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Organizational Support of Internet Technology Infusion: An Exploratory Analysis

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THESIS

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THESIS

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Master of Science in Information Resource Management

Anthony J. Davis

Captain, USAF

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Acknowledgments

I dedicate this thesis to my fiancé Captain Pamela Quintero. Without you Pam, none of this has any meaning.

I would also like to thank my children, Christine and Melissa for their patience and understanding during those long summer days when they were out of school and I wasn't. Thank you in particular for your help in preparing all those surveys for the mail. 1100 surveys is a lot more manageable for a team of three than it would have been by myself.

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Anthony J. Davis

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Abstract

This thesis identifies managerial, organizational, and individual attributes which influence Internet technology infusion. Infusion can be defined as the incorporation of a technology into an organization's key processes. As infusion increases, the extended, integrative and emergent use of the technology increases, leading to increased leveraging of the technology.

A survey was distributed to 1100 Air Force members throughout four Major Commands, divided into 600 officers and 500 enlisted. The analysis used Structural Equation Modeling to test models relating managerial, organizational and individual constructs as positive influences on infusion.

Findings in the officer group indicate executive involvement and participation, policy, receptivity to change and personal responsibility influence integrative use of Internet technology. Management support, policy, and receptivity to change were found to influence extended use. Extended and integrative use were found to lead to emergent use.

Similar results were found in the enlisted group, with three exceptions: ease of use influenced integrative use, while receptivity to change did not; and integrative use did not lead to emergent use.

The findings suggest ways for organizations to encourage higher-level use of Internet technology. In addition, differences between the two groups highlighted the need for organization's Internet strategy to account for individual differences.

ORGANIZATIONAL SUPPORT OF

INTERNET TECHNOLOGY INFUSION:

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I. Introduction

Conceptual Background

The goal of this thesis is to identify managerial, organizational, and personal attributes which contribute to the infusion of Internet technology into an organization. As an innovation is incorporated into an organization's work systems to a greater degree, the more substantial are the benefits realized by the organization (Zmud and Apple, 1992). "The greater the extent of these work and social system adjustments, the greater the extent to which an innovation has been *infused*" (Zmud and Apple, 1992:149).

Infusion can be defined as the incorporation of a technology into an organization's key processes. As infusion increases, the extended, integrative and emergent use of the technology increases, leading to increased leveraging of the technology (Kwon, 1987; Cooper and Zmud, 1990; Saga and Zmud, 1994; Quintero, 1996). Increased understanding of the process of infusion should help organizations more fully utilize their Information Technology (IT) (Saga, 1994). For infusion to take place, the technology must move "into the mainstream thinking (or corporate culture) of the organization," which requires organizations to develop an infusion policy and provide necessary level of support and funding (Helton, 1990). By identifying the organizational, managerial and individual attributes that contribute to Internet technology infusion, this thesis hopes to aid and inform development of organizational infusion policy.

Research Issue

Much time has been spent identifying and defining the constructs which relate to introduction of a new technology, its acceptance, and routinization. However, work has only recently begun to examine what happens after the technology has been accepted and become routine. Zmud and Apple suggest that infusion is the next stage of a technology's incorporation into an organization (Zmud and Apple, 1992). Saga and Zmud (1994:80) suggest further that infusion may be broken down into three facets:

> *Extended use*: Using more of the technology's features in order to accommodate a more comprehensive set of work tasks.
> *Integrative use*: Using the technology in order to establish or enhance work flow linkages among a set of work tasks.
> *Emergent use*: Using the technology in order to accomplish work tasks that were not feasible or recognized prior to the application of the technology to the work system.

Saga and Zmud (1994:80) also proposed a model to explain the relationships between the factors they believe are necessary for infusion to take place. This model was used as a starting point in the search for related organizational factors which might encourage infusion to take place.

A previous study suggested that infusion of Internet technology has taken place in at least one Air Force organization (Quintero, 1996). In addition, relationships were found between certain aspects of organizational support and infusion of the new technology. This thesis attempts to place that finding in a broader context, and test a model of the organizational factors suggested by Saga and Zmud (1994) and Quintero (1996).

A study by Zmud and Apple (1992) suggested the need to "develop generalizable measures of infusion." A second objective of this study was to develop a new infusion scale to measure the factors Zmud and Apple proposed.

Research Approach

A review of the research literature and Air Force policies related to the problem statement was performed in order to put the problem into the proper context. Next, a survey was developed, and used to gather data from a broad spectrum of respondents, across the Air Force, on Internet use and supporting factors. After collection, the fit of the proposed model with the data was evaluated using Structural Equation Modeling (SEM). LISREL v8.14 was the tool used for the SEM effort. The analysis focused primarily on identifying common attributes in organizations, which were related to Saga and Zmud's proposed facets of infusion. Specifically, the study investigated the relationship between various organizational factors and the infusion concepts of Extended and Integrative use. No direct effects on Emergent use were studied. The following is a list of the specific research questions which were addressed:

1. What is the relationship between the studied management factors and Extended and Integrative use of Internet technology?
2. What is the relationship between the organizational factors studied and Extended and Integrative use of Internet technology?
3. What is the relationship between the individual factors studied and Extended and Integrative use of Internet technology?
4. Are management factors, organizational factors or individual factors more important influences on the Infusion of Internet technology?
5. What is the relationship between the Infusion factors of Extended Use, Integrative Use and Emergent Use?

Summary

The substantial cost and potential benefits of implementing a new technology point to the need for a greater understanding of the constructs related to infusion. Increased awareness of the organizational, managerial and individual issues which underlie infusion will suggest paths to ease the implementation of an appropriate organizational strategy.

II. Background

Review of Literature.

The areas studied have been broken into four major groups. The first is infusion, the dependent variable under study, which is operationalized into three factors; extended use, integrative use, and emergent use (Saga and Zmud, 1994). The other three areas of study are: (1) management factors, which relate to the infrastructure that supports and coordinates use of the technology (Zmud and Apple, 1992; Saga, 1994); (2) organizational factors, which includes items related to the diffusion and support of the technology (Zmud, 1982; Saga, 1994); and (3) individual factors, which are centered around the individual's perceptions of the technology and its applicability to the organization (Davis, 1989; Zmud and Apple, 1992; Saga, 1994).

Infusion. The concept of technology **infusion** has evolved from the research on technology diffusion, technology innovation, and IT implementation. Technology diffusion has been defined as "a process of communication and influence whereby potential users become informed about the availability of new technology and are persuaded to adopt, through communication with prior users"(Rogers, 1983). Technology innovation is defined as "administrative or operational ideas, practices, or objects perceived as new by an organizational unit and whose underlying basis lies with information technology" (Lind and Zmud, 1991:196).

Previously the innovation stream has focused on the *innovation*, and the diffusion and implementation streams have focused on the *organization.* Recent efforts have attempted to bridge the streams into one cohesive research stream, in order to capture the commonality and overlap of the two perspectives (Howard and Mendelow, 1991). The first real work in defining IT infusion was done in 1992 by Zmud and Apple, although the concept was alluded to in an earlier work (Cooper and Zmud, 1990). The 1992 work

described infusion as the result of the incorporation of an innovation across discrete levels of use. As the innovation was more fully incorporated, Zmud and Apple found that it enabled the "deeper and more comprehensive embedding of an innovation within an organization's operational and/or managerial work systems" (Zmud and Apple, 1992:150).

Zmud and Apple also showed that infusion was a *separate and distinct* concept from routinization of an innovation (Zmud and Apple, 1992). Routinization was defined as the permanent adjustment of an organization's administrative infrastructure to incorporate a new innovation (Zmud and Apple, 1992:149). This distinction between infusion and routinization was important because previous work in implementation success had been aimed at ensuring routinization. Zmud and Apple contended that an "additional set of foci need to be developed for a technological innovation—a set of foci that will accelerate the technology's rate of infusion, or bonding, with the adopting organization" (Zmud and Apple, 1992:154).

Cooper and Zmud (1990:472) suggested infusion is the final step in the implementation process, and modified the model proposed by Kwon and Zmud (1987) to include infusion. Cooper and Zmud's model of IT implementation specified the following six stages:

1. *Initiation*: Pressure to change results from either organizational need (pull) or technological innovation (push). A match is found between an information technology solution and its application in the organization.

2. *Adoption*: Negotiations ensue to acquire organizational backing for the IT application. A decision is reached to invest resources necessary to accommodate the implementation effort.

3. *Adaptation*: The information technology application is developed, installed, and maintained. Procedures are revised, members are trained, and the IT is available for use.

4. *Acceptance*: Organizational members are induced to commit to employment of the technology. Use of the application in organizational work begins.

5. *Routinization*: The organization's governance systems are adjusted to account for the information technology application—it is no longer perceived as out of the ordinary.

6. *Infusion*: Increased organizational effectiveness is obtained by using the IT in a more comprehensive and integrated manner to support higher level aspects of organizational work.

No further substantial work was done on technology infusion until 1994 when Saga undertook to "explain information technology infusion at the organizational level" (Saga, 1994:xi). She developed a measure for the presence of infusion in an organization, and developed and tested a research model for IT infusion. Saga also demonstrated relationships between several organizational constructs and her measure of infusion. Among the constructs which were shown to influence infusion were receptivity to change, communication, and manager intervention (Saga, 1994:xi-xii).

Saga viewed infusion as composed of three related constructs suggested by Cooper and Zmud (1990:472). She defined them as shown below (Saga, 1994:38).

Extended Use: Using more of the technology's features in order to accommodate a more comprehensive set of work tasks.

Integrative Use: Using the technology in order to establish or enhance work flow linkages among a set of work tasks.

Emergent Use: Using the technology in order to accomplish work tasks that were not feasible or recognized prior to the application of the technology to the work system.

Saga (1994:144) proposed the following relationships between the three aspects of infusion, which was partially supported by her analysis: extended use and integrative use have a positive effect on emergent use. The model proposed by Saga is illustrated below in Figure 1.

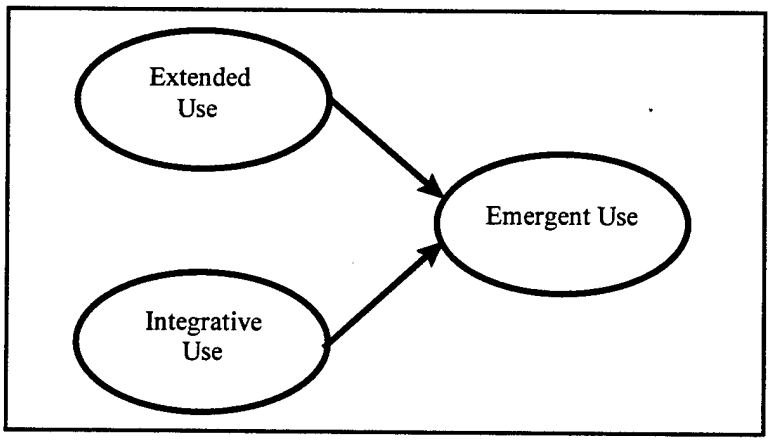


Figure 1. Proposed Infusion Relationship (Saga, 1994).

Saga's study supported the path between Integrative and Emergent use, but not that between Extended and Emergent use (Saga, 1994:148). This thesis will evaluate the paths between Extended, Integrative and Emergent use further in order to clarify their relationship. The expected relationship is specified in Hypothesis One.

H_1: Extended and Integrative use positively influence Emergent use.

Next, we turn our attention to the assessment of possible independent variables. First, a look at management support, the most significant influence Saga found in her infusion model.

Management Factors. Positive management support has been shown repeatedly to influence success of IT systems and encourage more favorable attitudes toward IT throughout the organization (Igbaria, 1990). The results are consistent across the studies. **Managerial support** has a significant influence on the number of tasks for which computers were used, overall computer usage, user satisfaction (Igbaria, 1990), and infusion (Saga, 1994). In addition, top management *attitude* was found to influence organizational innovation (Zmud, 1984:727).

Later, the research stream on managerial factors was broadened to include a more specific focus on the key executive (ex: Chief Executive Officer). Jarvenpaa and Ives (1991) found that **executive participation** and **executive involvement** had similar positive effects on IS implementation, as measured by *progressive use* of IT. Progressive use was measured by averaging the CEO's responses to s survey ranking the firm's IT use relative to their competitors. Executive participation is defined as "substantive personal interventions in the management of IT, " while executive involvement is "concerned with the psychological state of the CEO, reflecting the degree of importance placed on information technology by the chief executive" (Jarvenpaa and Ives, 1991:206). Support was found for the hypothesis that executive participation influences progressive use of IT (R^2=0.16, $p<0.05$) and for the hypothesis that executive involvement is associated with progressive use of IT (R^2=0.32, $p<0.01$) (Jarvenpaa and Ives, 1991:216). They concluded that in order for a firm to be highly progressive, "the CEO must send the right supportive signals regarding IT to his or her organization" (Jarvenpaa and Ives, 1991:219). Hypothesis Two details the expectation that at least one of the management factors will have a significant influence on infusion.

H_2: At least one management factor (management support, executive participation, executive involvement) will be positively related to Internet technology infusion.

Organizational Factors. Information Centers are established to provide assistance and training to support IT activities (Guimaraes and Igbaria, 1994) **Information center support** and **end-user training** were shown by Igbaria (1990) to be correlated with reduced computer anxiety ($R= -0.17, -0.25, p<0.05, N=187$), positive user attitudes about computing ($R=0.42, 0.36, p<0.05, N=187$), and increased usage of computers to perform tasks ($R=0.34, 0.33, p<0.05, N=187$). He also found that information center (IC) support was a key aspect of support, separate and distinct from managerial support (Igbaria, 1990). Computer training availability was also shown to have a positive effect on computer usage (Howard and Mendelow, 1991) and a negative effect on computer anxiety (Igbaria, 1990).

A third major organizational factor which has been shown to influence innovation is **IT policy**. IT policies have been shown to be positively related to the extent of computer usage through decisions relating to training and incentives (Howard and Mendelow, 1991:261). The Air Force's policy on Internet use defines appropriate use of the Internet and states the Air Force's goal for the Internet: "to provide maximum availability at acceptable risk levels for Air Force members needing access for the execution of official business" (Air Force, 1997:2).

Each organization is tasked with developing policies and procedures which implement the Air Force's Internet policy. The way in which they do this clearly will have substantial impact onto their organizational culture relative to Internet technology.

An associated aspect of organizational culture that effects development of innovations is **receptivity to change**. This was found to generally influence organizational innovation, particularly in the case of technological innovation (Zmud,

1984). Resistance to change can be expected to draw out both the adoption timeline, and make diffusion and infusion more difficult throughout the organization. In order for innovations to take hold, the members of the organization must be receptive to the resultant organizational changes (Zmud, 1982). Saga found a significant relationship between receptivity to change (termed *attitudes to change*) and infusion (R^2=0.38, T=9.6, N=304) (Saga, 1994).

Frequency of communication was found to have a significant impact on technological innovation ($p<0.01$), as measured by research project success (Ebadi and Utterback, 1984:579). They also found that the correlation with project success increased as the frequency of communication increased. Ebadi and Utterback also found that **diversity of communication** had a strong correlation with project success ($p<0.01$), but only when the frequency of communication was also high (Ebadi and Utterback, 1984:580). Saga found a significant relationship between both frequency and diversity of communication, and infusion (R^2=0.77 and 0.73, T=14.7 and 14.9, N=304) (Saga, 1994).

A concept termed **convergence in understanding** was later proposed as an extension of diversity and frequency of communication (Lind and Zmud, 1991). Convergence is defined as "the degree of mutual understanding between the technology providers and the other business personnel about the firm's business activities and the importance of the technology in supporting those activities" (Lind and Zmud, 1991:195). Frequency and diversity (richness) of communication were found to result in a higher degree of convergence, which was found to predict innovativeness. The final model developed by Lind and Zmud is shown below (1991: 207).

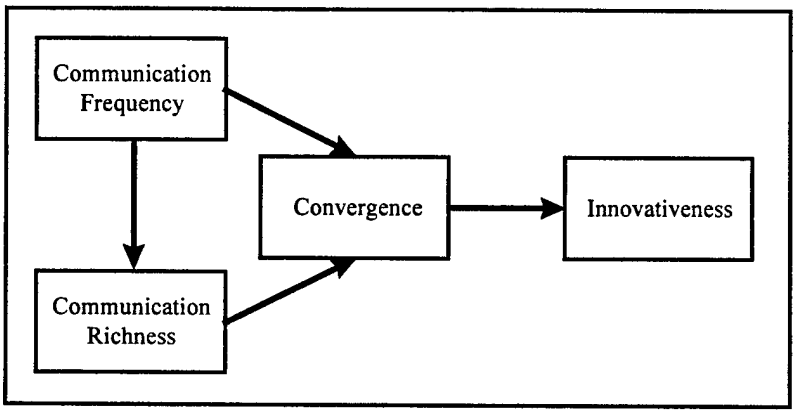


Figure 2. Revised Communication Model.

H_3: At least one organizational factor will be positively related to Internet technology infusion.

Individual Factors. The central focus of the research at the individual level is the work on user acceptance. Substantial time has been spent investigating and documenting this concept at many different levels of operationalization. This work is important primarily because understanding *why* people use IT may allow management to make more informed decisions during the design and implementation phases of new technology.

Two measures which have been used extensively to predict user acceptance are **perceived usefulness** and **perceived ease of use** (Davis, 1989). Perceived usefulness was defined as "the degree to which a person believes that using a particular system would enhance his or her job performance." Perceived ease of use was defined as "the degree to which a person believes that using a particular system would be free of effort." The intent of this scale development was to allow managers to predict use of new information systems. Davis' theory was that information systems can substantially improve worker performance, but these improvements were frequently "obstructed by users' unwillingness to accept and use available systems." By measuring these variables early on, Davis hoped to ease the way to successful implementation of new systems.

To do this, Davis developed two six-item scales (1989). They have been subjected to numerous evaluations, replications, and confirmatory factor analyses; and have consistently been show to be valid, reliable measures of perceived ease of use and perceived usefulness. Reported reliabilities exceed .9 in the majority of studies which have tested or used the scales. Saga found a significant relationship between both perceived usefulness and perceived ease of use (termed *beliefs about* usefulness and *beliefs about* ease of use), and infusion (R^2=0.80 and 0.63, T=16.8 and 14.8) (Saga, 1994).

The concept of **personal responsibility** is a measure of the individual's perception that they "have a voice in running this organization" (Siegel and Kaemmerer, 1978:560). It is included in this research to capture a sense of "empowerment" among the population surveyed. The study performed by Siegel and Kaemmerer included personal responsibility as a part of a larger construct of "Toleration of Change" in their study of support for innovation in organizations. Another related concept, receptivity to change was also included in this measure. Their study identified a significant difference in responses to this scale between respondents from innovative and traditional organizations. Saga found a significant relationship between personal responsibility (termed *perceived* responsibility) and infusion (R^2=0.43, T=10.0, N=304) (Saga, 1994).

H_4: At least one individual factor will be positively related to Internet technology infusion.

Saga found a significant relationship between personal responsibility (termed *perceived* responsibility) and infusion (R^2=0.43, T=10.0, N=304) (Saga, 1994).

Proposed Model

The model developed to test Hypotheses One through Five is illustrated below.

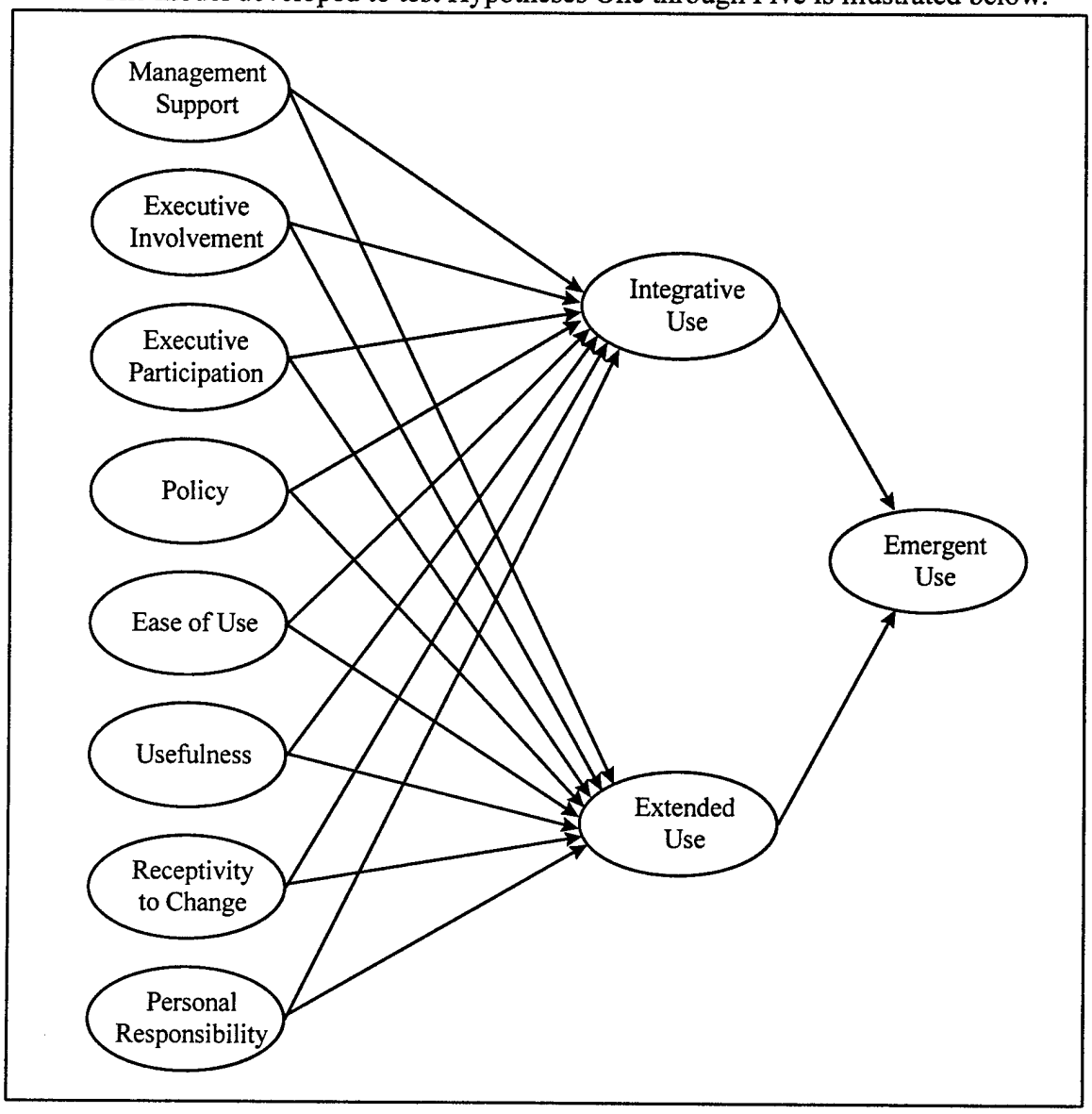


Figure 3. Proposed Model.

III. Methodology

Description of Scale Development

The survey scales measuring the constructs are an integral part of the modeling process. Since an existing model was used as a baseline for model development, existing scales were used where possible. Several existing scales were modified for use, and where suitable existing scales were not available new scales were developed.

The final survey (Appendix A) was composed of sixteen individual scales. Each scale was used to measure one of the following areas: perceived management support, executive involvement, executive participation, perceived responsibility, receptivity to change, frequency of communication, diversity of communication, convergence, perceived ease of use, perceived usefulness, organizational support, policy, training, extended use, integrative use, and emergent use. The scales for policy, extended use, integrative use and emergent use were developed as a part of the study.

All scales were tested for reliability using Cronbach's Alpha. Cronbach's Alpha is derived from the average correlations (or covariances) of the scale items. It is considered to assess scale reliability by representing the inter-item correlation of the scale items and all other possible scales with the same number of items and same universe of potential questions (Rodeghier, 1996).

Management Factors.

Management Support. Management support is a measure of a general sense of perceived management support for the technology. The scale which measured perceived manager support was developed by Igbaria (1990), and used by Saga (1994). The management support scale had an alpha of 0.68 in the current study. While this was slightly lower that the 0.70 rule of thumb (Nunnally, 1978), the scale was retained to provide a general sense of organizational management support.

Executive Involvement and Executive Participation. Executive participation is defined as "substantive personal interventions in the management of IT," while executive involvement is "concerned with the psychological state of the CEO, reflecting the degree of importance placed on information technology by the chief executive" (Jarvenpaa and Ives, 1991:206). These measures were chosen to replace the measures top manager beliefs and top manager knowledge used by Saga (1994). Saga eliminated top manager beliefs from her model due to the low R-squared (0.16), which was interpreted to have indicated a potential misfit with the model (Saga, 1994). Top manager knowledge was developed by Saga to elicit the managers' overall level of knowledge of basic commands and system features.

This measure was replaced by executive participation for two reasons: lack of standardization of software made it difficult to evaluate; top manager knowledge had low R-squared of 0.32 (Saga, 1994) in comparison to the measures in Jarvenpaa and Ives (1991). The measures of executive involvement and executive participation yielded alpha scores of 0.53 and 0.69 respectively. Again, these alphas were slightly lower than the rule of thumb, but the scales were maintained in order to include measures of the constructs in the model.

Communication.

Frequency and Diversity of Communication. Frequency of communication is a measure of the amount of information received about the technology. Diversity of communication addresses the number of different sources the information is received from. The scales used to assess frequency and diversity of communication were adapted from Ebadi and Utterback (1984) and Kwon (1987). A brainstorming session was held in which participants (graduate students in Information Resource Management) were asked to suggest possible sources of information about Internet technology. The

responses were tallied and the five most common sources were chosen as the basis of the scale.

Convergence. Convergence is defined as "the degree of mutual understanding between the technology providers and the other business personnel about the firm's business activities and the importance of the technology in supporting those activities" (Lind and Zmud, 1991:195). The scales used to measure convergence were modeled after those used by Lind and Zmud (1991).

A team of experts, composed of eighteen graduate students in Information Resource Management, prepared a list of fifteen generic business activities which they felt were common to all Air Force organizations. The nine most common answers across the expert pool were included in the measure. The generic business activities selected were: personnel support/management, financial management/ budgeting, strategic planning, general administrative, research and development, operations, command and control and communications, logistics, and training. The survey participants were then asked to rate each business activity for both importance to the organization and potential applicability of the Internet to the activity. The scores were then compared to assess convergence in the organization's estimate of Internet suitability.

The frequency of communication, diversity of communication, and convergence scales were all eliminated from the final model because they did not meet the distributional assumptions of SEM analysis.

Organizational Factors.

Policy. The area of policy is a key area of interest in the investigation due to its role as an implementation tool of organizational strategy. A scale was written to capture the relevant dimensions of the construct. Nine items were developed based on the available literature. The broad concept of policy was broken into three more specific concepts in order to facilitate construction of the questions. These concepts were: (1) the

organizational policy exists, (2) the policy is communicated and understood, and (3) the policy is supportive of the technology in question. The Policy scale had an alpha of 0.82 in the current study.

Receptivity to Change. The scale used to measure receptivity to change was adapted from previous work by Zmud (1984:732). The concept of "perception of the organization as open to change" was previously developed by Siegel and Kaemmerer, and incorporated into a factor termed "support of creativity" (Siegel and Kaemmerer, 1978:559). It was refined further by Zmud into a scale termed "organizational receptivity to change" (Zmud, 1984:732). Receptivity to Change had an alpha of 0.67.

Follow-up Training and Information Center Support. The scales used to measure these constructs were adapted from an existing scale by Igbaria (1990). Igbaria's original scales were somewhat limited due to their inclusion as a part of organizational support in the earlier study. The scales used were a subset of the previous scales. The organizational support scale had a reliability of 0.53 in the current study and was eliminated from the final model. The training scale yielded an adequate alpha (0.70), however, training was eliminated of the final model because the resulting data did not meet SEM's distributional requirements.

Individual Factors.

Perceived Usefulness and Perceived Ease of Use. Perceived usefulness was defined as "the degree to which a person believes that using a particular system would enhance his or her job performance." Perceived ease of use was defined as "the degree to which a person believes that using a particular system would be free of effort." The seminal work on these measures was done by Davis (1989). Since development, his scales have undergone significant testing and evaluation, including a replication (Adams and others, 1992); a confirmatory factor analysis (Segars and Grover, 1993); assessment

of test-retest reliability (Hendrickson et al, 1993) and an empirical evaluation (Szajna, 1996).

Davis' original research developed and streamlined a six-item scale for each variable, and documented alphas of 0.98 for perceived usefulness and .94 for perceived ease of use (Davis, 1989). A replication (Adams and others, 1992) suggested the deletion of two scale items, and added further weight to the reliability reported by Davis with two additional studies. However, when model fit was tested with LISREL, Adams and others (1992) found that the results were borderline at best (Chi-squares with $p<0.01$ in both studies, Chi-squares/df ranging from 1.65 to 2.47).

The items which appear in this survey modified slightly to fit the context of this research. They are expected to measure organizational member's feelings about using Internet technology.

Ease of use and usefulness had reliabilities of 0.72 and 0.92 respectively in the current study.

Perceived Responsibility. The concept of personal responsibility is a measure of the individual's perception that they "have a voice in running this organization" (Siegel and Kaemmerer, 1978:560). Perceived responsibility was measured with a scale adapted from Siegel and Kaemmerer, which was a subsection of a larger factor termed "personal commitment" (Siegel and Kaemmerer, 1978:560). Siegel and Kaemmerer measured an alpha of 0.86 for this scale as a whole (Siegel and Kaemmerer, 1978:560). This scale was modified by Saga for use in her study (Saga, 1994). The scale used, as modified by Saga, had a reliability of 0.81 in the current study.

Infusion. No scales were found which had been previously developed to measure technology infusion. Previous studies used measures of actual use to assess the presence of infusion. New scales were developed for each of the three facets of infusion suggested by Saga (1994), in order to provide a generic measure of the constructs.

The reliabilities for the three new scales were 0.85 for extended use, 0.84 for integrative use, and 0.85 for emergent use.

Survey Implementation

The study was based on a large field survey. The population was the United States Air Force as a whole, operationalized at the organizational level. Four separate major commands (MAJCOMs) were surveyed in an attempt to limit organizational bias. A MAJCOM is a large organizational element which is generally composed of many separate organizations at many different locations. The four MAJCOMs surveyed were selected because they had a broad range of Internet policies. The selected MAJCOMs were Air Force Space Command (AFSPC), Air Combat Command (ACC), Air Force Materiel Command (AFMC), and Air Education and Training Command (AETC).

A random sample of 300 was generated for each MAJCOM (with the exception of AFSPC where only 200 were sampled). 100 surveys intended for AFSPC enlisted personnel were not distributed due to a last minute shortage of supplies. The sample of 300 per MAJCOM consisted of 150 officers and 150 enlisted in order to minimize the possibility of bias due to education and experience. A total of 1100 surveys were distributed.

The split sampling between officer and enlisted personnel was designed to allow for control of the variable rank. Due to the nature of the military organization, there are several differences between the officer and enlisted groups that were expected to lead to differences in attitudes and experience regarding Internet technology. The minimum

requirement for commissioned officers to have a bachelor's degree and enlisted personnel to have a high school diploma (or equivalent) suggested that there would be a difference in educational background between the two groups. Educational background has been shown to have an effect on several facets of information technology use and acceptance (Rogers, 1987).

Similarly, the structure of the officer and enlisted forces suggested there would be substantial differences in access to computers, familiarity with their use, and latitude to experiment with the technology between the two groups.

Structural Equation Modeling

Overview. Structural Equation Modeling (SEM) is a tool for estimating the relationships between a system of associated constructs. In this case, the system is a model which includes both observed and latent variables.

Each model was estimated using the maximum likelihood (ML) method of estimation. Research has shown that ML provides unbiased, accurate parameter estimates even under less than optimal conditions, such as small sample size (Hoyle, 1995).

The greek symbols used to describe the analysis were derived from the latent variable modeling literature. They are lamda (λ) which represents factor loadings, delta (δ) and epsilon (ε) which represent measurement error, gamma (γ) and beta (β) for path coefficients, and eta (ξ) for residuals.

Standard symbols are also used in the model diagrams. Rectangles (□)are used to indicate observed or measured variables, ovals (⬭) are used to indicate latent variables, and arrows (→) are used to indicate paths or loadings between variables.

Measurement Error. Models which fail to account for measurement error may suffer from highly biased parameter estimates (Rigdon, 1994). In this analysis the technique described by Williams and Hazer (1986) was used to incorporate measurement

error into the model. The alpha reliabilities measured during the data analysis were used as estimates of the measurement error of the observed variables. The factor loading from the construct to the measured variable is fixed at the square root of the reliability of the measured variable ($\lambda = \sqrt{reliability}$), and the random error variance is fixed at the variance of the measured variable times the quantity one minus the reliability ($\delta = (variance * (1 - reliability))$) (Williams and Hazer, 1986).

Fit Statistics. Three criteria for fit measurement will be presented for each model. They are designed to yield as much information as possible about the model's fit to the data. The criteria used will include Chi-square and its associated p-value as measures of the model's relative fit with the observed covariance matrix. A perfect model fit is indicated by a Chi-square of zero and a p-value of one. Higher values of Chi-square indicate increasingly poor fit of the estimated model to the specified covariance matrix. The second fit statistic specified will be the Incremental Fit Index (IFI). IFI is used to judge relative "goodness of fit" between alternative models, and is designed to be more stable in small sample sizes than other measures (Hoyle, 1995). Finally, the Comparative Fit Index (CFI) will be stated. This index measures the relative fit of the target model in comparison with the baseline or null model. This index is valuable in the analysis of small samples, as well as in exploratory research (Rigdon, 1996).

In the modeling effort, 0.90 is used as a minimum value for reasonable fit for both IFI and CFI, as proposed by Bentler and Bonett (1980).

Nested Models All of the models tested were "nested models," in that the paths evaluated were a subset of the initial proposed model. By starting with an initial model which encompasses all paths which are intended to be investigated, each model may be directly compared to the previous models using a chi-square difference test (Bentler and Bonett, 1980). Models which are not nested are not directly comparable, but must be evaluated independently (Williams and Hazer, 1986).

IV. Analysis of Data

Survey Results

Survey Response. Of the1100 surveys distributed, 344 were returned prior to the cutoff date, 61 of which were returned as undeliverable. This yielded a total sample size of 283 and an return rate of 27.24%. Accounting for undeliverable surveys in the total sample at the same rate (61/344=17.7%) yields an actual response rate closer to 31% (283/906). Response rates of approximately 30 percent are generally considered satisfactory (Cooper and Emory, 1995). 22 surveys were eliminated from the final analysis because the majority of the answers were marked as not applicable.

Demographic Data. The surveys used came from across four MAJCOMs and a broad spectrum of job specialties. The total number of usable surveys was 261, of which 161 were returned by officers, and 100 by enlisted. Officer responses were received from 27 of 30 possible occupational specialties, and enlisted responses from 27 out of 37. The distribution of responses by rank and MAJCOM are summarized in Appendix B.

Survey Responses. The survey was composed of various Likert scale-type items. Summaries of the responses used are presented in Appendixes C-M.

Data Analysis. Initial examination of the data correlations suggested that the data was significantly different when divided for the officer and enlisted groups. The correlations of all variables are summarized in Table 1and Table 2 below.

Table 1. Correlation Matrix of Officer Sample.

	Mgmt	EI	EP	Pol	EoU	Use	RTC	PR	Ext	Int	Emer	N	Mean	SD
Management Support	(.685)											150	12.640	2.949
Executive Involvement	.694**	(.533)										145	9.165	2.300
Executive Participation	.732**	.767**	(.695)									148	9.405	2.178
Policy	.510**	.398**	.483**	(.825)								146	31.397	5.703
Ease of Use	.281**	.168**	0.164	.290**	(.725)							148	18.371	3.201
Usefulness	.552**	.400**	.385**	.310**	.324**	(.922)						146	17.835	4.386
Receptivity to Change	.514**	.419**	.492**	.335**	.217**	.371**	(.673)					155	14.496	2.584
Personal Responsibility	.358**	.307**	.291**	.394**	.220**	.322**	.582**	(.808)				156	15.211	2.893
Extended Use	.616**	.457**	.503**	.364**	.357**	.850**	.473**	.409**	(.860)			143	21.265	4.298
Integrative Use	.657**	.530**	.490**	.408**	.322**	.769**	.399**	.318**	.769**	(.843)		141	19.667	4.235
Emergent Use	.614**	.437**	.457**	.427**	.316**	.835**	.445**	.329**	.868**	.792**	(.855)	143	20.468	4.675
Rank	-.012	.074	.065	-.007	-.279**	-.114	-.029	.140	-.128	-.026	-.129	155	—	—

Note: *p<0.05, **p<0.01

Examination of the correlation matrix for the officer sample revealed differences from the overall sample. Sample size for the officer group ranged from 141 to 155 usable responses.

Table 2. Correlation Matrix of Enlisted Sample.

	Mgmt	EI	EP	Pol	EoU	Use	RTC	PR	Ext	Int	Emer	N	Mean	SD
Management Support	(.685)											83	12.361	2.662
Executive Involvement	.549**	(.533)										76	9.171	1.914
Executive Participation	.518**	.632**	(.695)									78	9.397	2.109
Policy	.579**	.494**	.490**	(.825)								78	31.115	6.015
Ease of Use	.352**	.317**	.285*	.412**	(.725)							76	18.644	3.345
Usefulness	.560**	.301**	.281*	.378**	.385**	(.922)						74	17.202	5.368
Receptivity to Change	.291**	.124	.220	.523**	.233	.202	(.673)					90	14.200	2.531
Personal Responsibility	.282*	.072	.173	.281*	.123	.176	.582**	(.808)				94	12.840	3.495
Extended Use	.529**	.299*	.337**	.391**	.407**	.879**	.203	.132	(.860)			79	20.582	5.039
Integrative Use	.598**	.381**	.322**	.422**	.303**	.810**	.259*	.122	.818**	(.843)		79	19.620	4.639
Emergent Use	.621**	.333**	.375**	.469**	.350**	.826**	.380**	.230*	.901**	.809**	(.855)	77	20.818	4.675
Rank	.028	.063	-.104	.097	-.115	.011	.137	.410**	-.005	.145	.001	100	—	—

Note: *p<0.05, **p<0.01

The correlation matrix for the enlisted sample reveals differences from the officer sample. Personal Responsibility was significantly correlated with rank. Several correlations were no longer significant in the enlisted group. Notable among these were Receptivity to Change and Personal Responsibility, which were no longer significantly

correlated with the majority of the independent variables in the model. Comparison of these two variables with those in the officer sample indicate a significant difference between the two samples. The means were .383 and .334 respectively for the officer Receptivity to Change and Personal Responsibility correlations, and .287 and .253 respectively for the enlisted. These seemed sufficiently different to warrant further investigation, and a Fisher's *z* transformation was used to compare the independent *r*s. For this test the *r*s were transformed into standardized z' scores. The z' scores were used to compute the normal curve deviate (z), using the formula:

$$z = \frac{z'_1 - z'_2}{\sqrt{1/(n_1 - 3) + 1/(n_2 - 3)}}$$ (Cohen and Cohen, 1983). The results of the comparison are presented in Table 3 and Table 4 below.

Table 3. Fisher's *z* Transformation for Receptivity to Change.

Correlation	Officer *r*	Officer z'	Enlisted *r*	Enlisted z'	*z*
RTC and Mgmt	.514	.563	.291	.299	2.850*
RTC and EI	.419	.448	.124	.121	3.531*
RTC and EP	.492	.536	.220	.224	3.369*
RTC and Pol	.335	.354	.523	.576	-2.397*
RTC and EoU	.217	.224	.233	.234	-0.108
RTC and Use	.371	.388	.202	.203	1.997*
RTC and PR	.582	.662	.582	.662	0
RTC and Ext	.473	.510	.203	.203	3.315*
RTC and Int	.399	.424	.259	.266	3.315*
RTC and Emer	.445	.485	.380	.400	0.917
RTC and Rank	-.029	-.030	.137	.141	-1.847

* $p<0.05$, difference is significantly different.

Table 4. Fisher's *z* Transformation for Personal Responsibility.

Correlation	Officer *r*	Officer *z'*	Enlisted *r*	Enlisted *z'*	*z*
PR and Mgmt	.358	.377	.282	.288	0.961
PR and EI	.307	.321	.072	.070	2.710*
PR and EP	.291	.299	.173	.172	1.371
PR and Pol	.394	.412	.281	.288	1.339
PR and EoU	.220	.224	.123	.121	1.112
PR and Use	.322	.332	.176	.182	1.619
PR and RTC	.582	.662	.582	.662	0
PR and Ext	.409	.436	.132	.131	3.293*
PR and Int	.318	.332	.122	.121	2.278*
PR and Emer	.329	.343	.230	.234	1.177
PR and Rank	.140	.141	.410	.436	-3.186*

* $p<0.05$, difference is significantly different.

Of the 11 correlations with Receptivity to Change, there were significant differences for seven. Four of the 11 correlations with Personal Responsibility were significantly different. This supports the theory that the officer and enlisted groups differed in ways that are important to the study.

Structural Equation Modeling.. Windows LISREL 8.14 was used to estimate the fit of the proposed model. The initial model with is illustrated in Figure 4 below.

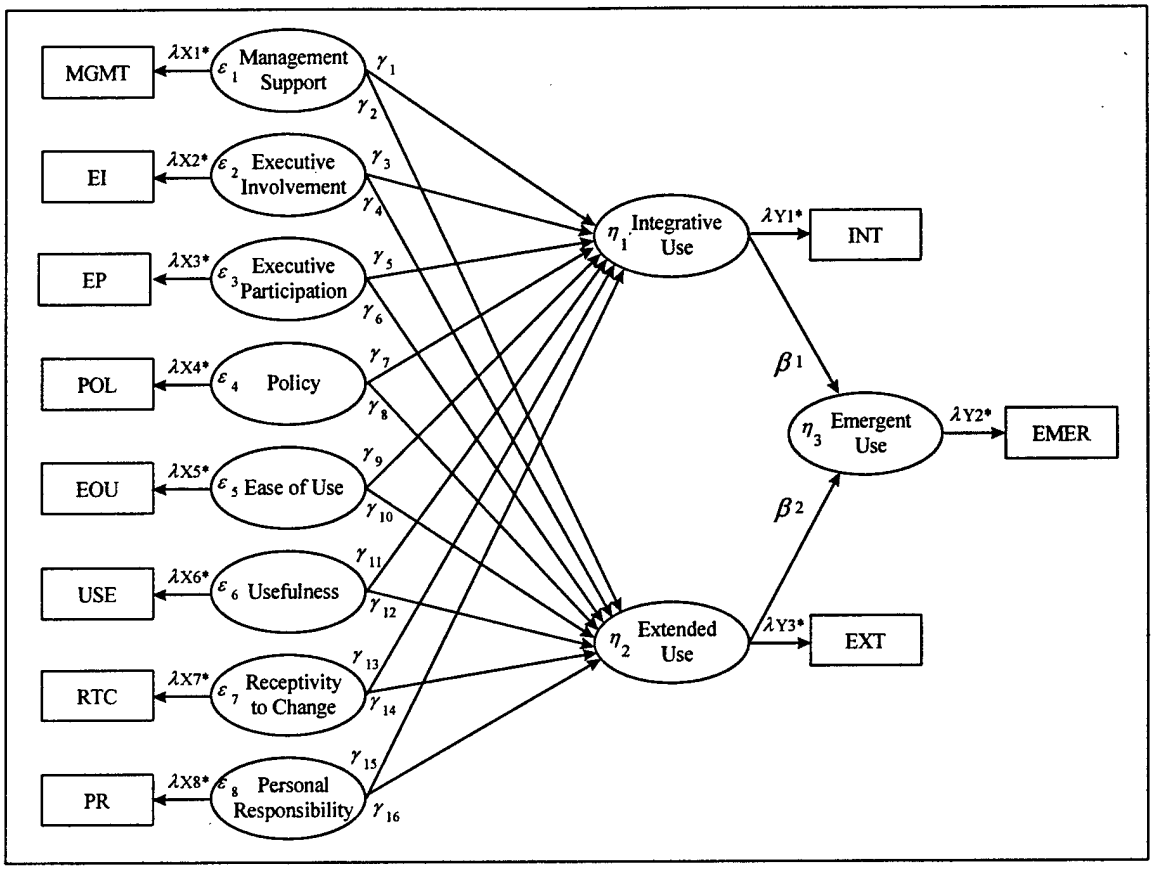


Figure 4. General LISREL Model.

The model was tested with the officer data, and subsequently with the enlisted data. Testing was performed on each data set individually, and then all non-significant paths were deleted to yield the final model for each data set.

The test used for elimination of paths was a one-tailed T-test. A one-tailed test was used because all paths in the model were expected to have positive coefficients. Negative relationships were not expected and could not be interpreted.

The first model evaluated was the full model with officer data. This model, with the resulting path estimates is shown in Figure 5.

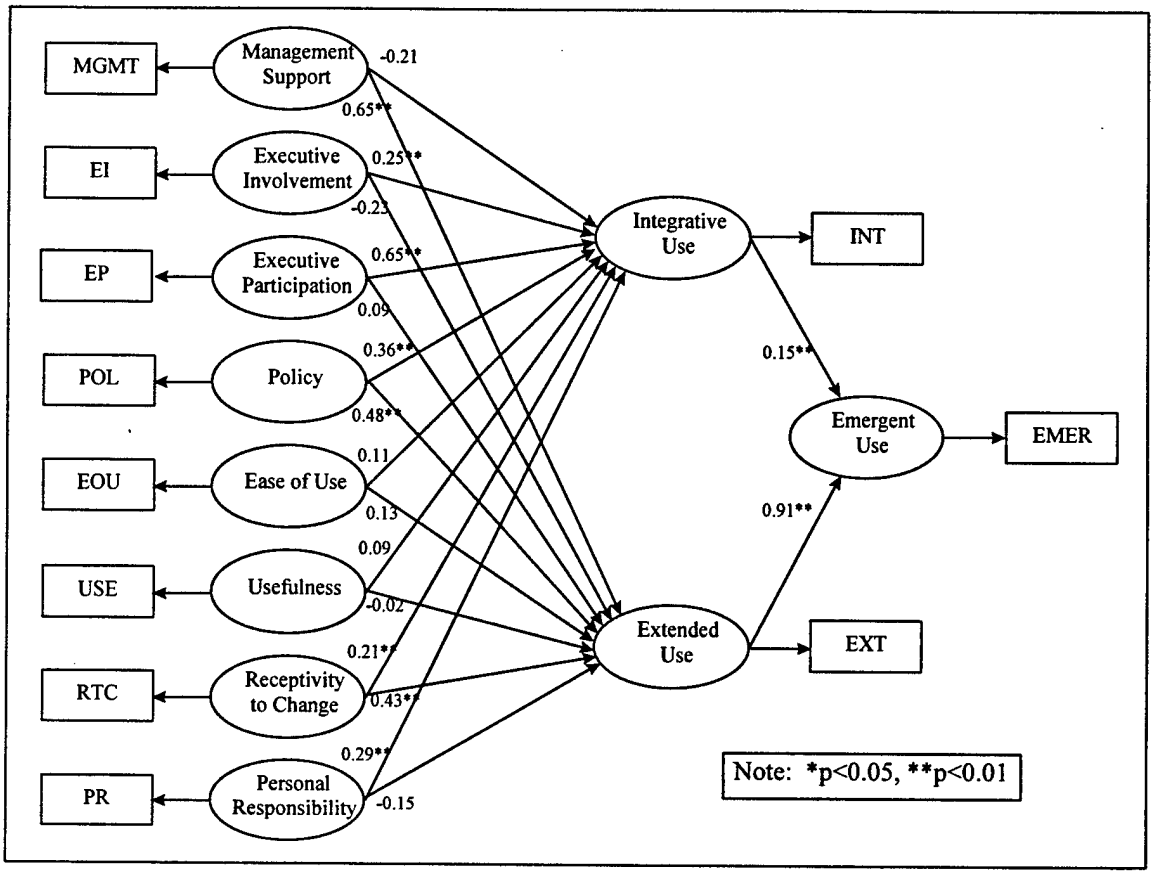


Figure 5. Initial Model (officer data).

The numbers indicated on the Initial model are the standardized path loadings (β) for each path. The fit statistics for the initial model show a reasonably good fit to the data. The actual fit statistics are summarized in Table 5.

Table 5. Fit statistics for initial model (officer data).

Fit Statistic	Value
Chi-square with 9 degrees of freedom	43.50
P-value of Chi-square	0.0000017
Incremental Fit Index (IFI)	0.96
Comparative Fit Index	0.96

Following analysis of the model fit, the non-significant paths were deleted from the initial model, producing the model illustrated in Figure 6.

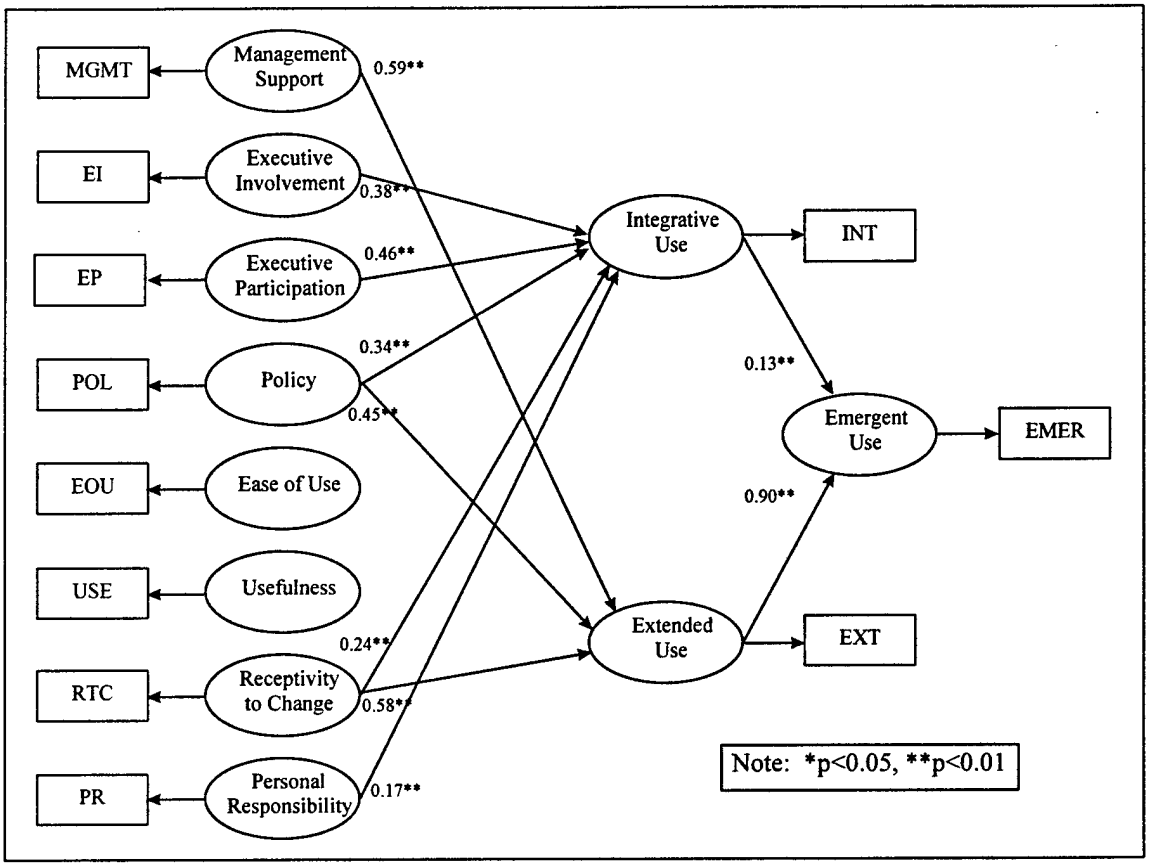


Figure 6. Final Model (officer data).

Table 6. Fit statistics for final model (officer data).

Fit Statistic	Value
Chi-square with 17 degrees of freedom	63.64
P-value of Chi-square	0.00000026
Incremental Fit Index (IFI)	0.95
Comparative Fit Index	0.95

Although the fit of the final model was slightly worse than the initial model, the final officer model still demonstrated a good overall fit with the data. The fit statistics for the final model are summarized in Table 6 above. Both fit indexes estimate the model's fit at .95 on a scale of 0-1. This is well above the .90 suggested cutoff for acceptable model fit (Bentler and Bonett, 1980).

The fits of the two models were compared by the computation of a simple Chi-square test statistic. The statistic for the original model (Chi-square 43.50, 9 df) was subtracted from that for the nested model (Chi-square 63.64, 17 df), yielding a test statistic of 20.14, with 8 df. This is rejected at $p<0.01$ indicating the nested model *did* have a significantly worse fit than the initial model. These fit problems were likely related to inclusion of the two usability measures Ease of Use and Usefulness. Neither of these measures had a significant influence on either of the Infusion measures in the model, but the inclusion of their covariances in the estimation process increased the amount of variance that was not explained by the model. This had a negative effect on the final fit statistics.

Analysis of the paths in the final model revealed some interesting relationships between the variables. Of the eighteen proposed paths, ten were significant at the $p<0.05$ level. Two variables influenced both extended and integrative use. They were the two organizational variables, policy and receptivity to change. Three additional variables influenced integrative use. They were personal responsibility, executive participation and executive involvement. Management support was also shown to have a positive influence on extended use.

The relationship among the infusion measures was as proposed by Saga and Zmud (1994). Extended and integrative use both influenced emergent use, although extended use had a much larger path loading.

No additional paths were suggested by analysis of the modification indices. The results relative to the proposed hypotheses are summarized in Table 7 below.

Table 7. Summary of Results (officer data).

Hypothesis	Supported for Extended Use	Supported for Integrative Use
H_1: Extended and integrative use positively influence emergent use.	Yes 0.90 (16.93**)	Yes 0.20 (2.42**)
H_2: At least one management factor will be positively related to Internet technology infusion.	Yes	Yes
Management Support	0.42 (9.40**)	--
Executive Involvement	--	0.25 (3.10**)
Executive Participation	--	0.25 (4.14**)
H_3: At least one organizational factor will be positively related to Internet technology infusion..	Yes	Yes
Policy	0.43 (7.20**)	0.21 (3.87**)
Receptivity to Change	0.29 (9.28**)	0.08 (3.02**)
H_4: At least one individual factor will be positively related to Internet technology infusion..	No	Yes
Ease of Use	--	--
Usefulness	--	--
Personal Responsibility	--	0.09 (1.87**)

Note: *p<0.05, **p<0.01

Next the initial model was tested using the enlisted sample. The initial results are illustrated in Figure 7 below.

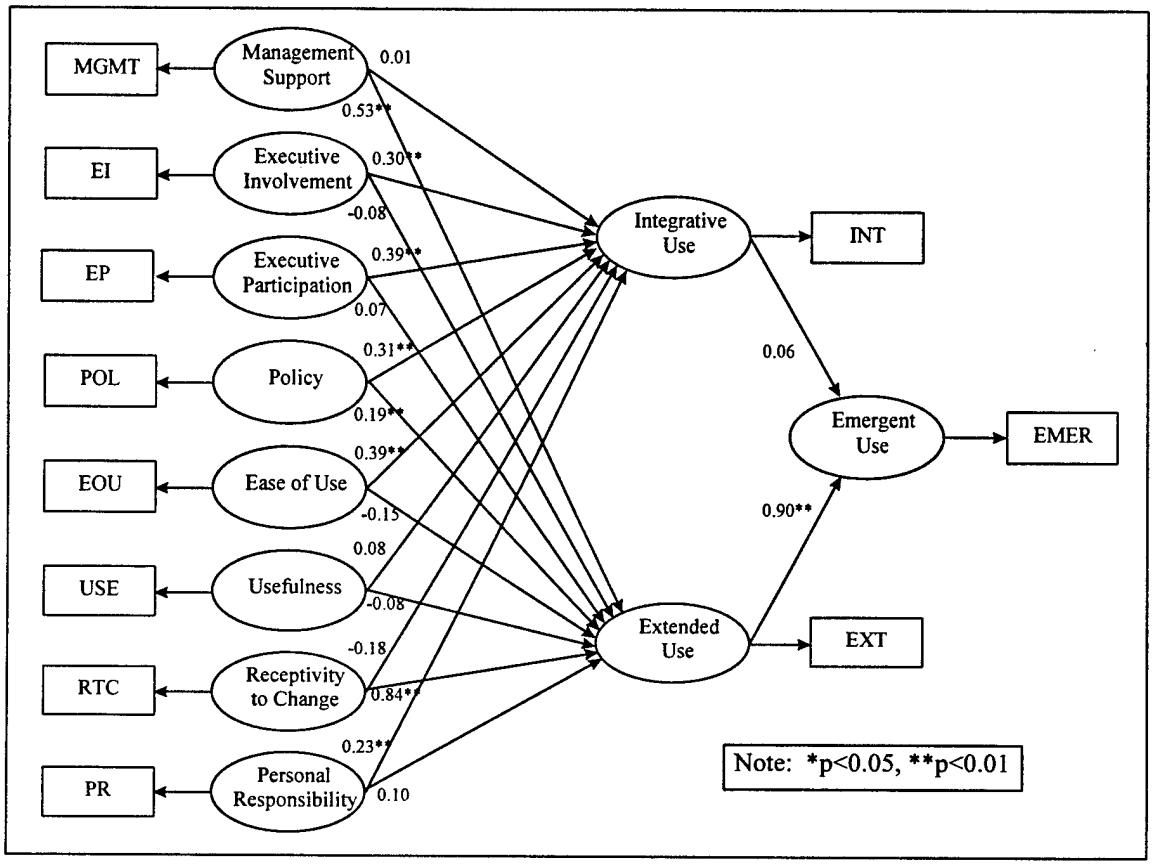


Figure 7. Initial Model (enlisted data).

Table 8. Fit statistics for initial model (enlisted data).

Fit Statistic	Value
Chi-square with 9 degrees of freedom	48.52
P-value of Chi-square	0.00000020
Incremental Fit Index (IFI)	0.93
Comparative Fit Index	0.92

Again, the model had a reasonably good fit with the data, although it was slightly worse than that with the officer data. Next, all non-significant paths were deleted from the model, leaving the following nested model.

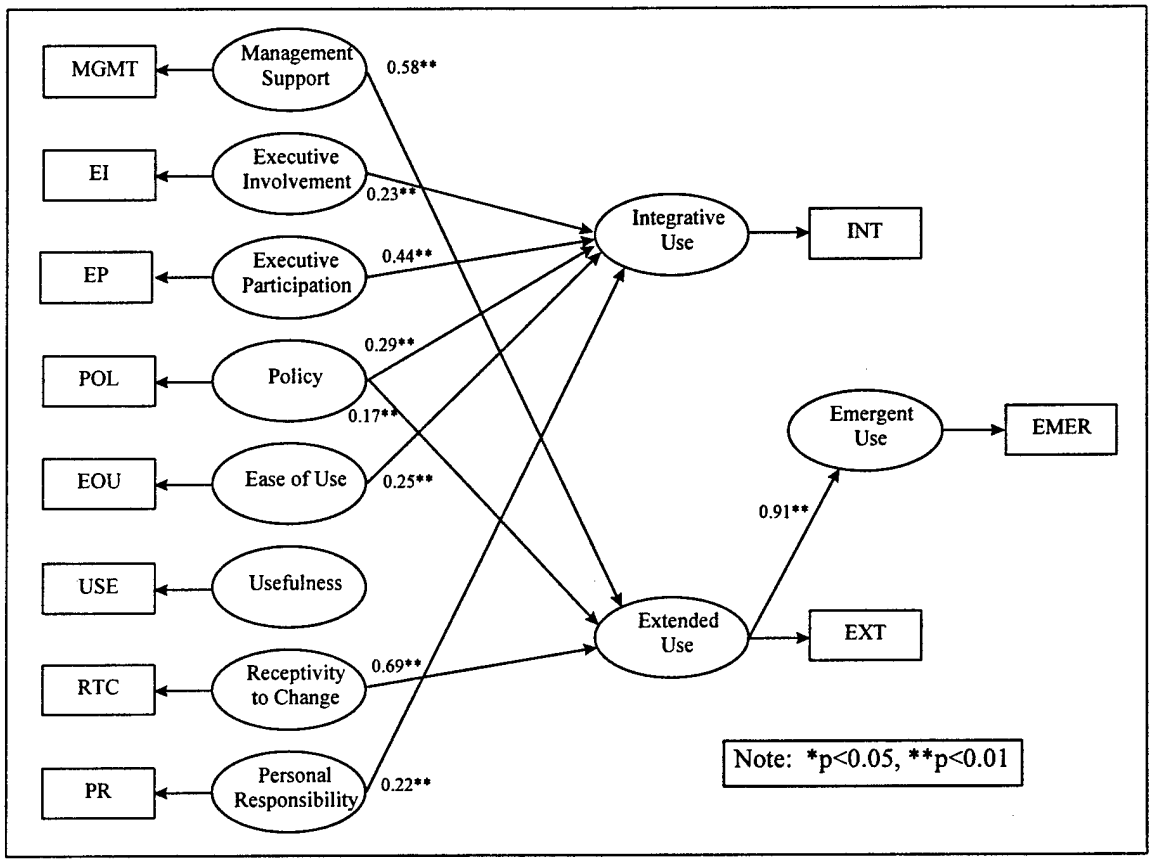


Figure 8. Final Model (enlisted data).

Table 9. Fit statistics for final model (enlisted data).

Fit Statistic	Value
Chi-square with 18 degrees of freedom	60.14
P-value of Chi-square	0.0000019
Incremental Fit Index (IFI)	0.92
Comparative Fit Index	0.92

Table 9 summarizes the fit statistics for the final enlisted model. Once again, the fit of the final model was substantially above the suggested cutoff point of .90 (Bentler and Bonett, 1980).

The fits of the two models were compared using a simple Chi-square test statistic. The statistic for the original model (Chi-square 48.52, 9 df) was subtracted from that for the nested model (Chi-square 60.14, 18 df), yielding a test statistic of 11.62, with 9 df. This is not rejected at $p<0.01$, indicating the nested model *did not* have a significantly worse fit than the initial model.

Analysis of the paths in the final model revealed some interesting relationships between the variables. Aside from the path loadings, there were three major path differences between the two models. The model with enlisted data did not have a path from receptivity to change to integrative use. It did, however, add a path from Ease of Use to Integrative use. Finally, the proposed path from integrative use to emergent use was not significant in the enlisted model. The results relative to the proposed hypotheses are summarized in Table 10 below.

Table 10. Summary of Results (enlisted data).

Hypothesis	Supported for Extended Use	Supported for Integrative Use
H_1: Extended and integrative use positively influence emergent use.	Yes 0.91 (15.27**)	No
H_2: At least one management factor will be positively related to Internet technology infusion.	Yes	Yes
Management Support	0.41 (9.82**)	--
Executive Involvement	--	0.20 (2.08**)
Executive Participation	--	0.33 (4.04**)
H_3: At least one organizational factor will be positively related to Internet technology infusion..	Yes	Yes
Policy	0.18 (2.85**)	0.25 (2.73**)
Receptivity to Change	--	0.34 (11.71**)
H_4: At least one individual factor will be positively related to Internet technology infusion..	No	Yes
Ease of Use	--	0.21 (2.30**)
Usefulness	--	--
Personal Responsibility	--	0.18 (2.17**)

Note: *p<0.05, **p<0.01

V. Conclusions and Recommendations

Answers to Research Questions

The table below summarizes the modeling results for both groups and all four hypotheses. In each cell, the first number given is the standardized path coefficient and the second (in parentheses) is the associated T-value.

Table 11. Comparison of Final Models Between Samples.

	Officer Sample		Enlisted Sample	
Hypothesis	**Ext Use**	**Int Use**	**Ext Use**	**Int Use**
H_1: Extended and integrative use positively influence emergent use.	Yes 0.90 (16.93**)	Yes 0.13 (2.42**)	Yes 0.91 (15.27**)	No
H_2: At least one management factor will be positively related to Internet technology infusion.	Yes	Yes	Yes	Yes
Management Support	0.59 (9.40**)	--	0.58 (9.82**)	--
Executive Involvement	--	0.38 (3.10**)	--	0.23 (2.08**)
Executive Participation	--	0.46 (4.14**)	--	0.44 (4.04**)
H_3: At least one organizational factor will be positively related to Internet technology infusion..	Yes	Yes	Yes	Yes
Policy	0.45 (7.20**)	0.34 (3.87**)	0.17 (2.85**)	0.29 (2.73**)
Receptivity to Change	0.58 (9.28**)	0.24 (3.02**)	0.69 (11.71**)	--
H_4: At least one individual factor will be positively related to Internet technology infusion..	No	Yes	No	Yes
Ease of Use	--	--	--	0.25 (2.30**)
Usefulness	--	--	--	--
Personal Responsibility	--	0.17 (1.87**)	--	0.22 (2.17**)

Note: *p<0.05, **p<0.01

Following the analysis of the models, the information garnered was used to answer the research questions posed in Chapter 1. The answers to those questions are summarized below.

Research Question 1. *What is the relationship between the studied management factors and extended and integrative use of Internet technology?* Of the three management factors studied, all three were significant influences in the final model. Management support had a significant positive influence on extended use in both the officer (β =0.42) and enlisted (β =0.41) final models. Executive involvement and executive participation both showed significant positive influence on integrative use in both models. The β s were equal to 0.25 for both involvement and participation in the officer model, and 0.20 and 0.33 respectively for the enlisted model. That the paths were equally strong and supported the same relationship in both models points out the importance of the management factors to infusion strategy. Both general management support and the involvement and participation of the key executive are extremely important to the success of the organization's infusion effort.

Research Question 2. *What is the relationship between the organizational factors studied and extended and integrative use of Internet technology?* The two organizational factors included in the modeling effort were the only variables to effect both extended and integrative use. In the officer model, both policy and receptivity to change exerted a significant positive effect on both extended (β =0.43 and 0.29 for policy and receptivity to change respectively) and integrative use (β =0.08 and 0.21). In the enlisted model, policy again positively influenced both infusion factors (β =0.18 for extended use and 0.25 for integrative use), while receptivity to change positively influenced only extended use (β =0.34).

In either case, the organizational variables give clear indication of their usefulness in development and implementation of a strategy. Policy was the only variable to effect both types of use in both groups. This makes policy an indispensable part of any organization's infusion strategy. Receptivity to change was nearly as ubiquitous, appearing in three of four possible cases. This points to the encouragement of a sense of change as a positive factor in organizational growth as a key aspect of organizational culture.

Research Question 3. *What is the relationship between the individual factors studied and Extended and Integrative use of Internet technology?* Personal responsibility was the only individual factor which influenced Infusion in both models. Personal responsibility had a significant positive influence on integrative use in both models (β =0.09 and 0.18 for the officer and enlisted models respectively). The significantly higher path loading for personal responsibility in the enlisted sample points out that encouraging a sense of having "a voice in running this organization" (Siegel and Kaemmerer, 1978:560) is important in this group.

Ease of use had a significant effect on integrative use (β =0.21) in the enlisted model, but not in the officer model. This again points out that there are differences in people that may drive differences in organizational policies. If the organization wishes to increase integrative use of a technology by the enlisted group, then taking steps to increase to make the technology easier to use would be a logical step. On the other hand, usefulness was not significant predictor of infusion in either model.

Research Question 4. *Are management factors, organizational factors or individual factors relatively more important to the Infusion of Internet technology?* The answer to this question is less clear than that to Questions 1-3. However, it is clear from the results that the *least* important group was the factors related to the individual. This result is interesting, in that the ease of use and usefulness factors only entered the final

models in one out of four instances. This was not an expected result given the substantial amount of testing which has related these factors to acceptance and use of IT.

All three management factors were included in both final models. They also consistently demonstrated the same relationship in both models, with similar path coefficients. This is substantial evidence of the a-priori expectation that management support and related factors would positively influence Infusion. The pattern of these relationships was also interesting. In both cases, general management support influenced extended use, while the involvement and participation of the key executive influenced integrative use.

Finally, in the case of the two organizational factors, there were also interesting and significant results. In the case of policy, it significantly positively effected both integrative and extended Use. Policy was the only variable to influence both types of use in both models. Receptivity to change also positively influenced both integrative and extended use in the officer model, and positively influenced extended use in the enlisted model. These results support the case that the organizational factors are the most important influences on Internet technology infusion.

Research Question 5. *What is the relationship between the infusion factors of extended use, integrative use and emergent use?* In the officer model, the relationship supported that predicted by Saga and Zmud (1994). Integrative and extended use each exerted a significant positive influence on emergent use. However, in the enlisted model, the path between integrative and emergent use was non-significant. This may point out another area in which it is important to consider the differences between people when designing an organization's Internet strategy.

In the case of the officer model, extended use had a stronger influence on emergent use (β =0.90) than did integrative use (β =0.20). Thus, emergent use might

emerge either from using more of the capabilities of the technology *or* by using the technology to work together and share information.

However, in the case of the enlisted model, the path from integrative use to emergent use was not significant. This means that in order to encourage the enlisted personnel to develop emergent uses of the technology, the organization should place its emphasis on leading them to use more of the available features of the technology. This might be accomplished by increasing user training, documentation, or expert help. In contrast to the officer group, emphasizing using the technology to work together in teams would not be expected to reap the benefits of encouraging emergent use.

Areas for Future Research

During the course of the analysis, this study revealed a number of opportunities for future research. One area might include further investigation of the relatively small influence ease of use and usefulness had in the final models. This result may pose questions about the applicability of these factors to the theorized *levels of use* associated with infusion. While substantial research has been performed that links ease of use and usefulness with *use*, further examination of the concept of *higher levels of use* may be warranted.

Additionally, future studies should also examine the characteristics of people which might influence infusion. For example, further investigation into the factors which led the enlisted group to value ease of use, while the officer group did not would provide important information when making decisions about organizational strategy.

Third, the while the four scales developed for this study demonstrated good reliability in this sample, more information is needed regarding their usability in other populations and for other types of technology.

Also, the questions about generalizability of this study suggest the need for future research in organizations outside the military environment. Confirmation of the model

results in a different environment would provide significant evidence of the general applicability of the models and the findings.

In addition to identifying areas for future research, this study highlighted several opportunities to ensure the success of that research. First, the strength of the SEM technique in investigating the relationships between a group of variables, and sorting out the effects of each clearly supports its use in this type of analysis. This type of integrated approach to analysis of the data is crucial to the examination of these complex relationships.

SEM modeling also offers an outstanding tool to base conclusions directly on the available theory. A wealth of information is available on the supporting factors present in organizations, and basing the conclusions drawn on the underlying theory leads to strongly supported recommendations for the future.

Lastly, the use of existing scales contributed directly to the success of the modeling effort, and should be encouraged in future studies. Using scales with previously established reliability and validity also adds to the theoretical weight behind the conclusions drawn.

Limitations of the Study

There are several minor limitations which should be considered when assessing the results of this study. First, all data used in the study are the result of self-reporting. In addition, the fact that self-reported data is used for both the dependent and independent variables make the presence of mono-method bias a possibility.

Secondly, while the population surveyed were from four MAJCOMs and from a diverse group of ranks and jobs, all survey participants were members of the United States Air Force. There may be peculiarities of the military environment that inhibit the generalizability of the results to civilian organizations.

Finally, there were minor problems in the distribution of the survey. While survey sizes were uniform across three MAJCOMs, distribution problems artificially limited the survey size in the enlisted AFSPC sample. This was not a factor in the final analysis since comparisons were not made between MAJCOMs.

Conclusions

The relationships illustrated in the developed models demonstrate that there are several organizational, managerial and individual factors which should be key considerations if an organization intends to encourage Internet technology infusion. All eleven independent variables in the final models can be directly influenced by the organization. Knowledge of the relationships between the variables should allow tailoring of the Internet strategy to fit the situation and the intended target audience.

While there were many similarities between the two final models, there were also significant differences. Of the ten paths in the final officer model, eight were supported in the enlisted model, and one more was added. The differences between the two models were the absence of paths from receptivity to change to integrative use and integrative use to emergent use, and the addition of a path from ease of use to integrative use in the enlisted model.

The path from ease of use to integrative use may be the most important difference between the two models. In the case of the officers, ease of use is not a significant precursor to infusion, while in the enlisted case it is. This suggests that the differences between the two groups should drive a different implementation strategy. If the organization seeks to encourage a higher level of use in the enlisted group, more emphasis should be placed on training and other related factors, with the intent of making the group more comfortable with the technology and increasing perceptions of ease of use.

The relationships exhibited by the management variables pointed out an dichotomy within the group. Management support, which is a measure of the general support provided for the technology, was linked to extended use; while both measures of the support of the key executive (executive involvement and participation) were linked with integrative use. These results are key because strong paths appear in *both* models, pointing to a need to consider both types of management influence. While management support appears necessary to Internet technology infusion, it might not be sufficient. Teaming management support with executive involvement and participation appears likely to have a more holistic effect on infusion by influencing *both* extended and integrative use.

The two organizational support variables were the most consistently supported throughout the modeling effort. Policy was the only variable that was a significant influence on both extended and integrative use in both models. By using policy as a tool to encourage infusion the organization can exert a substantial degree of influence on the development of higher levels of use.

The influence of receptivity to change was nearly as pervasive in the models, demonstrating a significant influence in three out of four cases. This clearly illustrates that it is important for the organizational culture to encourage and support change. In both models receptivity to change was a significant influence on extended use. Additionally, receptivity to change influenced integrative use in the officer model. The fact that it did not in the enlisted model points out another important difference between the two groups. It is important for the officer group to have a sense that the organization is receptive to change if they are to use the technology for integrative purposes. This is not a factor for the enlisted group, instead they value ease of use as a precursor to integrative use.

Another individual factor, personal responsibility exerted a positive influence on integrative use in both groups. This suggests that a sense of personal control over one's environment is important to the development of collaborative information sharing.

The differences in the ease of use and receptivity to change variables clearly demonstrate that individual differences are important considerations when designing an infusion strategy. While a general strategy may reap substantial benefits, tailoring it to fit the needs of a specific group is much more likely to generate the desired performance gains by increasing the level of use.

Recommendations

The conclusions drawn from the analysis suggest several recommendations to guide future organizational infusion strategies. The recommendations below are presented to assist organizations who wish to promote or encourage technology infusion.

Overall. *Design and implement an organizational strategy which incorporates the factors identified in the models.* However, the differences between the two groups regarding ease of use and receptivity to change point out a need for the organization to consider the background and characteristics of people prior to instituting organizational Internet policies. Specific recommendations by subject area are listed below.

Policy. *Use policy to implement the organizational Internet strategy.* Organizations should take steps to ensure they have Internet policies in place, that they are clearly communicated, and that they support use of the technology. Policies should be designed to encourage management support, executive involvement and participation, personal responsibility, receptivity to change, and ease of use. By using policy to support the variables identified in the model, organizations may see a synergistic effect on use of the technology. The significant influence of policy on integrative use and extended use in both models highlights policy as an extremely important influence on technology infusion.

Management. *Emphasize the importance of management support for technology infusion.* The consistent support for the three management variables in both models points to a need for organizations to emphasize them if maximum gains are to be achieved from Internet technology investments. This may involve concentration in other areas such as providing training on the technology for managers and executives, as well as incorporation into policy to coordinate and encourage management support.

Receptivity to Change. *Encourage organizational receptivity to change.* Receptivity to change was a significant influence in both models, and on both integrative (in officer model) and extended (in both models) use. This suggests a need for organizations to encourage this type of attitude in their organizational culture. This may also be related to other factors such as organization policy, training, and personal responsibility.

Personal Responsibility. *Encourage a sense of personal responsibility.* The presence of this variable in both models points out the importance of a sense of control over one's own environment and destiny to the organization. This is also an organizational culture issue, and may have a close relation to other unmeasured factors (such as empowerment).

People. *Consider the differences between people.* The difference in results between the two final models illustrates the need for the organization to be conscious of the range of experience, education, and technical ability present in the workforce. It is intuitively obvious, for example, that the Internet strategy for an engineering firm would differ significantly from that of a construction company, even if the organizations' strategic goal were the same.

Summary. This thesis develops two models relating organizational, managerial and individual variables to Internet technology Infusion. The results clearly support the importance of several of the studied variables to an organization's Internet strategy. The

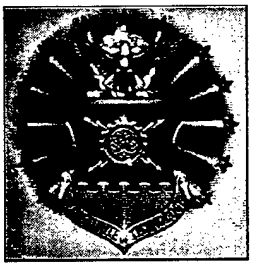
organization's Internet policy, management support, and related culture all interact to determine the success or failure of its effort to infuse the technology, and must be driven by the organization's strategy. The strategy, in turn, must reflect the organization's goals, and be tempered with an assessment of the people in the organization.

Internet technology has spread quickly throughout the Air Force, and throughout the world. While this may not be within the control of the organization, the capability to influence the way in which the technology is used *is*. Organizations must be aware of their opportunities to influence infusion, and take advantage of them if they are to achieve the desired results from their Internet technology investments.

Appendix A. Survey

USAF Survey Control Number: 97-32
Expiration Date: 31 Dec 97

AIR FORCE COMMUNICATIONS AND INFORMATION CENTER-SPONSORED INTERNET TECHNOLOGY STUDY



ABOUT THIS STUDY

Researchers at the Air Force Institute of Technology are conducting this study with sponsorship from the Air Force Communications and Information Center. The goal is to provide Air Force leaders with up-to-date information on the use of Internet technology in the Air Force.

This survey is designed to measure the Air Force's use of the Internet, as well as some organizational factors which might contribute to its use. The Air Force has allocated, and will continue to allocate, significant resources to providing Internet access. This survey is intended to give us a larger base of information upon which to base these decisions.

PRIVACY ACT STATEMENT
In accordance with Paragraph 3.2, AFI 37-132, *Air Force Privacy Act Program* (11 Mar 94), the following statement is provided as required by the Privacy Act of 1974. **Authority**: (1) 5 USC 301, Departmental Regulations; and (2) 10 USC 8012, Secretary of the Air Force, Powers, Duties, Delegation by Compensation; and (3) DoD Instruction 1100.13, *Surveys of Department of Defense Personnel* (9 Nov 78); and (4) AF Instruction 36-2601, *Air Force Personnel Survey Program* (1 Feb 96) **Purpose**: This survey is designed to measure the Air Force's use of the Internet, as well as some organizational factors which might contribute to its use. Responses will be combined to provide information on Internet use to the Air Force Communications and Information Center, and used as the basis for a scholastic thesis. **Routine Uses**: Research based on grouped data may be included in published articles, reports, and texts. Distribution of the results of this research will be unlimited. **Disclosure**: Participation in this survey is voluntary. No adverse action may be taken against any individual who elects not to participate. Individual responses will be held strictly confidential.

SECTION I

Use the following scale to convey your feelings regarding the statement. Please enter your response both on this form and on the scan form. Your responses will be held strictly confidential.

0	1	2	3	4	5
Not Applicable	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

1. _____ We are using the Internet in exciting ways. (EMER)

2. _____ Management is really enthusiastic to see that we are happy with using the Internet. (MGMT)

3. _____ Using the Internet makes it easier to do my job. (EOU)

4. _____ As we learn more features of the Internet, we use it to get more work done. (EXT)

5. _____ I help make decisions in my organization. (PR)

6. _____ I have difficulty getting the Internet to do what I want it to do. (**EOU**)

7. _____ We never really find new ways to use Internet technology. (**EXT**)

8. _____ My organization continually adapts to change. (ORC)

9. _____ Our organization is doing new things we never thought of before we started using the Internet. (EMER)

10. _____ My commander gets personally involved in the use of the Internet within my organization. (EI)

11. _____ My interaction with the Internet is clear and understandable. (EOU)

12. _____ Our policies discourage me from using the Internet in my work. (**POL**)

13. _____ Using the Internet in my job increases my productivity. (USE)

14. _____ We never know who to turn to for help in solving problems with Internet use. (**ORG**)

15. _____ I know what our policy is regarding using the Internet. (POL)

16. _____ Our organization works together using the Internet. (INT)

17. _____ The Internet helps our organization do things we could never do before. (EMER)

18. _____ I rarely have the opportunity to test out my own ideas here. **(PR)**

19. _____ I am not supported or encouraged by my boss to use the Internet in the performance of my job. **(MGMT)**

20. _____ This organization is not open to change. **(ORC)**

21. _____ We have standards in place for how to use the Internet. (POL)

22. _____ Using the Internet does nothing to improve my job performance. **(USE)**

23. _____ The Internet doesn't seem to be opening any doors to new opportunities. **(EMER)**

24. _____ My organization ensures we are all using the Internet in the same way. (POL)

25. _____ Learning to use the Internet was easy for me. (EOU)

26. _____ Training courses are readily available for us to improve the way we use the Internet. (TNG)

27. _____ I have a voice in what goes on in this organization. (PR)

28. _____ We seldom share information or tasks using the Internet. **(INT)**

29. _____ My organization never examines its basic assumptions. **(ORC)**

30. _____ The Internet is rigid and inflexible to work with. **(EOU)**

31. _____ My commander is knowledgeable about Internet opportunities and possibilities for my organization. (EP)

32. _____ We are constantly updated on new software that can help us use the Internet more effectively. (ORG)

33. _____ Our Internet policy discourages me from using the Internet in my work. **(POL)**

34. _____ The more we use the Internet, the more ways we find that it helps us with our work. (EXT)

35. _____ I don't know what my commander's vision is for Internet use in my organization. (**EI**)

36. _____ I don't find the Internet useful in my job. (**USE**)

37. _____ My co-workers continually search for new ways of looking at problems. (ORC)

38. _____ Using the Internet rarely leads to better ways to do our work. (**EMER**)

39. _____ Using the Internet makes our teams work better together. (INT)

40. _____ Using the Internet enhances my effectiveness on the job. (USE)

41. _____ My commander uses the Internet personally. (EI)

42. _____ Overall, I believe that the Internet is easy to use. (EOU)

43. _____ My organization is unclear about its Internet use policy. (**POL**)

44. _____ We are constantly finding new ways to use the features of the Internet. (EXT)

45. _____ We are constantly finding new ways we can use the Internet to do our work. (EMER)

46. _____ Using the Internet doesn't help us work together. (**INT**)

47. _____ I am convinced that management is sure as to what benefits can be achieved with the use of the Internet. (MGMT)

48. _____ My commander takes an active role in encouraging the development of new uses for Internet technology within my organization. (EP)

49. _____ Using the Internet makes our organization more efficient. (INT)

50. _____ I feel our policy confines the ways in which I can use the Internet to do my job. (**POL**)

51. _____ It is easier to share information with co-workers using the Internet. (INT)

52. _____ We are using the Internet more than ever before. (EXT)

53. _____ My commander doesn't support using organization funds for Internet hardware/software. (**EP**)

54. _____ We have policies in place which cover Internet use in our workplace. (POL)

55. _____ I know how my organization expects me to use the Internet. (POL)

56. _____ Nobody asks me for suggestions about how to run this place. (**PR**)

57. _____ Management has not provided the necessary help and resources to get us used to the Internet quickly. (**MGMT**)

58. _____ I rarely discover new ways to use the Internet to make my job easier. (**EXT**)

SECTION II

In the following section, please use the scale given with each question to indicate your feelings about the question.

59. I receive information about the Internet from the following sources: (DOC)

0	**1**	**2**	**3**	**4**	**5**
Not Applicable	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

_____ AF comm/computer professionals
_____ Civilian vendors
_____ Co-workers
_____ Books/magazine articles
_____ Email or web pages

60. How frequently do you receive information about the Internet from the following sources? (FOC)

0	**1**	**2**	**3**	**4**	**5**
Not Applicable	Never	Infrequently	Neutral	Frequently	Quite Frequently

_____ AF comm/computer professionals
_____ Civilian vendors
_____ Co-workers
_____ Books/magazine articles
_____ Email or web pages

61. Please indicate the amount of the following types of training you have had in the use of the Internet. (TNG)

1	2	3	4	5
None	Very Little	Neutral	Some	Quite a bit

_____ General courses at a community college or university
_____ Training provided by vendors or outside consultants
_____ In-house company courses
_____ Through self study

62. Please rate the degree to which the following business activities are important to the success of your organization: (CON)

1	2	3	4	5
Extremely Un-important	Un-important	Neutral	Important	Extremely Important

_____ Personnel Support/Management
_____ Financial Management/ Budgeting
_____ Strategic Planning
_____ General Administrative
_____ Research and Development
_____ Operations
_____ Command and Control and Communications
_____ Training
_____ Logistics

63. Please rate the level of potential use the Internet has to the following business activities in your organization: (CON)

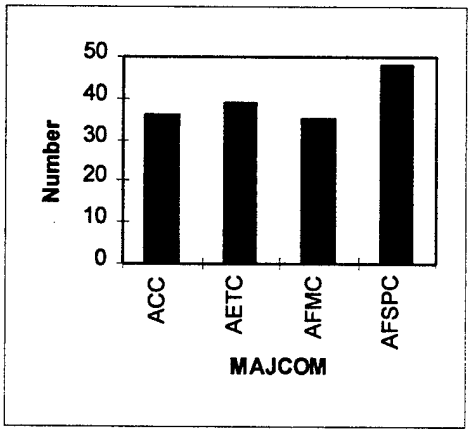
1	2	3	4	5
No Potential	Little Potential	Neutral	Some Potential	Great Potential

_____ Personnel Support/Management
_____ Financial Management/ Budgeting
_____ Strategic Planning
_____ General Administrative
_____ Research and Development
_____ Operations
_____ Command and Control and Communications
_____ Training
_____ Logistics

Thank you for the time and effort you put into answering this survey. The results should help the Air Force significantly in achieving the maximum return from our Internet investments. Your responses will be kept strictly confidential.

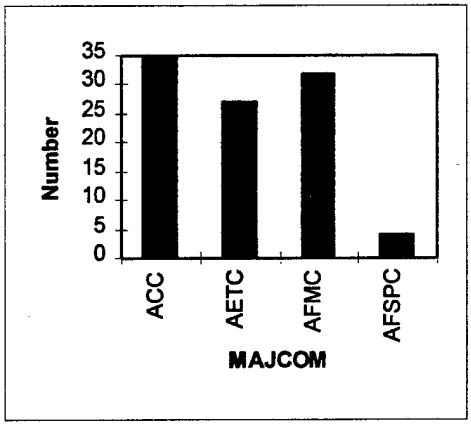
Measure	Code	Items	Reverse Coded
Perceived Management Support	MGMT	2, 19, 47, 57	19, 57
Executive Involvement	EI	10, 35, 41	35
Executive Participation	EP	31, 48, 53	53
Perceived Responsibility	PR	5, 18, 27, 56	18, 56
Organizational Receptivity to Change	ORC	8, 20, 29, 37	20, 29
Frequency of Communication	FOC	60 (5 parts)	
Diversity of Communication	DOC	59 (5 parts)	
Convergence	CON	62 (9 parts), 63 (9 parts)	
Perceived Ease of Use	EOU	6, 11, 25, 30, 42	6, 30
Perceived Usefulness	USE	3, 13, 22, 36, 40	22, 36
Organizational Support	ORG	14, 32	14
Policy	POL	12, 15, 21, 24, 33, 43, 50, 54, 56	12, 33, 43, 50
Training	TNG	26, 61 (4 parts)	
Extended Use	EXT	4, 7, 34, 44, 52, 58	7, 58
Integrative Use	INT	16, 28, 39, 46, 49, 51	28, 46
Emergent Use	EMER	1, 9, 17, 23, 38, 45	23, 38

Appendix B. Demographics



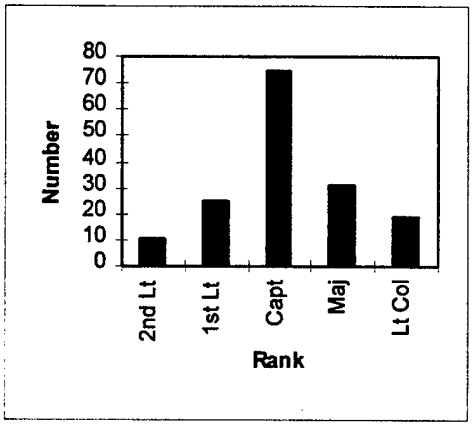
MAJCOM	Responses	Percentage
ACC	36	22.40%
AETC	39	24.20%
AFMC	35	21.70%
AFSPC	48	29.80%
Missing	3	1.90%
Total	161	100.00%

Figure 9. Officer Survey Responses by MAJCOM.



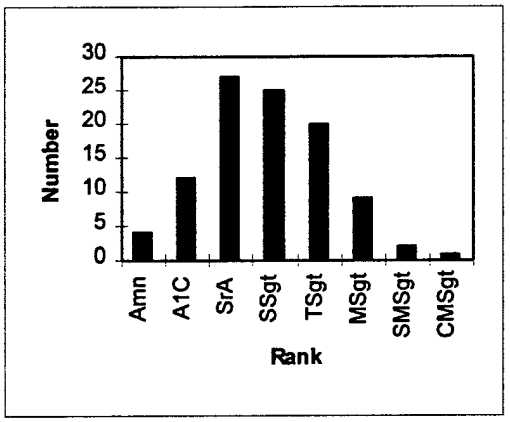
MAJCOM	Responses	Percentage
ACC	35	35.00%
AETC	27	27.00%
AFMC	32	32.00%
AFSPC	4	4.00%
Missing	2	2.00%
Total	100	100.00%

Figure 10. Enlisted Survey Responses by MAJCOM.



Rank	Responses	Percentage
2nd Lt	11	6.83%
1st Lt	25	15.53%
Capt	75	46.58%
Maj	31	19.25%
Lt Col	19	11.80%
Total	161	100.00%

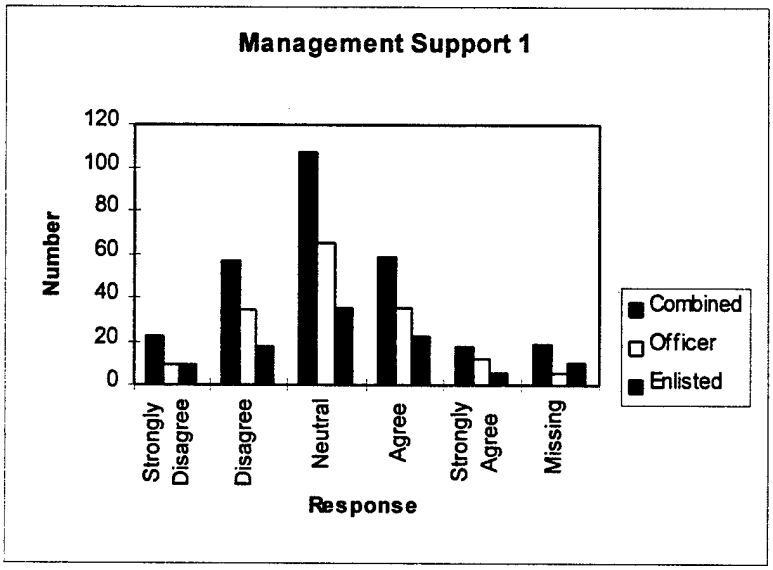
Figure 11. Officer Survey Responses by rank.



Rank	Responses	Percentage
Amn	4	4.00%
A1C	12	12.00%
SrA	27	27.00%
SSgt	25	25.00%
TSgt	20	20.00%
MSgt	9	9.00%
SMSgt	2	2.00%
CMSgt	1	1.00%
Total	100	100.00%

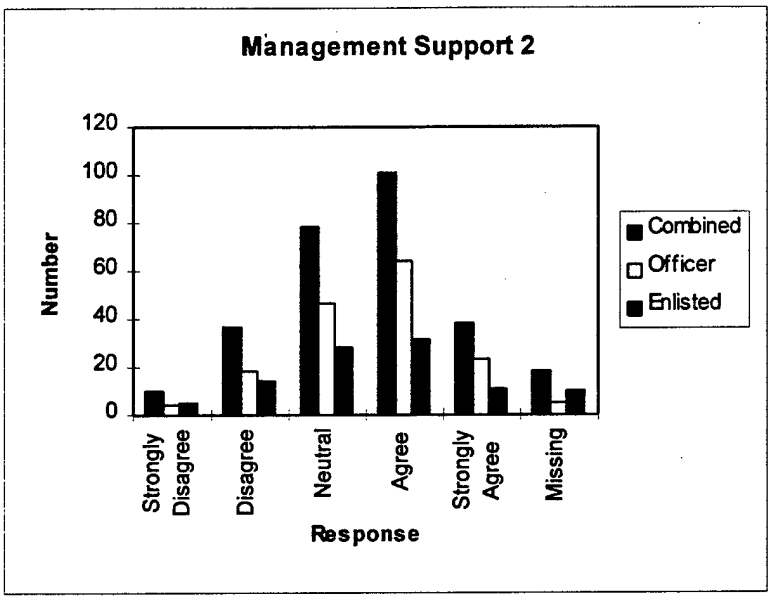
Figure 12. Enlisted Survey Responses by rank.

Appendix C. Management Support



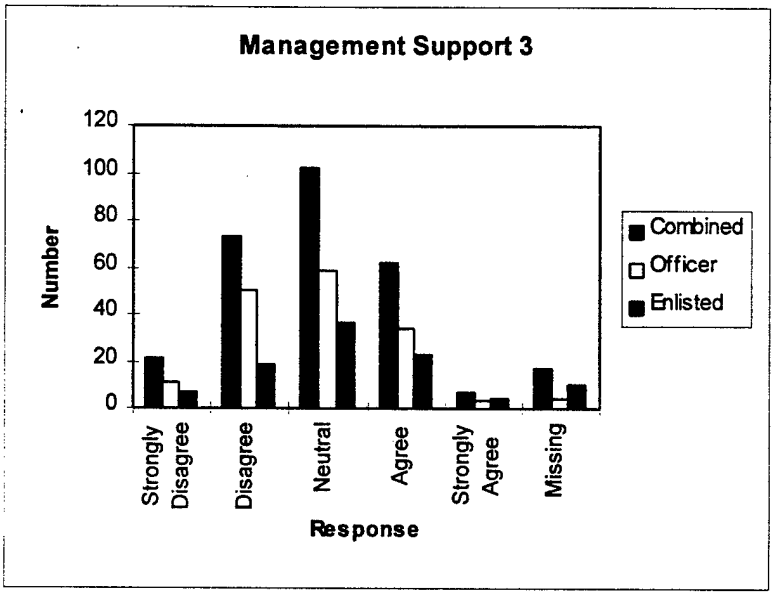
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	22	(7.8)	9	(5.6)	9	(9.0)
Disagree	57	(20.2)	34	(21.1)	18	(18.0)
Neutral	107	(37.9)	65	(40.4)	35	(35.0)
Agree	59	(20.9)	35	(21.7)	22	(22.0)
Strongly Agree	18	(6.4)	12	(7.5)	6	(6.0)
Missing	19	(6.7)	6	(3.7)	10	(10.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 13. Summary of Responses to Management Support Item 1.



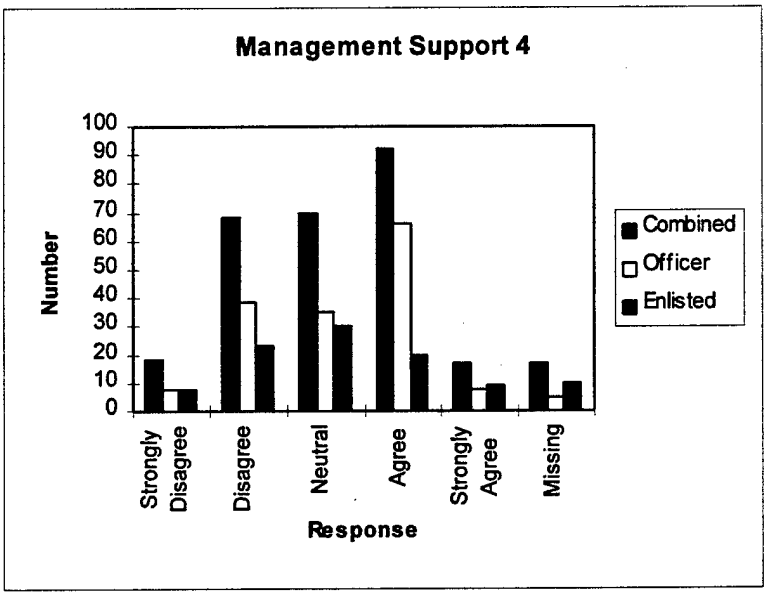
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	10	(3.5)	4	(2.5)	5	(5.0)
Disagree	37	(13.1)	18	(11.2)	14	(14.0)
Neutral	78	(27.7)	47	(29.2)	28	(28.0)
Agree	101	(35.8)	64	(39.8)	32	(32.0)
Strongly Agree	38	(13.5)	23	(14.3)	11	(11.0)
Missing	18	(6.4)	5	(3.1)	10	(10.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 14. Summary of Responses to Management Support Item 2.



Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	21	(7.4)	11	(6.8)	7	(7.0)
Disagree	73	(25.9)	50	(31.1)	19	(19.0)
Neutral	102	(36.2)	59	(36.6)	37	(37.0)
Agree	62	(22.0)	34	(21.1)	23	(23.0)
Strongly Agree	7	(2.5)	3	(1.9)	4	(4.0)
Missing	17	(6.0)	4	(2.5)	10	(10.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

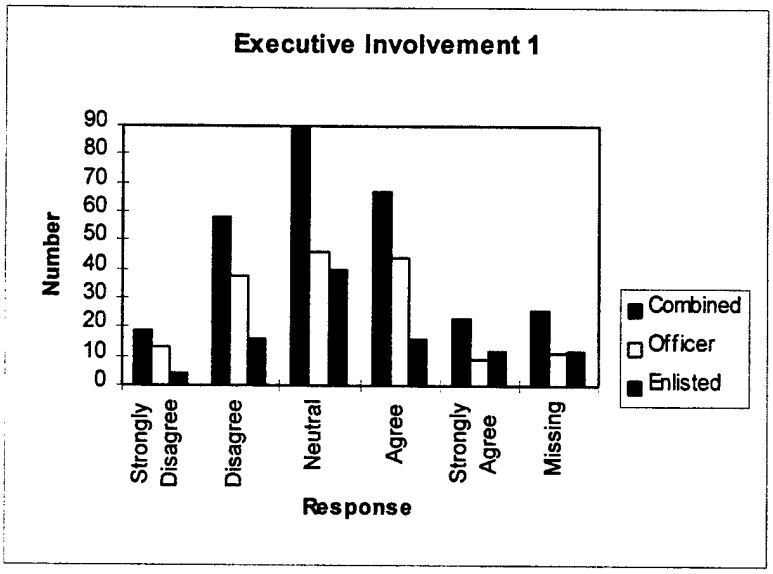
Figure 15. Summary of Responses to Management Support Item 3.



Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	18	(6.4)	8	(5.0)	8	(8.0)
Disagree	68	(24.1)	39	(24.2)	23	(23.0)
Neutral	70	(24.8)	35	(21.7)	30	(30.0)
Agree	92	(32.6)	66	(41.0)	20	(20.0)
Strongly Agree	17	(6.0)	8	(5.0)	9	(9.0)
Missing	17	(6.0)	5	(3.1)	10	(10.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

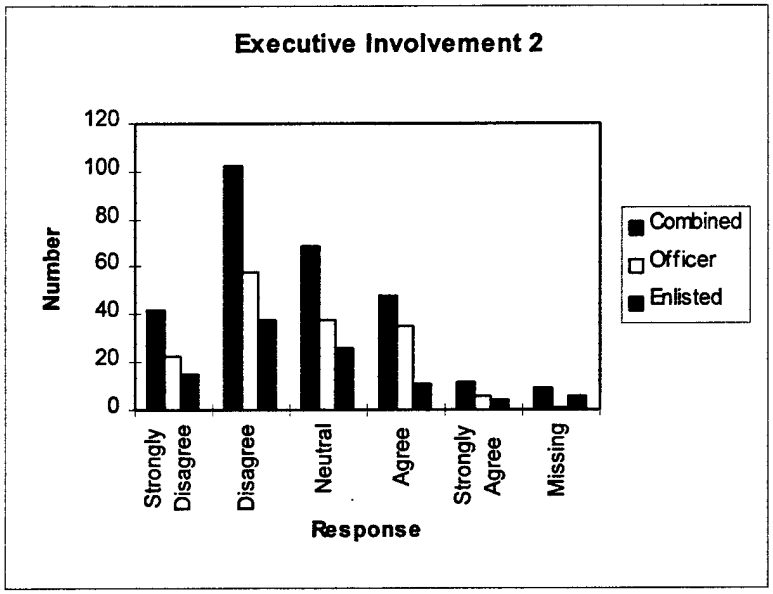
Figure 16. Summary of Responses to Management Support Item 4.

Appendix D. Executive Involvement



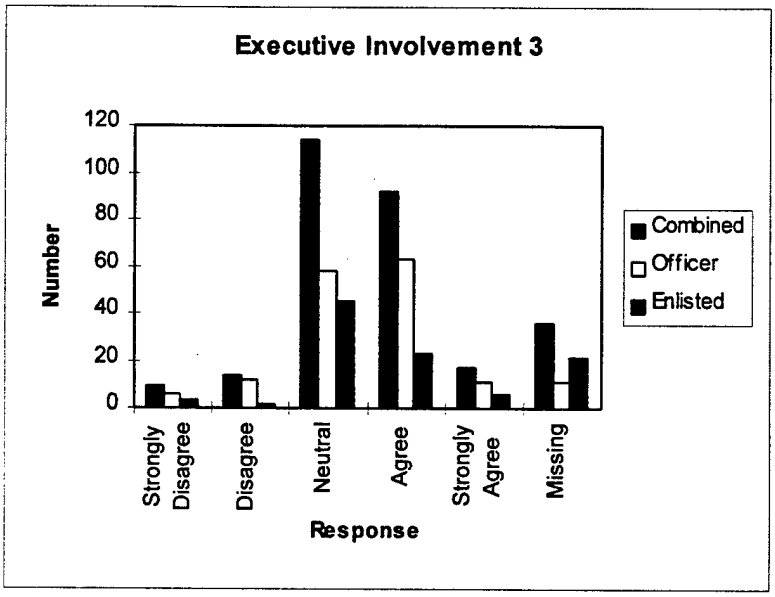
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	19	(6.7)	13	(8.1)	4	(4.0)
Disagree	58	(20.6)	38	(23.6)	16	(16.0)
Neutral	89	(31.6)	46	(28.6)	40	(40.0)
Agree	67	(23.8)	44	(27.3)	16	(16.0)
Strongly Agree	23	(8.2)	9	(5.6)	12	(12.0)
Missing	26	(9.2)	11	(6.8)	12	(12.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 17. Summary of Responses to Executive Involvement Item 1.



Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	42	(14.9)	23	(14.3)	15	(15.0)
Disagree	102	(36.2)	58	(36.0)	38	(38.0)
Neutral	69	(24.5)	38	(23.6)	26	(26.0)
Agree	48	(17.0)	35	(21.7)	11	(11.0)
Strongly Agree	12	(4.3)	6	(3.7)	4	(4.0)
Missing	9	(3.2)	1	(0.6)	6	(6.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

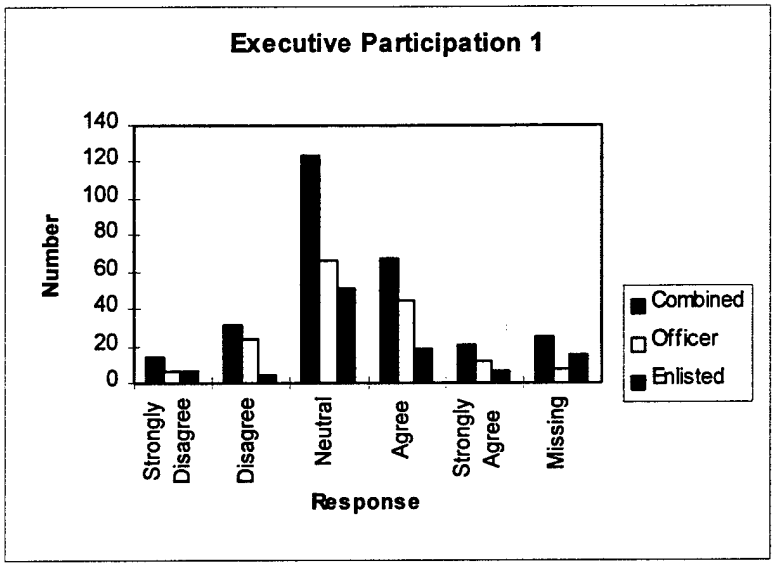
Figure 18. Summary of Responses to Executive Involvement Item 2.



Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	9	(3.2)	6	(3.7)	3	(3.0)
Disagree	14	(5.0)	12	(7.5)	2	(2.0)
Neutral	114	(40.4)	58	(36.0)	45	(45.0)
Agree	92	(32.6)	63	(39.1)	23	(23.0)
Strongly Agree	17	(6.0)	11	(6.8)	6	(6.0)
Missing	36	(12.8)	11	(6.8)	21	(21.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

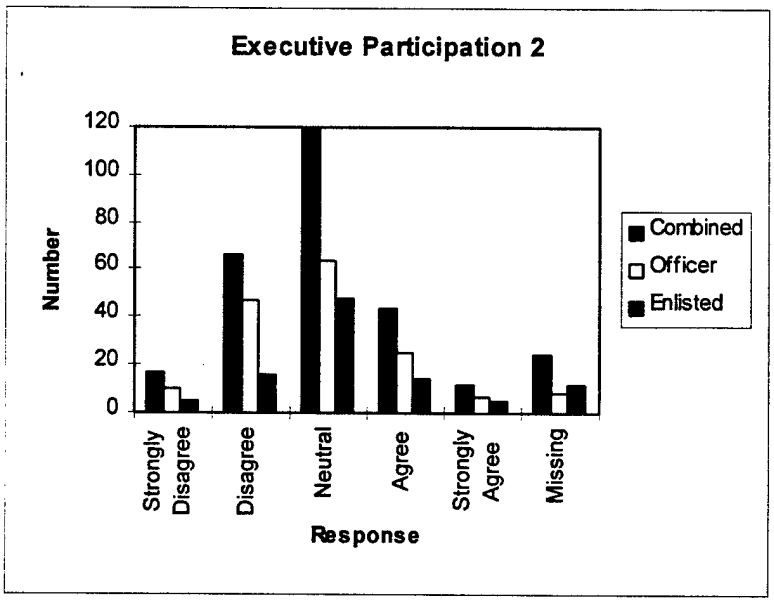
Figure 19. Summary of Responses to Executive Involvement.

Appendix E. Executive Participation



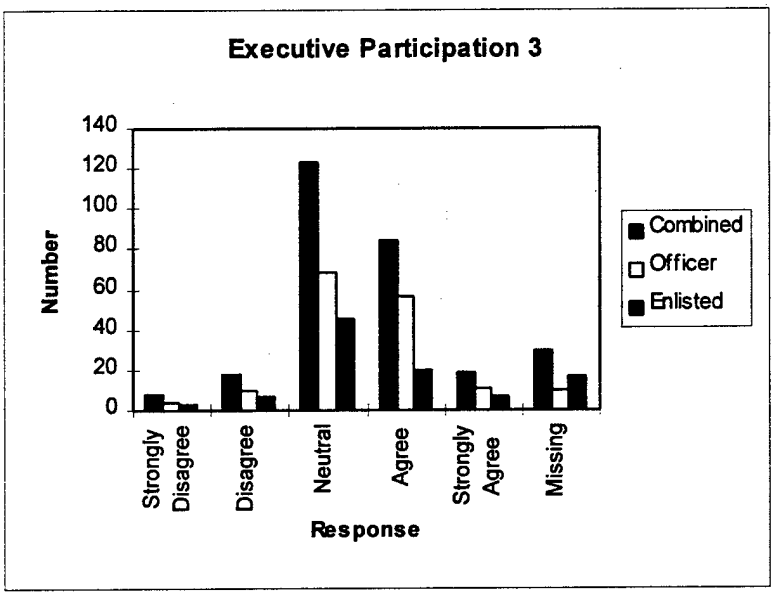
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	14	(5.0)	7	(4.3)	6	(6.0)
Disagree	31	(11.0)	24	(14.9)	4	(4.0)
Neutral	124	(44.0)	66	(41.0)	51	(51.0)
Agree	67	(23.8)	44	(27.3)	18	(18.0)
Strongly Agree	21	(7.4)	12	(7.5)	6	(6.0)
Missing	25	(8.9)	8	(5.0)	15	(15.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 20. Summary of Responses to Executive Participation Item 1.



Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	17	(6.0)	10	(6.2)	5	(5.0)
Disagree	66	(23.4)	47	(29.2)	16	(16.0)
Neutral	119	(42.2)	64	(39.8)	48	(48.0)
Agree	44	(15.6)	25	(15.5)	14	(14.0)
Strongly Agree	12	(4.3)	7	(4.3)	5	(5.0)
Missing	24	(8.5)	8	(5.0)	12	(12.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

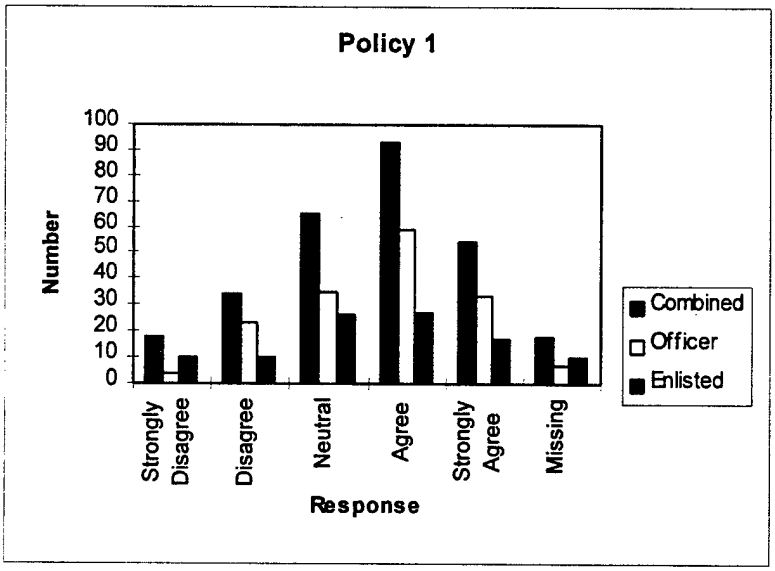
Figure 21. Summary of Responses to Executive Participation Item 2.



Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	8	(2.8)	4	(2.5)	3	(3.0)
Disagree	18	(6.4)	10	(6.2)	7	(7.0)
Neutral	123	(43.6)	69	(42.9)	46	(46.0)
Agree	84	(29.8)	57	(35.4)	20	(20.0)
Strongly Agree	19	(6.7)	11	(6.8)	7	(7.0)
Missing	30	(10.6)	10	(6.2)	17	(17.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

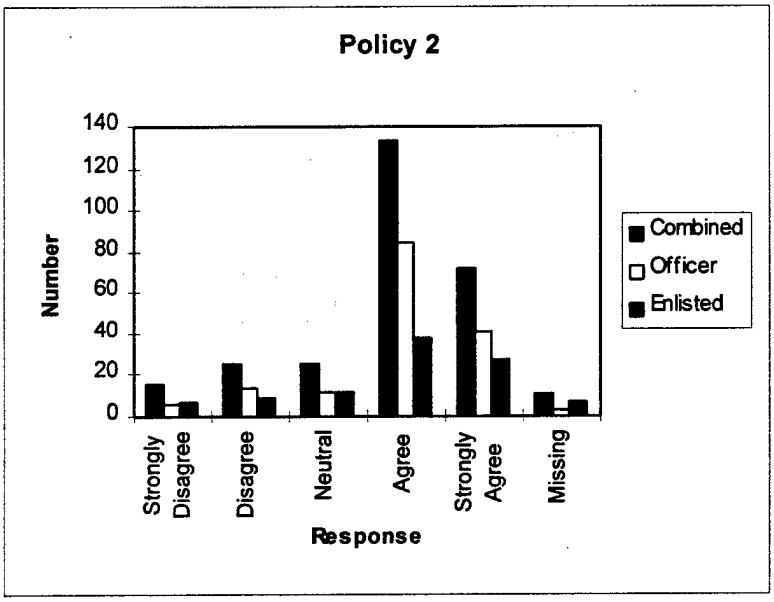
Figure 22. Summary of Responses to Executive Participation Item 3.

Appendix F. Policy



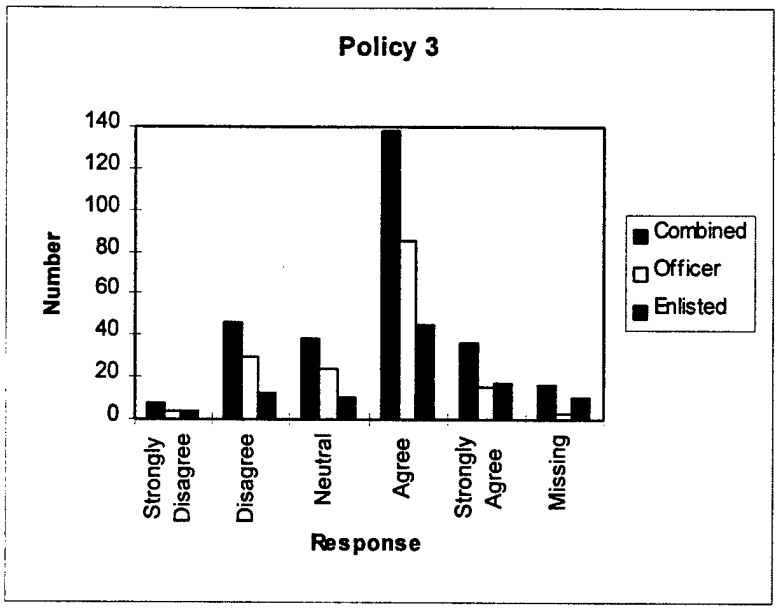
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	18	(6.4)	4	(2.5)	10	(10.0)
Disagree	34	(12.1)	23	(14.3)	10	(10.0)
Neutral	65	(23.0)	35	(21.7)	26	(26.0)
Agree	93	(33.0)	59	(36.6)	27	(27.0)
Strongly Agree	54	(19.1)	33	(20.5)	17	(17.0)
Missing	18	(6.4)	7	(4.3)	10	(10.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 23. Summary of Responses to Policy Item 1.



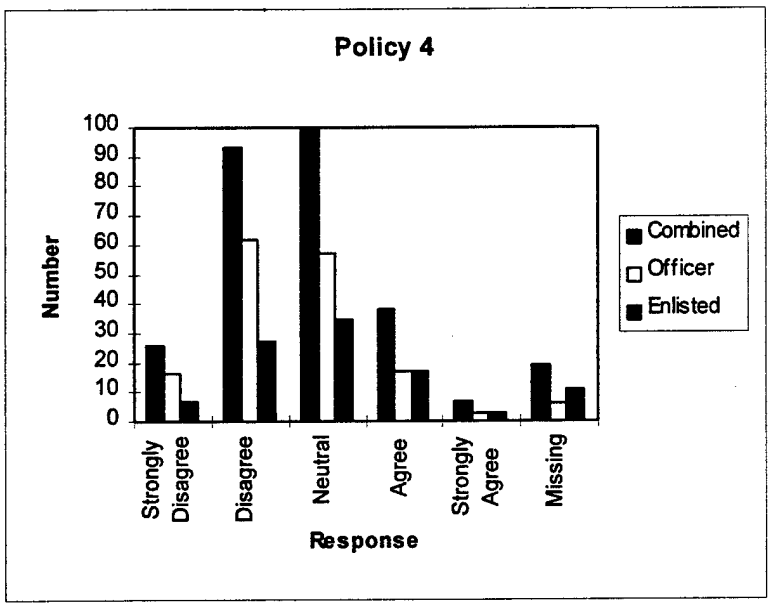
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	16	(5.7)	6	(3.7)	7	(7.0)
Disagree	25	(8.9)	14	(8.7)	9	(9.0)
Neutral	25	(8.9)	12	(7.5)	12	(12.0)
Agree	133	(47.2)	85	(52.8)	38	(38.0)
Strongly Agree	72	(25.5)	41	(25.5)	27	(27.0)
Missing	11	(3.9)	3	(1.9)	7	(7.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 24. Summary of Responses to Policy Item 2.



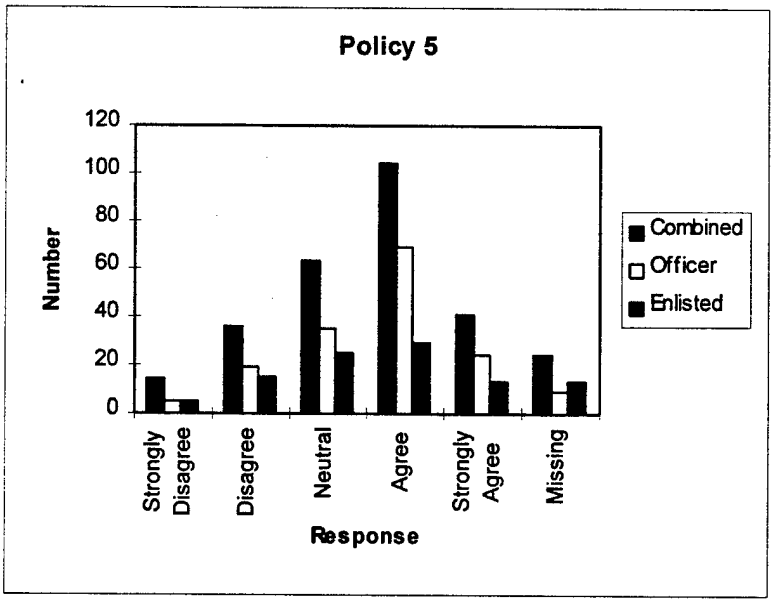
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	8	(2.8)	4	(2.5)	4	(4.0)
Disagree	46	(16.3)	30	(18.6)	12	(12.0)
Neutral	38	(13.5)	24	(14.9)	11	(11.0)
Agree	138	(48.9)	85	(52.8)	45	(45.0)
Strongly Agree	36	(12.8)	15	(9.3)	17	(17.0)
Missing	16	(5.7)	3	(1.9)	11	(11.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 25. Summary of Responses to Policy Item 3.



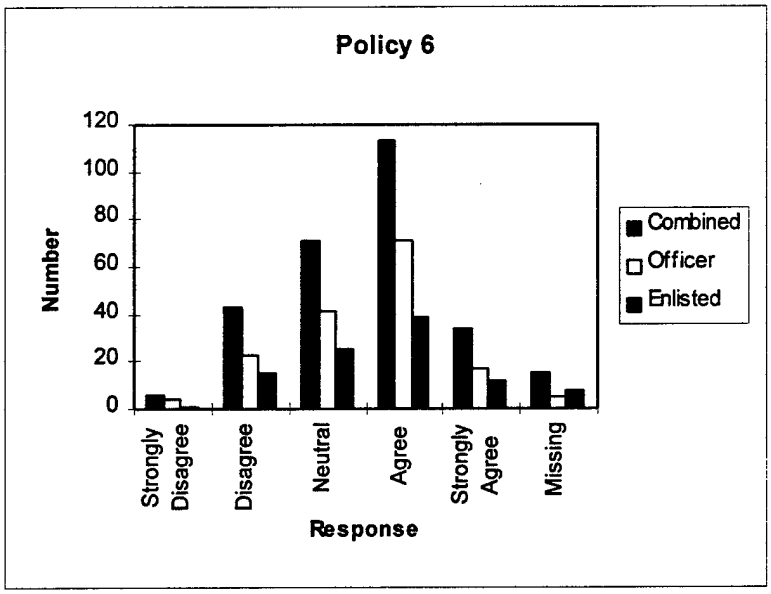
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	26	(9.2)	16	(9.9)	7	(7.0)
Disagree	93	(33.0)	62	(38.5)	27	(27.0)
Neutral	99	(35.1)	57	(35.4)	35	(35.0)
Agree	38	(13.5)	17	(10.6)	17	(17.0)
Strongly Agree	7	(2.5)	3	(1.9)	3	(3.0)
Missing	19	(6.7)	6	(3.7)	11	(11.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 26. Summary of Responses to Policy Item 4.



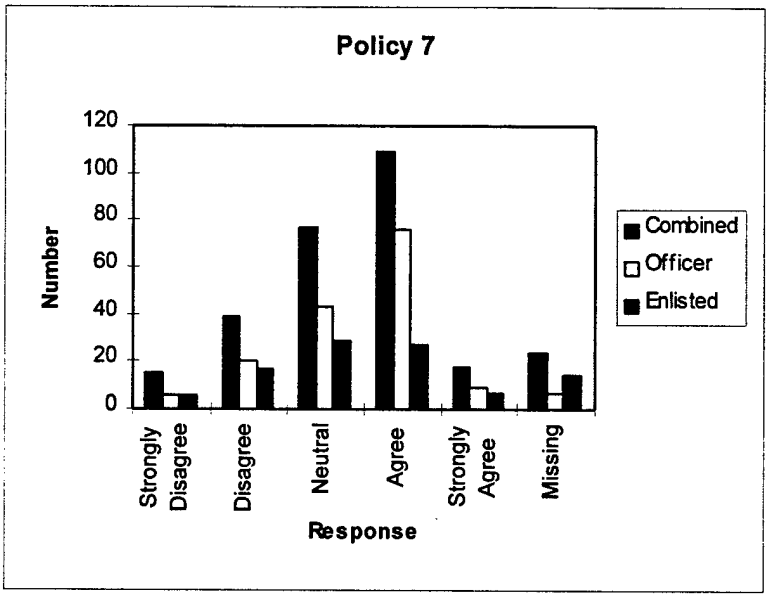
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	14	(5.0)	5	(3.1)	5	(5.0)
Disagree	36	(12.8)	19	(11.8)	15	(15.0)
Neutral	63	(22.3)	35	(21.7)	25	(25.0)
Agree	104	(36.9)	69	(42.9)	29	(29.0)
Strongly Agree	41	(14.5)	24	(14.9)	13	(13.0)
Missing	24	(8.5)	9	(5.6)	13	(13.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 27. Summary of Responses to Policy Item 5.



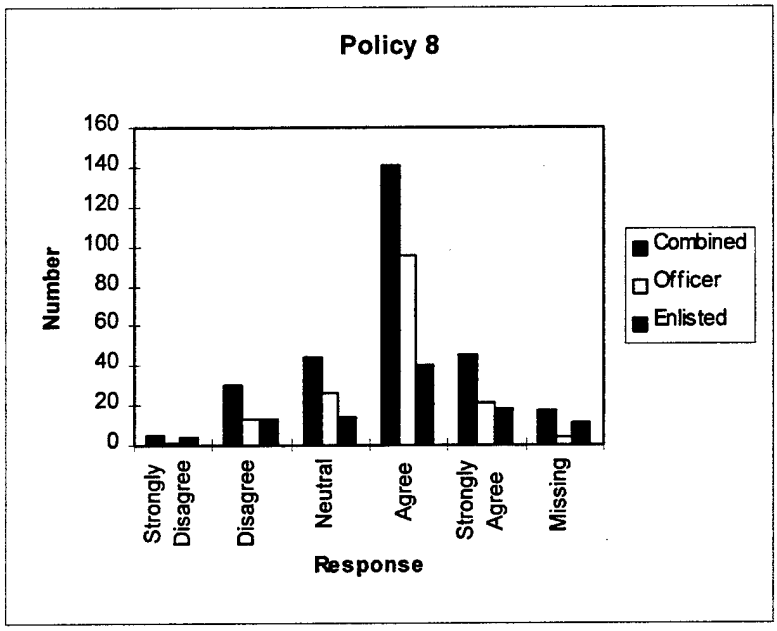
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	6	(2.1)	4	(2.5)	1	(1.0)
Disagree	43	(15.2)	23	(14.3)	15	(15.0)
Neutral	71	(25.2)	41	(25.5)	25	(25.0)
Agree	113	(40.1)	71	(44.1)	39	(39.0)
Strongly Agree	34	(12.1)	17	(10.6)	12	(12.0)
Missing	15	(5.3)	5	(3.1)	8	(8.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 28. Summary of Responses to Policy Item 6.



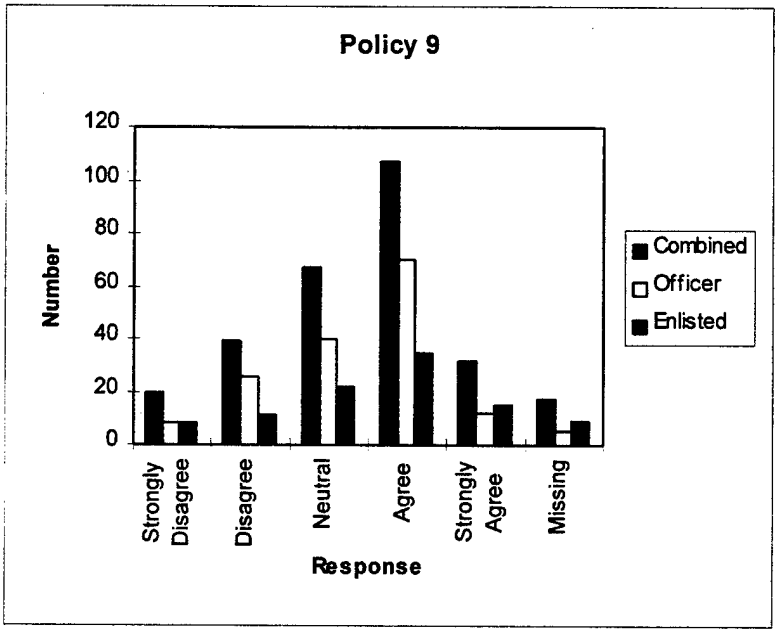
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	15	(5.3)	6	(3.7)	6	(6.0)
Disagree	39	(13.8)	20	(12.4)	17	(17.0)
Neutral	77	(27.3)	43	(26.7)	29	(29.0)
Agree	109	(38.7)	76	(47.2)	27	(27.0)
Strongly Agree	18	(6.4)	9	(5.6)	7	(7.0)
Missing	24	(8.5)	7	(4.3)	14	(14.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 29. Summary of Responses to Policy Item 7.



Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	5	(1.8)	1	(0.6)	4	(4.0)
Disagree	30	(10.6)	13	(8.1)	13	(13.0)
Neutral	44	(15.6)	26	(16.1)	14	(14.0)
Agree	141	(50.0)	96	(59.6)	40	(40.0)
Strongly Agree	45	(16.0)	21	(13.0)	18	(18.0)
Missing	17	(6.0)	4	(2.5)	11	(11.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

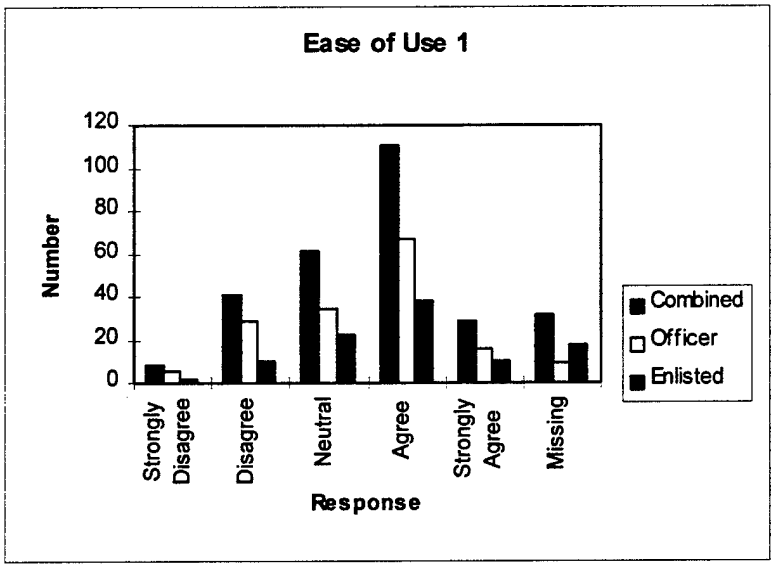
Figure 30. Summary of Responses to Policy Item 8.



Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	20	(7.1)	8	(5.0)	8	(8.0)
Disagree	39	(13.8)	26	(16.1)	11	(11.0)
Neutral	67	(23.8)	40	(24.8)	22	(22.0)
Agree	107	(37.9)	70	(43.5)	35	(35.0)
Strongly Agree	32	(11.3)	12	(7.5)	15	(15.0)
Missing	17	(6.0)	5	(3.1)	9	(9.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

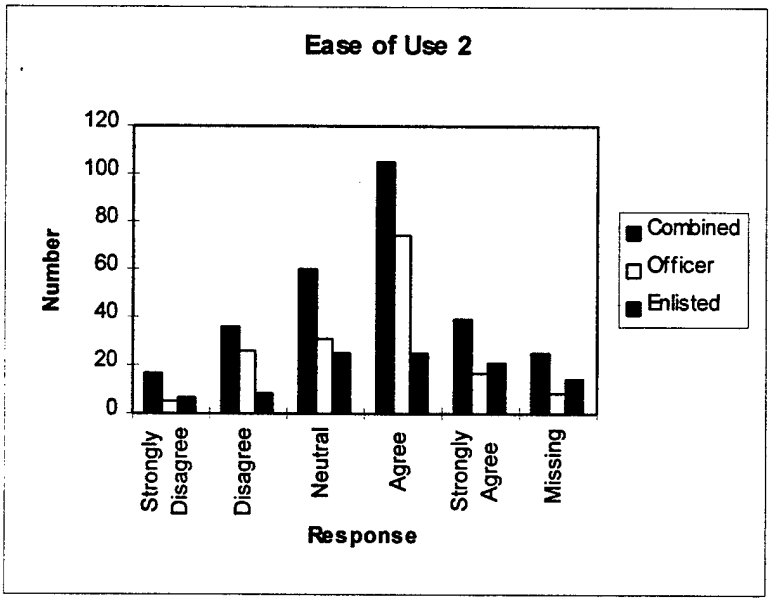
Figure 31. Summary of Responses to Policy Item 9.

Appendix G. Ease of Use



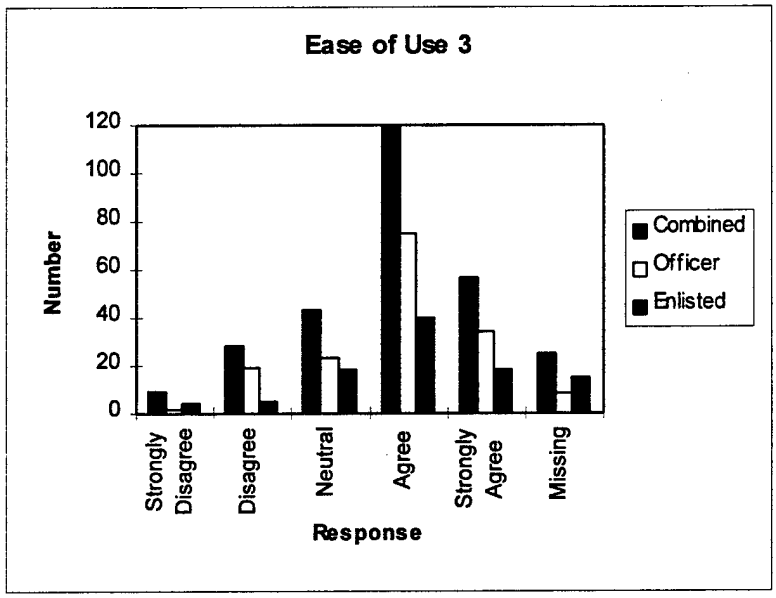
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	8	(2.8)	6	(3.7)	2	(2.0)
Disagree	41	(14.5)	29	(18.0)	10	(10.0)
Neutral	61	(21.6)	34	(21.1)	22	(22.0)
Agree	111	(39.4)	67	(41.6)	38	(38.0)
Strongly Agree	29	(10.3)	16	(9.9)	10	(10.0)
Missing	32	(11.3)	9	(5.6)	18	(18.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 32. Summary of Responses to Ease of Use Item 1.



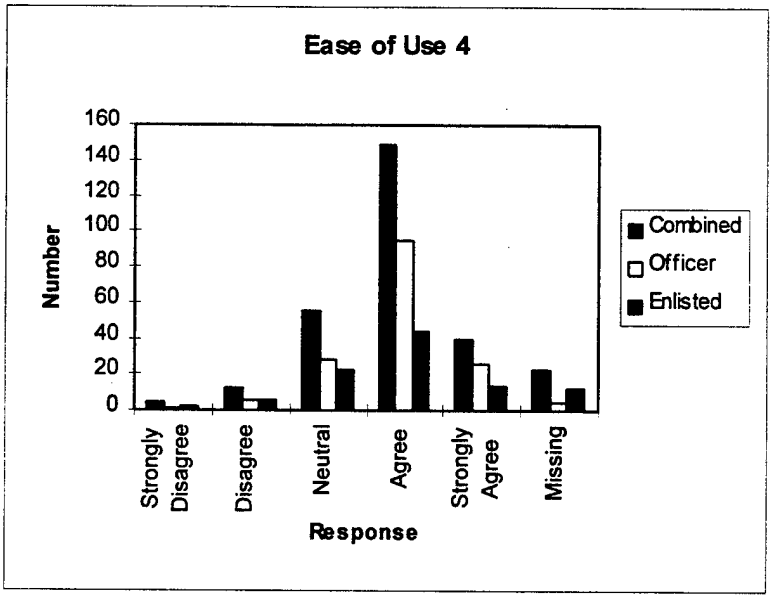
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	17	(6.0)	5	(3.1)	7	(7.0)
Disagree	36	(12.8)	26	(16.1)	8	(8.0)
Neutral	60	(21.3)	31	(19.3)	25	(25.0)
Agree	105	(37.2)	74	(46.0)	25	(25.0)
Strongly Agree	39	(13.8)	17	(10.6)	21	(21.0)
Missing	25	(8.9)	8	(5.0)	14	(14.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 33. Summary of Responses to Ease of Use Item 2.



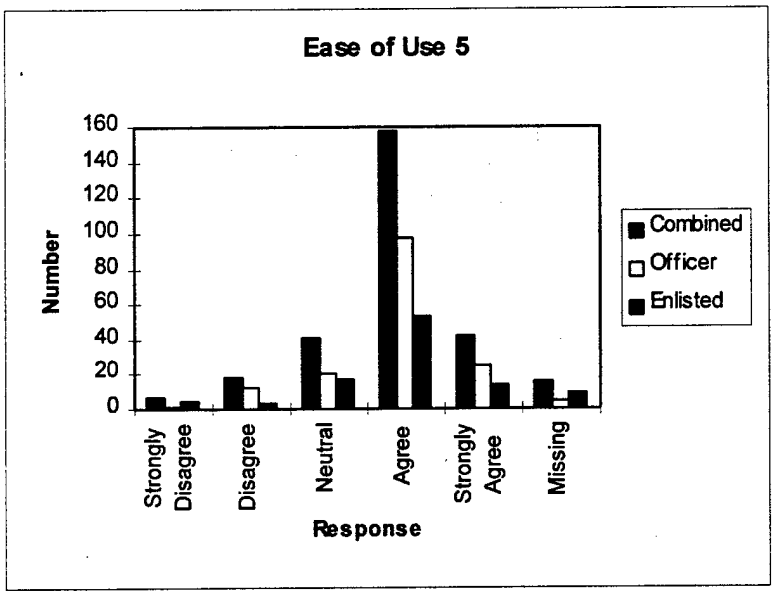
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	9	(3.2)	2	(1.2)	4	(4.0)
Disagree	28	(9.9)	19	(11.8)	5	(5.0)
Neutral	43	(15.2)	23	(14.3)	18	(18.0)
Agree	120	(42.6)	75	(46.6)	40	(40.0)
Strongly Agree	57	(20.2)	34	(21.1)	18	(18.0)
Missing	25	(8.9)	8	(5.0)	15	(15.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 34. Summary of Responses to Ease of Use Item 3.



Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	4	(1.4)	1	(0.6)	2	(2.0)
Disagree	12	(4.3)	6	(3.7)	6	(6.0)
Neutral	55	(19.5)	28	(17.4)	23	(23.0)
Agree	149	(52.8)	95	(59.0)	44	(44.0)
Strongly Agree	40	(14.2)	26	(16.1)	13	(13.0)
Missing	22	(7.8)	5	(3.1)	12	(12.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

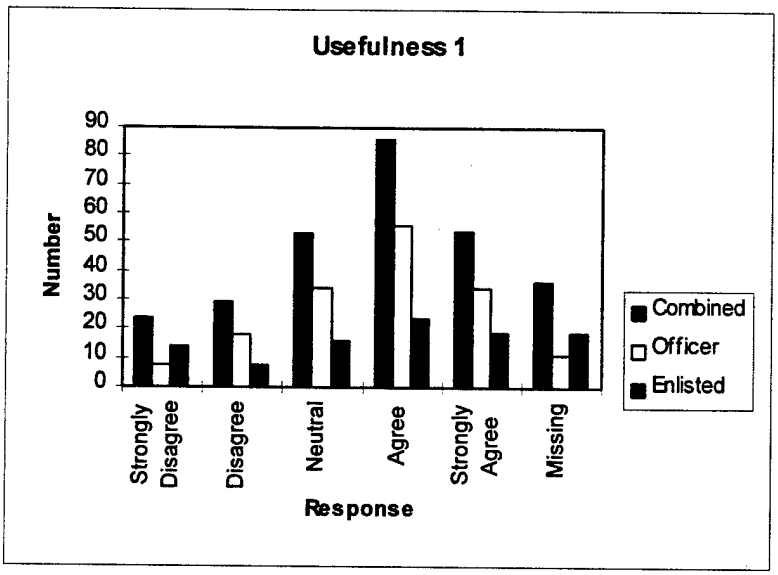
Figure 35. Summary of Responses to Ease of Use Item 4.



Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	7	(2.5)	1	(0.6)	4	(4.0)
Disagree	18	(6.4)	13	(8.1)	3	(3.0)
Neutral	41	(14.5)	20	(12.4)	17	(17.0)
Agree	158	(56.0)	98	(60.9)	53	(53.0)
Strongly Agree	42	(14.9)	25	(15.5)	14	(14.0)
Missing	16	(5.7)	4	(2.5)	9	(9.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

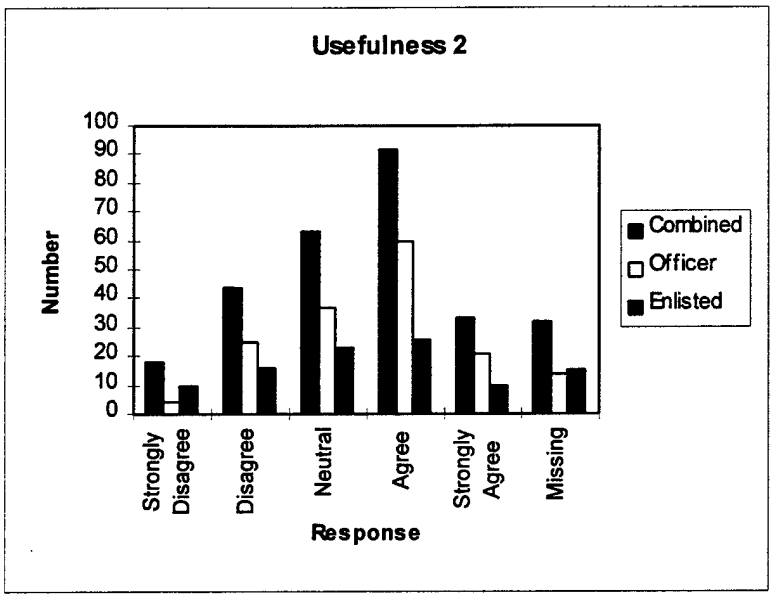
Figure 36. Summary of Responses to Ease of Use Item 5.

Appendix H. Usefulness



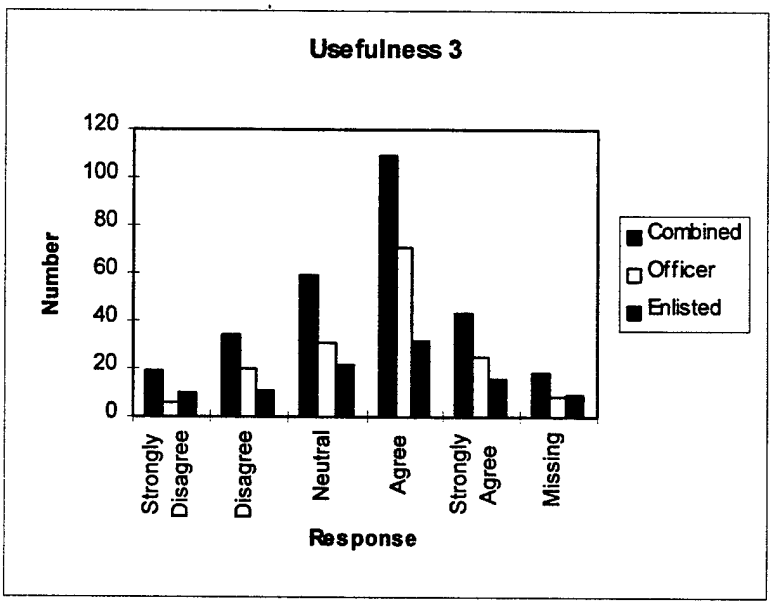
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	24	(8.5)	8	(5.0)	14	(14.0)
Disagree	29	(10.3)	18	(11.2)	8	(8.0)
Neutral	53	(18.8)	34	(21.1)	16	(16.0)
Agree	86	(30.5)	56	(34.8)	24	(24.0)
Strongly Agree	54	(19.1)	34	(21.1)	19	(19.0)
Missing	36	(12.8)	11	(6.8)	19	(19.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 37. Summary of Responses to Usefulness Item 1.



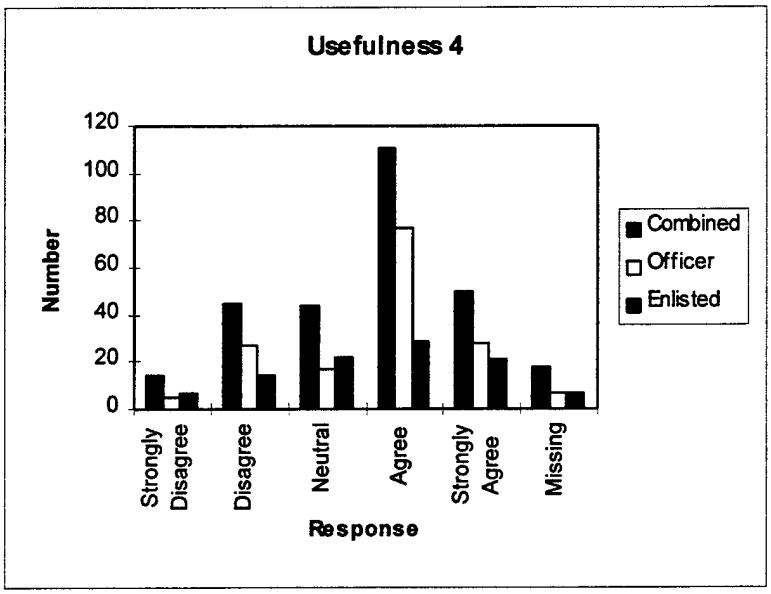
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	18	(6.4)	4	(2.5)	10	(10.0)
Disagree	44	(15.6)	25	(15.5)	16	(16.0)
Neutral	63	(22.3)	37	(23.0)	23	(23.0)
Agree	92	(32.6)	60	(37.3)	26	(26.0)
Strongly Agree	33	(11.7)	21	(13.0)	10	(10.0)
Missing	32	(11.3)	14	(8.7)	15	(15.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 38. Summary of Responses to Usefulness Item 2.



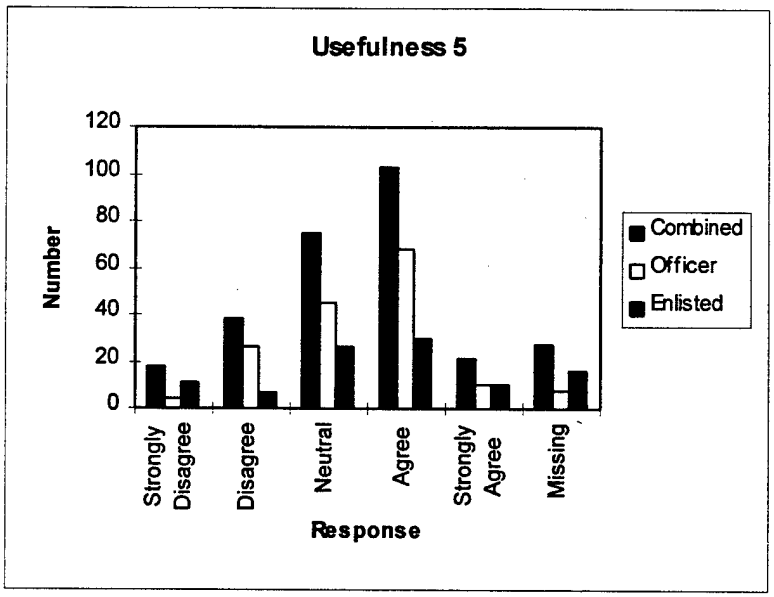
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	19	(6.7)	6	(3.7)	10	(10.0)
Disagree	34	(12.1)	20	(12.4)	11	(11.0)
Neutral	59	(20.9)	31	(19.3)	22	(22.0)
Agree	109	(38.7)	71	(44.1)	32	(32.0)
Strongly Agree	43	(15.2)	25	(15.5)	16	(16.0)
Missing	18	(6.4)	8	(5.0)	9	(9.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 39. Summary of Responses to Usefulness Item 3.



Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	14	(5.0)	5	(3.1)	7	(7.0)
Disagree	45	(16.0)	27	(16.8)	14	(14.0)
Neutral	44	(15.6)	17	(10.6)	22	(22.0)
Agree	111	(39.4)	77	(47.8)	29	(29.0)
Strongly Agree	50	(17.7)	28	(17.4)	21	(21.0)
Missing	18	(6.4)	7	(4.3)	7	(7.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

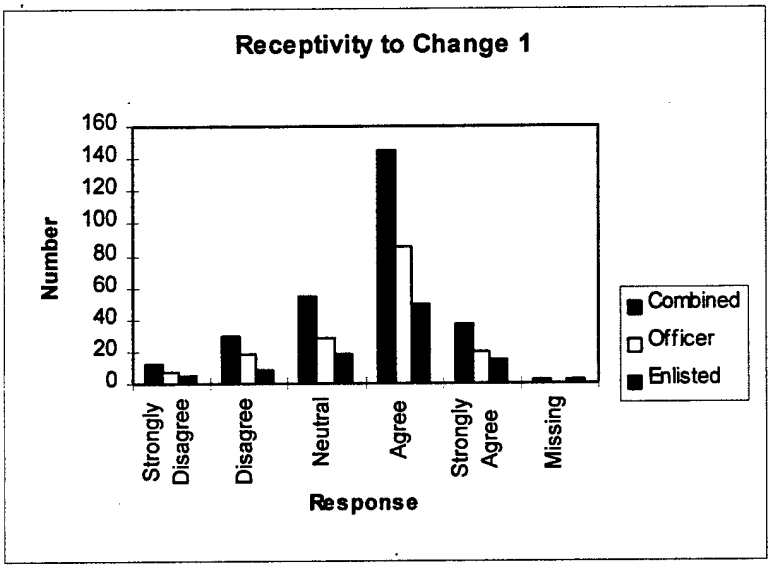
Figure 40. Summary of Responses to Usefulness Item 4.



Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	18	(6.4)	4	(2.5)	11	(11.0)
Disagree	38	(13.5)	26	(16.1)	7	(7.0)
Neutral	75	(26.6)	45	(28.0)	26	(26.0)
Agree	103	(36.5)	68	(42.2)	30	(30.0)
Strongly Agree	21	(7.4)	10	(6.2)	10	(10.0)
Missing	27	(9.6)	8	(5.0)	16	(16.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

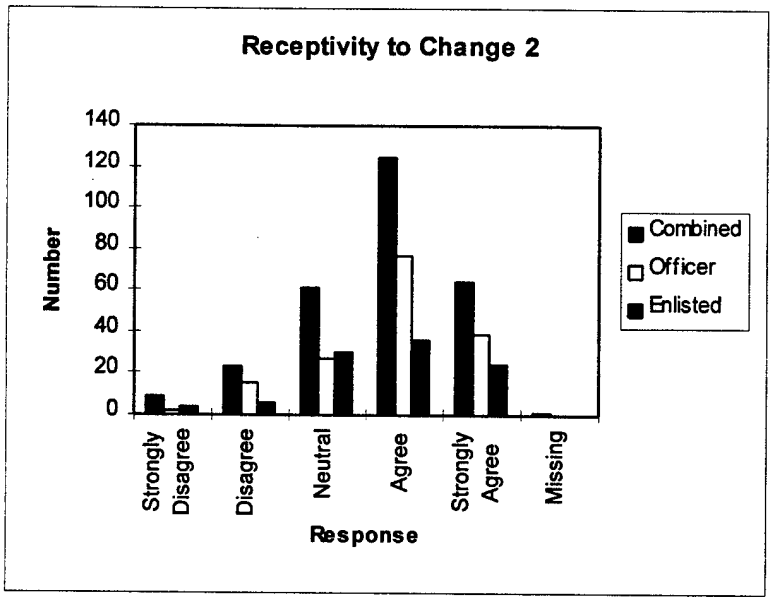
Figure 41. Summary of Responses to Usefulness Item 5.

Appendix I. Receptivity to Change



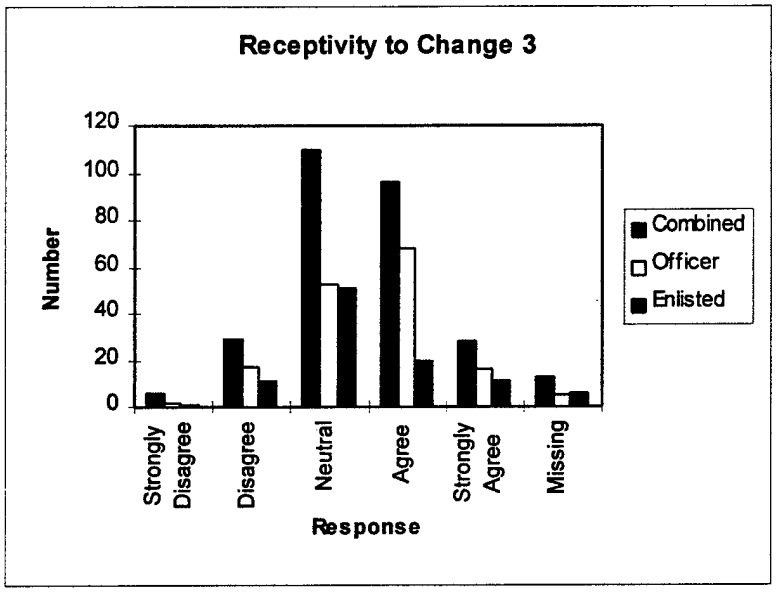
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	13	(4.6)	7	(4.3)	5	(5.0)
Disagree	30	(10.6)	19	(11.8)	9	(9.0)
Neutral	54	(19.1)	29	(18.0)	19	(19.0)
Agree	145	(51.4)	86	(53.4)	50	(50.0)
Strongly Agree	37	(13.1)	20	(12.4)	15	(15.0)
Missing	3	(1.1)	0	(0.0)	2	(2.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 42. Summary of Responses to Receptivity to Change Item 1.



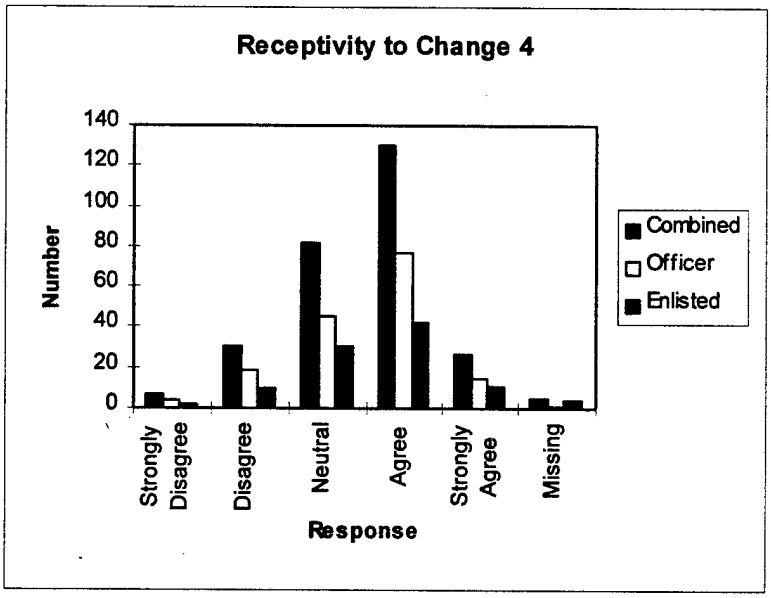
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	9	(3.2)	2	(1.2)	4	(4.0)
Disagree	23	(8.2)	16	(9.9)	6	(6.0)
Neutral	61	(21.6)	27	(16.8)	30	(30.0)
Agree	124	(44.0)	77	(47.8)	36	(36.0)
Strongly Agree	64	(22.7)	39	(24.2)	24	(24.0)
Missing	1	(0.4)	0	(0.0)	0	(0.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 43. Summary of Responses to Receptivity to Change Item 2.



Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	6	(2.1)	2	(1.2)	1	(1.0)
Disagree	29	(10.3)	17	(10.6)	11	(11.0)
Neutral	110	(39.0)	53	(32.9)	51	(51.0)
Agree	96	(34.0)	68	(42.2)	20	(20.0)
Strongly Agree	28	(9.9)	16	(9.9)	11	(11.0)
Missing	13	(4.6)	5	(3.1)	6	(6.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

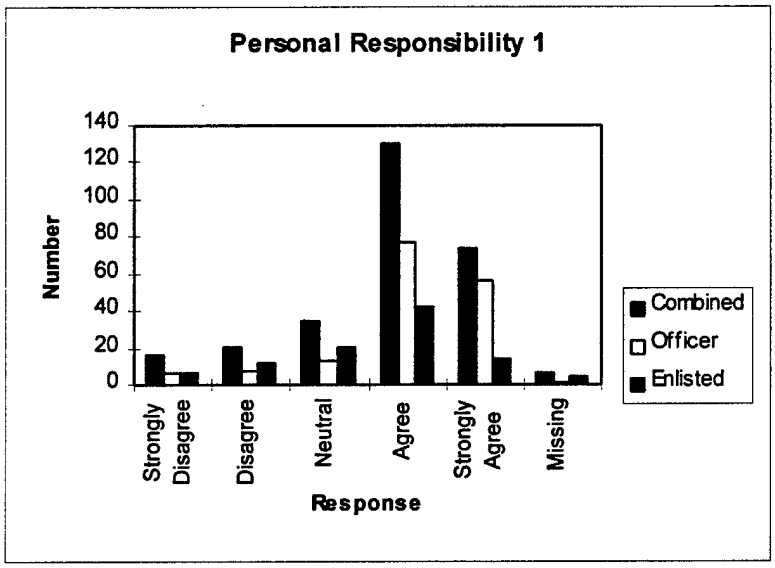
Figure 44. Summary of Responses to Receptivity to Change Item 3.



Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	7	(2.5)	4	(2.5)	2	(2.0)
Disagree	31	(11.0)	19	(11.8)	10	(10.0)
Neutral	82	(29.1)	45	(28.0)	31	(31.0)
Agree	130	(46.1)	77	(47.8)	42	(42.0)
Strongly Agree	27	(9.6)	15	(9.3)	11	(11.0)
Missing	5	(1.8)	1	(0.6)	4	(4.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

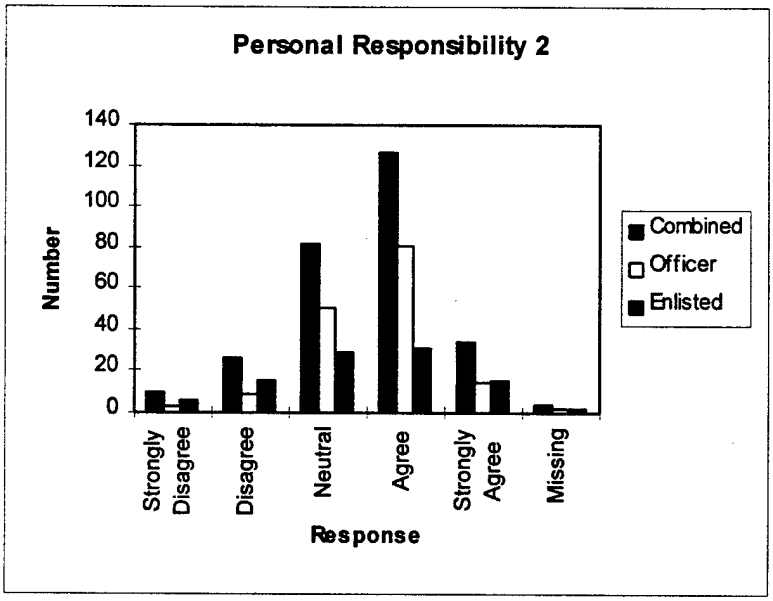
Figure 45. Summary of Responses to Receptivity to Change Item 4.

Appendix J. Personal Responsibility



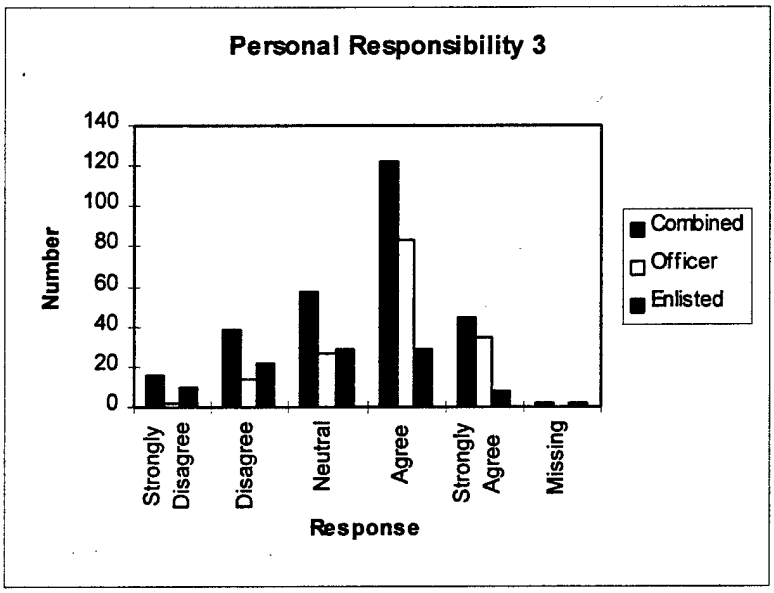
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	16	(5.7)	6	(3.7)	7	(7.0)
Disagree	21	(7.4)	8	(5.0)	12	(12.0)
Neutral	35	(12.4)	13	(8.1)	21	(21.0)
Agree	130	(46.1)	77	(47.8)	42	(42.0)
Strongly Agree	74	(26.2)	56	(34.8)	14	(14.0)
Missing	6	(2.1)	1	(0.6)	4	(4.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 46. Summary of Responses to Personal Responsibility Item 1.



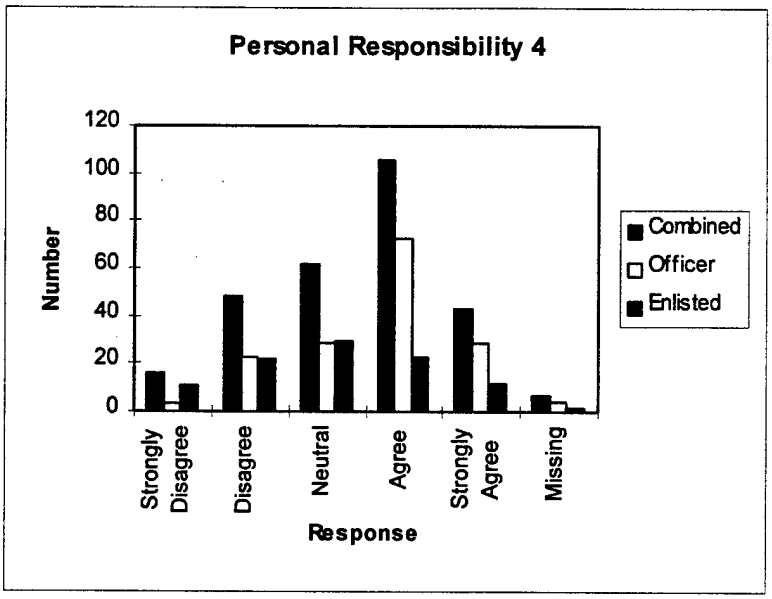
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	10	(3.5)	3	(1.9)	6	(6.0)
Disagree	26	(9.2)	9	(5.6)	16	(16.0)
Neutral	82	(29.1)	51	(31.7)	29	(29.0)
Agree	126	(44.7)	81	(50.3)	31	(31.0)
Strongly Agree	34	(12.1)	15	(9.3)	16	(16.0)
Missing	4	(1.4)	2	(1.2)	2	(2.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 47. Summary of Responses to Personal Responsibility Item 2.



Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	16	(5.7)	2	(1.2)	10	(10.0)
Disagree	39	(13.8)	14	(8.7)	22	(22.0)
Neutral	58	(20.6)	27	(16.8)	29	(29.0)
Agree	122	(43.3)	83	(51.6)	29	(29.0)
Strongly Agree	45	(16.0)	35	(21.7)	8	(8.0)
Missing	2	(0.7)	0	(0.0)	2	(2.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

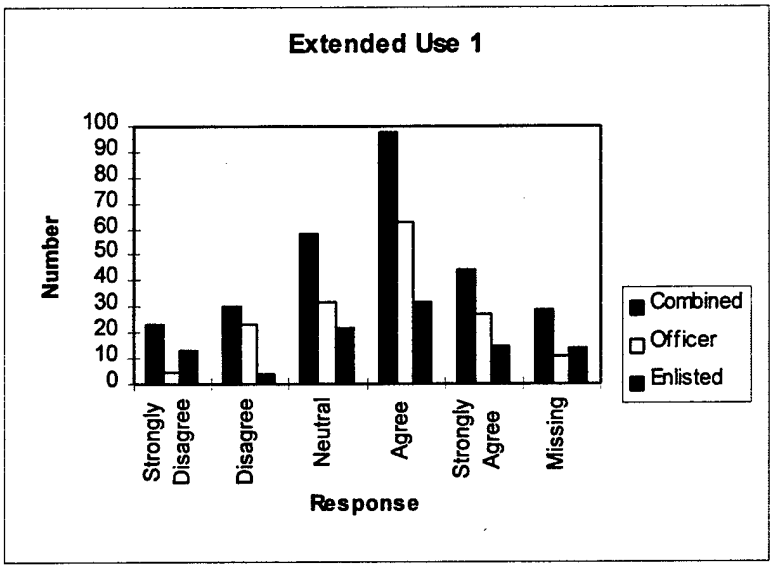
Figure 48. Summary of Responses to Personal Responsibility Item 3.



Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	16	(5.7)	3	(1.9)	11	(11.0)
Disagree	48	(17.0)	23	(14.3)	22	(22.0)
Neutral	62	(22.0)	29	(18.0)	30	(30.0)
Agree	106	(37.6)	73	(45.3)	23	(23.0)
Strongly Agree	43	(15.2)	29	(18.0)	12	(12.0)
Missing	7	(2.5)	4	(2.5)	2	(2.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

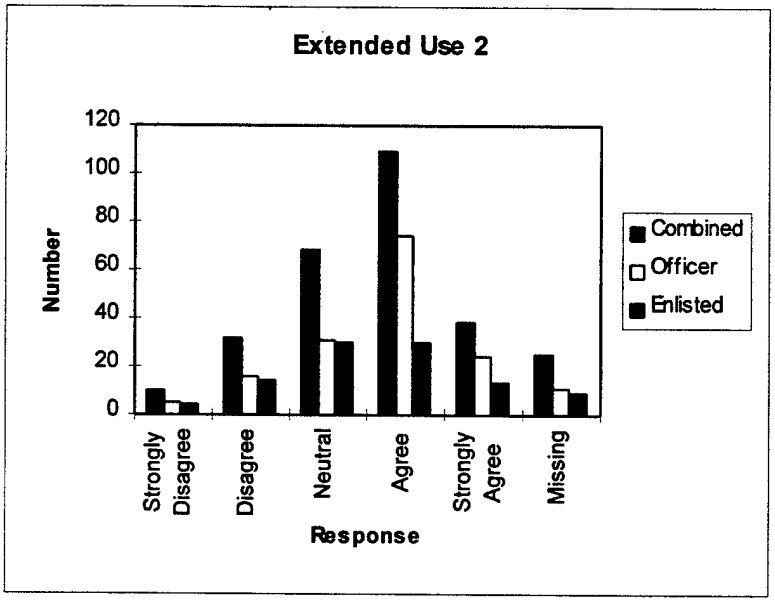
Figure 49. Summary of Responses to Personal Responsibility Item 4.

Appendix K. Extended Use



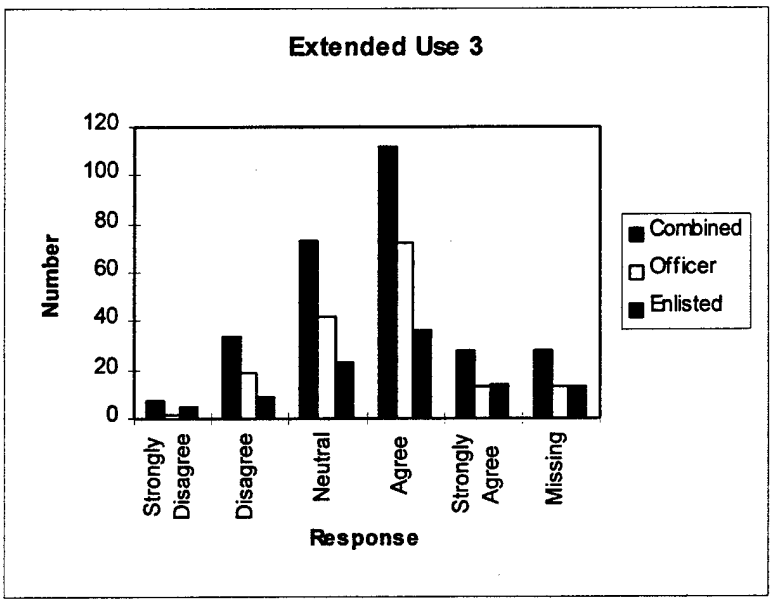
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	23	(8.2)	5	(3.1)	13	(13.0)
Disagree	30	(10.6)	23	(14.3)	4	(4.0)
Neutral	58	(20.6)	32	(19.9)	22	(22.0)
Agree	98	(34.8)	63	(39.1)	32	(32.0)
Strongly Agree	44	(15.6)	27	(16.8)	15	(15.0)
Missing	29	(10.3)	11	(6.8)	14	(14.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 50. Summary of Responses to Extended Use Item 1.



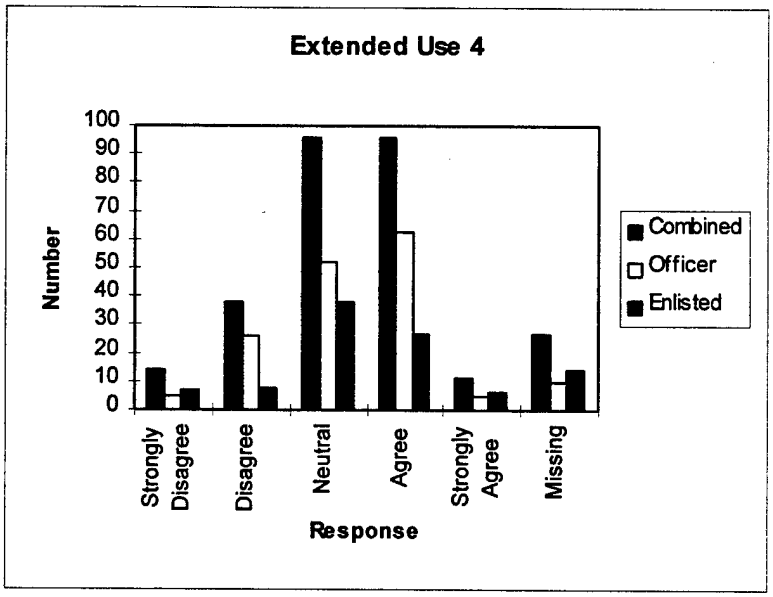
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	10	(3.5)	5	(3.1)	4	(4.0)
Disagree	32	(11.3)	16	(9.9)	14	(14.0)
Neutral	68	(24.1)	31	(19.3)	30	(30.0)
Agree	109	(38.7)	74	(46.0)	30	(30.0)
Strongly Agree	38	(13.5)	24	(14.9)	13	(13.0)
Missing	25	(8.9)	11	(6.8)	9	(9.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 51. Summary of Responses to Extended Use Item 2.



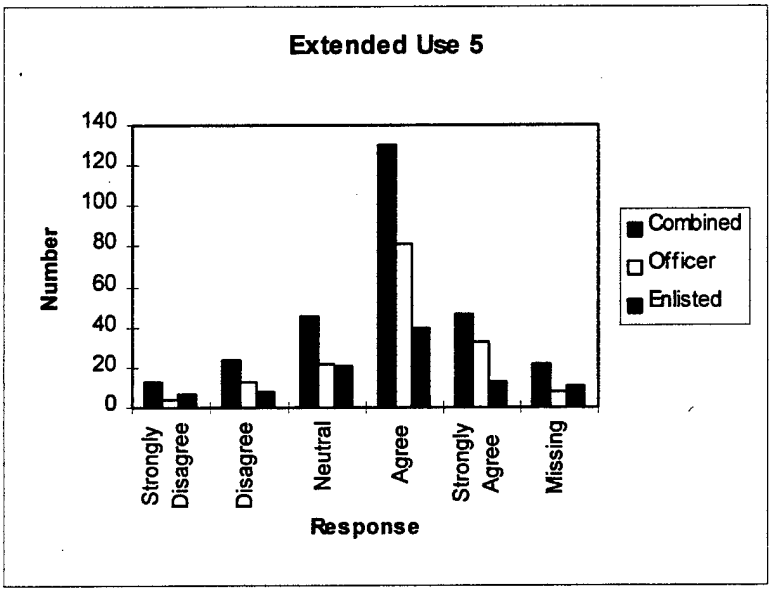
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	7	(2.5)	2	(1.2)	5	(5.0)
Disagree	34	(12.1)	19	(11.8)	9	(9.0)
Neutral	73	(25.9)	42	(26.1)	23	(23.0)
Agree	112	(39.7)	72	(44.7)	36	(36.0)
Strongly Agree	28	(9.9)	13	(8.1)	14	(14.0)
Missing	28	(9.9)	13	(8.1)	13	(13.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 52. Summary of Responses to Extended Use Item 3.



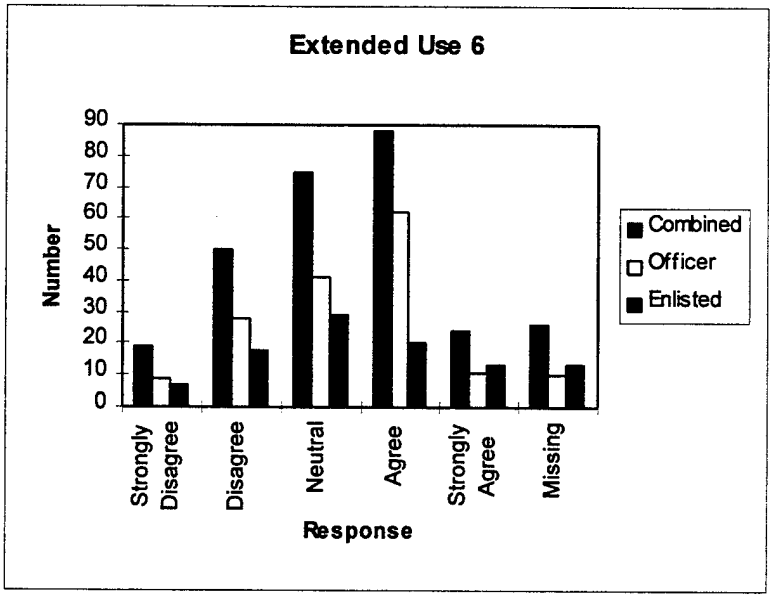
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	14	(5.0)	5	(3.1)	7	(7.0)
Disagree	38	(13.5)	26	(16.1)	8	(8.0)
Neutral	96	(34.0)	52	(32.3)	38	(38.0)
Agree	96	(34.0)	63	(39.1)	27	(27.0)
Strongly Agree	11	(3.9)	5	(3.1)	6	(6.0)
Missing	27	(9.6)	10	(6.2)	14	(14.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 53. Summary of Responses to Extended Use Item 4.



Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	13	(4.6)	4	(2.5)	7	(7.0)
Disagree	24	(8.5)	13	(8.1)	8	(8.0)
Neutral	46	(16.3)	22	(13.7)	21	(21.0)
Agree	130	(46.1)	81	(50.3)	40	(40.0)
Strongly Agree	47	(16.7)	33	(20.5)	13	(13.0)
Missing	22	(7.8)	8	(5.0)	11	(11.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

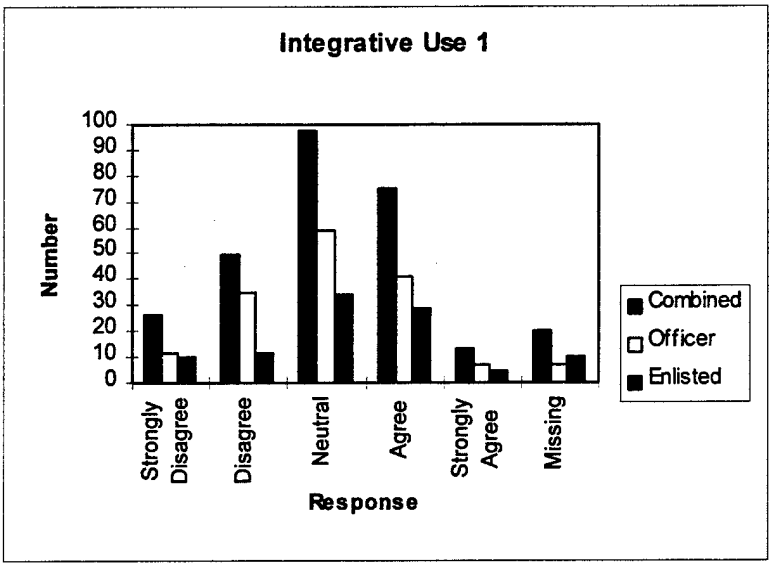
Figure 54. Summary of Responses to Extended Use Item 5.



Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	19	(6.7)	9	(5.6)	7	(7.0)
Disagree	50	(17.7)	28	(17.4)	18	(18.0)
Neutral	75	(26.6)	41	(25.5)	29	(29.0)
Agree	88	(31.2)	62	(38.5)	20	(20.0)
Strongly Agree	24	(8.5)	11	(6.8)	13	(13.0)
Missing	26	(9.2)	10	(6.2)	13	(13.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

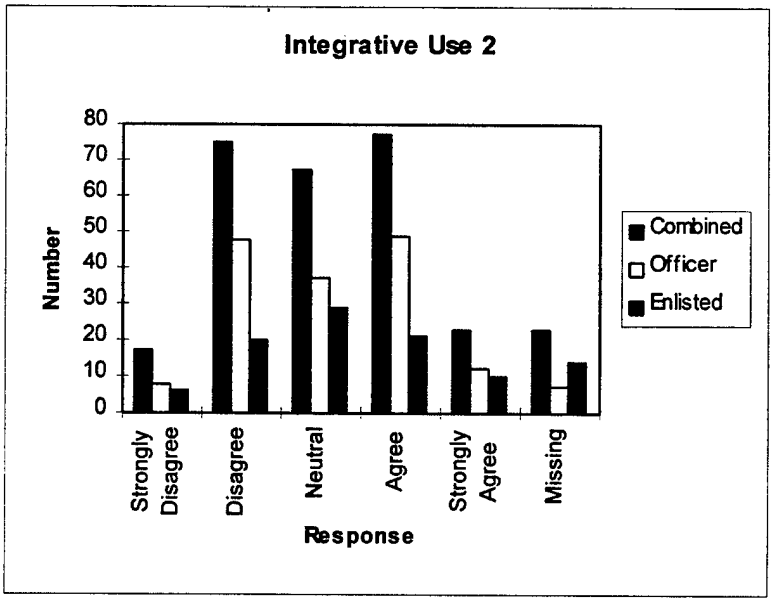
Figure 55. Summary of Responses to Extended Use Item 6.

Appendix L. Integrative Use



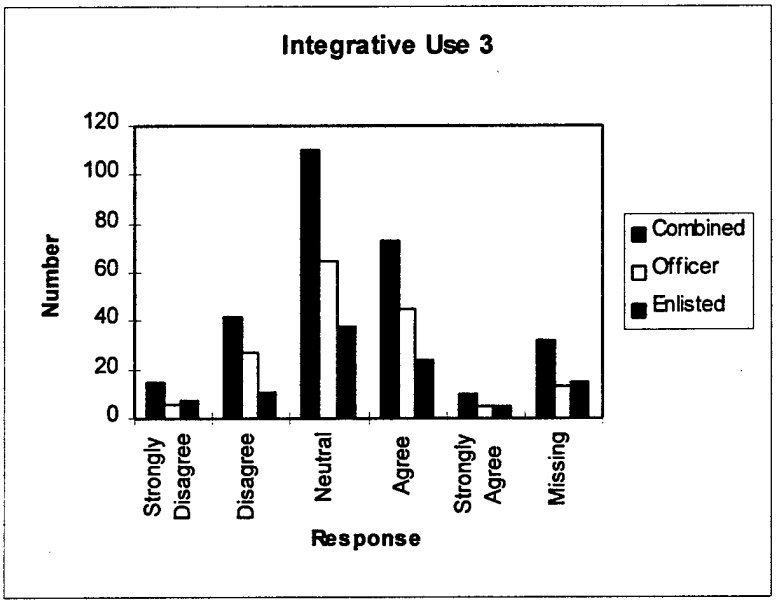
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	26	(9.2)	12	(7.5)	10	(10.0)
Disagree	50	(17.7)	35	(21.7)	12	(12.0)
Neutral	98	(34.8)	59	(36.6)	34	(34.0)
Agree	75	(26.6)	41	(25.5)	29	(29.0)
Strongly Agree	13	(4.6)	7	(4.3)	5	(5.0)
Missing	20	(7.1)	7	(4.3)	10	(10.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 56. Summary of Responses to Integrative Use Item 1.



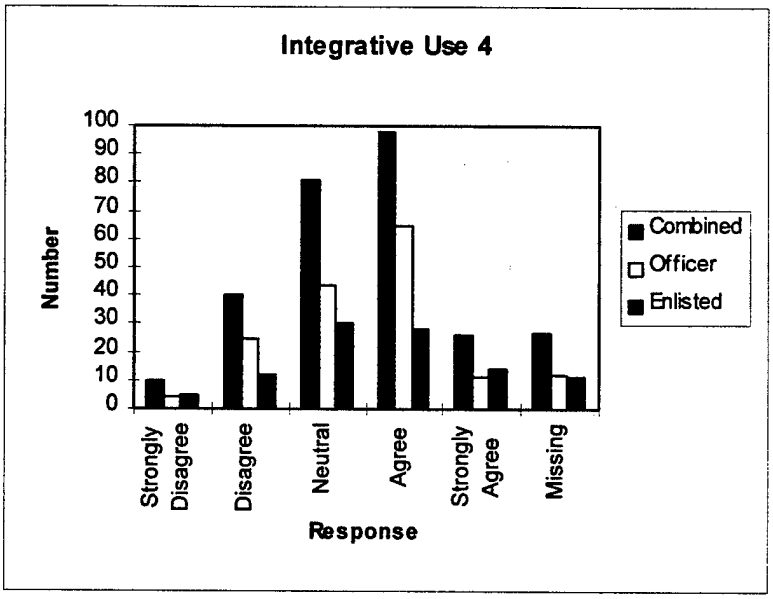
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	17	(6.0)	8	(5.0)	6	(6.0)
Disagree	75	(26.6)	48	(29.8)	20	(20.0)
Neutral	67	(23.8)	37	(23.0)	29	(29.0)
Agree	77	(27.3)	49	(30.4)	21	(21.0)
Strongly Agree	23	(8.2)	12	(7.5)	10	(10.0)
Missing	23	(8.2)	7	(4.3)	14	(14.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 57. Summary of Responses to Integrative Use Item 2.



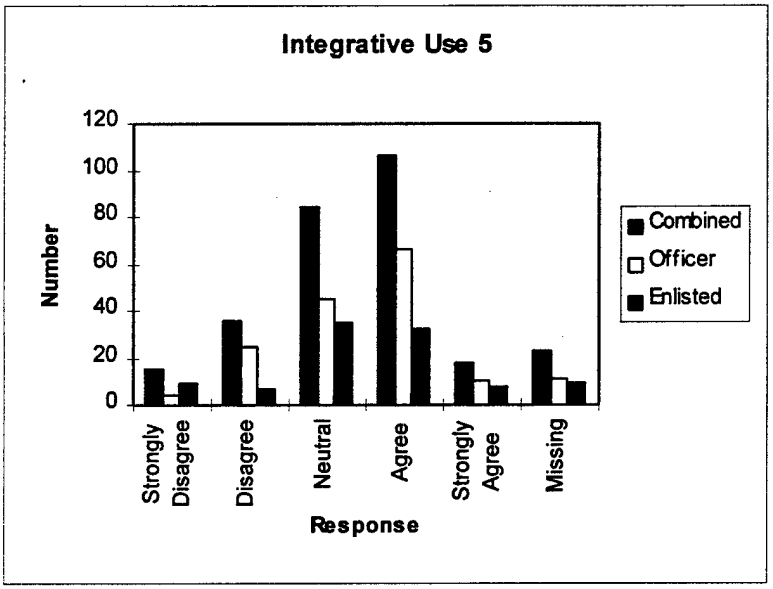
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	15	(5.3)	6	(3.7)	7	(7.0)
Disagree	42	(14.9)	27	(16.8)	11	(11.0)
Neutral	110	(39.0)	65	(40.4)	38	(38.0)
Agree	73	(25.9)	45	(28.0)	24	(24.0)
Strongly Agree	10	(3.5)	5	(3.1)	5	(5.0)
Missing	32	(11.3)	13	(8.1)	15	(15.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 58. Summary of Responses to Integrative Use Item 3.



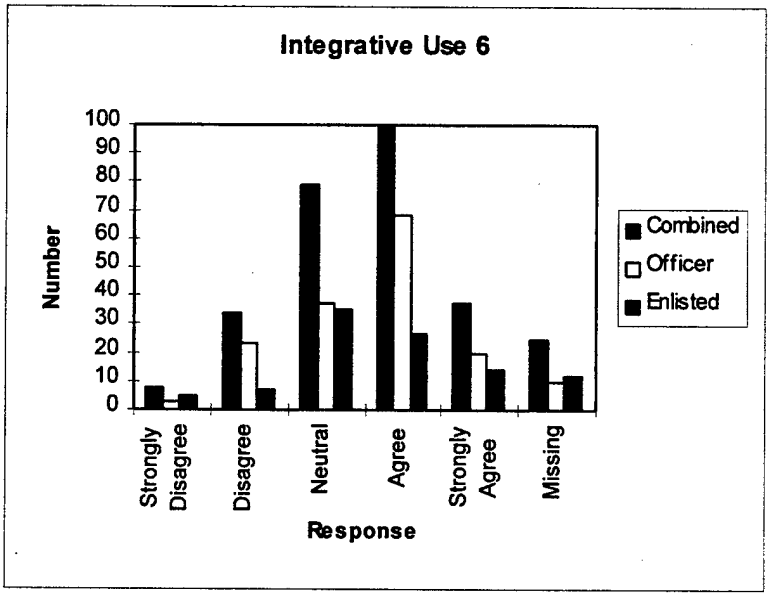
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	10	(3.5)	4	(2.5)	5	(5.0)
Disagree	40	(14.2)	25	(15.5)	12	(12.0)
Neutral	81	(28.7)	44	(27.3)	30	(30.0)
Agree	98	(34.8)	65	(40.4)	28	(28.0)
Strongly Agree	26	(9.2)	11	(6.8)	14	(14.0)
Missing	27	(9.6)	12	(7.5)	11	(11.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 59. Summary of Responses to Integrative Use Item 4.



Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	15	(5.3)	4	(2.5)	9	(9.0)
Disagree	36	(12.8)	25	(15.5)	7	(7.0)
Neutral	84	(29.8)	45	(28.0)	35	(35.0)
Agree	106	(37.6)	66	(41.0)	32	(32.0)
Strongly Agree	18	(6.4)	10	(6.2)	8	(8.0)
Missing	23	(8.2)	11	(6.8)	9	(9.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

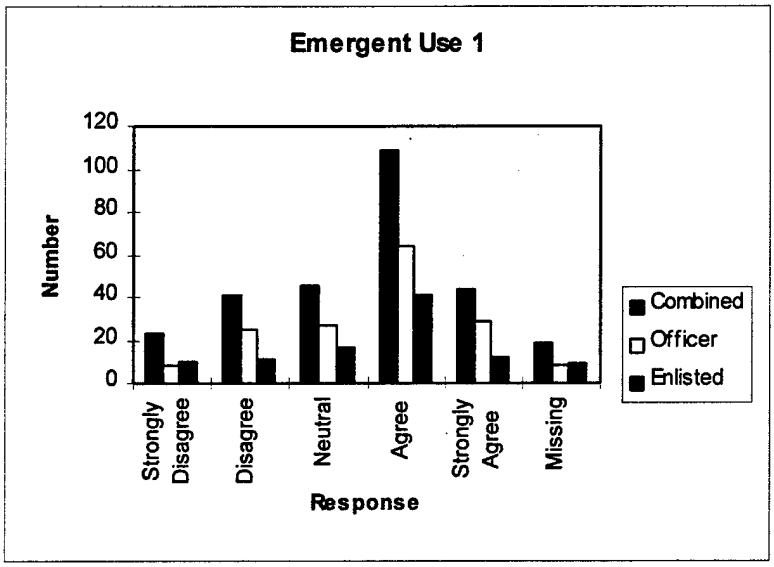
Figure 60. Summary of Responses to Integrative Use Item 5.



Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	8	(2.8)	3	(1.9)	5	(5.0)
Disagree	34	(12.1)	23	(14.3)	7	(7.0)
Neutral	79	(28.0)	37	(23.0)	35	(35.0)
Agree	99	(35.1)	68	(42.2)	27	(27.0)
Strongly Agree	37	(13.1)	20	(12.4)	14	(14.0)
Missing	25	(8.9)	10	(6.2)	12	(12.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

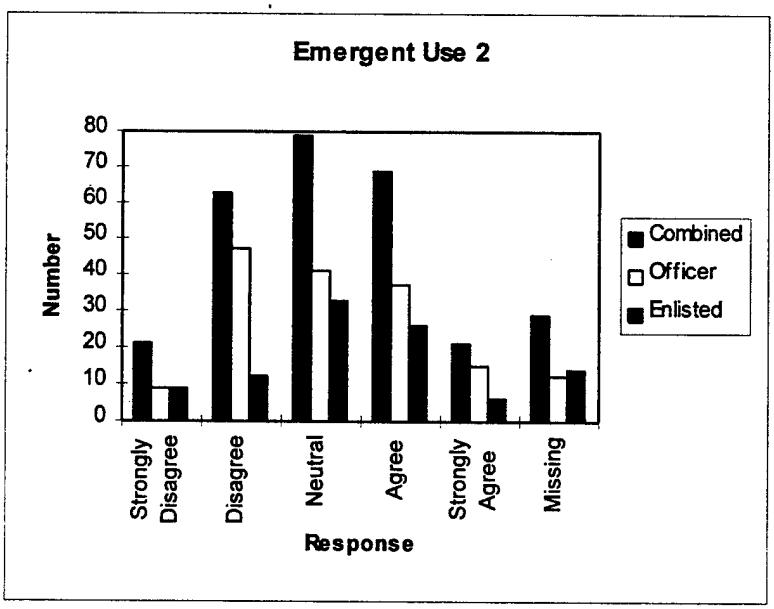
Figure 61. Summary of Responses to Integrative Use Item 6.

Appendix M. Emergent Use



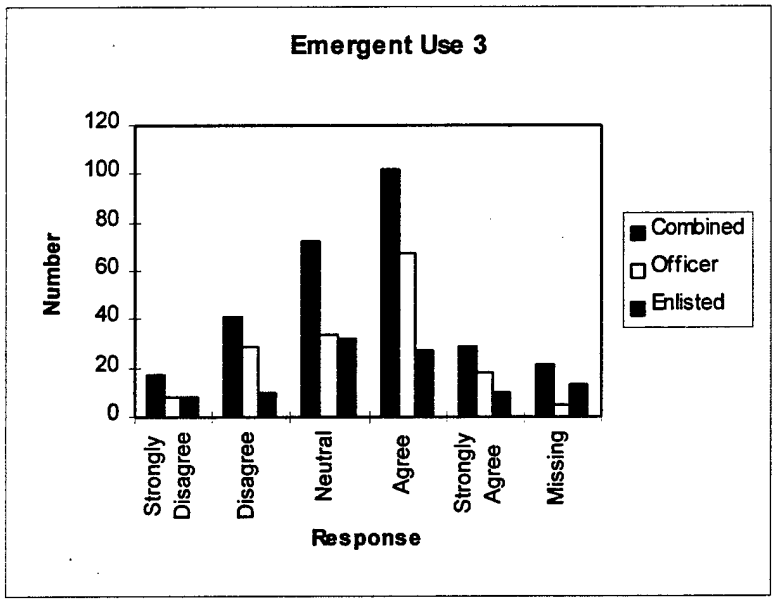
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	23	(8.2)	8	(5.0)	10	(10.0)
Disagree	41	(14.5)	25	(15.5)	11	(11.0)
Neutral	46	(16.3)	27	(16.8)	17	(17.0)
Agree	109	(38.7)	64	(39.8)	41	(41.0)
Strongly Agree	44	(15.6)	29	(18.0)	12	(12.0)
Missing	19	(6.7)	8	(5.0)	9	(9.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 62. Summary of Responses to Emergent Use Item 1.



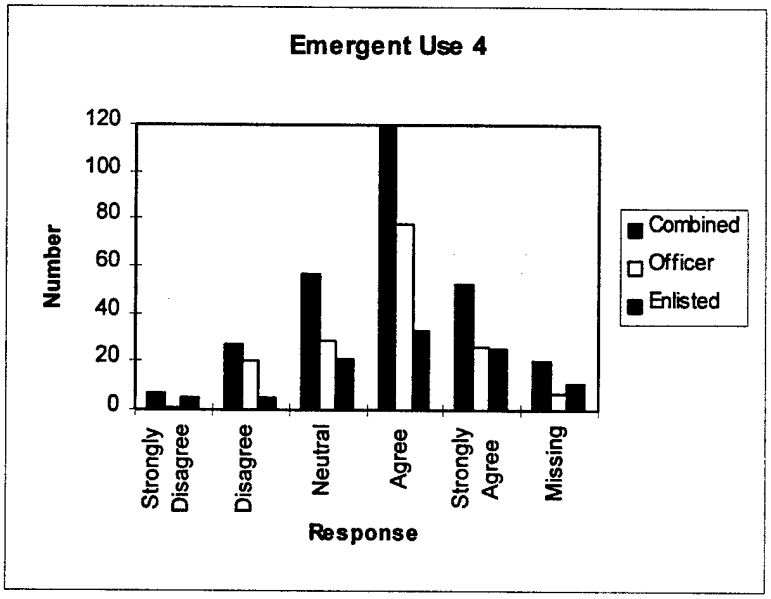
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	21	(7.4)	9	(5.6)	9	(9.0)
Disagree	63	(22.3)	47	(29.2)	12	(12.0)
Neutral	79	(28.0)	41	(25.5)	33	(33.0)
Agree	69	(24.5)	37	(23.0)	26	(26.0)
Strongly Agree	21	(7.4)	15	(9.3)	6	(6.0)
Missing	29	(10.3)	12	(7.5)	14	(14.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 63. Summary of Responses to Emergent Use Item 2.



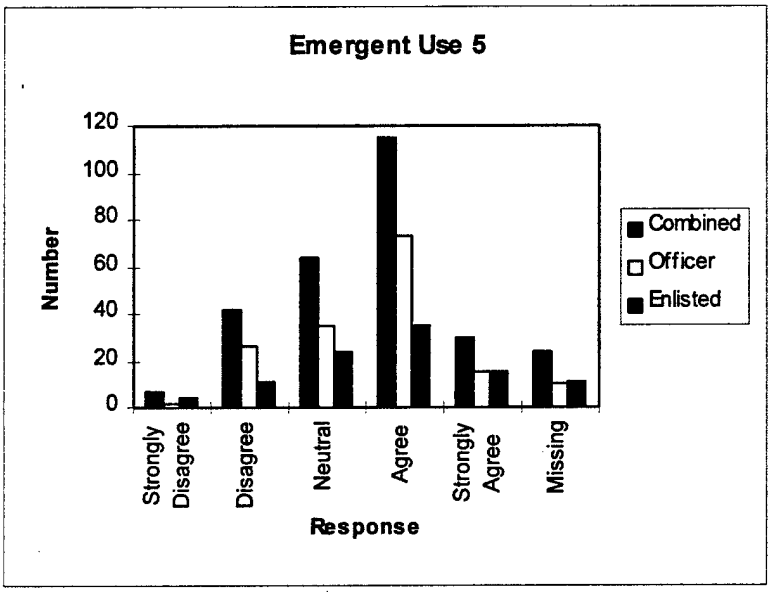
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	17	(6.0)	8	(5.0)	8	(8.0)
Disagree	41	(14.5)	29	(18.0)	10	(10.0)
Neutral	72	(25.5)	34	(21.1)	32	(32.0)
Agree	102	(36.2)	67	(41.6)	27	(27.0)
Strongly Agree	29	(10.3)	18	(11.2)	10	(10.0)
Missing	21	(7.4)	5	(3.1)	13	(13.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 64. Summary of Responses to Emergent Use Item 3.



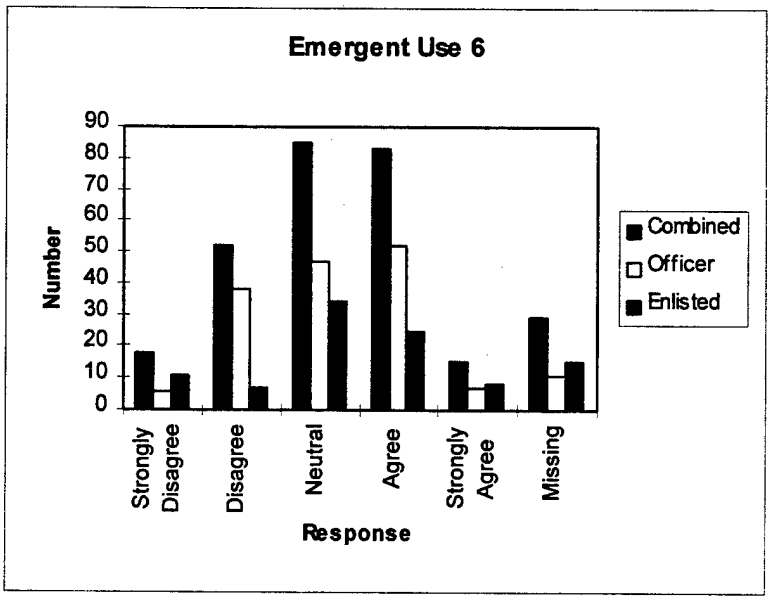
Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	7	(2.5)	1	(0.6)	5	(5.0)
Disagree	27	(9.6)	20	(12.4)	5	(5.0)
Neutral	57	(20.2)	29	(18.0)	21	(21.0)
Agree	119	(42.2)	78	(48.4)	33	(33.0)
Strongly Agree	52	(18.4)	26	(16.1)	25	(25.0)
Missing	20	(7.1)	7	(4.3)	11	(11.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 65. Summary of Responses to Emergent Use Item 4.



Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	7	(2.5)	2	(1.2)	4	(4.0)
Disagree	42	(14.9)	26	(16.1)	11	(11.0)
Neutral	64	(22.7)	35	(21.7)	24	(24.0)
Agree	115	(40.8)	73	(45.3)	35	(35.0)
Strongly Agree	30	(10.6)	15	(9.3)	15	(15.0)
Missing	24	(8.5)	10	(6.2)	11	(11.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 66. Summary of Responses to Emergent Use Item 5.



Response	Combined	%	Officer	%	Enlisted	%
Strongly Disagree	18	(6.4)	6	(3.7)	11	(11.0)
Disagree	52	(18.4)	38	(23.6)	7	(7.0)
Neutral	85	(30.1)	47	(29.2)	34	(34.0)
Agree	83	(29.4)	52	(32.3)	25	(25.0)
Strongly Agree	15	(5.3)	7	(4.3)	8	(8.0)
Missing	29	(10.3)	11	(6.8)	15	(15.0)
Total	282	(100.0)	161	(100.0)	100	(100.0)

Figure 67. Summary of Responses to Emergent Use Item 6.

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Vita

Captain Anthony J. Davis is from Overland Park, Kansas. He enlisted in the United States Air Force in 1984, at which time he was stationed at Lowry AFB, Colorado. At Lowry, Captain Davis filled a variety of computer operations positions in support of Intelligence training.

In 1987, Captain Davis was chosen for a selectively filled position at Headquarters, Commander-in-Chief, United States Pacific Command (USCINCPAC), Camp Smith, Hawaii. In his time at Camp Smith, Captain Davis held several comm-computer positions including World-Wide Military Command and Control System Shift Supervisor. He was also a member of the USCINCPAC Crisis Action Team during Desert Shield and Desert Storm. While at Camp Smith, Captain Davis graduated from Hawaii Pacific University, with a Bachelor of Science degree in Computer Information Systems.

After receiving his commission through Officer Training School in 1991, and completing the Missile Operators Course (MOC) at Vandenburg AFB, California, Captain Davis was assigned to the 321st Missile Wing at Grand Forks AFB, North Dakota.

During his tour at Grand Forks AFB, Captain Davis filled a variety of missile operations positions. These positions included L-0 Flight Commander, Instructor Crew Commander, and N-0 Flight Commander Deputy. He also received a Master of Science in Human Resource Management from Central Michigan University in 1994.
In 1995, Captain Davis was hand selected by the Commander, 319th Air Refueling Wing, to become his Assistant Executive Officer. He held this position until his selection for entry into the Air Force Institute of Technology (AFIT) at Wright-Patterson AFB, Ohio in 1996.

Captain Davis graduated from AFIT in 1997 with a Masters degree in Information Resource Management. He was subsequently assigned to the 690th Communications Support Squadron, Air Intelligence Agency, Kelly AFB, Texas.

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13. ABSTRACT (*Maximum 200 Words*)

This thesis identifies managerial, organizational, and individual attributes which influence Internet technology infusion. Infusion can be defined as the incorporation of a technology into an organization's key processes. As infusion increases, the extended, integrative and emergent use of the technology increases, leading to increased leveraging of the technology.

A survey was distributed to 1100 Air Force members throughout four Major Commands, divided into 600 officers and 500 enlisted. The analysis used Structural Equation Modeling to test models relating managerial, organizational and individual constructs as positive influences on infusion.

Findings in the officer group indicate executive involvement and participation, policy, receptivity to change and personal responsibility influence integrative use of Internet technology. Management support, policy, and receptivity to change were found to influence extended use. Extended and integrative use were found to lead to emergent use.

Similar results were found in the enlisted group, with three exceptions: ease of use influenced integrative use, while receptivity to change did not; and integrative use did not lead to emergent use.

The findings suggest ways for organizations to encourage higher-level use of Internet technology. In addition, differences between the two groups highlighted the need for organization's Internet strategy to account for individual differences.

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