This study examined 115 Army ROTC students’ motivation to learn military science, their belief in the relevance of learning military science to their future careers, and their commitment in particular to a military career. The students completed Motivated Strategies for Learning Questionnaire (Pintrich, Smith, Garcia, & MeKeachie, 1991) subscales that were adapted to measure motivation to learn military science. Statistically significant relationships, in the low to moderate range, were found between the motivation subscale scores and the students’ belief in the relevancy of military science to their future careers. Also, a significant relationship was found between the students’ belief in the relevance of military science to their future careers and their commitment to a military career. Finally, students who had family members with
previous military service had a significantly higher level of commitment to a military career.

INDEX WORDS: Motivation, Commitment, Career Intent, Relevancy, MSLQ
MOTIVATION AND MILITARY SCIENCE COMMITMENT OF ARMY RESERVE
OFFICER TRAINING CORPS CADETS

by

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MOTIVATION AND MILITARY SCIENCE COMMITMENT OF ARMY RESERVE OFFICER TRAINING CORPS CADETS

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Chapter 1

Introduction

One of the intrinsic objectives of the United States Army is to train and retain quality personnel to achieve and maintain a highly trained and effective force structure. For the last several decades, excluding the draw-down period following the collapse of the Soviet Union, one issue of concern to military and civilian leaders has been the retention of junior officers – Lieutenants and Captains serving within their initial Active Duty Service Obligation (ADSO). Since the inception of the All-Volunteer Force (AVF) following the end of the Vietnam-era conscription, junior officer retention in all branches of the military has been the focus of numerous military- and government-sponsored research (e.g., Allen, 2003; Card & Shanner, 1976; Card, 1976, Card, Farrell, & Armstrong, 1979; Gade, Tiggle, & Schumm, 2003; Hagenbeck & Wardynski, 2005; Wilson, Gilbert, & Hicks, 1984). Indeed, the Army and other services have faced an almost yearly challenge to meet the recruiting and retention goals to maintain an adequate force (Clark, 1999).

The challenge of maintaining an optimal force has varied with the socio-political environment of the last three decades.
The military experienced a significant reduction of troops following the cessation of involvement in Vietnam, followed by a steady increase throughout the Cold War era. With the collapse of the Soviet Union in 1991, the Department of Defense (DoD) employed the largest number of personnel in its history, and began actively searching for methods to quickly reduce its manpower and budget. It was during this time period that two particular policies employed by the DoD led to a significant shortage of junior officers that affected the military into the last decade, particularly the Army. First, the Army failed to accurately predict the number of junior officers required following the drawdown, and recruited fewer personnel than needed in fiscal years 1992 and 1993. Second, current junior officers were allowed to terminate their service prior to fulfilling their ADSO (Clark, 1999).

Compounding these decisions was the economic growth of the 1990’s, which attracted officers to leave the service and made recruitment of potential officers more difficult. The attraction of the economic market, along with DoD personnel decisions, led to a gradual decrease of adequately trained junior officers that culminated in the late 1990’s, when the Army suddenly faced the predicament of not having the requisite pool of junior officers to fill necessary positions (Clark, 1999). Additionally, from 1995 to 1999, there was a “steady and
significant increase (from 22% to 36%)” in the percentage of junior officers reporting their intent to leave active duty at the end of their current obligation (Weafer, 2001).

The Army instituted a number of steps to address the issue, including: decreasing the time of service for promotion to captain, as well as increasing the number of potential officers in commissioning programs, such as Reserve Officer Training Program (ROTC) and the United States Military Academy (USMA). An additional change was the restructuring of the Officer Personnel Management System, which developed more technical expertise areas in which officers could serve. This system provides officers desiring an alternative to the previously narrow career track to specialize in an area, such as Civil Affairs, and to remain in that specialized career field for the remainder of their time in service. These specialized career fields are an attractive offer for many officers because of the requirement for the officer to obtain a graduate degree in the related field, which is fully funded by the Army. Despite these initiatives aimed at retaining quality personnel, research by Clark in 1999 revealed that only 42 percent of the junior officers surveyed planned on making the Army a career (serving at least 20 years).

With the events of September 11, 2001 and the increased operational deployments that became an almost certainty, there
are new dilemmas with regards to recruiting and retaining junior officers. For the first time since the Vietnam conflict, service members entering the military faced an almost certain combat deployment in support of Operations Enduring Freedom (OEF) or Iraqi Freedom (OIF). Recruiting potential candidates and retaining junior officers continues to prove a difficulty for the military, as illustrated by the 2005 report by Hagenbeck and Wardynski (Figure 1). According to the data collected through 2004, the Army continues to struggle to retain junior officers after their initial service obligation, leading to a critical shortfall of officers to fill senior captain and major positions.

Recent suggestions from researchers, policymakers, and several senior Army officers to alleviate the growing shortage of officers have included: 1) Increasing the service obligation of ROTC scholarship cadets and the service academy graduates from four and five years, respectively, to a total of seven years, 2) Increasing the salaries and other aspects of pay (housing, subsistence) of junior officers to narrow the discrepancy between the military and comparable civilian employment (Clark, 1999), 3) Offering targeted incentives to junior officers for voluntarily extending their service obligation, such as fully funded graduate school, choice of the initial duty assignment (rather than the traditional needs-based
assignment), and choice of branch (Infantry, Armor, Engineer, etc.), instead of the typical order-of-merit list assignment
(Hagenbeck & Wardynski, 2005).

One area of research that has seen little attention throughout the last three decades has been the commitment of ROTC and service academy cadets to the military. What motivates cadets in their military science classes, leading to commitment to serving past their initial service obligation? Are there demographic variables that correlate to a higher rate of commitment? What aspects of the ROTC program influence the level of commitment in cadets? These questions point to an area of study that has the potential to greatly aid the Army’s mission of retaining quality personnel. By determining factors that affect cadets’ motivation and commitment to the military, recruiting efforts can be channeled toward recruiting those cadets whom will more likely serve past their initial service obligation, benefiting the military through reduced personnel turnover and a greater return for the educational investment.

The purpose of this study is to explore the motivational factors contributing to ROTC students’ commitment to serving in the military. If specific motivational variables can be determined that are correlated with a greater degree of commitment to military science, ROTC instructors can use this knowledge to tailor their instruction towards creating an
atmosphere that encourages cadet commitment to completing all four years of the program. Also, identifying demographic and motivational variables that are correlated with higher commitment to the military will assist ROTC instructors in recruiting potential cadets that will be more likely to serve past their initial obligation, providing a greater benefit to the Army.

The main questions addressed in this study are:

1. How is the motivation of Army ROTC students to learn military science related to their belief in the relevance of military science courses to their future careers?

2. How does students’ belief in the relevance of military science courses relate to their commitment to a military career?
Figure 1
Officer Attrition Has Created a Persistent Inventory Gap Among Senior Captains and Majors

Chapter 2

Review of the Literature

Motivation is a concept comprised of internal factors that serve to inspire action and external factors that function to induce action (Locke & Latham, 2004). Motivation is best understood as a process that creates and sustains goal-directed activity (Pintrich & Schunk, 2002). It is not a concept that can be observed, but instead is a process that is inferred from observing behaviors such as choosing to engage in a task, amount of effort applied, persistence in the face of challenges, and verbal expressions of interest.

Motivation involves goals that provide the spark for action and the direction for activity. The importance of goals is an inherent tenet in cognitive views of motivation (Pintrich & Schunk, 2002). Goals are flexible and change with circumstances and experience, but they provide the impetus for action. Motivation creates and sustains physical and mental activities, such as reading, writing, researching, organizing, rehearsing and planning. And finally, goal-directed activity is created and must be sustained to accomplish the objective. Deciding to engage in a task and having the persistence to overcome challenges and obstacles require motivation to create activity.
and are extremely important in sustaining effort to task completion (Ames, 1992).

Motivation influences what, when and how we learn. Students who are motivated to learn are more likely to engage in activities they feel will help them learn, such as focusing on class lecture and discussion, organizing material into coherent and related pieces of information, taking copious notes to facilitate effective review of the material, and seeking help to overcome misunderstanding or confusion (Schunk, 1991). They will take the time to thoroughly review a topic until they are satisfied they understand the material. Taken together, these activities serve to improve learning and thus influence academic performance.

Motivation is tied to learning and performance in a reciprocal relationship. Motivation influences learning and performance and what students accomplish and learn impacts on their motivation to engage in further learning (Schunk, 1991). When students attain learning goals, their self-efficacy for learning is validated, motivating them to set new and challenging goals. Students who desire to learn and reach their goals often become intrinsically motivated to continue their learning (Meece, 1991).

In Bandura’s theory (1993), motivation is goal-directed behavior activated and maintained by a person’s expectations.
related to the anticipated outcomes of activity and self-efficacy for performing those activities successfully. Outcome expectations are the anticipated results of task-specific behaviors and activities, and are important with regards to motivation because students consider potential outcomes of their behaviors and activities and choose to work towards completing those activities that have value to them. Students who desire to succeed academically believe that if they work hard, they will receive appropriate outcomes (good grades).

**Self-Efficacy**

Bandura describes (1986) self-efficacy as “people’s judgments of their capabilities to organize and execute courses of action required to attain designated types of performances.” Self-efficacy influences a student’s choice of which activities to attempt, the amount of effort applied and persistence in the face of challenges. Therefore, students with low self-efficacy for completing a task may choose not to participate in the activity, may only put forth minimal effort, or give up when an obstacle is encountered. Conversely, those students with high self-efficacy will choose the task and most likely put forth the amount of effort needed to succeed, despite experiencing challenges. A person’s self-efficacy is influenced by performance on previous tasks (successes and failures), observing a model (both peers and instructors or experts),
physiological signs (increased heart rate, sweaty palms), and social support from significant persons (teachers, parents, and peers) in their environment.

Colloquially, self-efficacy can be thought of as contextually-specific self-confidence. However, it is slightly different from Eccles and Wigfield’s (2000) task-specific self-concept and Connell and Harter’s (1984) self-perceptions of competence. Bandura’s definition of self-efficacy is more specific in determining contextually-relevant courses of action for accomplishing the task within a particular domain (Bong & Clark, 1999). Also, the “designated types of performance” distinguish Bandura’s definition by relating to a specific pre-determined goal. Smith and Fouad (1999) found that self-efficacy, goals and outcome expectations are domain-specific and do not generalize across subjects.

Because of the inclusion of a specific goal in the definition, a student’s self-efficacy for a task can change based upon changes in their environment (Pintrich & Schunk, 2002). For example, a graduate student may have high self-efficacy at the beginning of a statistics course because the material may be familiar from a previous course. As the semester progresses and the material becomes more advanced, the student may have less efficacy for comprehending the material and performing well on an exam. Also, changes in personal
circumstances may affect a student’s self-efficacy for a task. The loss or serious illness of a family member may cause an excellent student to have less self-efficacy for completing an end-of-course project.

Perceptions of self-efficacy can have a powerful effect on students’ academic motivation in terms of choosing courses or performing well in their classes. Students with high self-efficacy for English courses will sign up for advanced courses, such as an undergraduate enrolling in a graduate-level theory course. Students with low self-efficacy do not seek out or try new skills or strategies that will help them learn course material (Bandura, 1997). Students with low self-efficacy for chemistry may convince themselves there is no use in doing the homework because they won’t do well on the test even if they do complete the assignments.

Of course, students have different influences that form their self-efficacy for tasks. There are many factors that contribute to a students’ initial self-efficacy for learning, including their general ability, prior experiences with similar tasks, familial attitude towards learning, their individual interests, as well as their peers’ attitudes toward academic endeavors. Students with a natural tendency for science and interest in the subject are likely to have positive classroom experiences, with support from parents and teachers contributing
to the development of a positive attitude towards the subject and even increasing the student’s interest (Schunk, 1996).

Pintrich and Schunk (2002) assert that in general a slightly higher self-efficacy than actual skill-level is the most adaptive and productive state in academic settings. Students with this frame of mind will seek out challenges, will persist at them longer when encountering difficulties, and will look for help from others so they may complete the task. Students with inflated self-efficacy for a subject will encounter various failures in the course that could result in an inappropriately low level of efficacy for the subject. Likewise, Students who think too little of their abilities will not engage in tasks they could actually succeed at, resulting in a handicap of learning opportunities.

Self-efficacy plays a role in career choice as well as the choice of tasks to attempt. Betz and Hackett (1981; Hackett & Betz, 1981) discovered that self-efficacy plays an important role as facilitator between structural and social influences of career decisions and has a direct impact on career choice. Their research also highlighted the influence of self-efficacy on gender differences in career choice, with women feeling more efficacious for more traditional career roles while men were more efficacious for all vocational fields.
There are numerous factors that influence academic achievement and other motivational behavior, with self-efficacy playing a central role at contextually specific tasks (Pintrich & Schunk, 2002). It is similar to task-specific self-concept and self-perceptions of competence, yet it is more appropriate when researching motivation of academic achievement than these two constructs. Perceptions of self-efficacy influence students’ choice of tasks, how well they perform in accomplishing the problem, how much effort they put forth and their resilience in the face of challenge. An appropriate level of self-efficacy is a crucial ingredient to initial and continued academic success, yet is a dynamic concept that can and does change based upon personal and environmental influences.

**Intrinsic Value**

Eccles, Adler, Futterman, Goff, Kaczala, Meece and Midgley (1983) proposed four characteristics of achievement task value that affect achievement behavior: attainment value, intrinsic value, utility value, and cost. Wigfield and Eccles (1992) define intrinsic value as the pleasure an individual experiences from performing a task, or the subjective interest of a subject or domain inherent in the individual. Eccles et al. (1983) stated that when an activity is valued by individuals, they will be intrinsically motivated to perform the task. Following from
the previous discussion, an intrinsically motivated individual will choose to engage in challenging tasks, will spend more time trying to solve problems, and will be more resilient in the face of obstacles. In fact, Eccles et al. (1983) hypothesized that achievement-related decisions such as the decision to participate in a task and the level of effort to expend would vary directly with the amount of value the individual assigned to the task.

Eccles and her colleagues have illustrated that students’ expectancies predict their performance in mathematics and English, while their achievement task values predict both ambitions and choosing to continue enrolling in mathematics and English classes (Eccles, Adler, & Meece, 1984). In similar research, Meece, Wigfield, and Eccles (1990) found the importance junior high school students placed on competence in mathematics was a better predictor of their intentions to continue in math classes than their expectancies for successful performance in math. However, achievement task values can and do serve to increase an individual’s self-efficacy for academic tasks. Students’ intrinsic interest in activities leads them to spend more time attempting to master the tasks, which leads to an increase in their competence at the activities. Higher expectancies for success and a greater self-efficacy would
follow from their increased competence of the activities (Wigfield & Eccles, 1992).

Feather (1982) and Eccles et al. (1983) assert that intrinsic task value assigned to tasks is determined by characteristics of the task as well as other more general values and desires. These broader values and desires act as the major antecedents of the value students have for specific tasks, and Eccles et al. suggested four main antecedents of student’s achievement values for activities: “their self-schema and goals, the relative perceived cost or benefit of doing the activity compared to doing other activities, the previous affective experiences individuals have had with different activities, and the perceptions of the values of the parents, teachers, and peers.”

Self-schema and goals. One manner in which self-schema and goals affect task value is through their influence on the attainment and utility values of different activities (Eccles et al., 1983). For example, gender-role identity influences the value assigned to certain tasks. Persons with strong gender-role identities should place a higher value on tasks that are consistent with these identities, and devalue tasks that contradict them (Eccles, 1987; Stein & Bailey, 1973). Young female students may feel pressure to conform to the stereotypical view of mathematics as a field of study for males,
and thus place less value on math classes, despite any intrinsic interest they have.

Previous research has illustrated how gender differences in the beliefs and attitudes of students towards mathematics predict stratified enrollment of high school and college math classes, and even pursuit of mathematically-dominant career fields. Eccles et al. (1983) found that elementary through high school males have higher ability perceptions and expectancies for success than females, although the females in the study tended to have higher grades. Females tended to view math as more difficult and requiring greater effort to succeed in their studies than males. In similar research, Colley, Berman, and van Millingen (2005) determined that the degree to which children stereotype sports as appropriate for their own gender predicts the value they assign to sports.

Cost or benefit of activities. Because people tend to have many interests and goals, different values are assigned based on personal preference. Engaging in certain activities necessitates preclusion from taking part in other activities, as soccer practice may be scheduled at the same time a study group meets. Students are forced to prioritize their activities based on their own hierarchy of goals and interests. There are various factors that influence the perceived cost of engaging in one activity over another, including the potential anxiety...
involved in a task, the resources available for participation, scheduling conflicts, and different opportunities for social interaction. Eccles et al. (1983) proposed the following: (1) choosing to participate in one activity limits a person’s opportunities to engage in other activities that also are valued; (2) this limitation is seen as the cost of participating in the activity; (3) the cost will vary as a function of how high in value the activity is; and (4) the greater personal assessment of cost, the lower the net value of the activity to the individual. Of course, the number of competing activities increases as students mature and students are forced to prioritize their time for activities to which they assign a greater value.

Affective experiences. Just as a student’s self-efficacy is mediated by performance on previous tasks, intrinsic value is influenced by success and failure. In his research, Weiner (1985) surmised that successful (or unsuccessful) achievement outcomes generate positive or negative feelings associated with the task. Therefore, tasks that students complete successfully will increase the value they associate with the task, and tasks with which they are unsuccessful will decrease in value. Another element of affective reaction is the amount of anxiety a student feels when performing a task. If students perform well in a new activity, they may find that they enjoy the task,
placing a higher value on participating in it, and seek out opportunities to be successful again. Conversely, an embarrassing and unsuccessful attempt at giving a presentation in class may lead students to devalue public speaking to reduce their anxiety, since the idea of failing at an unimportant activity will produce less anxiety than failure of a highly valued task. Research by Meece et al. (1990) supports this theory with the discovery of a negative relation between students’ anxiety about math and mathematical achievement values.

**Perceived value of significant others.** As students interact at home with their parents and at school with teachers and peers, they began a socialization process that influences the subjective value they assign to various tasks. The cumulative effect of influences within students’ microsystem shape and change the level of intrinsic interest students experience in different tasks (Bronfenbrenner, 1979). In research on mathematical achievement values, Eccles and colleagues (1983) found a significant positive relationship between the value students assign to math and their perceptions of their parent’s academic ambitions and confidence in their ability in math.

**Test Anxiety**
Test anxiety is a complex construct that has been defined as “the set of phenomenological, physiological, and behavioral responses that accompany concern about possible negative consequences or failure on an exam or similar evaluative situation” (Zeidner, 1998). The phenomenological aspect of test anxiety is comprised of the worry component (worrying about flunking the test, not being able to finish within the allotted time, and concern over what significant others will think of a low score) and the affective or emotional component (feeling uncomfortable prior to or during the evaluation and fear of taking the test).

The physiological element refers to a student’s bodily responses to a test, which may include sweaty palms, upset stomach or nausea, excessive energy, and racing heart. And the behavioral responses include the coping mechanisms students employ during the situation to relieve anxiety, as well as cognitive outcomes like attention, thinking and actual performance (Pintrich & Schunk, 2002). Individual differences in the amount of test anxiety experienced impacts not only students’ achievement at school, but also their school-related motivation, academic self-concepts, and career advancement, as well as personality development and health (Pekrun, Goetz, Titz, and Perry, 2002).
Zeidner (1998) has noted that contextual and personal factors influence the level of test anxiety students’ encounter. The physical environment of a testing situation can induce anxiety in students, especially if the test is administered in a different classroom, by another teacher or administrator, or requires the use of a computer when the student does not regularly perform school activities electronically. Additionally, because of time limits of standardized tests or the class period, some students have difficulty focusing on the material being tested and are overly concerned with how much time has elapsed and how much remains. Personal characteristics such as self-efficacy, expertise, level of ability, and self-regulatory skills all impact how each student appraises the same “objective” testing situation. Some students approach an evaluation as a challenge or chance to demonstrate their ability or effort, while others simply see it as a very stressful situation.

Research has illustrated that test anxiety is an important component in primary, secondary and tertiary education (Stoeber & Pekrun, 2004). Hembree’s (1988) meta-analysis of 562 studies of students from elementary school through college determined that test anxiety does lead to poor performance and has a negative relation to self-esteem. Hill and Wigfield (1984) cite evidence from studies that have found negative
correlations up to -.60 between test anxiety and achievement, and estimated that approximately 10 million students, or about 25% of primary and secondary students, suffered lower academic performance because of test anxiety. More recently, Chapell, Blanding, Silverstein, Takahashi, Newman, Gubi and McCann (2005) found a significant negative relationship between test anxiety scores and cumulative GPA in both undergraduate and graduate students.

While test anxiety is predominant to some extent in all students, research has shown that intervention strategies can alleviate its negative impact. In a meta-analysis of test anxiety reduction programs, Ergene (2003) found the most effective strategies include the following components: 1) information and training on studying and test-taking skills, 2) having a model demonstrate completing test-like problems, 3) practicing self-control of behavioral and cognitive processes during testing situations, and 4) learning methods of relaxation during evaluations. Developing anxiety reduction strategies is an important focus of educators, since test anxiety, especially in standardized test situations, may represent a bias that inaccurately represents the true potential of students (Meijer, 2001).
Chapter 3

Methodology

Participants

The sample was comprised of 115 Army ROTC students from two medium-sized universities, one in the northeast and one in the southeast. The research was conducted in the Spring semester, and participation was voluntary; no incentives were offered. The sample consisted of 30 freshmen (26.1% of the total), 26 sophomores (22.6%), 31 juniors (27.0%), 27 seniors (23.5%), and one graduate student. Participants’ fields of study were categorized into seven general areas: business, engineering, health, liberal arts, political science, science and undecided. The number of military science classes the cadets had completed (including current enrollment) ranged from 1 to 8 with a mean of 3.41. Student-reported cumulative grade point averages ranged from 1.93 to 4.0, with a mean of 2.95. SAT scores for participants ranged from 940 to 1620, with a mean score of 1231.

Instruments

Pintrich, Smith, Garcia, and McKeachie (1993) and Duncan and McKeachie (2005) present the general theoretical framework behind the Motivated Strategies for Learning Questionnaire (MSLQ). The MSLQ consists of a motivational and learning
strategies section with a total of 62 questions. The motivation section of the MSLQ consists of items that assess student goals and value beliefs for a course, personal beliefs about having the skill to succeed in the course, and level of anxiety about tests in the course. For use in this study, the researcher modified the MSLQ, utilizing the six motivational subscales and adapting the questions to specifically address military science classes. The items were drawn from the subscales pertaining to intrinsic motivation, extrinsic motivation, task value, control beliefs, self-efficacy and test anxiety.

The first two subscales, intrinsic and extrinsic motivation, consist of 8 total items (four in each) related to the reasons for cadets desiring to succeed in their military science classes. Examples of questions from these subscales are: “I prefer military science course material that really challenges me so I can learn new things,” and “The most important thing for me right now is improving my overall grade point average, so my main concern in a military science course is getting a good grade.” The third subscale, task value, consists of 6 items used to measure the extent to which cadets find military science classes interesting, important and useful. An example of a type of question from this scale is, “I think I will be able to use what I learn in military science courses in other courses.” The fourth subscale, control beliefs, consists
of 4 items that measure the extent to which cadets believe that working hard in military science classes will result in success. An example from this section is, “If I try hard enough in military science courses, then I will understand the material.” The fifth subscale of the survey, self-efficacy, consists of 7 items that assess cadet performance expectations and judgments about their ability to accomplish a task. An example from this subscale reads, “I'm confident I can do an excellent job on the assignments and tests in military science courses.” Finally, the test anxiety subscale consists of 5 items that determine if cadets experience distracting or disruptive thoughts or nervousness that interfere with performance on evaluations. An example question from this subscale is, “I have an uneasy, upset feeling when I take an exam in military science.”

The cadets were asked to rate their behaviors with a 5-point Likert scale with 1 = Strongly agree, 2 = Agree, 3 = Not sure, 4 = Disagree, and 5 = Strongly disagree. The scale scores are determined by summing the responses and taking an average. The responses to the test anxiety subsection were reverse coded and then analyzed. The Total Motivation score is determined by averaging the responses to the complete set of questions. Duncan and McKeachie (2005) reported the following coefficients for internal consistency of the subscales: intrinsic motivation ($\alpha = .74$), extrinsic motivation ($\alpha = .62$), task value ($\alpha = .90$),
control beliefs ($\alpha = .68$), self-efficacy ($\alpha = .93$), and test anxiety ($\alpha = .80$).

In addition to the subscales of the MSLQ that were adapted to measure motivation to learn military science, the survey administered to the Army ROTC students asked them questions (see Appendix A, Part I, Biographical Data) about the following variables: gender, parental income, if they had family members who had served in the military (family service), if they themselves had previously served in the military (prior service), if they perceived military science courses as relevant to their probable career (relevancy), and what was the extent or duration of their commitment to a career in the military (career intent).

**Procedure**

Participation in the study was requested through ROTC instructors at both universities, and was approved by both departments. An e-mail was sent to all of the students enrolled in military science courses by their instructors, requesting the cadets complete the online survey. Approximately one-half of all cadets contacted completed the survey, although two students failed to complete all questions and were excluded from the study. The responses from the two universities were not significantly different on the variables of interest, and were therefore combined and analyzed as one set.
Chapter 4

Results

The means, standard deviations and percentages of the independent variables are presented in Table 1 and the correlations for all variables are reported in Table 2. Table 3 lists the descriptive statistics and reliability coefficients for the motivation subscales. The correlations between the Total Motivation Score and the six subscales of the survey ranged from .337 to .820, which indicated primarily moderate to strong relationships. An independent samples t-test revealed that cadets with family members that had served in the military were significantly more likely to express intentions to serve 20 years in the military \((M = 3.29, \ SD = .80)\) than those without family members that had served \((M = 2.75, \ SD = .98)\), \(t(114) = 3.20, \ p < .01\). Also, cadets who have previous service in the military (Active, Guard or Reserve) tended to be more likely to commit to a career in the military \((M = 3.22, \ SD = 1.07)\) than those who had not served previously \((M = 2.90, \ SD = .88)\), \(t(114) = 1.62, \ p = .108\).

The statistically significant positive correlations between career intent and having family members that had served,
r(114) = .288, p < .01, and viewing military science courses relevant to a probable career, r(114) = .242, p < .01, suggest that cadets who meet these criteria are more likely to be committed to the military and thus serve longer than their initial obligation. These findings are consistent with commitment research conducted by Bachman, Segal, Freedman-Doan and O’Malley (2000).

There was a significant positive correlation between Relevancy and Total Motivation (r = .298, p < .01), which suggests that those cadets that find military science material most relevant to their probable career are more motivated in learning the course material. Within the Total Motivation scale, Relevancy correlated positively with the Intrinsic Motivation (r = .205, p < .01), Task Value (r = .435, p < .01), and Control Beliefs (r = .251, p < .01) subscales. These findings, while of relatively low to moderate strength, suggest that students who find military science course material relevant to their future careers desire to learn the material for the sake of learning and are interested in the subject, recognize the value of the tasks performed in class and laboratories, and believe the level of effort applied towards tasks determines the outcome. Previous research has shown that students who approached their course work with an intrinsic goal for learning, who believed the material was interesting and
important, who had high self-efficacy beliefs for accomplishing course tasks, and who rated themselves as in control of their learning were more likely to have a higher final course grade (Pintrich et al., 1993).

While the data do not indicate a significant relationship between Total Motivation and Career Intent, there are significant, although low, correlations between Career Intent and Intrinsic Motivation ($r = .264$, $p < .01$) and between Career Intent and Task Value ($r = .197$, $p < .01$). The relatively low strength of the relationships between these variables may be due to variation in respondents’ interpretations of the questions in the survey.
<table>
<thead>
<tr>
<th>Variables</th>
<th>M</th>
<th>SD</th>
<th>n</th>
<th>Percent</th>
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<tr>
<td>Male = 1</td>
<td></td>
<td></td>
<td>99</td>
<td>86.1</td>
</tr>
<tr>
<td>Female = 2</td>
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<td></td>
<td>16</td>
<td>13.9</td>
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<tr>
<td>Parental Income</td>
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<td>1.164</td>
<td></td>
<td></td>
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<td>Low = 1</td>
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<td>1.164</td>
<td>1</td>
<td>0.9</td>
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<td>Medium Low = 2</td>
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<td>1.164</td>
<td>7</td>
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<td>Medium = 3</td>
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<td>1.164</td>
<td>18</td>
<td>15.7</td>
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<td>1.164</td>
<td>21</td>
<td>18.3</td>
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<td>50</td>
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<td>1.164</td>
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<td>No = 1</td>
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<td></td>
<td>63</td>
<td>54.8</td>
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<tr>
<td>Yes = 2</td>
<td></td>
<td></td>
<td>52</td>
<td>45.2</td>
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<tr>
<td>Prior Service</td>
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<td>0.761</td>
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<td></td>
</tr>
<tr>
<td>No = 1</td>
<td>1.417</td>
<td>0.761</td>
<td>83</td>
<td>72.2</td>
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<tr>
<td>National Guard = 2</td>
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<td>19</td>
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<td>Army Reserve = 3</td>
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<td>Active Duty = 4</td>
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<td>Yes</td>
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Table 2
First-Order Correlations Among the Study Variables

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<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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<td>1. Gender</td>
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<td>2. Parental Income</td>
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<td>3. Family Served</td>
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<td>4. Prior Service</td>
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<td>.030</td>
<td>1.00</td>
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</tr>
<tr>
<td>5. Relevancy</td>
<td>.081</td>
<td>.053</td>
<td>.024</td>
<td>.069</td>
<td>1.00</td>
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<td>6. Career Intent</td>
<td>.023</td>
<td>.077</td>
<td>.288**</td>
<td>.091</td>
<td>.242**</td>
<td>1.00</td>
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<tr>
<td>7. Intrinsic Motivation</td>
<td>.000</td>
<td>-.039</td>
<td>.038</td>
<td>-.076</td>
<td>.205**</td>
<td>.264**</td>
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<td>8. Extrinsic Motivation</td>
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<td>.098</td>
<td>-.002</td>
<td>-.028</td>
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<td>-.056</td>
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<tr>
<td>9. Task Value</td>
<td>-.156</td>
<td>-.072</td>
<td>.029</td>
<td>-.157</td>
<td>.435**</td>
<td>.197**</td>
</tr>
<tr>
<td>10. Control Beliefs</td>
<td>-.162</td>
<td>.073</td>
<td>-.082</td>
<td>.095</td>
<td>.251**</td>
<td>.119</td>
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<tr>
<td>11. Self-Efficacy</td>
<td>-.051</td>
<td>-.003</td>
<td>-.079</td>
<td>-.020</td>
<td>.136</td>
<td>.092</td>
</tr>
<tr>
<td>12. Test Anxiety(^a)</td>
<td>-.015</td>
<td>.036</td>
<td>-.026</td>
<td>.149</td>
<td>-.041</td>
<td>.024</td>
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<td>13. Total Motivation</td>
<td>-.135</td>
<td>.022</td>
<td>-.037</td>
<td>-.012</td>
<td>.298**</td>
<td>.163</td>
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</table>

* p < .05. ** p < .01.

\(^a\)The items in this subscale were reverse coded.
Table 2 (continued)

First-Order Correlations Among the Study Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
</tr>
</thead>
<tbody>
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<td>1. Gender</td>
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<td></td>
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<td>2. Parental Income</td>
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<td>3. Family Served</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Prior Service</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Relevancy</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Career Intent</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>7. Intrinsic Motivation</td>
<td>1.00</td>
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<td></td>
</tr>
<tr>
<td>8. Extrinsic Motivation</td>
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<td>1.00</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Task Value</td>
<td>0.552**</td>
<td>0.421**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Control Beliefs</td>
<td>0.328**</td>
<td>0.228*</td>
<td>0.298**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Self-Efficacy</td>
<td>0.493**</td>
<td>0.245*</td>
<td>0.386**</td>
<td>0.502**</td>
<td>1.00</td>
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<tr>
<td>12. Test Anxiety(^a)</td>
<td>-0.040</td>
<td>-0.279**</td>
<td>-0.060</td>
<td>0.174</td>
<td>0.025</td>
<td>1.00</td>
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<tr>
<td>13. Total Motivation</td>
<td>0.658**</td>
<td>0.478**</td>
<td>0.699**</td>
<td>0.655**</td>
<td>0.820**</td>
<td>0.337**</td>
<td>1.00</td>
</tr>
</tbody>
</table>

* p < .05.  ** p < .01.

\(^a\)The items in this subscale were reverse coded.
### Table 3

**Descriptive Statistics and Internal Reliability Coefficients for Motivation Subscales**

<table>
<thead>
<tr>
<th>Subscales</th>
<th>M</th>
<th>SD</th>
<th>Coefficient Alphas</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Intrinsic Motivation</td>
<td>2.156</td>
<td>.639</td>
<td>.778</td>
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<tr>
<td>2. Extrinsic Motivation</td>
<td>2.517</td>
<td>.797</td>
<td>.689</td>
</tr>
<tr>
<td>3. Task Value</td>
<td>2.108</td>
<td>.722</td>
<td>.847</td>
</tr>
<tr>
<td>4. Control Beliefs</td>
<td>1.967</td>
<td>.627</td>
<td>.760</td>
</tr>
<tr>
<td>5. Self-Efficacy</td>
<td>1.837</td>
<td>.551</td>
<td>.892</td>
</tr>
<tr>
<td>6. Test Anxiety(^a)</td>
<td>2.260</td>
<td>.760</td>
<td>.810</td>
</tr>
</tbody>
</table>

\(^a\)These responses were reverse coded.

Note: These responses were collected using a Likert scale, where 1 = Strongly Agree, 2 = Agree, 3 = Not sure, 4 = Disagree, 5 = Strongly Disagree.
Chapter 5
Discussion

The present study found that Army ROTC students who were motivated to learn military science in their courses, as measured by the MSLQ, believed in the relevancy of the military science course content to their future careers. Also, a significant relationship was found between the students’ belief in the relevance of military science to their future careers and their commitment to a military career. Finally, students who had family members with previous military service had a significantly higher level of commitment to a military career.

Several aspects of the military science program may influence the relationships between the variables, and should be taken into consideration when examining the results of this study. The ROTC program is governed by a central agency, and the program of instruction is standardized across institutions. Military science courses are not designed to allow flexibility in the choice of assignments. Programs are designed to focus on the development of leadership through the junior year, which culminates in a 5 week assessment of leadership capabilities. Because of the time commitments outside of regular class, such as the weekly laboratory and physical fitness training, the
focus of the first three years of military science classes is less demanding academically than other coursework. In addition to leadership skills, cadets learn the proper wear of uniforms, customs and courtesies of the Army, basic military presentation skills, and small unit tactics.

Since the ROTC program emphasizes leadership skills, the natural focus of the material may lend itself to more of a performance learning approach, with less emphasis on intrinsic motivation. The evaluations of leadership skills are conducted in front of peers, in order to promote a culture of learning through both successes and failures, and public evaluations of leadership exercises could lead cadets to a mixture of performance-oriented and avoidance approach motivation. This emphasis may influence the strength of the relationship between Career Intent and Intrinsic Motivation.

In terms of task value, the program of instruction is structured to teach small unit Infantry tactics, which is not applicable to most of the cadets following graduation and commissioning in the Army. Most cadets will choose a branch of the Army other than Infantry, such as Military Police or Transportation Corps, so the task value of learning these skills may be small in terms of relating towards a probable career in the Army, leading therefore to the weaker obtained relationship between Task Value and Career Intent.
Among the subscales of the modified MSLQ, the correlations were in the expected direction and showed relationships of a strength consistent with previous research (Pintrich, 1993). The correlations between the subscales and the Total Motivation score consisted primarily of moderate to strong relationships, which reinforces the usefulness of examining both a total score with variables of interest as well as with the individual subscales of the MSLQ. The coefficient alphas for the subscales were high, demonstrating desirable internal consistency.

While results from this study are not conclusive, they offer some insight into the role of motivation and how it relates to career relevancy and commitment. The study is limited by the use of a convenience sample, and further research in this area should include a larger, more diverse sample. Also, while the modified MSLQ has shown some usefulness in this study, future studies should include more detailed questions specific to ROTC, rather than relying on general academic questions.

Additionally, a longitudinal study would greatly benefit this field by allowing the actual career decisions of junior officers to be examined at the critical period when their commitment to active service expires. Furthermore, qualitative studies would be useful in determining aspects of the ROTC
program or characteristics of individuals that inspire a commitment to serving beyond the minimum commitment.

Schunk (1991) and Pajares (2001) stated that while quantitative methods have typically been used to study motivation constructs, qualitative methods such as case studies and interviews are needed to gain additional insights. The use of both quantitative and qualitative methods, as well as the use of longitudinal studies, could improve researchers’ understanding of the retention problems faced by the military and facilitate the military’s efforts to effectively recruit junior officers, enhance their motivation to learn military science, and increase the likelihood that they will make a significant commitment to a military career.
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Appendix A

Welcome to the Questionnaire about Learning Military Science!

Please respond to the following questions by clicking in the circles, selecting the best answer, and typing in information when needed. We do not ask your name, so that you will feel comfortable about candidly sharing your thoughts and feelings about learning military science. Your responses will help improve military science instruction. Thank you!

Part I Biographical Data

1. What is your current student status?
   - Freshman
   - Sophomore
   - Junior
   - Senior
   - Graduate

2. What is your major (Chemical Engineering, English, Political Science, etc)? _________________

3. How many Military Science classes (not including labs) have you completed?
   - 1
   - 2
   - 3
   - 4
   - 5
   - 6
   - 7
   - 8
4. What is your typical (average) grade in your Military Science courses?
   ○ A
   ○ B
   ○ C
   ○ D
   ○ F

5. What is your overall GPA? (e.g., 3.12; if this is your first semester, enter zero) ________

6. What was your total SAT score? ______

7. What is the relevancy of Military Science to your probable career?
   ○ Very High
   ○ High
   ○ Medium
   ○ Low
   ○ Very Low

8. Are you preparing for a 20 year career in the military?
   ○ Definitely
   ○ Most likely
   ○ Not sure
   ○ Serve commitment and leave
   ○ No

9. If you are an uncontracted cadet, what is your commitment to serving in the military?
   ○ Very High
   ○ High
   ○ Medium
   ○ Low
   ○ Very Low
   ○ Already contracted
10. Do you have immediate family members (father, mother, siblings) that have served in the military?
   ○ Yes
   ○ No

11. Do you have immediate family members (father, mother, siblings) that are currently serving or plan to serve in the military?
   ○ Yes
   ○ No

12. Have you previously or are you currently serving in the military?
   ○ Active
   ○ Reserve
   ○ Guard
   ○ No

13. What is your gender?
   ○ Male
   ○ Female

14. What is your ethnic background (African-American, Caucasian, Hispanic, etc)? ____________

15. What is the highest level of education of either of your parents?
   ○ High School
   ○ Some college
   ○ Undergraduate Degree
   ○ Some graduate school
   ○ Graduate Degree
   ○ Doctoral Degree
16. What range encompasses your parent or parents' combined income?
   ○ < $25,000
   ○ $25,000 - $50,000
   ○ $50,000 - $75,000
   ○ $75,000 - $100,000
   ○ > $100,000
   ○ Don’t know/prefer not to say

17. Receiving or the potential to receive an ROTC scholarship was an important factor in my enrollment in the military science course material.
   ○ Yes
   ○ No

18. For tuition purposes, I am classified as an:
   ○ In state resident
   ○ Out of state resident

Part II - Survey Data

In order to better understand what you think and feel about your Military Science courses, please respond to each of the following statements from the perspective of: "When I am in a Military Science course..."

1. I prefer Military Science course material that really challenges me so I can learn new things.
   ○ Strongly Agree
   ○ Agree
   ○ Not sure
   ○ Disagree
   ○ Strongly Disagree

2. I prefer Military Science course material that arouses my curiosity, even if it is difficult to learn.
   ○ Strongly Agree
   ○ Agree
   ○ Not sure
   ○ Disagree
   ○ Strongly Disagree
3. The most satisfying thing for me in Military Science courses is trying to understand the content as thoroughly as possible.

- Strongly Agree
- Agree
- Not sure
- Disagree
- Strongly Disagree

4. When I have the opportunity, I choose Military Science course assignments that I can learn from even if they don't guarantee a good grade.

- Strongly Agree
- Agree
- Not sure
- Disagree
- Strongly Disagree

5. Getting a good grade in a Military Science course is the most satisfying thing for me right now.

- Strongly Agree
- Agree
- Not sure
- Disagree
- Strongly Disagree

6. The most important thing for me right now is improving my overall grade point average, so my main concern in a Military Science course is getting a good grade.

- Strongly Agree
- Agree
- Not sure
- Disagree
- Strongly Disagree

7. If I can, I want to get better grades in Military Science courses than most of the other students.

- Strongly Agree
- Agree
- Not sure
- Disagree
- Strongly Disagree
8. I want to do well in Military Science courses because it is important to show my ability to my family, friends, employer, or others.

- Strongly Agree
- Agree
- Not sure
- Disagree
- Strongly Disagree

9. I think I will be able to use what I learn in Military Science courses in other courses.

- Strongly Agree
- Agree
- Not sure
- Disagree
- Strongly Disagree

10. It is important for me to learn the material in Military Science courses.

- Strongly Agree
- Agree
- Not sure
- Disagree
- Strongly Disagree

11. I am very interested in the content area of Military Science courses.

- Strongly Agree
- Agree
- Not sure
- Disagree
- Strongly Disagree

12. I think the material in Military Science courses is useful for me to learn.

- Strongly Agree
- Agree
- Not sure
- Disagree
- Strongly Disagree
13. I like the subject matter of Military Science courses.
   ○ Strongly Agree
   ○ Agree
   ○ Not sure
   ○ Disagree
   ○ Strongly Disagree

14. If I study in appropriate ways, then I will be able to learn the material in Military Science courses.
   ○ Strongly Agree
   ○ Agree
   ○ Not sure
   ○ Disagree
   ○ Strongly Disagree

15. It is my own fault if I don't learn the material in Military Science courses.
   ○ Strongly Agree
   ○ Agree
   ○ Not sure
   ○ Disagree
   ○ Strongly Disagree

16. If I try hard enough in Military Science courses, then I will understand the material.
   ○ Strongly Agree
   ○ Agree
   ○ Not sure
   ○ Disagree
   ○ Strongly Disagree

17. If I don't understand the course material, it is because I didn't try hard enough.
   ○ Strongly Agree
   ○ Agree
   ○ Not sure
   ○ Disagree
   ○ Strongly Disagree
18. I believe I will receive an excellent grade in Military Science classes.
   - Strongly Agree
   - Agree
   - Not sure
   - Disagree
   - Strongly Disagree

19. I'm certain I can understand the most difficult material presented in the readings for Military Science courses.
   - Strongly Agree
   - Agree
   - Not sure
   - Disagree
   - Strongly Disagree

20. I'm confident I can understand the basic concepts taught in Military Science courses.
   - Strongly Agree
   - Agree
   - Not sure
   - Disagree
   - Strongly Disagree

21. I'm confident I can understand the most complex material presented in Military Science courses.
   - Strongly Agree
   - Agree
   - Not sure
   - Disagree
   - Strongly Disagree

22. I'm confident I can do an excellent job on the assignments and tests in Military Science courses.
   - Strongly Agree
   - Agree
   - Not sure
   - Disagree
   - Strongly Disagree
23. I expect to do well in Military Science courses.

   ○ Strongly Agree  
   ○ Agree  
   ○ Not sure  
   ○ Disagree  
   ○ Strongly Disagree

24. I'm certain I can master the skills being taught in Military Science courses.

   ○ Strongly Agree  
   ○ Agree  
   ○ Not sure  
   ○ Disagree  
   ○ Strongly Disagree

25. Considering the difficulty of Military Science courses, the instructors, and my skills, I think I will do well in Military Science courses.

   ○ Strongly Agree  
   ○ Agree  
   ○ Not sure  
   ○ Disagree  
   ○ Strongly Disagree

26. When I take a test I think about how poorly I am doing compared with other Military Science students.

   ○ Strongly Agree  
   ○ Agree  
   ○ Not sure  
   ○ Disagree  
   ○ Strongly Disagree

27. When I take a Military Science test I think about items on other parts of the test I can't answer.

   ○ Strongly Agree  
   ○ Agree  
   ○ Not sure  
   ○ Disagree  
   ○ Strongly Disagree
28. When I take Military Science tests I think of the consequences of failing.

- Strongly Agree
- Agree
- Not sure
- Disagree
- Strongly Disagree

29. I have an uneasy, upset feeling when I take an exam in Military Science.

- Strongly Agree
- Agree
- Not sure
- Disagree
- Strongly Disagree

30. I feel my heart beating fast when I take a Military Science exam.

- Strongly Agree
- Agree
- Not sure
- Disagree
- Strongly Disagree