2	3.4
Speed and accuracy have not changed	4	6.8
Speed and accuracy have increased	44	74.6
	59	100.0

Table 59

Respondent's Perception of the Need for More Automated Information Management Systems

Response	Frequency	Percentage
Yes	48	81.4
No	11	18.6
	59	100.0

Effect of Automated Information Management Systems on System Users and System Managers

Part VII of the questionnaire asked the respondents to state their opinion of the affect automated information management systems have on various subjects related to their jobs. The frequency distributions of items 89 through 107 are shown in Table 60.

Table 60

Perception of the Impact Use of Automated Information Management Systems have on Factors Affecting System Users and System Managers

Factor	Frequency	Percentage
Job Performance		
Very Negative	0	0.0
Negative	0	0.0
None	6	10.2
Positive	47	79.7
Very Positive	6	10.2
	59	100.0
Staff's Job Performance		
Very Negative	0	0.0
Negative	0	0.0
None	3	5.1
Positive	45	76.3
Very Positive	11	18.6
	59	100.0
Job Satisfaction		
Very Negative	0	0.0
Negative	0	0.0
None	17	28.8
Positive	38	64.4
Very Positive	4	6.8
	59	100.0

Table 60 (Cont)

Factor	Frequency	Percentage
Staff's Job Satisfaction		
Very Negative	0	0.0
Negative	1	1.7
None	12	20.3
Positive	40	67.8
Very Positive	6	10.2
	59	100.0
Access to information needed to do your job		
Very Negative	0	0.0
Negative	0	0.0
None	6	10.2
Positive	38	64.4
Very Positive	15	25.4
	59	100.0
Access to Information your staff needs to do their job		
Very Negative	0	0.0
Negative	0	0.0
None	2	3.4
Positive	37	62.7
Very Positive	20	33.9
	59	100.0
Productivity level		
Very Negative	0	0.0
Negative	2	3.4
None	11	18.6
Positive	37	62.7
Very Positive	9	15.3
	59	100.0
Staff's Productivity level		
Very Negative	0	0.0
Negative	2	3.4
None	3	5.1
Positive	42	71.2
Very Positive	12	20.3
	59	100.0

Table 60 (Cont)

Factor	Frequency	Percentage
Workload		
Very Negative	0	0.0
Negative	6	10.3
None	14	24.1
Positive	33	56.9
Very Positive	5	8.6
	58	100.0
Staff's Workload		
Very Negative	1	1.7
Negative	8	13.8
None	9	15.5
Positive	31	53.4
Very Positive	9	15.5
	58	100.0
Personal Job Training Needs		
Very Negative	1	1.7
Negative	9	15.3
None	18	30.5
Positive	27	45.8
Very Positive	4	6.8
	59	100.0
Staff's Job Training Needs		
Very Negative	0	0.0
Negative	10	16.9
None	9	15.3
Positive	35	59.3
Very Positive	5	8.5
	59	100.0
Attitude towards your job		
Very Negative	0	0.0
Negative	1	1.7
None	19	32.2
Positive	34	57.6
Very Positive	5	8.5
	59	100.0

Table 60 (Cont)

Factor	Frequency	Percentage
Staff's attitude to their job		
Very Negative	0	0.0
Negative	1	1.7
None	10	16.9
Positive	42	71.2
Very Positive	6	10.2
	59	100.0
Work Habits		
Very Negative	0	0.0
Negative	1	1.7
None	19	32.2
Positive	32	54.2
Very Positive	7	11.9
	59	100.0
Staff's Work Habits		
Very Negative	0	0.0
Negative	1	1.8
None	7	12.7
Positive	42	76.4
Very Positive	5	9.1
	55	100.0
Job Skills		
Very Negative	0	0.0
Negative	1	1.8
None	10	18.2
Positive	37	67.3
Very Positive	7	12.7
	55	100.0
Staff's Job Skills		
Very Negative	0	0.0
Negative	1	1.8
None	2	3.6
Positive	44	80.0
Very Positive	8	14.5
	55	100.0

Table 60 (Cont)

Factor	Frequency	Percentage
Staff's Promotion Potential		
Very Negative	0	0.0
Negative	1	1.9
None	29	54.7
Positive	18	34.0
Very Positive	5	9.4
	53	100.0

Respondents reported these automated information management systems had a positive or very positive affect on most factors on both themselves and their staff. However, 34.4% indicated either a negative or no impact on their own daily workload while 31% reported these systems had a very negative, negative, or no affect on their staff's daily workload. Of extreme importance is 52.6% of the respondents feel the use of automated information management systems strongly impacts their need for more training, and 67.8% also feel the use of these systems strongly impacts their staff's need for more training. A surprising result is 54.7% of the respondents feel knowledge of these systems has no impact on their staff's promotion potential. This is surprising because enlisted members are promoted, in part, based on the technical knowledge they possess about the job.

Part III - Enlisted Information Managers' and Reprographic Specialists' Responses

Respondent Demographics

Part I of the questionnaire asked for demographic information about the respondents. The items include age, rank, sex, highest education level, years in current job, years of active military service, MAJCOM/SOA/DRU of assignment, current duty AFSC, current duty title, category of information management function of assignment, and total years of job experience in the 702XX/703XX AFSC. The frequency breakouts and general discussion of each demographic variable follow.

The research sample was selected from the Atlas Statistical Summary inquiry data base using social security number as the discriminator. Information managers whose social security number ended in 87, 42, 49, 55, and 70 were selected from the data base until the number selected matched the number required to develop a stratified population. These numbers were determined through a random selection process. Reprographic specialists were selected by generating a list, by rank, of the entire career field and selecting every other name for inclusion in the population. This insures a stratified population. Excluded from both groups were enlisted members with the rank of airman basic and airman.

Age. Approximately 65.4% of the survey respondents were grouped in the 18-32 age group, while 31.4% were grouped in the 33-42 age group. The frequency distribution of the respondents by age is shown in Table 61.

Table 61

Age of Respondents

Age	Frequency	Percentage
18-22	50	16.2
23-27	82	26.5
28-32	70	22.7
33-37	53	17.2
38-42	44	14.2
43-47	10	3.2
48 and Older	0	0.0
	309	100.0

Rank. The largest single group of the 309 respondents were staff sergeants with 82 or 26.5%. The overall distribution of the respondents is representative of the population rank distribution. The frequency distribution of respondents by rank is shown in Table 62.

Table 62

Rank of Respondents

Rank	Frequency	Percentage
Airman First Class	36	11.7
Senior Airman	24	7.8
Sergeant	60	19.4
Staff Sergeant	82	26.5
Technical Sergeant	55	17.8
Master Sergeant	37	12.0
Senior Master Sergeant	10	3.2
Chief Master Sergeant	5	1.6
	309	100.0

Sex. The respondents consisted of 86 females and 223 males. The frequency distribution of the respondents by sex is shown in Table 63.

Table 63

Sex of Respondents

Sex	Frequency	Percentage
Female	86	27.8
Male	223	72.2
	309	100.0

Highest Education Level. Of the 309 respondents, 63 or 20.4% reported having graduated from high school or completing the requirements for a general education diploma. Approximately 78.6% of the respondents reported completing some form of post-secondary education. The frequency distribution of education by level is shown in Table 64.

Table 64

Education Level of Respondents

Education Level	Frequency	Percentage
Some High School	3	1.0
High School Graduate/G.E.D.	63	20.4
Some College or Post High School Training	181	58.6
Associate Degree	13	4.2
Associate Degree Plus	21	6.8
Bachelor's Degree	18	5.8
Bachelor's Degree Plus	8	2.6
Master's Degree	2	0.6
Master's Degree Plus	0	0.0
Doctoral Degree	0	0.0
	309	100.0

Active Military Service. Two hundred and five of the respondents to this question, 66.8%, had less than 12 years active military service. The frequency distribution of active military service is shown is Table 65.

Table 65

Years of Active Military Service

Years	Frequency	Percentage
Less than 2	22	7.1
2 years but less than 4	41	13.3
4 years but less than 6	41	13.3
6 years but less than 8	36	11.7
8 years but less than 10	32	10.4
10 years but less than 12	34	11.0
12 years but less than 14	11	3.6
14 years but less than 16	14	4.5
16 years but less than 18	22	7.1
18 years but less than 20	30	9.7
20 years but less than 26	22	7.1
26 years or more	3	1.0
	308	100.0

Years in Current Job. One hundred and forty five or 47.1% of the respondents reported less than 2 years in their current job, while 30.2% reported 4 years or more in their current job. This indicates approximately one-third of the population has been in their job since the original implementation of the automated information management systems being studied. The frequency distribution of respondents by years in their current job is shown in Table 66.

Table 66

Years In Current Job

Years	Frequency	Percentage
Less than 1 year	76	24.7
1 year but less than 2	69	22.4
2 years but less than 3	40	13.0
3 years but less than 4	30	9.7
4 years but less than 6	36	11.7
6 years or more	57	18.5
	308	100.0

Years of 702XX/703XX Job Experience. Responses to this question indicate the majority of respondents have been in their current career field for their entire Air Force career when compared with the data in Table 65. Two hundred twenty five or 73.1% of the respondents reported less than 12 years experience in the 702XX/703XX career field. The frequency distribution of respondents based on years of 702XX/703XX experience is shown in Table 67.

Table 67

Years of 70XXX Job Experience

Years	Frequency	Percentage
Less than 2	33	10.7
2 years but less than 4	51	16.6
4 years but less than 6	38	12.3
6 years but less than 8	36	11.7
8 years but less than 10	36	11.7
10 years but less than 12	31	10.1
12 years but less than 14	13	4.2
14 years but less than 16	13	4.2
16 years but less than 18	16	5.2
18 years but less than 20	16	5.2
20 years but less than 26	23	7.5
26 years or more	2	0.6
	308	100.0

MAJCOM/SOA/DRU of Current Assignment. The frequency distribution of the respondents' major commands, separate operating agencies, and direct reporting units are shown in Table 68.

Table 68

MAJCOM/SOA/DRU of Current Assignment

MAJCOM/SOA/DRU	Frequency	Percentage
Air Force Academy	4	1.3
AF Communications Command	11	3.6
AF District of Washington	9	2.9
AF Logistics Command	5	1.6
AF Office of Special Investigation	2	0.7
AF Space Command	7	2.3
AF Systems Command	10	3.3
AF Technical Applications Center	1	0.3
Air Training Command	24	7.8
Air University	4	1.3

Table 68 (Cont)

MAJCOM/SOA/DRU	Frequency	Percentage
Alaskan Air Command	8	2.6
Electronic Security Command	1	0.3
Military Airlift Command	32	10.4
National Guard Bureau	1	0.3
Pacific Air Forces	20	6.5
Strategic Air Command	70	22.8
Tactical Air Command	59	19.2
US Air Forces in Europe	39	12.7
	307	100.0

MAJCOM/SOA/DRU Hosting Current Base of Assignment. A breakdown of the MAJCOM/SOA/DRU hosting each respondent's current base of assignment allows identification of the MAJCOM/SOA/DRU of each respondent's base level Chief of Information Management. This allows for comparison of the training received by each respondent and its effectiveness against the types of training being provided as reported by the major command, separate operating agency, and direct reporting unit Directors of Information Management in Part I of this chapter and the Chiefs of Information Management in Part II of this chapter. The frequency distribution of the MAJCOM/SOA/DRU acting as host of each respondent's base of current assignment is shown in Table 69.

Table 69

Host for Base of Current Assignment

MAJCOM/SOA/DRU	Frequency	Percentage
Air Force Academy	4	1.3
AF Communications Command	1	0.3
AF District of Washington	8	2.7
AF Logistics Command	13	4.3
AF Space Command	6	2.0
AF Systems Command	13	4.3
AF Technical Applications Center	2	0.7
Air Training Command	23	7.7
Air University	4	1.3
Alaskan Air Command	6	2.0
Electronic Security Command	1	0.3
Military Airlift Command	34	11.4
Pacific Air Forces	20	6.7
Strategic Air Command	69	23.1
Tactical Air Command	61	20.4
US Air Forces in Europe	34	11.4
	299	100.0

Duty AFSC. All enlisted information management and reprographic specialist AFSCs are represented in the population sample. The frequency distribution of the duty AFSCs of the respondents is shown in Table 70.

Table 70

Duty AFSCs of Respondents

AFSC	Frequency	Percentage
70230	6	2.0
70250	73	23.9
70270	70	23.0
70290	6	2.0
70200	4	1.3
70330	9	3.0
70350	62	20.3
70370	62	20.3
70390	13	4.3
	305	100.0

Functional Area of Assignment. Of those respondents who answered this question, 146 or 49.5% are assigned to positions within the office of the base level Chief of Information Management. Another 94 or 31.9% are assigned to wing\base level staff support duties. The frequency distribution for category of functional area of assignment is shown in Table 71.

Table 71

Information Management Function Category of Assignment

Category	Frequency	Percentage
Staff Support (Wing/Base Level)	94	31.9
Staff Support (Above Wing/Base Level)	29	9.8
Information Management (Wing/Base Level)	146	49.5
Information Management (Above Wing/Base Level)	26	8.8
	295	100.0

Computer Background and Experience

Part II of the questionnaire, containing questions 19 through 32, asked the respondents to provide information about their computer background and experience and the source of their computer training. They were also asked to express their opinion about the use of computers and automated information management systems in the workplace.

Table 72 shows 18.6% of the respondents have never used a microcomputer but only 8.7% report they do not use a computer on the job. One explanation for this disparity is the interpretation of the terms computer and microcomputer by the respondents. The table does show, as a minimum, that 81.4% of the respondents have used a microcomputer at some time.

Table 72

Computer Background and Experience

Question	Frequency	Percentage
Never used a microcomputer		
Yes	57	18.6
No	249	81.4
	306	100.0
Use a computer at home		
Yes	100	32.5
No	208	67.5
	308	100.0

Table 72 (Cont)

Question	Frequency	Percentage
Use a computer on the job		
Yes	282	91.3
No	27	8.7
	309	100.0

Table 73 indicates that 40.6% of the respondents have received some form of formal "hands-on" microcomputer training, either through Air Force or civilian training programs.

Table 73

Formal "Hands-On" Microcomputer Training

Response	Frequency	Percentage
Yes	125	40.6
No	183	59.4
	308	100.0

Table 74 shows the majority of respondents' computer knowledge was self-taught. More respondents reported acquiring their computer skills through Air Force, 46.7% versus 28.2%, and civilian training programs, 30.7% versus 28.2%, than was reported by Chiefs of Information Management in Table 22. However, fewer enlisted respondents, 60.4% versus 68.2%, reported their computer knowledge was self-taught, indicating enlisted information managers and

reprographic specialists are not as likely as chiefs of information management to acquire computer knowledge on their own. It should be noted that this table is an indicator of the source of training and not training effectiveness. The lack of Air Force provided training is alarming considering the charter of Air Force Information Management as stated in Secretary of the Air Force Order 560.1 (38). A crosstabulation showing respondent's source of training by MAJCOM/SOA/DRU is shown in Appendix E.

Table 74

Source of Computer Training

Question	Frequency	Percentage
Acquired computer skills through AF training		
Yes	143	46.7
No	165	53.3
	308	100.0
Acquired computer skills through civilian education		
Yes	94	30.7
No	214	69.3
	308	100.0
Computer knowledge is self-taught		
Yes	186	60.4
No	122	39.6
	308	100.0

Table 75 indicates 236 or 76.4% of the respondents feel comfortable when using microcomputers. The respondents' opinions were measured on a continuous scale where 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, and 5 = strongly agree. Table 75 and Figure 6 also show that only 21.7% consider themselves novice computer users while 24.3% consider themselves experienced or expert users. When compared with the responses provided by the chiefs of information management, it appears the enlisted members feel more comfortable using microcomputers and have a higher experience level.

Table 75

Respondents Perceived Ability to Use Microcomputers

Question	Frequency	Percentage
Feel comfortable using a computer		
1	12	3.9
2	23	7.4
3	38	12.3
4	140	45.3
5	96	31.1
	309	100.0
Perceived Experience Level		
Non User	11	3.6
Novice	67	21.7
Intermediate User	156	50.5
Experienced User	64	20.7
Expert User	11	3.6
	309	100.0

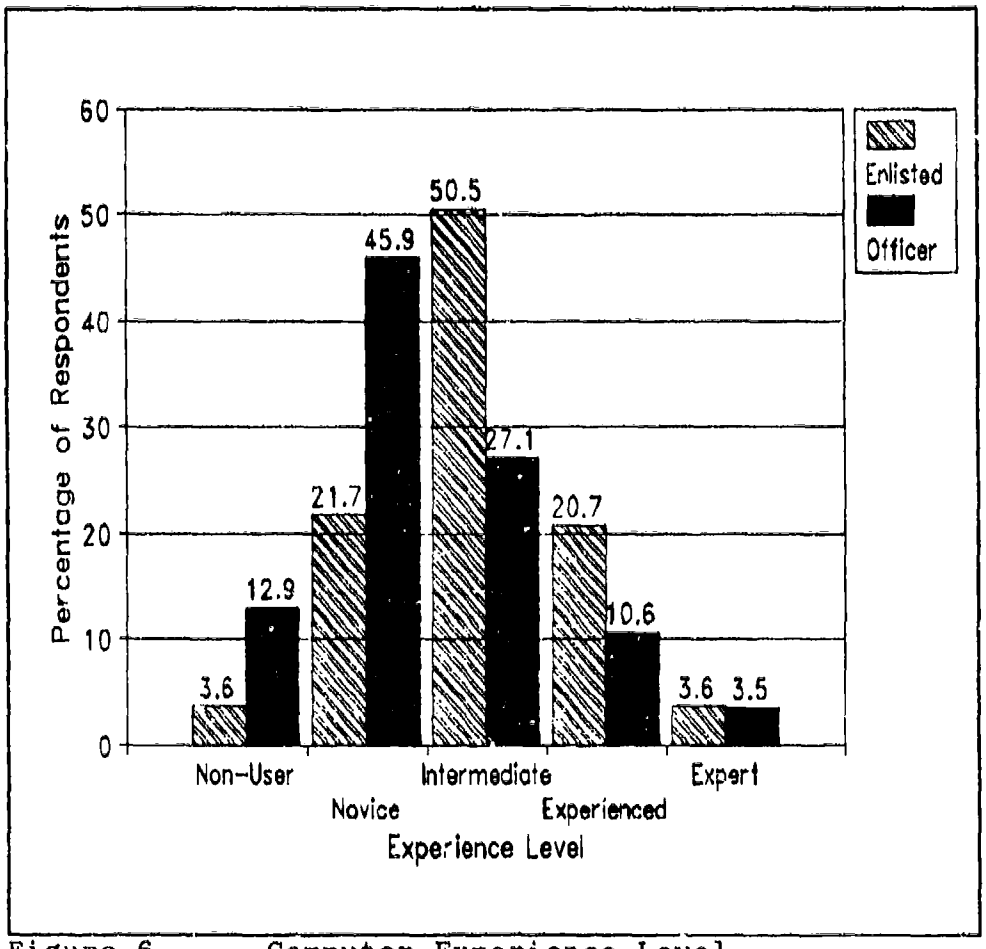

Figure 6. Computer Experience Level
Officer vs Enlisted

Microcomputers and Automated Information Management Systems in the Workplace

The respondents' opinions were measured on a continuous scale where 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, and 5 = strongly agree. The responses were crosstabulated by MAJCOM/SOA/DRU of assignment as indicated in Table 68.

The data presented in Tables 76 through 80 indicates the respondents feel a definite need exists for more computer training. Table 76 shows 75% of the respondents

feel they could perform their jobs more efficiently with some/more computer training. Table 77 indicates 93.6% of the respondents feel computer knowledge is important in managing these automated information management systems, while in Table 78, 81.7% feel they could better manage these systems if they had more computer training. It should be noted enlisted members in the grade of sergeant and above are often placed in supervisory and middle management positions thereby needing training both as users and managers. Table 79 shows 70.4% of the respondents also feel automation of information management functions has increased the amount of computer knowledge they need to do their job effectively. Table 80 stresses the need for more computer training for these users of automated information management systems. Seventy four of the respondents or 47.3% reported they have job demands they cannot meet because they do not have enough computer knowledge.

Table 76

I Could Perform My Job More Efficiently
With Some/More Computer Training

MAJCOM/SOA/DRU	1	2	3	4	5
Air Force Academy	0	0	0	1	3
AF Communications Command	0	2	1	3	5
AF District of Washington	0	2	0	2	5
AF Logistics Command	0	1	1	2	1
AF Office of Special Investigations	0	0	1	0	1
AF Space Command	0	0	3	0	4
AF Systems Command	0	0	0	3	6
AF Technical Applications Center	0	0	0	1	0
Air Training Command	0	1	5	4	15
Air University	0	1	0	1	2
Alaskan Air Command	0	0	2	1	5
Electronic Security Command	0	0	1	0	0
Military Airlift Command	0	1	7	12	12
National Guard Bureau	0	0	0	0	
Pacific Air Forces	0	1	3	7	9
Strategic Air Command	3	4	8	20	35
Tactical Air Command	2	5	13	22	17
US Air Forces in Europe	0	4	5	13	17
Total	5	22	50	92	138
Percentage	1.6	7.2	16.3	30.0	45.0

Table 77

Computer Knowledge is Important In Managing Automated Information Management Functions

MAJCOM/SOA/DRU	1	2	3	4	5
Air Force Academy	0	0	0	0	4
AF Communications Command	0	0	1	4	6
AF District of Washington	0	0	0	2	7
AF Logistics Command	0	0	0	3	2
AF Office of Special Investigations	0	0	0	1	1
AF Space Command	0	0	0	3	4
AF Systems Command	0	0	0	3	6
AF Technical Applications Center	0	0	0	1	0
Air Training Command	0	0	0	6	19
Air University	0	0	0	1	3
Alaskan Air Command	0	1	0	2	5
Electronic Security Command	0	0	0	0	1
Military Airlift Command	0	0	2	11	19
National Guard Bureau	0	0	0	0	1
Pacific Air Forces	1	0	0	7	12
Strategic Air Command	1	0	3	25	41
Tactical Air Command	2	3	2	23	29
US Air Forces in Europe	0	0	2	11	26
Total	4	4	10	103	186
Percentage	1.3	1.3	3.3	33.6	60.6

Table 78

I Could Better Manage Automated Information Management Systems If I Had More Computer Knowledge

MAJCOM/SOA/DRU	1	2	3	4	5
Air Force Academy	0	0	0	1	3
AF Communications Command	1	1	1	3	5
AF District of Washington	0	0	0	2	7
AF Logistics Command	0	1	1	2	1
AF Office of Special Investigations	0	0	0	1	1
AF Space Command	0	0	1	3	3
AF Systems Command	0	0	1	3	5
AF Technical Applications Center	0	0	0	0	1
Air Training Command	0	0	5	7	13
Air University	0	0	0	2	2
Alaskan Air Command	0	0	0	4	4
Electronic Security Command	0	0	0	0	1
Military Airlift Command	0	0	8	16	8
National Guard Bureau	0	0	0	0	1
Pacific Air Forces	0	1	2	8	8
Strategic Air Command	3	0	8	27	32
Tactical Air Command	3	3	8	25	20
US Air Forces in Europe	0	3	5	16	15
Total	7	9	40	120	131
Percentage	2.3	2.9	13.0	39.2	42.5

Table 79

Automation of Information Management Functions
Has Increased The Amount of Computer Knowledge
I Need To Do My Job Effectively

MAJCOM/SOA/DRU	1	2	3	4	5
Air Force Academy	0	0	1	2	1
AF Communications Command	0	0	4	4	3
AF District of Washington	0	0	2	3	4
AF Logistics Command	0	1	1	1	2
AF Office of Special Investigations	0	0	0	2	0
AF Space Command	0	0	1	4	2
AF Systems Command	0	0	3	5	1
AF Technical Applications Center	0	0	1	0	0
Air Training Command	0	1	5	7	12
Air University	0	0	1	1	2
Alaskan Air Command	0	1	1	3	3
Electronic Security Command	0	0	0	0	1
Military Airlift Command	1	1	10	13	7
National Guard Bureau	0	0	0	0	1
Pacific Air Forces	0	2	3	12	3
Strategic Air Command	1	4	19	23	23
Tactical Air Command	2	3	11	26	17
US Air Forces in Europe	1	2	8	14	14
Total	5	15	71	120	96
Percentage	1.6	4.9	23.1	39.1	31.3

Table 80

I Can't Meet Job Demands Due To A
Lack Of Computer Knowledge

MAJCOM/SOA/DRU	1	2	3	4	5
Air Force Academy	1	1	2	0	0
AF Communications Command	2	6	1	1	1
AF District of Washington	2	1	2	2	2
AF Logistics Command	0	2	1	1	1
AF Office of Special Investigations	0	1	1	0	0
AF Space Command	0	2	0	2	3
AF Systems Command	2	3	3	1	0
AF Technical Applications Center	0	0	0	1	0
Air Training Command	4	5	9	3	4
Air University	1	2	0	1	0
Alaskan Air Command	2	2	3	1	0
Electronic Security Command	0	1	0	0	0
Military Airlift Command	7	14	6	1	4
National Guard Bureau	0	1	0	0	0
Pacific Air Forces	1	7	6	5	1
Strategic Air Command	17	15	19	15	4
Tactical Air Command	4	21	22	9	3
US Air Forces in Europe	10	9	12	3	5
Total	53	93	87	46	28
Percentage	17.3	30.3	28.3	15.0	9.1

Automated Information Management System Awareness and Use

Part III of the questionnaire, containing questions 33 through 46, asked the respondents to identify their familiarity with the Records Information Management System, the Reprographics Automated Management System, and the Publishing Distribution Office System. This familiarity included whether they had ever heard of and used these systems. These questionnaire responses were crosstabulated by MAJCOM/SOA/DRU of assignment as indicated in Table 68. Questions 41 through 46 were used to identify the

MAJCOM/SOA/DRU of assignment and the MAJCOM/SOA/DRU that was the host of the base of assignment for those respondents who stated they used one or more of these systems in a previous job but not in their current job.

Table 81 indicates the percentage of respondents who have heard of the automated information management systems used in the Air Force today. It should be noted that RIMS and PDOS are used primarily by enlisted information managers while RAMS is used primarily by enlisted reprographic specialists. The number of information managers was 141 or 88.7% for RIMS, 71 or 44.7% for RAMS, and 123 or 77.4% for PDOS. The total number of enlisted information managers responding to the survey was 159. The number of reprographic specialists was 110 or 73.3% for RIMS, 148 or 98.7% for RAMS, and 113 or 75.3% for PDOS. The total number of enlisted reprographic specialists who responded to the questionnaire was 150.

Table 81

Automated Information Management System Awareness

Question	RIMS	RAMS	PDOS
Have You Ever Heard of RIMS, RAMS, or PDOS			
Air Force Academy	4	4	3
AF Communications Command	10	3	10
AF District of Washington	5	6	8
AF Logistics Command	5	1	1
AF Office of Special Investigations	2	1	2
AF Space Command	5	7	5
AF Systems Command	7	8	7

Table 81 (Cont)

Question	RIMS	RAMS	PDOS
AF Technical Applications Center	0	1	0
Air Training Command	15	20	15
Air University	3	4	3
Alaskan Air Command	8	5	8
Electronic Security Command	1	0	1
Military Airlift Command	26	19	26
National Guard Bureau	0	0	0
Pacific Air Forces	18	19	17
Strategic Air Command	58	50	48
Tactical Air Command	52	39	47
US Air Forces in Europe	33	32	35
Total	251	219	230
Percentage	81.8	71.3	76.9

Table 82 shows the number of respondents who have ever used one of these systems either in their current job or a previous job. Because the functional responsibilities of reprographics specialists are less varied than those of the information manager, reprographic specialists have a higher likelihood of using RAMS in their job than information managers do in using RIMS and PDOS. The data presented in Table 82 bears this out. The number of information managers who have used RIMS was 38 or 70.4%, RAMS was 4 or 7.4%, and PDOS was 22 or 40.7%. The number of reprographic specialists who have used RIMS was 7 or 5.2%, RAMS was 132 or 97.8%, and PDOS was 4 or 3%.

Table 82

Automated Information Management System Use
Ever

MAJCOM/SOA/DRU	RIMS	RAMS	PDOS
Air Force Academy	0	3	1
AF Communications Command	1	0	1
AF District of Washington	1	3	1
AF Logistics Command	1	1	0
AF Office of Special Investigations	0	0	0
AF Space Command	1	4	1
AF Systems Command	1	5	0
AF Technical Applications Center	0	0	0
Air Training Command	3	10	2
Air University	1	1	1
Alaskan Air Command	1	1	1
Electronic Security Command	0	0	0
Military Airlift Command	3	14	4
National Guard Bureau	0	0	0
Pacific Air Forces	2	14	0
Strategic Air Command	13	33	7
Tactical Air Command	13	24	5
US Air Forces in Europe	4	23	2
Total	45	136	26
Percentage	17.9	62.1	11.0

Table 83 shows, by system, the number of respondents who use these automated information management in their current job. Percentages are based on the total number of respondents who indicated they had used one of these systems in Table 82. The fact that 38.5% of the respondents who indicated they had used the Publishing Distribution Office System are not using this system in their current job highlights the number of new, first time users who required system training to do their current job.

Table 83

Automated Information Management System Use
Current Job

MAJCOM/SOA/DRU	RIMS	RAMS	PDOS
Air Force Academy	0	2	1
AF Communications Command	1	0	0
AF District of Washington	1	2	1
AF Logistics Command	1	1	0
AF Space Command	1	4	0
AF Systems Command	1	5	0
Air Training Command	3	8	2
Air University	1	0	1
Alaskan Air Command	1	1	0
Military Airlift Command	3	14	3
Pacific Air Forces	2	14	0
Strategic Air Command	12	33	4
Tactical Air Command	10	22	2
US Air Forces in Europe	3	21	2
Total	40	127	16
Percentage	88.9	93.4	61.5

Table 84 show that 40.8% of all respondents who reported using an automated information management system in their current job have been in that job for less than 12 months. As such, their recollections of the system training they received and reported on as indicated in later tables should be current.

Table 84

Length of System Use - Current Job

Time	Frequency	Percentage
Less than 6 months	37	21.9
6 months but less than 12	32	18.9
1 year but less than 2	56	33.1
2 years or more	44	26.0
	169	100.0

Table 85 show the number of respondents who reported having used one or more of the automated information management systems in a previous job and the MAJCOM/SOA/DRU of their current assignment.

Table 85

Automated Information Management System Use
Previous Job

MAJCOM/SOA/DRU	RIMS	RAMS	PDOS
Air Force Academy	0	2	0
AF Communications Command	0	0	1
AF District of Washington	0	2	0
AF Logistics Command	2	0	0
AF Space Command	1	1	1
AF Systems Command	0	3	0
Air Training Command	2	6	2
Air University	0	1	0
Alaskan Air Command	0	1	1
Military Airlift Command	1	3	2
Pacific Air Forces	0	4	0
Strategic Air Command	3	8	5
Tactical Air Command	7	5	4
US Air Forces in Europe	3	12	1
Total	19	48	17
Percentage	42.2	35.3	65.4

Table 86 reports the respondents' length of system use in their previous jobs. The fact that 35.6% reported less than six months of system use and 80.5% reported less than 24 months of system use may be due in part the the relative newness of the systems.

Table 86

Length of System Use - Previous Job

Time	Frequency	Percentage
Less than 6 months	31	35.6
6 months but less than 12	14	16.1
1 year but less than 2	25	28.7
2 years or more	17	19.5
	87	100.0

Tables 87 and 88 show the respondents' MAJCOM/SOA/DRU of assignment and the MAJCOM/SOA/DRU that was the host at their base of assignment when they used automated information management systems in a previous job. This data, when coupled with the same information for those respondents using these systems in their current job, allows for full consideration of all MAJCOM/SOA/DRU actions since implementation of these systems.

Table 87

MAJCOM/SOA/DRU of Previous Assignment

MAJCOM/SOA/DRU	Frequency	Percentage
AF Space Command	1	6.3
Air Training Command	2	12.5
Alaskan Air Command	2	12.5
Military Airlift Command	2	12.5
Strategic Air Command	4	25.0
Tactical Air Command	2	12.5
US Air Forces in Europe	3	18.8
	16	100.0

Table 88

Host for Base of Previous Assignment

MAJCOM/SOA/DRU	Frequency	Percentage
Air Force Academy	1	5.3
AF Space Command	1	5.3
Air Training Command	2	10.6
Alaskan Air Command	3	15.7
Military Airlift Command	1	5.3
Pacific Air Forces	1	5.3
Strategic Air Command	4	21.1
Tactical Air Command	3	15.7
US Air Forces in Europe	3	15.7
	19	100.0

Training Methods and Quality of Training - Current Job

Part IV of the questionnaire, questions 47 through 51, asked those respondents who stated they managed one of the automated information management systems in their current job to define the method of system training they received. They were also asked to rate the quality of the training they received, their ability to use the system, and whether

they would recommend the method of training they received for Air Force-wide implementation. Finally, the respondents were asked if this training made them more competitive for promotion. The responses for questions 48 and 49 were crosstabulated by MAJCOM/SOA/DRU.

Table 89 shows 41.8% of the respondents were trained by the functional information management staff to which they were assigned while 9.1% received training from an information management staff other than their own. It also shows 37.6% of the respondents reported teaching themselves to use the systems. When compared with the responses of the Chiefs of Information Management in Table 41, it appears fewer respondents are receiving in-house training from the local information management staff than reported (54.4% versus 41.8%) while more respondents are receiving formal classroom training (3.5% versus 6.7%). A visual comparison of these responses is shown in Figure 7. One possible explanation is the enlisted respondents are receiving off-duty training and the Chiefs of Information Management are unaware of this training. A crosstabulation showing respondent's method of training by MAJCOM/SOA/DRU is shown in Appendix E.

Table 89

Automated Information Management System
Training Methods - Current Job

Training Method	Frequency	Percentage
Formal Classroom	11	6.7
In-house from local information management staff	69	41.8
Phone calls to MAJCOM/SOA/DRU staff	8	4.8
Self-taught	62	37.6
Trained by local base information management staff	15	9.1
	165	100.0

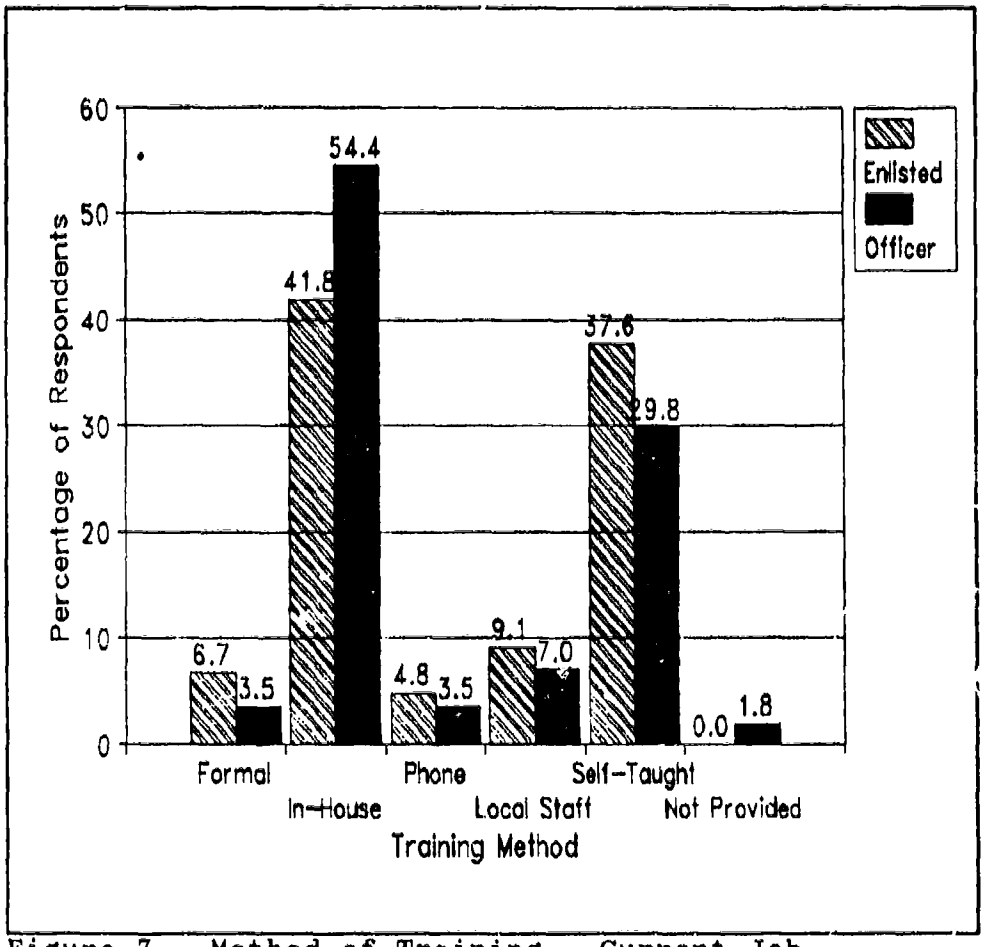

Figure 7. Method of Training - Current Job Officer Provided vs Enlisted Received

Table 90 reveals 52.1% of the respondents feel the training they received was either poor or at best fair. Only 10.2% believe their training was above average or outstanding. These figures severely contrast with the perceptions of the Chiefs of Information Management who provide and develop training policy. As reported in Table 46, only 32.1% rated their training programs poor or fair, while 19.6% rated their programs above average or outstanding. Figure 8 visually compares the two groups of respondents. Of particular note, the respondent from

Alaskan Air Command rated training as poor while the Chiefs of Information Management from Alaskan Air Command rated training as fair and adequate; all respondents from the Air Force District of Washington and Air Force Logistics Command rated their training as fair or poor; the Air Force District of Washington Chief of Information Management did not respond to the questionnaire and the one Chief of Information Management from Air Force Logistics Command who responded to this question rated training as adequate. Two thirds of the respondents from Air Force Systems Command, 54.5% of the respondents from Air Training Command, 75% of the respondents from the Pacific Air Forces, and 61.3% of the respondents from Tactical Air Command all rated the training they received either poor or fair, an alarming statistic.

Table 90

Perception of Training Received
Current Job

MAJCOM/SOA/DRU	Poor	Fair	Adequate	Above Average	Outstanding
Air Force Academy	1	0	2	0	1
AF Communications Command	0	0	0	0	1
AF District of Washington	1	1	0	0	0
AF Logistics Command	0	2	0	0	0
AF Office of Special Investigations	0	0	0	0	0
AF Space Command	0	3	2	0	0
AF Systems Command	1	2	2	0	0
AF Technical Applications Center	0	0	0	0	0
Air Training Command	4	2	4	0	1
Air University	0	1	1	0	0
Alaskan Air Command	1	0	0	0	0

Table 90 (Cont)

MAJCOM/SOA/DRU	Poor	Fair	Adequate	Above Average	Outstanding
Electronic Security Command	0	0	0	0	0
Military Airlift Command	1	6	8	2	2
National Guard Bureau	0	0	0	0	0
Pacific Air Forces	8	4	3	1	0
Strategic Air Command	7	12	19	3	3
Tactical Air Command	5	14	12	0	0
US Air Forces in Europe	3	8	10	3	0
Total	32	55	63	9	8
Percentage	19.2	32.9	37.7	5.4	4.8

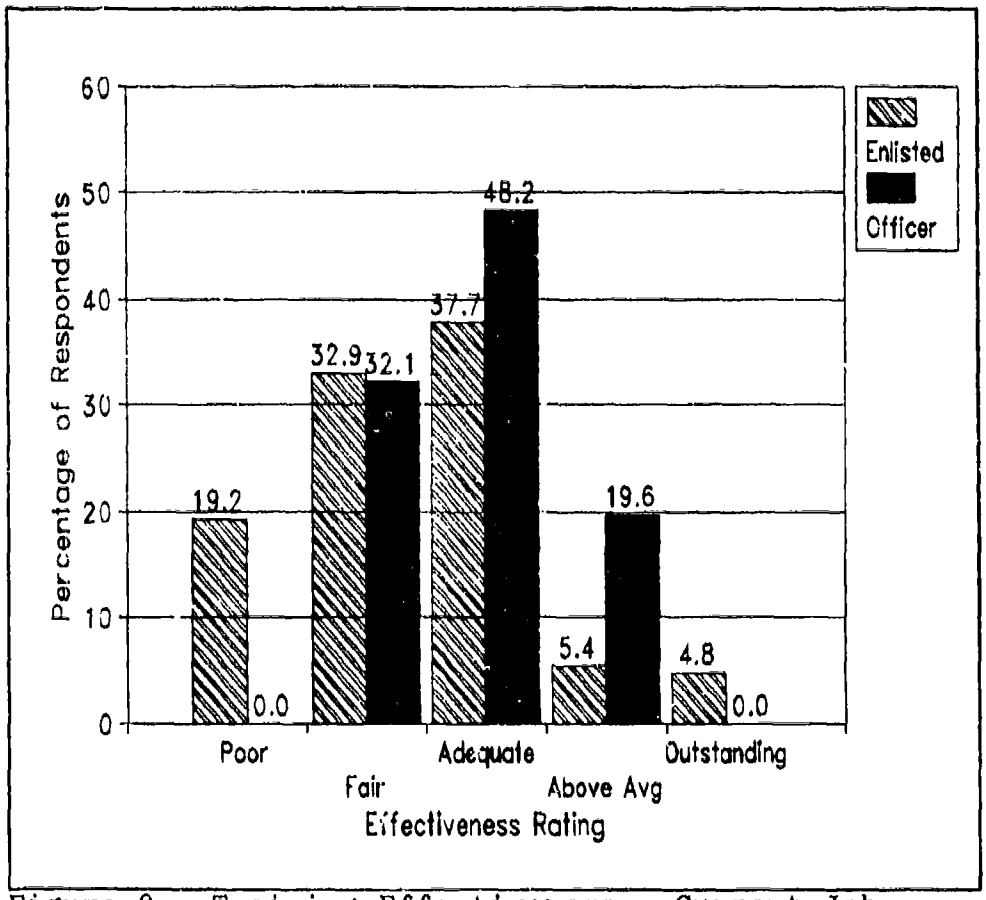

Figure 8. Training Effectiveness - Current Job Officer Provided vs Enlisted Received

Table 91 shows the respondents' perceptions of their ability to use automated information management systems. In contrast to the training they received, 93% rated themselves as either adequate or expert system users. As illustrated in Figure 9, the figures compare favorably with those reported by the Chiefs of Information Management and presented in Table 47.

Table 91

Perception of Ability to Use Automated Information Management Systems Current Job

MAJCOM/SOA/DRU	Poor	Adequate	Expert
Air Force Academy	0	2	1
AF Communications Command	0	1	0
AF District of Washington	0	2	0
AF Logistics Command	0	2	0
AF Office of Special Investigations	0	0	0
AF Space Command	1	3	1
AF Systems Command	1	3	1
AF Technical Applications Center	0	0	0
Air Training Command	2	6	3
Air University	0	2	0
Alaskan Air Command	0	1	0
Electronic Security Command	0	0	0
Military Airlift Command	0	10	9
National Guard Bureau	0	0	0
Pacific Air Forces	2	7	7
Strategic Air Command	2	25	17
Tactical Air Command	2	23	6
US Air Forces in Europe	0	17	7
Total	10	104	52
Percentage	6.0	62.7	31.3

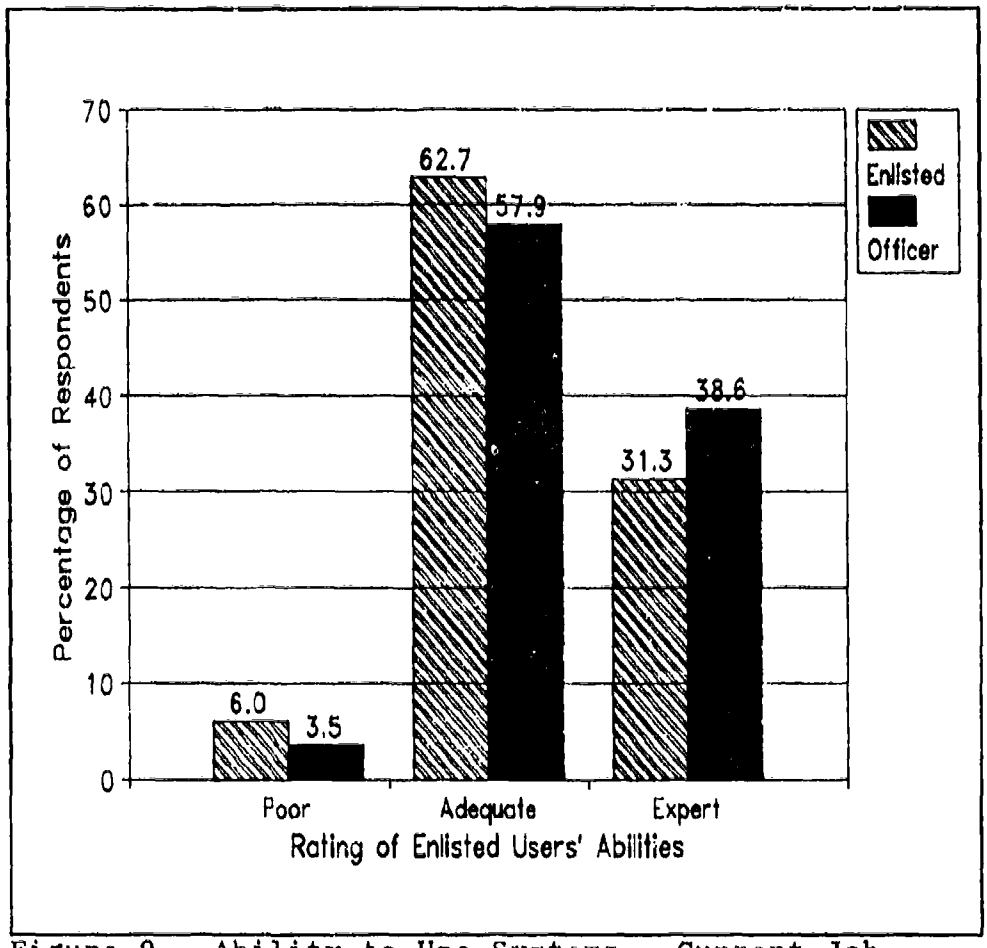

Figure 9. Ability to Use Systems - Current Job Officer vs Enlisted Perceptions

Table 92 confirms the respondents dislike for the training method and possibly the resulting training they received as reported in Table 90. The data shows 78.3% of those respondents who answered this question would not recommend the training method used for their training for Air Force-wide implementation.

Table 92

Recommendation for Air Force-wide Implementation of the Training Received Current Job

Response	Frequency	Percentage
Yes	36	21.7
No	130	78.3
	166	100.0

Table 93 clearly show 81.1% of the respondents feel the training they received does not make them more competitive for promotion. This information shows a lack of awareness on the parts of Chiefs of Information about what their enlisted staff require to become more competitive for promotion. The responses of the Chiefs of Information Management are reported in Table 60.

Table 93

Perception of Promotion Potential Based on Training Received - Current Job

Response	Frequency	Percentage
Yes	31	18.9
No	133	81.1
	164	100.0

Training Methods and Quality of Training - Previous Job

Part V of the questionnaire, questions 52 through 56, asked those respondents who stated they managed one of the automated information management systems in a previous job to define the method of system training they received. They were also asked to rate the quality of the training they received, their ability to use the system, and whether they would recommend the method of training they received for Air Force-wide implementation. Finally, the respondents were asked if this training made them more competitive for promotion. The responses for questions 53 and 54 were crosstabulated by MAJCOM/SOA/DRU.

Table 94 shows 37.3% of the respondents were trained by the functional information management staff to which they were assigned while 13.6% received training from an information management staff other than their own. It also shows 37.3% of the respondents reported teaching themselves to use the systems. Overall, the data is quite similar to that reported in Table 89 for current job training methods. Again, when compared with the responses of the Chiefs of Information Management in Table 41, it appears fewer respondents are receiving in-house training from the local information management staff than reported (54.4% versus 37.3%). Figure 10 illustrates this difference. A crosstabulation showing respondent's method of training by MAJCOM/SOA/DRU is shown in Appendix E.

Table 94

Automated Information Management System
Training Methods - Previous Job

Training Method	Frequency	Percentage
Formal Classroom	3	5.1
In-house from local information management staff	22	37.3
Phone calls to MAJCOM/SOA/DRU staff	4	6.8
Self-taught	22	37.3
Trained by local base information management staff	8	13.6
	59	100.0

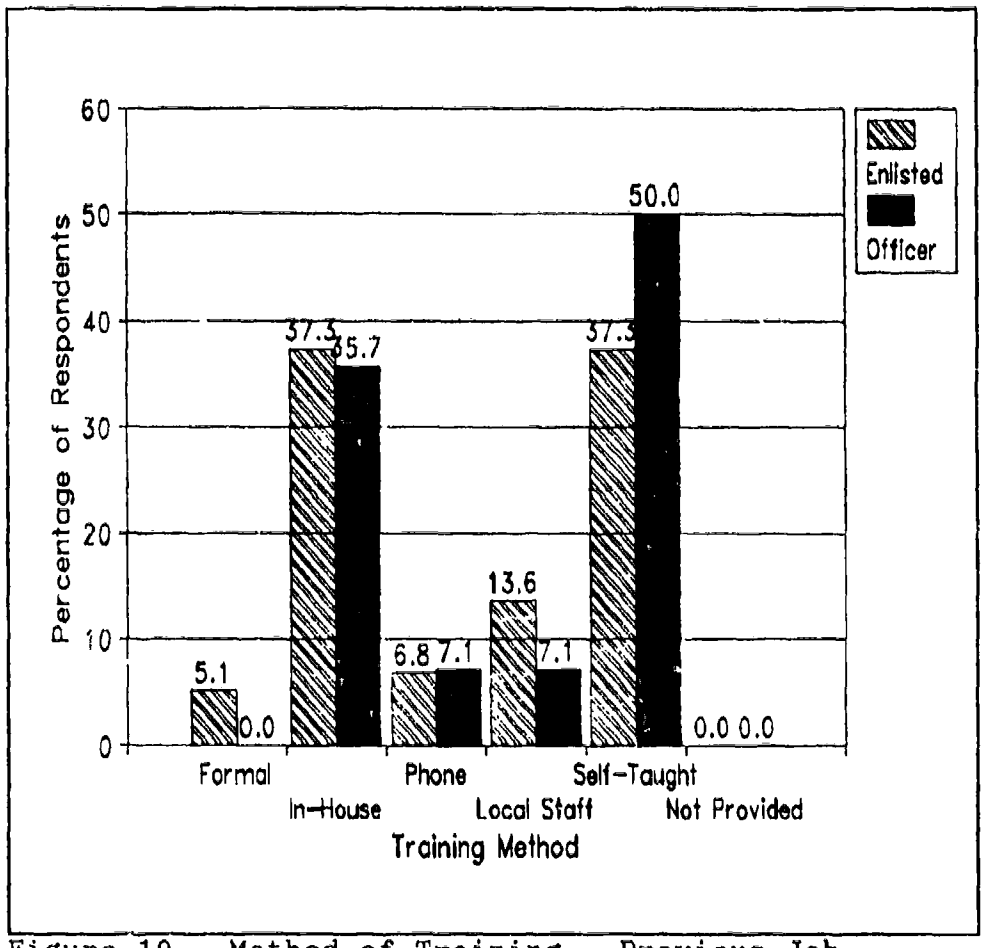

Figure 10. Method of Training - Previous Job Officer Provided vs Enlisted Received

Table 95 reveals 46% of the respondents feel the training they received in a previous job was adequate to perform that job, while 41.3% of the respondents felt the training they received was either poor or fair. Only 12.7% believe their training was above average or outstanding. As shown in Figure 11, these figures also contrast with the perceptions of the Chiefs of Information Management who provide and develop training policy. As reported in Table 46, only 32.1% rated their training programs poor or fair, while 19.6% rated their programs above average or

outstanding. Of particular note, all respondents from Air University rated their training as fair or poor. Two thirds of the respondents from Air Force Systems Command, Air Training Command, and Pacific Air Forces, and 75% of the respondents from Alaskan Air Command also rated the training they received as poor or fair.

Table 95

Perception of Training Received
Previous Job

MAJCOM/SOA/DRU	Poor	Fair	Adequate	Above Average	Outstanding
AF Communications Command	0	0	1	0	0
AF District of Washington	0	1	0	0	1
AF Logistics Command	0	1	0	1	0
AF Space Command	0	0	3	0	0
AF Systems Command	0	2	1	0	0
Air Training Command	3	1	3	0	1
Air University	0	1	0	0	0
Alaskan Air Command	1	0	1	0	0
Military Airlift Command	0	2	3	0	0
Pacific Air Forces	1	1	0	1	0
Strategic Air Command	1	1	7	1	0
Tactical Air Command	2	2	7	1	0
US Air Forces in Europe	1	5	3	2	0
Total	9	17	29	6	2
Percentage	14.3	27.0	46.0	9.5	3.2

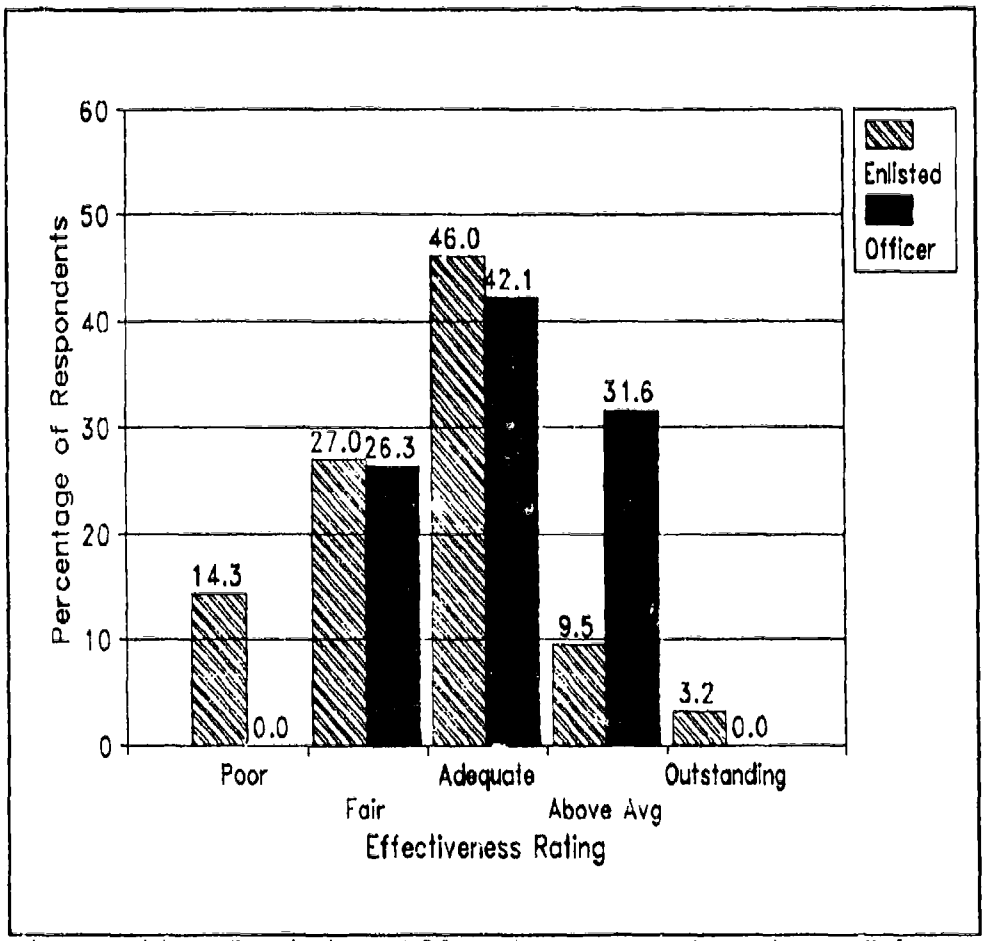

Figure 11. Training Effectiveness - Previous Job Officer Provided vs Enlisted Received

Table 96 shows the respondents' perceptions of their ability to use the automated information management systems they identified as having used in a previous job. Again, in contrast to the training they received, 95.3% rated themselves as either adequate or expert system users. Figure 12 illustrates how these figures compare favorably with those reported by the Chiefs of Information Management and presented in Table 47.

Table 96

Perception of Ability to Use Automated
Information Management Systems
Previous Job

MAJCOM/SOA/DRU	Poor	Adequate	Expert
AF Communications Command	0	0	1
AF District of Washington	0	1	1
AF Logistics Command	0	1	1
AF Space Command	0	3	0
AF Systems Command	0	2	1
Air Training Command	1	4	3
Air University	0	1	0
Alaskan Air Command	0	1	1
Military Airlift Command	0	4	1
Pacific Air Forces	0	1	2
Strategic Air Command	0	9	1
Tactical Air Command	2	5	6
US Air Forces in Europe	0	8	3
Total	3	40	21
Percentage	4.7	62.5	32.8

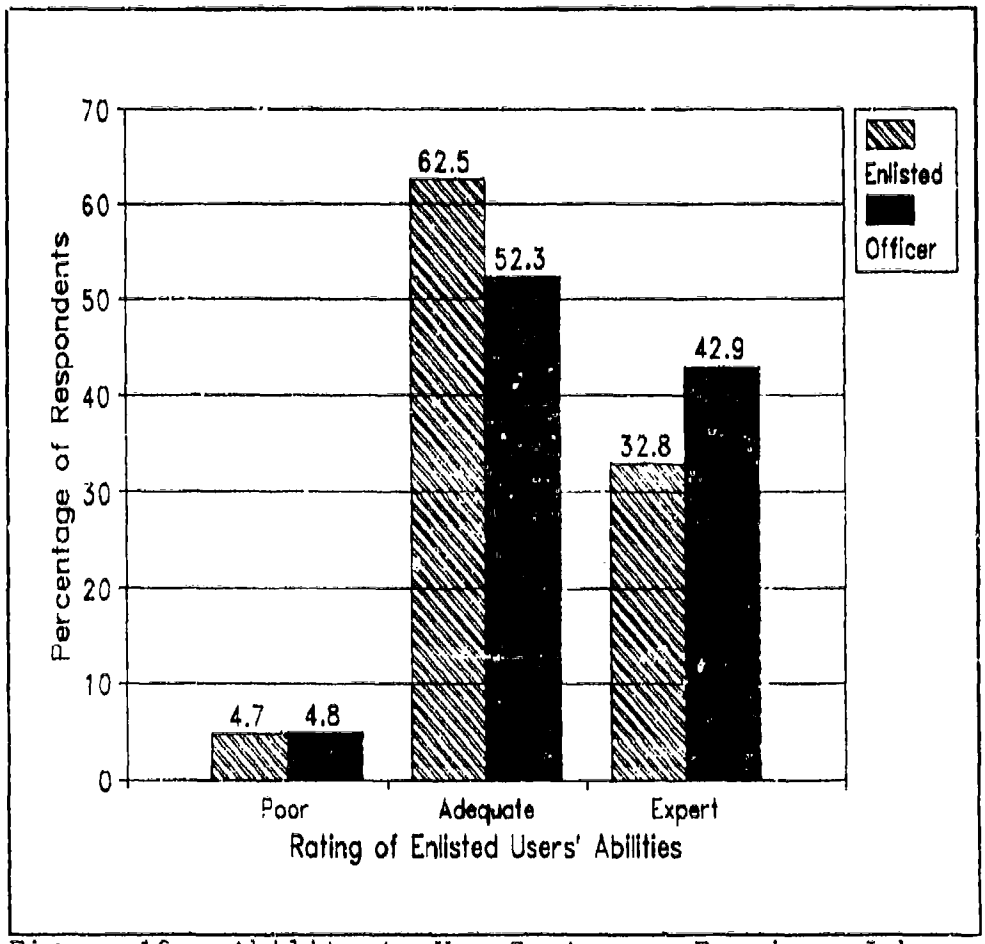

Figure 12. Ability to Use Systems - Previous Job Officer vs Enlisted Perceptions

Table 97 shows approximately one third of the respondents felt the method of training used in a previous was worthy of recommendation for implementation Air Force-wide. This is a slightly higher figure than reported by those respondents using automated information management systems in their current job as shown in Table 92.

Table 97

Recommendation for Air Force-wide Implementation of the Training Received Previous Job

Response	Frequency	Percentage
Yes	21	32.8
No	43	67.2
	64	100.0

Table 98 shows almost 77% of the respondents feel their promotion potential was not enhanced by the system training they received. As noted in Table 93, this information shows a lack of awareness on the parts of Chiefs of Information about what their enlisted staffs require to become more competitive for promotion.

Table 98

Perception of Promotion Potential Based on Training Received - Previous Job

Response	Frequency	Percentage
Yes	15	23.4
No	49	76.6
	64	100.0

System Effectiveness and Sources of System Support

Part VI of the questionnaire, questions 57 through 62, asked the respondents to describe the effectiveness of the systems they use or have used. They also identified their primary sources of support for solving system related problems.

Table 99 indicates 74.7% of the respondents try to solve any problems without going outside their workcenter or base. Noteworthy is only 16.5% of the respondents reported going to the MAJCOM/SOA/DRU RIMS, RAMS, or PDOS system manager for help while, in Table 57, the Chiefs of Information Management reported 61% of their staffs used the MAJCOM/SOA/DRU system managers as the source for problem resolution. A comparison of these two tables is shown in Figure 13. Another noticeable difference is the number of respondents who use the system documentation and user's guides when they need help, 17.6%, compared to the number reported by the Chiefs of Information Management, 5.1%. A crosstabulation showing respondent's source of real help in Using the systems by MAJCOM/SOA/DRU is shown in Appendix E.

Table 99

Source of Real Help in Using the Systems

Source	Frequency	Percentage
Your supervisor	40	23.5
A coworker	38	22.4
Base level RIMS, RAMS, or PDOS system manager	19	11.2
MAJCOM/SOA/DRU RIMS, RAMS, or PDOS system manager	28	16.5
A recognized expert in another MAJCOM/SOA/DRU	15	8.8
System documentation and user's guide	30	17.6
	170	100.0

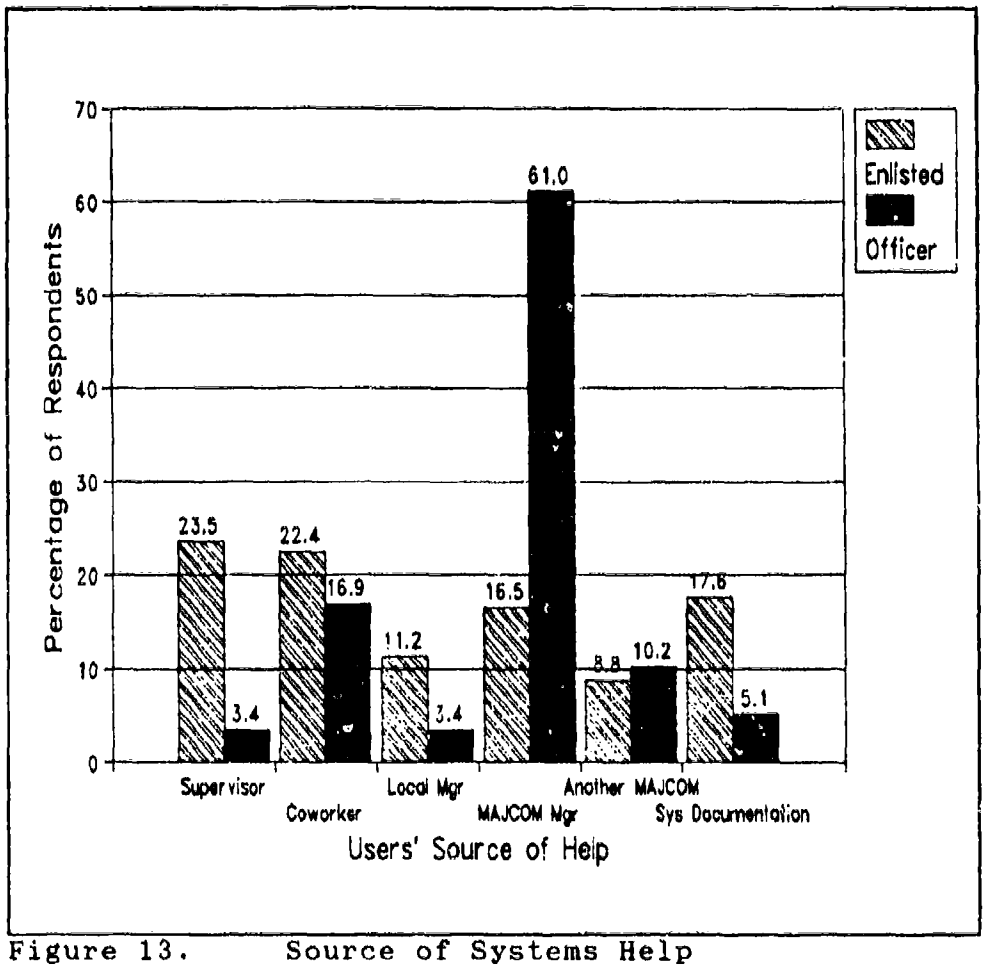

Figure 13. Source of Systems Help
Officer Perceived vs Enlisted Real

Table 100 shows about 47% of the respondents feel their supervisors know how to use automated information management systems. This might explain why only 23.5% reported in Table 99 that they go to their supervisor for help in resolving system problems.

Table 100

Perception of Supervisor's System Knowledge

Question	Frequency	Percentage
Does/did your supervisor know how to use the system(s) you are/were responsible for using?		
Yes	83	46.6
No	95	53.4
	178	100.0

Table 101 shows most respondents feel automated information management systems are an improvement over the nonautomated method of doing the same task. They also feel their overall work performance, including their speed and accuracy, has improved since they started using the systems. Table 102 further shows the respondents feel there is a definite need to develop more automated information management systems.

Table 101

Perception of Improved Task Accomplishment
Based on Use of Automated Information Management Systems

Question	Frequency	Percentage
Do you consider the use of these automated information system(s) an improvement over the nonautomated method of performing the same task?		
Yes	159	87.8
No	22	12.2
	181	100.0

Table 101 (Cont)

Question	Frequency	Percentage
Has/did your overall work performance improved/improve since/after you started using the system(s)?		
Yes	119	67.2
No	58	32.8
	177	100.0
How would you compare the speed and accuracy with which you performed your daily tasks using the automated system(s) against how you performed without the assistance of a computer?		
Speed and accuracy have decreased	4	2.2
Speed has decreased but accuracy has increased	24	13.5
Speed has increased but accuracy has decreased	8	4.5
Speed and accuracy have not changed	40	22.5
Speed and accuracy have increased	102	57.3
	178	100.0

Table 102

Perception of the Need for More
Automated Information Management Systems

Response	Frequency	Percentage
Yes	154	86.0
No	25	14.0
	179	100.0

System Effects on System Users and System Managers

Part VII of the questionnaire consisting of questions 63 through 72 asked the respondents to state the impact they felt automated information management systems had on various subjects related to their jobs. The frequency distributions for these questions are shown in Table 103.

Table 103

Perception of the Impact of
Automated Information Management Systems
on Factors Affecting System Users and System Managers

Factor	Frequency	Percentage
Job Performance		
Very Negative	0	0.0
Negative	6	3.3
None	39	21.7
Positive	105	58.3
Very Positive	30	16.7
	180	100.0
Job Satisfaction		
Very Negative	1	0.6
Negative	7	3.9
None	49	27.1
Positive	91	50.3
Very Positive	33	18.2
	181	100.0
Access to information needed to do your job		
Very Negative	1	0.6
Negative	6	3.3
None	35	19.3
Positive	89	49.2
Very Positive	50	27.6
	181	100.0

Table 103 (Cont)

Factor	Frequency	Percentage
Productivity level		
Very Negative	0	0.0
Negative	11	6.1
None	40	22.1
Positive	87	48.1
Very Positive	43	23.8
	181	100.0
Workload		
Very Negative	3	1.7
Negative	17	9.6
None	48	27.1
Positive	72	40.7
Very Positive	37	20.9
	177	100.0
Job Training Needs		
Very Negative	6	3.3
Negative	13	7.2
None	64	35.4
Positive	81	44.8
Very Positive	17	9.4
	181	100.0
Attitude towards your job		
Very Negative	0	0.0
Negative	7	3.9
None	67	37.0
Positive	82	45.3
Very Positive	25	13.8
	181	100.0
Work Habits		
Very Negative	0	0.0
Negative	4	2.2
None	72	40.0
Positive	81	45.0
Very Positive	23	12.8
	180	100.0

Table 103 (Cont)

Factor	Frequency	Percentage
Job Skills		
Very Negative	1	0.6
Negative	1	0.6
None	57	31.7
Positive	91	50.6
Very Positive	30	16.7
	180	100.0

The respondents reported that overall the automated information management systems had either a positive or very positive affect on them. However, 28.2% reported the systems had either a negative or no impact on their productivity level. The impact on the respondents' workload was reported as very negative, negative, or having no impact in 38.4% of the cases. This figure is higher than thought by the Chiefs of Information. In Table 60, 31% indicated they felt the systems had a very negative, negative, or no impact on their staff's workload. Approximately 54% of the enlisted respondents reported the systems had a positive or very positive impact on their job training needs while 67.8% of the Chiefs of Information Management felt the systems positively impacted the training needs of their staffs.

Table 104 indicates the effect the respondents believe knowing/not knowing how to use automated information management systems has on their ability to be promoted. Almost 28% felt knowing how to use these systems has a positive or very positive effect on their ability to be

promoted. On the other hand, 11.5% felt not knowing how to use these systems has a negative or very negative effect on their ability to be promoted. The large majority, 60.7%, felt knowing how to use these systems has no effect on their ability to be promoted. Tables 93 and 98 show approximately 21.2% of these same respondents feel the training they received makes them more competitive for promotion.

Table 104

Respondent's Perceived Effect of Knowing/Not Knowing How to Use Automated Information Management Systems on their Ability to be Promoted

Response	Frequency	Percentage
Very Negative	10	7.1
Negative	6	4.4
None	85	60.7
Positive	28	20.0
Very Positive	11	7.9
	140	100.0

Data were examined through General Linear Models (GLM) to determine if significant statistical differences exist by MAJCOM/SOA/DRU. This method was used in lieu of Analysis of Variance because there were an unequal number of observations within each MAJCOM/SOA/DRU. Demographic data from the questionnaires allowed the variance in the variables under study to be separated using GLM. Table 105 shows the significant statistical differences found between all non-demographic variables and the major commands, separate operating agencies, and direct reporting units.

MAJCOM/SOA/DRU served as the independent variable and each relevant non-demographic variable served as the dependent variable. For analysis of variance, the hypothesis is that all group (MAJCOM/SOA/DRU) means are equal. The alternative hypothesis is that at least one of the means is significantly differently from the others. GLM determines if a significant statistical difference exists, and the Tukey multiple comparison test shows where the significant differences exist. With the exception shown in Table 105, no significant differences were found to exist between the major commands, separate operating units, and direct reporting units, resulting in nonrejection of the hypothesis. Nonrejection of the hypothesis raises two possibilities: 1) the means of each group are equal indicating the hypothesis is true, or 2) the group means actually differ, but other factors affecting the respondent's answers have not been accounted for in the analytical model.

The Tukey multiple comparison test found a significant difference in the level of computer experience exists between Chiefs of Information Management currently assigned to Air Training Command and those currently assigned to Military Airlift Command. A multiple linear analysis also showed the type of training the respondent received and how the respondent rated the training significantly affected the respondent's ability to use automated information management systems.

Table 105

Significant MAJCOM/SOA/DRU Differences

MAJCOM/SOA/ DRU	Dependent Variable	F-Ratio	Probability of F
All	Rating of Training Received in Current Job - Enlisted Group	2.10	.0172

The Pearson product moment coefficient of correlation was used to determine the strength of the linear relationship between combinations of questions related to system user effectiveness and system training. In the Pearson product moment coefficient of correlation, a value of r near or equal to 0 implies little of no linear relationship between the observed variables. The closer r is to 1 or -1, the stronger the linear relationship between the variables. Positive values of r indicate the x axis variable increases as the y axis variable increases. Negative values imply the x axis variable decreases as the y axis variable decreases (29:515). Tables 106 and 107 show the combinations of variables whose coefficient of correlation was significant.

Table 106

Significant Correlations
Enlisted Information Managers & Reprographic Specialists

Variable 1	Variable 2	r-value	Probability of r
Training Method Received	Quality of Training Received	-0.16	.04
Quality of Training Received (Current & Previous Jobs)	Ability to Use the Systems	0.24 0.27	.002 .031
Quality of Training Received	Improvement in Work Performance	-0.26	.001
Ability to Use the System	Improvement in Work Performance	-0.20	.013
Training Method Received (Previous Job)	Improvement in Work Performance (Previous Job)	0.30	.024

Table 107

Significant Correlations
Chiefs Of Information Management

Variable 1	Variable 2	r-value	Probability of r
Scheduled Training for New Users (Current Job)	Scheduled Follow-up Training (Current Job)	0.62	.0001
Quality of Training Provided	Staffs' Ability to Use the Systems	0.30	.0268
Scheduled Training for New Users (Previous Job)	Scheduled Follow-up Training (Previous Job)	0.68	.0075
Staffs' Overall Work Performance	Staff's System Use Speed & Accuracy	-0.42	.001

Each item listed as variable 1 in Tables 106 and 107 is related to variable 2. In each case, the respondents strongly indicated the existence of a definite relationship.

Summary

Respondents to both questionnaires provided an excellent cross section of their respective populations. The majority of respondents used a microcomputer on the job and expressed a need for more training on the use of automated information management system software. Approximately 24% of the enlisted respondents noted they had job demands they could not meet due to their lack of computer training while 28.2% were not sure if their lack of computer training affected their ability to meet the requirements of their jobs. Sixty nine percent of the Chiefs of Information Management also agreed their staffs had job demands they could not meet due to their lack of computer training. Furthermore, 43.5% felt they could not meet certain job demands due to their lack of computer training. The large majority of respondents consider the use of automated information management systems an improvement over previous methods of accomplishing these same tasks. They also feel these systems have contributed to an overall improvement in their job performance and recommend further development of these and other automated information management systems.

V. Summary of Findings, Recommendations, and Conclusions

Significance of Results

No previous research had been accomplished prior to this effort to determine how the Air Force trains individuals to use contractor developed automated information management software and the perceived effectiveness of the training. This research provides an initial knowledge base from which further research may follow.

The need for Air Force information managers and reprographic specialists, both enlisted and officer, continues to grow as technological advances in information management become more widespread. As indicated by the results of this research, greater emphasis must be placed on developing a standardized training program for the managers and users of these automated information management systems.

The literature supported surveying the MAJCOM/SOA/DRU Directors of Information Management to determine if they provided training to their subordinate units as well as information managers and reprographic specialists to determine what types of training they received and their perceived effectiveness in using these systems. This study used a case analysis to determine the types of training provided by the MAJCOM/SOA/DRU Directors of Information Management, and a questionnaire format was used to determine

the type and quality of training received as well as the system users' and managers' perceived effectiveness in operating the systems. One noticeable conclusion is that there is no standardized training method among the Directors of Information Management.

To determine if the Air Force's current method of depending on its major commands, separate operating agencies, and direct reporting units to train individuals to use contractor developed software for information management produced the desired levels of effectiveness, several hypotheses were addressed:

H1: The major commands, separate operating agencies, and direct reporting units do not provide effective training to their subordinate units on the proper use of contractor developed information management software packages.

H2: The majority of Air Force information managers have not received adequate training on the proper use of contractor developed information management software packages.

H3: Current training methods result in less than desired effectiveness from the users of contractor developed information management software packages.

H4: Information managers feel they could be more productive if they were properly trained to use the contractor developed information management software packages.

H5: Base level information managers do not provide training on the proper use of contractor developed information management software packages to all information managers assigned to their base.

H6: Information managers feel their lack of training on the use of contractor developed information management software packages hurts their chances for promotion.

H7: The users of contractor developed information management software packages are not satisfied with the effectiveness of the training they received on the use of these software packages.

Hypothesis One. Results of the case analysis support the hypothesis--the major command, separate operating agency, and direct reporting unit Directors of Information Management do not provide effective training to their subordinates units. Depending on the automated information management system, only 12 to 30 percent of the major command, separate operating agencies, and direct reporting units provided training to their subordinate units. As a result, the Chiefs of Information Management reported that 83.5% of them could perform their job more efficiently if they had some/more computer training and 89.4% reported their staff could also perform more efficiently with some/more computer training. Highlighting this point, 43.5% of the Chiefs of Information Management stated they had job demands they could not meet because they do not have an appropriate level of computer knowledge wnile 69% stated

their staffs had job demands they could not meet because they did not have an appropriate level of computer knowledge. This lack of computer knowledge severely impacts the abilities of the Chiefs of Information Management to develop and implement training programs. This is verified by 29.2% rating their training programs as fair or poor. It also appears the enlisted information managers and reprographic specialists are not satisfied with their MAJCOM/SOA/DRU information management managers in that only 16.5% reported using these system managers as their source for real help when using the system. Noteworthy however is 95.9% of the Chiefs of Information Management reported the members of their staffs were either adequate or expert system users after they received training, with the bulk of users rated as adequate.

Hypothesis Two. The data clearly supports the hypothesis--the majority of Air Force information managers and reprographic specialists have not received adequate training on the proper use of contractor developed information management software packages. More than 52% of the respondents felt the training they received to use these software packages in their current job was less than adequate. The results reported in Table 89 indicate there are some differences among the various major commands, separate operating agencies, and direct reporting units. However, in Table 94, 58.7% of the respondents who had used these systems in a previous job rated their training

adequate or better. Perhaps this is due to a greater emphasis being placed on training a few years ago when these systems were first released. Whatever the reason, its obvious the quality of training is falling.

Hypothesis Three. The data does not conclusively support the hypothesis--current training methods result in less than desired effectiveness from the users of contractor developed information management software packages. Effectiveness is based on the Chiefs' of Information Management assessments of users' abilities to use the system after receiving training. From the enlisted respondents' points of view, the respondents clearly indicated they could perform their job more efficiently if they had some/more computer training; approximately 24% stated they had job demands they could not effectively meet. Those respondents charged with managing these systems also stated a clear need for more training if they were to effectively do their job. The majority felt these systems have improved their overall work performance and increased their productivity levels. The Chiefs of Information Management also stated a need for more training if they are to effectively manage and develop training programs for these systems, although not as strongly as the enlisted respondents. However, they disagreed with the enlisted respondents, stating a majority of their staffs do have job demands they cannot effectively meet because they lack an appropriate level of computer knowledge. Interestingly however, the large majority stated

the bulk of their staffs were either adequate or expert system users. They did agree however, that their staffs overall work performance and productivity has improved through use of these systems.

Hypothesis Four. Analysis of the data supports the hypothesis--information managers do feel they could be more productive if they were properly trained to use the contractor developed information management software packages. From the Chiefs of Information Management perspective, the bulk of the respondents feel more training would improve their ability to effectively manage automated information management systems, increasing their level of productivity. However, as stated earlier, only a minority of the respondents feel they have job demands they cannot meet due to their lack of computer knowledge. To put this fact into proper perspective, you must take into account the fact that these respondents are managers and not the primary users of these systems, they are only users of the products produced by the systems. The real consideration for this group is how well they manage these systems. From the perspective of the enlisted respondents, the actual system users, they emphatically stated they could be more productive if they were properly trained. They also stated use of these systems has improved their productivity and feel they can meet most job demands.

Hypothesis Five. The data clearly supports this hypothesis--base level information managers do not provide training on the proper use of contractor developed information management software packages to all information managers assigned to their base. Only 29.8% of the current Chiefs of Information Management reported they provided training on all available systems to all information managers assigned to their information management function. Only 23.1% of those who previously managed these systems provided training on all available systems to all information managers assigned to their information management function. Furthermore, only 33.3% of the current Chiefs of Information Management are providing training to all information managers assigned to their wing, air division, or numbered air force. Only 28.6% of those who previously managed these systems provided training to all information managers assigned to their wing, air division, or numbered air force.

Hypothesis Six. The respondents clearly stated their disagreement with this hypothesis--information managers feel their lack of training on the use of contractor developed information management software packages hurts their chances for promotion. Only 18.9% of the respondents believed the training they received to use automated information management systems in their current job made them competitive for promotion while 23.4% who used these systems in a previous job made the same statement. However, the

majority of these same respondents also showed a strong desire for more and better training. Although it may not have been a consideration of the respondents who use these systems, their ability to use these systems impacts their individual performance reports wnich is one of the factors effecting their promotion potential. Also, because promotions are partially based on knowledge of an entire career field, not just an individual's performance in their current job, knowing how to use these systems will have a greater impact when questions on the use of these systems appear in promotion tests. Overall, only 27.9% believe knowing how to use these systems positively effects their ability to be promoted.

Hypothesis Seven. The data does not conclusively support the hypothesis--the users of contractor developed information management software packages are satisfied with the effectiveness of the training they received on the use of these software packages. Effectiveness is based on the user's ability to use the system after receiving training. The majority of respondents who currently use these systems feel the training they received was either fair or poor. Those who used these systems in a previous job feel their training was at least adequate. However, only 21.7% of current system users and 32.8% of previous system users would recommend the method of training they received for use Air Force-wide. When asked to rate their ability to use the systems, the majority of the respondents, both those who

currently use these systems and those who used these systems in a previous job, stated they considered themselves either adequate or expert system users. Although the respondents were not satisfied with the training they received, they do consider themselves at least adequate system users. These results were supported by the Chiefs of Information Management.

Recommendations

In 1986, the Air Force's senior leadership had the foresight to reorganize the Directorate of Administration into the Directorate of Information Management and Administration, giving this new organization the responsibility for managing all Air Force information resources. However, the need for Air Force senior leadership to actively support the people and programs responsible for carrying out these responsibilities did not end with completion of the reorganization. In order for the Directorate of Information Management and Administration to successfully fulfill its new mission, Air Force senior leaders must pay more than "lip service" to this vital portion of the Air Force's overall mission. They must insure information management policies and programs are supported, both financially and logistically, and enforced throughout the Air Force at all levels of command.

Information Management is, as was its predecessor, a support career field in that it is not directly responsible for flying or maintaining operational systems.

Historically, as shown in Chapter 2, when budget reductions become necessary, training programs in support areas are usually the first items cut. With the continued growth of automated information systems, today's Air Force senior leaders must evaluate and determine the real value of: 1) information; 2) the systems used to maintain the information; and 3) the training required to operate these systems before approving such cuts. They must realize that information is a strategic resource and must treat it as such.

As shown by the results of this study, it appears the Air Force presently does not place a high value on its information management systems. Recently developed operationally related information systems, such as the Computer Automated Maintenance Systems (CAMS), were fielded with a fully developed and fully funded training program. This is the type of support required for all automated information systems, no matter what the purpose. The Air Force failed to provide this support, for whatever reason, for the automated information management systems reviewed in this study. The Air Force, or any organization for that matter, must realize that if it approves development of an information system, it must insure proper training for those who are to use the system in order to obtain the management support for which the system was designed.

The responses from all populations clearly indicate a need for more and better training in the use of automated

information management systems. The future growth of information systems clearly dictates the need to comply with the expressed desires of the respondents.

The major command, separate operating agency, and direct reporting unit Directors of Information Management must do more than assume their subordinates are developing and conducting effective training. They must, in concert with the Air Force Director of Information Management, aggressively develop training programs for all present and future automated information management systems, for both system users and managers at all levels. The following suggestions are presented as a means to attack this problem:

a. Hands-on computer training should be included in all Information Management technical training programs. This training should go beyond the basics required to turn on a computer and include introductory training in basic operating system commands. Knowing how to use the operating system is imperative for all users, especially given the current direction of information management.

b. Air Training Command should develop in-depth training programs, initial and follow-on, for every automated information management system. Development of these training programs should be done during the systems development process, not after system release. All field training detachments should add information managers and/or reprographic specialists to their staffs for the sole purpose of providing base level training on these systems.

c. The Air Force Institute of Technology, in concert with the Air Force Director of Information Management, should develop professional continuing education courses for senior enlisted information managers and reprographic specialists and all officer information managers. These courses should include the details needed to effectively manage all forms of automated information management systems at all levels of command.

Future Research

This study has documented that the majority of users and managers of contractor developed automated information management systems are not satisfied with the Air Force's current methods of training them to use these systems. It has also documented the perceived effectiveness of this training from both a user's and a manager's perspective, showing a difference of opinion between the two groups. The next step in this research is the development of a tool to unquestionably document the effectiveness of system training based on user output and management expectations. However, before this research can be conducted, the Air Force Director of Information must definitively qualify, in writing, user performance expectations. The Air Force Director of Information Management was unable to provide this documentation for this study. Future research should focus on the development of effective training programs for each automated information management system. These programs should include both a formal classroom method of

presentation and an on-line tutorial for use on the job. Included in these training programs should be a breakdown of what should be taught at the technical training centers, what should be taught at base level, and what should be taught as professional continuing education.

There are several possible sources of information to support these topics. Air Training Command can provide insight into how they rate the effectiveness of their technical training programs. The Department of Defense Information Resource Management College, formerly the Department of Defense Computer Institute (DODCI), in Washington DC offers a myriad of computer training programs and can also provide insight into how they rate the effectiveness of their training programs. Also, a review of the literature will reveal an abundance of measurement instruments designed to study task effectiveness.

For the development of training programs, Air Training Command, Air University, and other Department of Defense training agencies can provide guidance on how they develop training programs. Furthermore, a review of the literature focusing on training issues as well as noted colleges and universities can also be a source of information.

A review of these and other sources is a logical first step in the development of any of the future research topics listed above. Investigation of any of these topics can only lead to an improvement in the Air Force's understanding of

information management and the needs of the Information Management community.

APPENDIX A

SAF/AAD 20 September 1989

Thesis Effort-Capt Bruce Harmon

ALMAJCOM-SOA/IM

1. Capt Harmon, one of our new AFIT Information Resource Management (IRM) students, needs your help in compiling base-line info for his thesis. He's researching whether or not the USAF method of depending on MAJCOMs to teach untrained individuals to use commercially developed software for IM is producing the desired levels of productivity. He'll determine if developing a single USAF-wide interactive training program would increase the levels of productivity, and if the derived increase in productivity would justify the cost of development.

2. To prepare MAJCOM case studies, he needs to know if you provide training to your subordinate field units (NAF and below) on operating:

a. Records Information Mgt System (RIMS) ____YES ____NO

b. Reprographics Automated Mgt System (RAMS) ____YES ____NO

c. Pubs Distribution Office System (PDOS) ____YES ____NO

He also needs (if applicable):

a. Copies of training plans.

b. A list of units who received training and dates trained.

c. A description of how you expect your field units to conduct training.

3. He needs to have inputs back by mid-November. Please respond directly to Capt Harmon, AFIT/LSY, Wright-Patterson AFB OH 45433. If you have questions, you can reach him by calling the AFIT student number and leaving a message for him to return your call, AUTOVON 785-4437.

4. He needs your support. Thanks!

WILLIAM O. NATIONS, Colonel, USAF
Director of Information Management
and Administration

1 Atch
Thesis Proposal

Thesis Proposal

A. Possible Research Questions

The Ives, Hamilton, and Davis framework for MIS suggests investigating the impact of environmental characteristics and information system characteristics on performance measures as Type V research.

Major questions in topic area:

1. Is the Air Force's current method of depending on its major commands to teach untrained individuals to use commercially developed software for information management producing the desired levels of productivity? Would the development of a single Air Force-wide interactive training program increase current levels of productivity and would the increase in productivity justify the cost of development?

2. Is the time it takes an individual to solve a problem dependent on the form in which the problem is presented and the rules defining the problem-solving process?

The first question is the one to be researched.

B. Importance of Research

The results of this research will let top Air Force leaders know the adequacy of their current approach to teaching computerized tasks and possibly identify the need to rethink how this training is accomplished. The research will also identify the best method of teaching computerized tasks to large numbers of untrained users. The Air Force is buying commercially developed software for use throughout the Air Force and is expecting the major commands to train the users of this software. With the current emphasis on doing more with less, it is necessary to ensure the Air Force gets maximum productivity for its investment from those who use commercially developed software.

C. Significant Prior Research

Cheryl C. Coleman, *A Determination of the Perceived Computer Literacy and Computer Training Needs of Air Force Administration Officers*, MS Thesis AFIT/GIR/LSR/88-1, School of Systems and Logistics, Air Force Institute of Technology, Wright-Patterson AFB, OH, December 1988, surveyed Air Force Information Management Officers and determined that there was a lack of computer literacy among Air Force Information Management Officers, and that computer literacy will become increasingly important with the continued growth of microcomputers in the information management field. The research also indicated that these same officers were frustrated due to a lack of available training, especially the lack of basic microcomputer knowledge needed to manage existing automated systems. These discoveries raise the concern that if the managers of automated information systems cannot receive adequate training then what

type of training are the operators and maintainers of these systems receiving and, if they do receive training, how effective and cost effective is the training when measured against the productivity of the users?

D. Possible Research Approach

The research will determine the actual current method of training and the effectiveness of the training. It will also determine the most cost effective method of training when compared against productivity. The research will involve:

1. A case study to determine if and how each major command is training its field units. Each major command Information Manager will be asked if they provide training to their field units on the Record Information Management System (RIMS), the Reprographics Automated Management System (RAMS), and the Publications Distribution Operating System (PDOS). The major command Information Managers will also be asked to provide copies of their training plans and a description of how they expect training to be conducted at the field units, a list of those units provided training, and the dates of training.

(a) Compare the responses of the major commands to determine what percentage are actually providing training and how training is being conducted.

2. An opinion research survey will be sent to information managers at field units to determine if training is being conducted, the type of training being conducted, who is providing the training, and the effectiveness of the training. If the respondents did not receive training, they will be asked if, in their opinion, training would have increased their productivity with these systems. Base Information Managers will specifically be asked if they are being provided training materials by their major commands and the effectiveness of these materials. They will also be asked to provide copies of whatever training materials they received from their major commands.

(a) Compare the individual responses to determine if the field units are receiving training and the effectiveness of the training regardless of the source.

(b) Compare the responses of the Base Information Managers with the responses of the major commands to determine if the major commands are fulfilling their requirements and, if so, the effectiveness of the materials provided.

3. A laboratory experiment with three groups of five people to determine if there are benefits to using an interactive training package over the current method of training or self-training. The individuals will have no prior knowledge of the application being taught. Each group will learn to use RIMS.

(a) Compare the performance at system operation and problem-solving between the members of a group using the interactive training package, the members of a group using the current method of training, and the members of a group training themselves. Each group will learn the same topic at the same time in the same sequence. The self-taught group will be given the section of the users manual for each topic as their guide for learning.

(b) Using identical problems, test each individual's ability to operate the system and solve problems, checking each task to see if the task is performed correctly.

(c) If the use of the interactive training program appears to be the best method of training, compare the cost of developing and using the interactive training program to the cost of developing and using the current method of training, and the cost of using the self-teaching approach.

E. Potential Outcomes of Research

The research will show:

1. Whether or not the major commands are providing the required training, how they're providing the training, and the trainee's perceived effectiveness of the training.

2. How individuals in the field are being trained and the perceived effectiveness of their training.

The effectiveness or lack of effectiveness of this training may be the result of the quality or lack of quality of the major command's or the locally devised training program, the ability or inability of the users to train themselves, the ease of use or difficulty of use of the programs, or some other variable.

3. The best method for training attained in the laboratory experiment if the performance of the members of one group was better than the performance of the members of the other groups.

If there is no difference in the performance levels of the groups then the research will have shown that their is no best method of training amongst the three methods tested. If the self-taught group performed better than the other groups then the question must be asked as to why this occurred and what can be done or should anything be done to improve the other two methods of training.

4. The feasibility of using interactive training programs Air Force-wide if the interactive training method proves to be the best of the training methods tested. It might also be feasible to test this method against other untested methods before committing to the expense of full scale development of an interactive training program.

SAF/AAD 14 November 1989

Thesis Effort-Capt Harmon (My ltr, 20 Sep 89, same subj)

ALMAJCOM-SOA/IM

1. In September, I asked each of you to provide Capt Harmon, one of our new AFIT Information Resource Management students, with information to support his thesis. As of 8 Nov 89, he's received only eight responses.

2. Again, I am asking for your support. Capt Harmon is researching whether or not the USAF method of depending on MAJCOMs and SOAs to train individuals to use commercially developed software for IM is producing the desired levels of productivity. Without your input he can only conclude that you have no training program, or don't care to support your people effectively.

3. To prepare MAJCOM-SOA case studies, he needs to know if you provide training to your subordinate field units (NAF and below) on operating:

a. Records Information Mgt System (RIMS) ____YES ____NO

b. Reprographics Automated Mgt System (RAMS) ____YES ____NO

c. Pubs Distribution Office System (PDOS) ____YES ____NO

and a description of how you expect your field units to conduct training. If you've provided training in any of these areas, send him:

a. Copies of training plans.

b. A list of units who received training and dates trained.

4. He needs your responses by 10 December 1989. Please respond directly to Capt Harmon, AFIT/LSG, Wright-Patterson AFB OH 45433. If you have questions, you can reach him by calling the AFIT student number and leaving a message for him to return your call, AUTOVON 785-4437.

5. I am attending AFIT's December graduation, and will review your responses with him then. He needs your support.

WILLIAM O. NATIONS, Colonel, USAF
Director of Information Management
and Administration

APPENDIX B

AFIT/LSG (Capt Harmon) 14 Mar 90

Information Management Systems Training Effectiveness Survey

Survey Participant

1. Please take a few minutes to complete the attached questionnaire and return it in the enclosed envelope by 15 May 1990.

2. This survey measures your perceptions about the quality of training and support provided to you, your coworkers, and your subordinates to effectively use current, Air Force standard information management software packages. The survey's primary objective is to determine if our current method of depending the major commands, separate operating agencies, and direct reporting units to train individuals to use contractor-developed software for information management--the Records Information Management System (RIMS), the Publishing Distribution Office System (PDOS), and the Reprographics Automated Management Information System (RAMS)--is producing the desired levels of effectiveness. The information you provide will become part of an Air Force Institute of Technology (AFIT) research project and will enable me to evaluate the effectiveness of the current training policy.

3. Your responses will be combined with those from other respondents and will not be attributed to you personally. Although your participation is completely voluntary, I would appreciate your help. This is your opportunity to influence the future course of your career field. If you have any questions, please contact Capt Bruce Harmon at AUTOVON 785-4437. Thank you for your support.

EDWARD A. PARDINI, Colonel, USAF
Director of Information Management

3 Atch
1. Survey
2. AFIT Form 11E
3. Return Envelope

Part I. This section asks for background information. Answers to these questions provide current demographic information about information managers.

1. What is your age group?

1. 21-24
2. 25-28
3. 29-32
4. 33-36
5. 37-40
6. 41-44
7. 45 and Older

2. What is your current rank?

1. 2d Lt
2. 1st Lt
3. Capt
4. Major
5. Lt Colonel
6. Colonel

3. What is your sex?

1. Female
2. Male

4. What is your education level?

1. Bachelor's Degree
2. Bachelor's Degree Plus
3. Master's Degree
4. Master's Degree Plus
5. Doctoral Degree

5. How long have you been in your current job?

1. Less than 1 year
2. 1 year but less than 2 years
3. 2 years but less than 3 years
4. 3 years but less than 4 years
5. 4 years but less than 6 years
6. 6 years or more

6. How many years of active military service do you have?

1. Less than 2 years
2. 2 years but less than 4 years
3. 4 years but less than 6 years
4. 6 years but less than 8 years
5. 8 years but less than 10 years
6. 10 years but less than 12 years
7. None of the above

7. How many years of active military service do you have?

1. 12 years but less than 14 years
2. 14 years but less than 16 years
3. 16 years but less than 18 years
4. 18 years but less than 20 years
5. 20 years but less than 26 years
6. 26 years or more
7. None of the above

8. Do you have any formal teaching experience?

1. Yes
2. No

9. To which Major Command, Separate Operating Agency, Direct Reporting Unit are you assigned?

1. Accounting and Finance Center (AFAFC)
2. Air Force Academy (USAFA)
3. Air Force Audit Agency (AFAA)
4. Air Force Civilian Personnel Management Center (AFCPMC)
5. Air Force Commissary Service (AFCOMS)
6. Air Force Communications Command (AFCC)
7. None of the above

10. To which Major Command, Separate Operating Agency, Direct Reporting Unit are you assigned?

1. Air Force District of Washington (AFDW)
2. Air Force Engineering and Services Center (AFESC)
3. Air Force Inspection and Safety Center (AFISC)
4. Air Force Intelligence Agency (AFIA)
5. Air Force Logistics Command (AFLC)
6. Air Force Management Engineering Center (AFMEA)
7. None of the above

11. To which Major Command, Separate Operating Agency, Direct Reporting Unit are you assigned?

1. Air Force Military Personnel Center (AFMPC)
2. Air Force Office of Special Investigation (AFOSI)
3. Air Force Office of Medical Support (AFOMS)
4. Air Force Office of Security Police (AFOSP)
5. Air Force Operational Test and Evaluation Center (AFOTEC)
6. Air Force Reserve Personnel Center (AFRPC)
7. None of the above

12. To which Major Command, Separate Operating Agency, Direct Reporting Unit are you assigned?

1. Air Force Reserves (AFRES)
2. Air Force Service Information & News Center (AFSINC)
3. Air Force Space Command (AFSPACECOM)
4. Air Force Systems Command (AFSC)
5. Air Force Technical Applications Center (AFTAC)
6. Air Training Command (ATC)
7. None of the above

13. To which Major Command, Separate Operating Agency, Direct Reporting Unit are you assigned?

1. Air University (AU)
2. Alaskan Air Command (AAK)
3. Electronic Security Command (ESC)
4. Military Airlift Command (MAC)
5. National Guard Bureau (NGB)
6. Pacific Air Forces (PACAF)
7. None of the above

14. To which Major Command, Separate Operating Agency, Direct Reporting Unit are you assigned?

1. Strategic Air Command (SAC)
2. Tactical Air Command (TAC)
3. United States Air Forces in Europe (USAFE)
4. None of the above
5. Other (Please specify _____)

15. How many total years of job experience do you have in the 70XX AFSC?

1. Less than 2 years
2. 2 years but less than 4 years
3. 4 years but less than 6 years
4. 6 years but less than 8 years
5. 8 years but less than 10 years
6. 10 years but less than 12 years
7. None of the above

16. How many total years of job experience do you have in the 70XX AFSC?

1. 12 years but less than 14 years
2. 14 years but less than 16 years
3. 16 years but less than 18 years
4. 18 years but less than 20 years
5. 20 years but less than 26 years
6. 26 years or more
7. None of the above

17. What is your current duty AFSC?

1. 7024
2. 7034
3. 7016
4. 7046

18. What Major Command, Separate Operating Agency, Direct Reporting Unit (MAJCOM/SOA/DRU) is the host for your base?

1. Air Force Academy (USAFA)
2. Air Force Communications Command (AFCC)
3. Air Force District of Washington (AFDW)
4. Air Force Logistics Command (AFLC)
5. Air Force Reserves (AFRES)
6. Air Force Space Command (AFSPACECOM)
7. None of the above

19. What Major Command, Separate Operating Agency, Direct Reporting Unit (MAJCOM/SOA/DRU) is the host for your base?

1. Air Force Systems Command (AFSC)
2. Air Force Technical Applications Center (AFTAC)
3. Air Training Command (ATC)
4. Air University (AU)
5. Alaskan Air Command (AAK)
6. Electronic Security Command (ESC)
7. None of the above

20. What Major Command, Separate Operating Agency, Direct Reporting Unit (MAJCOM/SOA/DRU) is the host for your base?

1. Military Airlift Command (MAC)
2. National Guard Bureau (NGB)
3. Pacific Air Forces (PACAF)
4. Strategic Air Command (SAC)
5. None of the above

21. What Major Command, Separate Operating Agency, Direct Reporting Unit (MAJCOM/SOA/DRU) is the host for your base?

1. Tactical Air Command (TAC)
2. United States Air Forces in Europe (USAFE)
3. None of the above
4. Other (Please specify) _____

22. What category of information management function are you assigned to?

1. Information Management - Wing/Base Level
2. Information Management - Air Division or Numbered Air Force Headquarters or equivalent

23. What is your duty title?

_____

24. How many enlisted information managers in the grade of A1C and above are assigned to your Wing, Air Division Headquarters or, Number Air Force Headquarters?

_____

25. How many enlisted information managers in the grade of A1C and above are assigned to your functional area of information management?

_____

Part II. Computer Background/Experience. The following list of statements that describe your background and experience with computers.

Answer with a 1 if the statement is true.
Answer with a 2 if the statement is false.

26. I have never used a microcomputer.

27. I use a computer at home.

28. I use a computer on the job.

29. I have had formal "hands-on" training on the use of microcomputers.

30. I acquired my computer skills through Air Force training.

31. I acquired my computer skills through civilian education.

32. The computer knowledge I have is self-taught.

For statements 33-40 below, use the following scale to indicate the level of your agreement or disagreement with the statement.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
1	2	3	4	5

33. I am comfortable using a computer.

34. I could perform my job more efficiently if I had some/more computer training.

35. My staff could perform more efficiently if they had some/more computer training.

36. Computer knowledge is important for managing automated information management functions.

37. I could better manage automated information management functions if I had more computer knowledge.

38. Automation of information management functions has increased the amount of computer knowledge I need to do my job effectively.

39. Automation of information management functions has increased the amount of computer knowledge my staff needs to do my job effectively.

40. I have job demands that I cannot effectively meet because I do not have an appropriate level of computer knowledge.

41. My staff has job demands that they cannot effectively meet because they do not have an appropriate level of computer knowledge.

1. Yes
2. No

42. I would describe my computer experience level as:

1. Non User
2. Novice
3. Intermediate User
4. Experienced User
5. Expert User

Part III. These questions provide information about what automated information management systems you are aware of, manage/have managed, and the type of system support you receive from your MAJCOM/SOA/DRU or other higher headquarters.

43. Have you heard of the Records Information Management Program (RIMS)?

1. Yes
2. No

44. Have you heard of the Reprographics Automated Management System (RAMS)?

1. Yes
2. No

45. Have you heard of the Publishing Distribution Office System (PDOS)?

1. Yes
2. No

46. Have you ever managed RIMS, RAMS, or PDOS? (If yes. indicate which one(s)).

1. RIMS
2. RAMS
3. PDOS (Does not include APMP)
4. I've never managed any of these systems

STOP HERE IF YOU'VE NEVER MANAGED ANY OF THESE SYSTEMS. GO TO THE END OF THE QUESTIONNAIRE FOR FURTHER INSTRUCTIONS.

47. Do you manage RIMS, RAMS, or PDOS in your current job? (If yes, indicate which one(s)).

1. RIMS
2. RAMS
3. PDOS (Does not include APMP)
4. I don't manage any of these systems in my current job.

48. How long have you been managing the system(s) identified in 47?

1. Less than 6 months
2. Six months but less than 1 year
3. 1 to 2 years
4. More than 2 years

49. Have you ever managed RIMS, RAMS, or PDOS in a previous job? (If yes, indicate which one(s)).

1. RIMS
2. RAMS
3. PDOS (Does not include APMP)
4. I've never managed any of these systems in a previous job

50. How long did you manage the system(s)?

1. Less than 6 months
2. Six months but less than 1 year
3. 1 to 2 years
4. More than 2 years

51. To what degree does your MAJCOM/SOA/DRU or other higher level of command (Air Division/Numbered Air Force) keep you informed when system changes/updates occur?

1. Keep me totally informed
2. Give me only the info they think I need
3. Wait for me to ask for the information before sending it
4. Keep me in the dark

52. How would you rate the system support you and your staff receive when you ask your MAJCOM/SOA/DRU or other higher level of command (Air Division/Numbered Air Force) for help?

1. Excellent - they are always willing to help and always have the correct solution
2. Good - they are always willing to help but often fail to provide a workable solution
3. Fair - they are not very willing to help and rarely provide a workable solution
4. Poor - they are unwilling to help and rarely provide workable solutions

ANSWER THE NEXT TWELVE QUESTIONS ONLY IF YOU'VE MANAGED RIMS, RAMS, OR PDOS IN A PREVIOUS JOB BUT DON'T MANAGE THAT SAME SYSTEM(S) IN YOUR CURRENT JOB.

Example 1: You managed RIMS in a previous job but don't manage it in your current job.

Example 2: You managed PDOS in a previous job and don't manage it in your current job, but you do manage RIMS in your current job.

53. What MAJCOM/SOA/DRU was the host of your base when you managed one or more of these systems?

1. Air Force Academy (USAFA)
2. Air Force Communications Command (AFCC)
3. Air Force District of Washington (AFDW)
4. Air Force Logistics Command (AFLC)
5. Air Force Reserves (AFRES)
6. None of the above

54. What MAJCOM/SOA/DRU was the host of your base when you managed one or more of these systems?

1. Air Force Space Command (AFSPACECOM)
2. Air Force Systems Command (AFSC)
3. Air Force Technical Applications Center (AFTAC)
4. Air Training Command (ATC)
5. Air University (AU)
6. Alaskan Air Command (AAK)
7. None of the above

55. What MAJCOM/SOA/DRU was the host of your base when you managed one or more of these systems?

1. Electronic Security Command (ESC)
2. Military Airlift Command (MAC)
3. National Guard Bureau (NGB)
4. Pacific Air Forces (PACAF)
5. Strategic Air Command (SAC)
6. None of the above

56. What MAJCOM/SOA/DRU was the host of your base when you managed one or more of these systems?

1. Tactical Air Command (TAC)
2. United States Air Forces in Europe (USAFE)
3. None of the above
4. Other (Please specify) _____

57. To what degree did your MAJCOM/SOA/DRU or other higher level of command (Air Division/Numbered Air Force) keep you informed when system changes/updates occurred?

1. Kept me totally informed
2. Gave me only the info they thought I needed
3. Waited for me to ask for the information before sending it
4. Kept me in the dark

58. How would you rate the system support you and your staff received when you asked your MAJCOM/SOA/DRU or other higher level of command (Air Division/Numbered Air Force) for help?

1. Excellent - they were always willing to help and always had the correct solution
2. Good - they were always willing to help but often failed to provide a workable solution
3. Fair - they were not very willing to help and rarely provided a workable solution
4. Poor - they were unwilling to help and rarely provided workable solutions

59. What MAJCOM/SOA/DRU were you assigned to when you managed one or more of these systems?

1. Accounting and Finance Center (AFAFC)
2. Air Force Academy (USAFA)
3. Air Force Audit Agency (AFAA)
4. Air Force Civilian Personnel Management Center (AFCPMC)
5. Air Force Commissary Service (AFCOMS)
6. Air Force Communications Command (AFCC)
7. None of the above

60. What MAJCOM/SOA/DRU were you assigned to when you managed one or more of these systems?

1. Air Force District of Washington (AFDW)
2. Air Force Engineering and Services Center (AFESC)
3. Air Force Inspection and Safety Center (AFISC)
4. Air Force Intelligence Agency (AFIA)
5. Air Force Logistics Command (AFLC)
6. Air Force Management Engineering Center (AFMEA)
7. None of the above

61. What MAJCOM/SOA/DRU were you assigned to when you managed one or more of these systems?

1. Air Force Military Personnel Center (AFMPC)
2. Air Force Office of Special Investigation (AFOSI)
3. Air Force Office of Medical Support (AFOMS)
4. Air Force Office of Security Police (AFOSP)
5. Air Force Operational Test and Evaluation Center (AFOTEC)
6. Air Force Reserve Personnel Center (AFRPC)
7. None of the above

62. What MAJCOM/SOA/DRU were you assigned to when you managed one or more of these systems?

1. Air Force Reserves (AFRES)
2. Air Force Service Information & News Center (AFSINC)
3. Air Force Space Command (AFSPACECOM)
4. Air Force Systems Command (AFSC)
5. Air Force Technical Applications Center (AFTAC)
6. Air Training Command (ATC)
7. None of the above

63. What MAJCOM/SOA/DRU were you assigned to when you managed one or more of these systems?

1. Air University (AU)
2. Alaskan Air Command (AAK)
3. Electronic Security Command (ESC)
4. Military Airlift Command (MAC)
5. National Guard Bureau (NGB)
6. None of the above

64. What MAJCOM/SOA/DRU were you assigned to when you managed one or more of these systems?

1. Pacific Air Forces (PACAF)
2. Strategic Air Command (SAC)
3. Tactical Air Command (TAC)
4. United States Air Forces in Europe (USAFE)
5. None of the above
6. Other (Please specify _____)

Part IV. These questions define the method(s) you use to train your staff to use the automated information management system(s) you manage in your current job. You identified these systems in question 47. IF YOU DON'T MANAGE RIMS, RAMS, OR PDOS IN YOUR CURRENT JOB, SKIP THIS SECTION AND MOVE TO PART V.

65. What is the primary method of training you use to train your staff to use the system(s) identified in question 47?

1. Formal classroom training
2. In-House training provided by my information management staff
3. Telephone calls to my MAJCOM/SOA/DRU representative
4. Self-taught using system documentation (User's Guides and Regulations)
5. Depend on my host base information management staff
6. Training is not provided

66. How often do you provide training for new system users?

1. Monthly
2. Quarterly
3. Semiannually
4. Annually
5. There is no set training schedule

67. How often is follow-on training provided?

1. Monthly
2. Quarterly
3. Semiannually
4. Annually
5. There is no set training schedule

68. Do you provide training on all available systems to all information managers assigned to your information management function?

1. Yes
2. No

69. Do you provide automated information management system training to all information managers assigned to your Wing, Air Division, or Numbered Air Force who are not assigned to your information management function?

1. Yes
2. No

70. Do you feel its necessary to provide training on all available systems to all information managers assigned to your information management function (Wing/Air Division/Numbered Air Force)?

1. Yes
2. No

71. How would you rate the training you provide?

1. Poor
2. Fair
3. Adequate
4. Above average
5. Outstanding

72. How would you rate your staff's ability to use the system(s)?

1. Poor -- They don't feel comfortable using the system
2. Adequate -- They can perform simple tasks but require assistance to do detailed work
3. Expert -- They can perform all tasks associated with the system(s)

73. Would you recommend your training method for use Air Force-wide?

1. Yes
2. No

Part V. These questions define the method(s) used to train your staff to use the automated information management system(s) you managed in a previous job. You identified these systems in question 49. IF YOU DIDN'T USE RIMS, RAMS, OR PDOS IN A PREVIOUS JOB, SKIP THIS SECTION AND MOVE TO PART VI.

74. What was the primary method you used to train your staff to use the system(s) identified in question 49?

1. Formal classroom training
2. In-House training provided by my information management staff
3. Telephone calls to my MAJCOM/SOA/DRU representative
4. Self-taught using system documentation (User's Guides and Regulations)
5. Depend on my host base information management staff
6. Training is not provided

75. How often did you provide training for new system users?

1. Monthly
2. Quarterly
3. Semiannually
4. Annually
5. There was no set training schedule

76. How often was follow-on training provided?

1. Monthly
2. Quarterly
3. Semiannually
4. Annually
5. There was no set training schedule

77. Did you provide training on all available systems to all information managers assigned to your information management function?

1. Yes
2. No

78. Did you provide automated information management system training to all information managers assigned to your Wing, Air Division, or Numbered Air Force who were not assigned to your information management function?

1. Yes
2. No

79. Did you feel it was necessary to provide training on all available systems to all information managers assigned to your information management function (Wing/Air Division/Numbered Air Force)?

1. Yes
2. No

80. How would you rate the training you provided?

1. Poor
2. Fair
3. Adequate
4. Above Average
5. Outstanding

81. How would you rate your staff's ability to use the system(s)?

1. Poor -- They don't feel comfortable using the system
2. Adequate -- They can perform simple tasks but require assistance to do detailed work
3. Expert -- They can perform all tasks associated with the system(s)

82. Would you recommend your training method for use Air Force-wide?

1. Yes
2. No

Part VI. These questions describe how you view the effectiveness of the system(s) you manage/managed and the methods you use/used to get help in using the system(s).

83. Where does/did your staff go to get the real answer when they need/needed help in using the system(s)?

1. You
2. A coworker
3. The base information management office RIMS, RAMS, or PDOS manager
4. Your MAJCOM/SOA/DRU RIMS, RAMS, or PDOS manager
5. A recognized system expert in a MAJCOM/SOA/DRU other than my own
6. The system documentation (User's Guide and Regulations)

84. Do/did your supervisors know how to use the system(s) you are/were responsible for managing?

1. Yes
2. No

85. Do you consider the use of these automated information system(s) an improvement over the nonautomated (without computers) method of performing the same tasks?

1. Yes
2. No

86. Has/did your staff's overall work performance improve since/once they started using these system(s)?

1. Yes
2. No

87. How would you compare the speed and accuracy with which your staff performs/performed their daily tasks using the automated system(s) against how they perform/performed without the assistance of a computer?

1. Speed and accuracy decreased/have decreased
2. Speed decreased/has decreased but accuracy increased/has increased
3. Speed increased/has increased but accuracy decreased/has decreased
4. Speed and accuracy did not/have not changed
5. Speed and accuracy increased/have increased

88. Do you feel the Air Force needs to develop more automated information systems like the one(s) you manage/managed?

1. Yes
2. No

Part VII. These questions measure the affect use of automated information management systems have on systems users and system managers.

For each statement below, use the following scale.

Very Negative	Negative	None	Positive	Very Positive
1	2	3	4	5

Indicate the type of impact you think RIMS, RAMS, and PDOS have on your:

89. Job performance

90. Staff's job performance

91. Job satisfaction

92. Staff's job satisfaction

93. Access to information needed to do your job

94. Access to information your staff needs to do their job

95. Productivity level

96. Staff's productivity level

97. Workload

98. Staff's workload

For each statement below, use the following scale.

Very Negative	Negative	None	Positive	Very Positive
1	2	3	4	5

Indicate the type of impact you think RIMS, RAMS, and PDOS have on your:

99. Personal job training needs

100. Staff's job training needs

101. Attitude towards your job

102. Staff's attitude to their job

103. Work habits

104. Staff's work habits

105. Job skills

106. Staff's job skills

107. Staff's ability to be promoted

Thank you for your help. Please return this questionnaire and your answer sheet in the enclosed envelope to Capt Bruce Harmon, AFIT/LSG, WPAFB, OH 45433-6503.

THIS CONCLUDES THE QUESTIONNAIRE

APPENDIX C

AFIT/LSG (Capt Harmon) 14 Mar 90

Information Management Systems Training Effectiveness Survey

Survey Participant

1. Please take a few minutes to complete the attached questionnaire and return it in the enclosed envelope by 15 May 1990.

2. This survey measures your perceptions about the quality of training and support provided to you, your coworkers, and your subordinates to effectively use current, Air Force standard information management software packages. The survey's primary objective is to determine if our current method of depending on the major commands, separate operating agencies, and direct reporting units to train individuals to use contractor-developed software for information management--the Records Information Management System (RIMS), the Publishing Distribution Office System (PDOS), and the Reprographics Automated Management Information System (RAMS)--is producing the desired levels of effectiveness. The information you provide will become part of an Air Force Institute of Technology (AFIT) research project and will enable me to evaluate the effectiveness of the current training policy.

3. Your responses will be combined with those from other respondents and will not be attributed to you personally. Although your participation is completely voluntary, I would appreciate your help. This is your opportunity to influence the future course of your career field. If you have any questions, please contact Capt Bruce Harmon at AUTOVON 785-4437. Thank you for your support.

EDWARD A. PARDINI, Colonel, USAF
Director of Information Management

3 Atch
1. Survey
2. AFIT Form 11C
3. Return Envelope

Part I. This section asks for background information. Answers to these questions provide current demographic information about information managers.

1. What is your age group?

1. 18-22
2. 23-27
3. 28-32
4. 33-37
5. 38-42
6. 43-47
7. 43 and Older

2. What is your current rank?

1. AlC
2. SrA
3. Sgt
4. SSgt
5. TSgt
6. MSgt
7. SMSgt
8. CMSgt

3. What is your sex?

1. Female
2. Male

4. What is your education level?

1. Some High School
2. High School graduate or G.E.D.
3. Some College or post High School training
4. Associate Degree
5. Associate Degree Plus
6. Bachelor's Degree
7. Bachelor's Degree Plus
8. Master's Degree
9. Master's Degree Plus
10. Doctoral Degree

5. How long have you been in your current job?

1. Less than 1 year
2. 1 year but less than 2 years
3. 2 years but less than 3 years
4. 3 years but less than 4 years
5. 4 years but less than 6 years
6. 6 years or more

6. How many years of active military service do you have?

1. Less than 2 years
2. 2 years but less than 4 years
3. 4 years but less than 6 years
4. 6 years but less than 8 years
5. 8 years but less than 10 years
6. 10 years but less than 12 years
7. None of the above

7. How many years of active military service do you have?

1. 12 years but less than 14 years
2. 14 years but less than 16 years
3. 16 years but less than 18 years
4. 18 years but less than 20 years
5. 20 years but less than 26 years
6. 26 years or more
7. None of the above

8. To which Major Command, Separate Operating Agency, Direct Reporting Unit are you assigned?

1. Accounting and Finance Center (AFAFC)
2. Air Force Academy (USAFA)
3. Air Force Audit Agency (AFAA)
4. Air Force Civilian Personnel Management Center (AFCPMC)
5. Air Force Commissary Service (AFCOMS)
6. Air Force Communications Command (AFCC)
7. Air Force District of Washington (AFDW)
8. Air Force Engineering and Services Center (AFESC)
9. Air Force Inspection and Safety Center (AFISC)
10. None of the above

9. To which Major Command, Separate Operating Agency, Direct Reporting Unit are you assigned?

1. Air Force Intelligence Agency (AFIA)
2. Air Force Logistics Command (AFLC)
3. Air Force Management Engineering Center (AFMEA)
4. Air Force Military Personnel Center (AFMPC)
5. Air Force Office of Special Investigation (AFOSI)
6. Air Force Office of Medical Support (AFOMS)
7 Air Force Office of Security Police (AFOSP)
8. Air Force Operational Test and Evaluation Center (AFOTEC)
9. Air Force Reserve Personnel Center (AFRPC)
10. None of the above

10. To which Major Command, Separate Operating Agency, Direct Reporting Unit are you assigned?

1. Air Force Reserves (AFRES)
2. Air Force Service Information and News Center (AFSINC)
3. Air Force Space Command (AFSPACECOM)
4. Air Force Systems Command (AFSC)
5. Air Force Technical Applications Center (AFTAC)
6. Air Training Command (ATC)
7. Air University (AU)
8. Alaskan Air Command (AAK)
9. Electronic Security Command (ESC)
10. None of the above

11. To which Major Command, Separate Operating Agency, Direct Reporting Unit are you assigned?

1. Military Airlift Command (MAC)
2. National Guard Bureau (NGB)
3. Pacific Air Forces (PACAF)
4. Strategic Air Command (SAC)
5. Tactical Air Command (TAC)
6. United States Air Forces in Europe (USAFE)
7. Other (Please specify) _____
8. None of the above

12. What is your current duty AFSC?

1. 70230
2. 70250
3. 70270
4. 70290
5. 70200
6. 70330
7. 70350
8. 70370
9. 70390

13. What Major Command, Separate Operating Agency, Direct Reporting Unit (MAJCOM/SOA/DRU) is the host for your base?

1. Air Force Academy (USAFA)
2. Air Force Communications Command (AFCC)
3. Air Force District of Washington (AFDW)
4. Air Force Logistics Command (AFLC)
5. Air Force Reserves (AFRES)
6. Air Force Space Command (AFSPACECOM)
7. Air Force Systems Command (AFSC)
8. Air Force Technical Applications Center (AFTAC)
9. Air Training Command (ATC)
10. None of the above

14. What Major Command, Separate Operating Agency, Direct Reporting Unit (MAJCOM/SOA/DRU) is the host for your base?

1. Air University (AU)
2. Alaskan Air Command (AAK)
3. Electronic Security Command (ESC)
4. Military Airlift Command (MAC)
5. Pacific Air Forces (PACAF)
6. Strategic Air Command (SAC)
7. Tactical Air Command (TAC)
8. United States Air Forces in Europe (USAFE)
9. Other (Please specify) _____
10. None of the above

15. What is your duty title? Please print it below.

_____

16. What category of information management function are you assigned to? (Staff Support includes all functions not under the direct control of the Chief of Information Management)

1. Staff Support - Wing/Base Level (DO staff, technical administration, CBPO, etc.)
2. Headquarters Staff Support - Air Division/Numbered Air Force or equivalent
3. Information Management - Wing/Base Level
4. Headquarters Information Management - Air Division/Numbered Air Force or equivalent

17. How many total years of job experience do you have in the 70XXX AFSC?

1. Less than 2 years
2. 2 years but less than 4 years
3. 4 years but less than 6 years
4. 6 years but less than 8 years
5. 8 years but less than 10 years
6. 10 years but less than 12 years
7. None of the above

18. How many total years of job experience do you have in the 70XXX AFSC?

1. 12 years but less than 14 years
2. 14 years but less than 16 years
3. 16 years but less than 18 years
4. 18 years but less than 20 years
5. 20 years but less than 26 years
6. 26 years or more
7. None of the above

Part II. Computer Background/Experience. Please read through the following list of statements that describe your background and experience with computers.

Answer with a 1 if the statement is true.
Answer with a 2 if the statement is false.

19. I have never used a microcomputer.

20. I use a computer at home.

21. I use a computer on the job.

22. I have had formal "hands-on" training on the use of microcomputers.

23. I acquired my computer skills through Air Force training.

Answer with a 1 if the statement is true.
Answer with a 2 if the statement is false.

24. I acquired my computer skills through civilian education.

25. The computer knowledge I have is self-taught.

For statements 26-31 below, use the following scale to indicate the level of your agreement or disagreement with the statement.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
1	2	3	4	5

26. I am comfortable using a computer.

27. I could perform my job more efficiently if I had some/more computer training.

28. Computer knowledge is important for managing automated information management functions.

29. I could better manage automated information management functions if I had more computer knowledge.

30. Automation of information management functions has increased the amount of computer knowledge I need to do my job effectively.

31. I have job demands that I cannot effectively meet because I do not have an appropriate level of computer knowledge.

32. I would describe my computer experience level as:

1. Non User
2. Novice
3. Intermediate User
4. Experienced User
5. Expert User

Part III. These questions provide information about what automated information management systems you are aware of, have used, and have received training on.

33. Have you heard of the Records Information Management Program (RIMS)?

1. Yes
2. No

34. Have you heard of the Reprographics Automated Management System (RAMS)?

1. Yes
2. No

35. Have you heard of the Publishing Distribution Office System (PDOS)?

1. Yes
2. No

36. Have you ever used RIMS, RAMS, or PDOS? (If yes, indicate which one(s)).

1. RIMS
2. RAMS
3. PDOS (Does not include APMP)
4. I've never used any of these systems

STOP HERE IF YOU'VE NEVER USED ANY OF THESE SYSTEMS. GO TO THE END OF THE QUESTIONNAIRE FOR FURTHER INSTRUCTIONS.

37. Do you use RIMS, RAMS, or PDOS in your current job? (If yes, indicate which one(s)).

1. RIMS
2. RAMS
3. PDOS (Does not include APMP)
4. I don't use any of these systems in my current job (Go to Question 39)

38. How long have you been using the system(s) identified in 37?

1. Less than 6 months
2. Six months but less than 1 year
3. 1 to 2 years
4. More than 2 years

39. Have you ever used RIMS, RAMS, or PDOS in a previous job? (If yes, indicate which one(s)).

1. RIMS
2. RAMS
3. PDOS (Does not include APMP)
4. I don't use any of these systems in my current job

40. How long did you use the system(s)?

1. Less than 6 months
2. Six months but less than 1 year
3. 1 to 2 years
4. More than 2 years

ANSWER THE NEXT SIX QUESTIONS ONLY IF YOU'VE USED RIMS, RAMS, OR PDOS IN A PREVIOUS JOB BUT DON'T USE THAT SAME SYSTEM(S) IN YOUR CURRENT JOB.

Example 1: You used RIMS in a previous job but don't use it in your current job.

Example 2: You used PDOS in a previous job and don't use it in your current job, but you do use RIMS in your current job.

41. What MAJCOM/SOA/DRU was the host of your base when you did use one or more of these systems?

1. Air Force Academy (USAFA)
2. Air Force Communications Command (AFCC)
3. Air Force District of Washington (AFDW)
4. Air Force Logistics Command (AFLC)
5. Air Force Reserves (AFRES)
6. Air Force Space Command (AFSPACECOM)
7. Air Force Systems Command (AFSC)
8. Air Force Technical Applications Center (AFTAC)
9. Air Training Command (ATC)
10. None of the above

42. What MAJCOM/SOA/DRU was the host of your base when you did use one or more of these systems?

1. Air University (AU)
2. Alaskan Air Command (AAK)
3. Electronic Security Command (ESC)
4. Military Airlift Command (MAC)
5. Pacific Air Forces (PACAF)
6. Strategic Air Command (SAC)
7. Tactical Air Command (TAC)
8. United States Air Forces in Europe (USAFE)
9. Other (Please specify) _____
10. None of the above

43. What MAJCOM/SOA/DRU were you assigned to when you did use one or more of these systems?

1. Accounting and Finance Center (AFAFC)
2. Air Force Academy (USAFA)
3. Air Force Audit Agency (AFAA)
4. Air Force Civilian Personnel Management Center (AFCPMC)
5. Air Force Commissary Service (AFCOMS)
6. Air Force Communications Command (AFCC)
7. Air Force District of Washington (AFDW)
8. Air Force Engineering and Services Center (AFESC)
9. Air Force Inspection and Safety Center (AFISC)
10. None of the above

44. What MAJCOM/SOA/DRU were you assigned to when you did use one or more of these systems?

1. Air Force Intelligence Agency (AFIA)
2. Air Force Logistics Command (AFLC)
3. Air Force Management Engineering Center (AFMEA)
4. Air Force Military Personnel Center (AFMPC)
5. Air Force Office of Special Investigation (AFOSI)
6. Air Force Office of Medical Support (AFOMS)
7. Air Force Office of Security Police (AFOSP)
8. Air Force Operational Test and Evaluation Center (AFOTEC)
9. Air Force Reserve Personnel Center (AFRPC)
10. None of the above

45. What MAJCOM/SOA/DRU were you assigned to when you did use one or more of these systems?

1. Air Force Reserves (AFRES)
2. Air Force Service Information and News Center (AFSINC)
3. Air Force Space Command (AFSPACECOM)
4. Air Force Systems Command (AFSC)
5. Air Force Technical Applications Center (AFTAC)
6. Air Training Command (ATC)
7. Air University (AU)
8. Alaskan Air Command (AAK)
9. Electronic Security Command (ESC)
10. None of the above

46. What MAJCOM/SOA/DRU were you assigned to when you did use one or more of these systems?

1. Military Airlift Command (MAC)
2. National Guard Bureau (NGB)
3. Pacific Air Forces (PACAF)
4. Strategic Air Command (SAC)
5. Tactical Air Command (TAC)
6. United States Air Forces in Europe (USAFE)
7. Other (Please specify) _____
8. None of the above

Part IV. These questions define the method(s) used to train you to use the automated information management system(s) you use in your current job. You identified these systems in question 37. IF YOU DON'T USE RIMS, RAMS, OR PDOS IN YOUR CURRENT JOB, SKIP THIS SECTION AND MOVE TO PART V.

47. How were you trained/did you learn to use the system(s) identified in question 37? **(Mark only one!)**

1. Formal Classroom Training
2. In-House Training provided by my information management staff
3. Making Telephone Calls to my MAJCOM/SOA/DRU representative
4. Self-taught, I Used the Documentation (User's Guides and Regulations)
5. Training provided by the base Information Management Staff

48. How would you rate the training you received?

1. Poor
2. Fair
3. Adequate
4. Above average
5. Outstanding

49. How would you rate your ability to use the system(s)?

1. Poor -- I don't feel comfortable using the system even though I've been trained
2. Adequate -- I can perform simple tasks but require assistance to do detailed work
3. Expert -- I can perform all tasks associated with the system(s)

50. Would you recommend the method of training you received to use the system(s) for use Air Force-wide?

1. Yes
2. No

51. Do you feel this training makes you more competitive for promotions?

1. Yes
2. No

Part V. These questions define the method(s) used to train you to use the automated information management system(s) you used in a previous job. You identified these systems in question 39. IF YOU DIDN'T USE RIMS, RAMS, OR PDOS IN A PREVIOUS JOB, SKIP THIS SECTION AND MOVE TO PART VI.

52. How were you trained/did you learn to use the system(s) identified in question 39?
(Mark only one!)

1. Formal Classroom Training
2. In-House Training provided by my information management staff
3. Making Telephone Calls to my MAJCOM/SOA/DRU representative
4. Self-taught, I Used the Documentation (User's Guides and Regulations)
5. Training provided by the base Information Management Staff

53. How would you rate the training you received?

1. Poor
2. Fair
3. Adequate
4. Above average
5. Outstanding

54. How would you rate your ability to use the system(s)?

1. Poor -- I don't feel comfortable using the system even though I've been trained
2. Adequate -- I can perform simple tasks but require assistance to do detailed work
3. Expert -- I can perform all tasks associated with the system(s)

55. Would you recommend the method of training you received to use the system(s) for use Air Force-wide?

1. Yes
2. No

56. Do you feel this training makes you more competitive for promotions?

1. Yes
2. No

Part VI. These questions describe how you view the effectiveness of the system(s) you use/have used and the methods you used to get help in using the system(s).

57. Where do you go/did you go to get the real answer when you need help in using the system(s)?

1. Your supervisor
2. A coworker
3. The base information management office RIMS, RAMS, or PDOS manager
4. Your MAJCOM/SOA/DRU RIMS, RAMS, or PDOS manager
5. A recognized system expert in a MAJCOM/SOA/DRU other than my own
6. The system documentation (User's Guide and Regulations)

58. Does/did your supervisor know how to use the system(s) you are/were responsible for using?

1. Yes
2. No

59. Do you consider the use of these automated information system(s) an improvement over the nonautomated (without computers) method of performing the same tasks?

1. Yes
2. No

60. Has/did your overall work performance improved/improve since/after you started using the system(s)?

1. Yes
2. No

61. How would you compare the speed and accuracy with which you performed your daily tasks using the automated system(s) against how you performed without the assistance of a computer?

1. My speed and accuracy have decreased
2. My speed has decreased but my accuracy has increased
3. My speed has increased but my accuracy has decreased
4. My speed and accuracy have not changed
5. My speed and accuracy have increased

62. Do you feel the Air Force needs to develop more automated information systems like the one(s) you are using/used?

1. Yes
2. No

Part VII. These questions measure the affect use of automated information management systems have on systems users and system managers.

For each statement below, use the following scale.

Very Negative	Negative	None	Positive	Very Positive
1	2	3	4	5

Indicate the type of impact you think RIMS, RAMS, and PDOS have on your:

63. Job Performance

64. Job Satisfaction

65. Access to information needed to do your job

For each statement below, use the following scale.

Very Negative	Negative	None	Positive	Very Positive
1	2	3	4	5

Indicate the type of impact you think RIMS, RAMS, and PDOS have on your:

66. Productivity level

67. Workload

68. Job training needs

69. Attitude towards your job

70. Work habits

71. Job skills

72. What effect does knowing/not knowing how to use RIMS, RAMS, or PDOS have on your ability to be promoted

Thank you for your help. Please return this questionnaire and your answer sheet in the enclosed envelope to Capt Bruce Harmon, AFIT/LSG, WPAFB OH 45433-6503.

STOP

THIS CONCLUDES THE QUESTIONNAIRE

APPENDIX D

Selected Crosstabulations
Chiefs' of Information Management Responses

Table 108

Source of Computer Training

MAJCOM/SOA/DRU	Air Force Training	Civilian Training	Self Taught
AF Communications Command	0	1	2
AF Logistics Command	0	1	1
AF Reserves	0	1	0
AF Space Command	0	0	1
AF Systems Command	4	4	4
Air Training Command	3	5	7
Air University	2	1	0
Alaskan Air Command	1	1	1
Military Airlift Command	4	2	9
Pacific Air Forces	0	3	4
Strategic Air Command	4	2	14
Tactical Air Command	4	2	11
US Air Forces in Europe	2	1	4
Total	24	24	58
Percentage	28.2	28.2	68.2

Table 109

Degree of MAJCOM/SOA/DRU Or Intermediate Level
Of Command Information Provided Concerning
System Changes & Updates
Current Job

MAJCOM/SOA/DRU	1	2	3	4
AF Communications Command	0	0	0	0
AF Logistics Command	0	0	1	0
AF Reserves	0	0	0	0
AF Space Command	0	1	0	0
AF Systems Command	0	1	0	0
Air Training Command	1	5	1	0
Air University	0	0	0	0
Alaskan Air Command	0	2	0	0
Military Airlift Command	5	1	0	0
Pacific Air Forces	0	1	1	0
Strategic Air Command	6	5	2	1
Tactical Air Command	8	6	0	0
US Air Forces in Europe	0	5	1	0
Total	20	27	6	1
Percentage	37.0	50.0	11.1	1.9

Key for Table 109 - Degree of Support

1. Keep me totally informed
2. Give me only the information they think I need
3. Wait for me to ask for the information
4. Keep me in the dark

Table 110

Degree of MAJCOM/SOA/DRU Or Intermediate Level
Of Command Information Provided Concerning
System Changes & Updates
Previous Job

MAJCOM/SOA/DRU	1	2	3	4
AF Systems Command	0	1	0	0
Air Training Command	1	1	0	0
Alaskan Air Command	1	0	0	0
Pacific Air Forces	0	0	0	0
Strategic Air Command	1	1	0	0
Tactical Air Command	1	1	0	0
Total	4	4	0	0
Percentage	50.0	50.0	0.0	0.0

Key for Table 110 - Degree of Support

1. Keep me totally informed
2. Give me only the information they think I need
3. Wait for me to ask for the information
4. Keep me in the dark

Table 111

Automated Information Management System
Training Methods
Current Job

MAJCOM/SOA/DRU	1	2	3	4	5	6
AF Communications Command	0	0	0	0	0	0
AF Logistics Command	0	0	0	1	0	0
AF Reserves	0	0	0	0	0	0
AF Space Command	0	0	0	1	0	0
AF Systems Command	0	1	0	1	0	0
Air Training Command	0	4	0	2	0	0
Air University	0	1	0	0	0	0
Alaskan Air Command	0	1	0	0	1	0
Military Airlift Command	0	3	0	3	0	0
Pacific Air Forces	0	2	0	1	1	0
Strategic Air Command	1	11	0	2	0	0
Tactical Air Command	0	5	2	4	2	1
US Air Forces in Europe	1	3	0	2	0	0
Total	2	31	2	17	4	1
Percentage	3.5	54.4	3.5	29.8	7.0	1.8

Key for Table 111 - Training Methods

1. Formal classroom
2. In-house by my local information management staff
3. Phone calls to my MAJCOM/SOA/DRU staff
4. Self-taught
5. Depend on host base information management staff
6. Training is not provided

Table 112

Automated Information Management System
Training Methods
Previous Job

MAJCOM/SOA/DRU	1	2	3	4	5	6
AF Logistics Command	0	0	0	1	0	0
Air Training Command	0	2	0	1	1	0
Alaskan Air Command	0	0	0	1	0	0
Military Airlift Command	0	0	0	1	0	0
Pacific Air Forces	0	1	0	0	0	0
Strategic Air Command	0	2	0	1	0	0
Tactical Air Command	0	0	1	2	0	0
Total	0	5	1	7	1	0
Percentage	0.0	28.6	4.8	57.1	9.5	0.0

Key for Table 112 - Training Methods

1. Formal classroom
2. In-house by my local information management staff
3. Phone calls to my MAJCOM/SOA/DRU staff
4. Self-taught
5. Depend on host base information management staff
6. Training is not provided

Table 113

Source of Staff's Real Help In Using
Automated Information Management Systems

MAJCOM/SOA/DRU	1	2	3	4	5	6
AF Communications Command	0	0	0	0	0	0
AF Logistics Command	0	0	0	0	1	0
AF Reserves	0	0	0	0	0	0
AF Space Command	0	0	0	1	0	0
AF Systems Command	1	0	0	1	0	0
Air Training Command	1	1	0	2	2	1
Air University	0	1	0	0	0	0
Alaskan Air Command	0	1	0	1	0	0
Military Airlift Command	0	1	0	4	1	0
Pacific Air Forces	0	1	0	2	1	0
Strategic Air Command	0	1	0	13	0	1
Tactical Air Command	0	3	2	7	0	1
US Air Forces in Europe	0	1	0	5	1	0
Total	2	10	2	36	6	3
Percentage	3.4	16.9	3.4	61.0	10.2	5.1

Key for Table 113 - Staff's Source of Help

1. You
2. A coworker
3. Base level RIMS, RAMS, or PDOS system manager
4. MAJCOM/SOA/DRU RIMS, RAMS, or PDOS system manager
5. A recognized expert in another MAJCOM/SOA/DRU
6. System documentation and user's guide

APPENDIX E

Selected Crosstabulations
Enlisted Information Managers' and Enlisted
Reprographic Specialists' Responses

Table 114

Source of Computer Training

MAJCOM/SOA/DRU	Air Force Training	Civilian Training	Self Taught
Air Force Academy	4	2	3
AF Communications Command	5	2	9
AF District of Washington	6	4	6
AF Logistics Command	4	1	2
AF Office of Special Investigations	1	1	0
AF Space Command	5	3	6
AF Systems Command	6	1	5
AF Technical Applications Center	0	0	0
Air Training Command	10	7	14
Air University	2	2	3
Alaskan Air Command	3	6	4
Electronic Security Command	0	0	1
Military Airlift Command	15	12	17
National Guard Bureau	0	0	0
Pacific Air Forces	5	3	16
Strategic Air Command	30	18	40
Tactical Air Command	30	15	32
US Air Forces in Europe	17	17	25
Total	143	94	186
Percentage	46.7	30.7	60.4

Table 115

Automated Information Management System
Training Methods
Current Job

MAJCOM/SOA/DRU	1	2	3	4	5
Air Force Academy	0	2	0	2	0
AF Communications Command	0	1	0	0	0
AF District of Washington	0	1	0	1	0
AF Logistics Command	0	1	0	0	1
AF Office of Special Investigations	0	0	0	0	0
AF Space Command	0	2	0	2	1
AF Systems Command	0	0	0	4	1
AF Technical Applications Center	0	0	0	0	0
Air Training Command	0	4	0	4	3
Air University	0	0	0	2	0
Alaskan Air Command	0	0	0	1	0
Electronic Security Command	0	0	0	0	0
Military Airlift Command	3	12	1	2	1
National Guard Bureau	0	0	0	0	0
Pacific Air Forces	0	6	1	8	1
Strategic Air Command	2	19	4	12	6
Tactical Air Command	4	11	0	14	1
US Air Forces in Europe	2	10	2	10	0
Total	11	69	8	62	15
Percentage	6.7	41.8	4.8	37.6	9.1

Key for Table 115 - Training Methods

1. Formal classroom
2. In-house by my local information management staff
3. Phone calls to my MAJCOM/SOA/DRU staff
4. Self-taught
5. Depend on host base information management staff

Table 116

Automated Information Management System
Training Methods
Previous Job

MAJCOM/SOA/DRU	1	2	3	4	5
AF Communications Command	1	0	0	0	0
AF District of Washington	0	2	0	0	0
AF Logistics Command	0	1	0	0	1
AF Space Command	0	1	0	0	0
AF Systems Command	1	0	0	2	0
Air Training Command	0	2	0	3	3
Air University	0	1	0	0	0
Alaskan Air Command	0	2	0	1	0
Military Airlift Command	0	4	0	0	0
Pacific Air Forces	0	1	0	2	0
Strategic Air Command	0	4	2	2	2
Tactical Air Command	0	1	0	8	2
US Air Forces in Europe	1	4	2	4	1
Total	3	22	4	22	8
Percentage	5.0	37.3	6.8	37.3	13.6

Key for Table 116 - Training Methods

1. Formal classroom
2. In-house by my local information management staff
3. Phone calls to my MAJCOM/SOA/DRU staff
4. Self-taught
5. Depend on host base information management staff

Table 117

Source Of Real Help In Using
Automated Information Management Systems

MAJCOM/SOA/DRU	1	2	3	4	5	6
Air Force Academy	1	0	1	1	0	1
AF Communications Command	1	0	0	0	0	1
AF District of Washington	1	0	0	1	0	0
AF Logistics Command	1	1	0	0	0	0
AF Office of Special Investigations	0	0	0	0	0	0
AF Space Command	3	1	0	1	0	1
AF Systems Command	0	1	1	0	1	2
AF Technical Applications Center	0	0	0	0	0	0
Air Training Command	1	5	1	3	0	2
Air University	0	0	2	1	0	0
Alaskan Air Command	0	0	0	0	0	2
Electronic Security Command	0	0	0	0	0	0
Military Airlift Command	7	3	2	1	3	2
National Guard Bureau	0	0	0	0	0	0
Pacific Air Forces	0	3	0	3	1	6
Strategic Air Command	10	15	3	9	5	2
Tactical Air Command	9	5	7	2	3	7
US Air Forces in Europe	6	4	2	6	2	4
Total	40	38	19	28	15	30
Percentage	23.5	22.4	11.2	16.5	8.8	17.6

Key for Table 117 - Source of Help

1. Your supervisor
2. A coworker
3. Base level RIMS, RAMS, or PDOS system manager
4. MAJCOM/SOA/DRU RIMS, RAMS, or PDOS system manager
5. A recognized expert in another MAJCOM/SOA/DRU
6. System documentation and user's guide

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Vita

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Capt Harmon enlisted in the United States Air Force on 12 May 1975. He served in various locations as an Administrative Specialist, including an assignment as Instructor at the Administrative Specialist technical training school, Keesler Air Force Base, Mississippi. He attended Officer Training School and received his commission on 29 September 1983. He served as a Squadron Executive Officer and Headquarters Squadron Section Commander at Dyess Air Force Base, Texas, Squadron Section Commander at Comiso Air Station, Italy, and Executive Officer and Squadron Section Commander at Pease Air Force Base, New Hampshire prior to entering the School of Systems and Logistics, Air Force Institute of Technology, in May 1989.

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The purpose of this research was to determine if the Air Force's current method of training untrained individuals to use contractor developed automated information management software is producing the desired levels of productivity and the effectiveness of the training. The study found that greater emphasis must be placed on developing and supporting the use of a standardized training program for the managers and users of automated information management software. Due to the lack of quality training, the majority of survey respondents felt they could perform their jobs more efficiently and be more productive if they had some/more training. The study recommended three possible means of correcting this training problem: 1) include hands-on computer training programs in all Information Management technical training programs, going beyond the basics required to turn on a computer, including introductory training in basic operating system commands; 2) development of initial and follow-on training programs, to be taught at all field training detachments, for all automated information management systems; 3) development of professional continuing education courses to provide officer and senior enlisted information managers the training needed to effectively manage all forms of automated information management systems. Keywords:

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