

**Re-examination of Herzberg's Two-Factor Theory of Motivation
in the Korean Army foodservice operations**

by

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ABSTRACT

The validity of Herzberg's Two-Factor Theory of Motivation was tested empirically by using the data obtained from foodservice soldiers and logistics officers serving in the Korean Army foodservice operation. This study also attempts to compare general job satisfaction between both sample groups and assess the effect of Herzberg's motivators and hygiene factors on general job satisfaction so as to prioritize the importance of the motivation factors. The results showed there was a statistically significant difference in job satisfaction between the foodservice soldiers and logistics officers. Additionally, the results regarding Herzberg's Two-Factor Theory were quite opposite between the two sample groups. Foodservice soldiers showed that hygiene factors were more powerful predictors of general job satisfaction than motivators. On the other hand, motivators had a more significant association with logistics officers' general job satisfaction than hygiene factors. A multiple regression model including 15 different motivation factors was used to evaluate the relative importance of the 15 motivation factors. For foodservice soldiers, *human supervision* and *independence* factors were ranked first and second, respectively. Whereas, *achievement* and *working condition* factors were identified as the most important motivation factors for logistics officers to boost general job satisfaction.

Key Words: motivators; hygiene factors; job satisfaction; Two-Factor Theory of Motivation, Herzberg; foodservice

CHAPTER 1. INTRODUCTION

1.1 Introduction

Researchers have given considerable attention to employee job satisfaction because it is closely related to the quality of the employee's life. Jenner (1994) insisted that increasing the employee's job satisfaction or morale is an important technique for eliminating absenteeism, reducing turnover, and eventually raising productivity. Barber (1986) found that job dissatisfaction was associated with greater absenteeism and higher turnover rates. With high job satisfaction, the employee tended to show stronger organizational commitment and higher intention to remain with the company. The reverse occurred with low job satisfaction (McFillen, Riegel, & Enz, 1986).

Although research on the topics of work motivation and job satisfaction has been conducted for more than 60 years in various commercial foodservice industries (Agriesti-Johnson & Broski, 1982; Rehn, Stallings, Wolman, & Collen, 1989; Dalton & Gilbride, 1993; Gilmore & Vyskocil-Czajkowski, 1992; Jaffe, Almanza, & Chen, 1994; Duke & Sneed, 1989, and Sneed & Herman, 1990), motivation and job satisfaction studies in non-commercial foodservice industries, such as military, prison, and hospital, have been rare. As the Korean military foodservice is also based on non-commercial foodservice operations, there have been rare attempts to scrutinize job satisfaction and motivation for officers and soldiers in the organization.

A notable advantage of non-commercial foodservice operations is to offer regular and nutrition-balanced menus. However, as the sale of food is a secondary goal, it has been difficult to reflect individuals' tastes in such non-profit foodservice operations compared to

commercial foodservice operations (Son, 2005). Additionally, the fact that the recruitment system of the Korean Army is based on conscription so that every soldier is discharged from military service two years from the enlistment makes it necessary to study motivation and job satisfaction in such a setting.

In this study, Herzberg's Two-Factor Theory of Motivation was used as a tool to investigate motivation and job satisfaction in the Korean Army foodservice. Several research studies have assessed the validity of Herzberg's Two-Factor Theory of Motivation and its relationship to job satisfaction (Weiss, Dawis, England, and Lofquist, 1967; Gilmore and Vyskocil-Czajkowski, 1992; Maidani, 1991). However, hospitality and tourism research lack studies that attempted to systemically investigate the relationship of Herzberg's Two-Factor Theory of Motivation with job satisfaction among both supervisory officers and enlisted soldiers in military foodservice operations. Additionally, methodological inconsistencies have produced different results about Herzberg's Two-Factor Theory (Chitiris, 1988). Therefore, we cannot conclude that Herzberg's proposal is readily applicable to all kinds of organizations. In other words, Herzberg's Two-Factor Theory needs to be reexamined when we apply it in unique situations such as military foodservice operations.

This study addressed the question which motivation factor was more significant for the soldiers' and logistics officers' job satisfaction in military foodservice operations by using the Minnesota Satisfaction Questionnaire (MSQ). This study also examined the dimensionality of Herzberg's two-factor structure of job satisfaction factors. Identifying key determinants of job satisfaction was another important goal of this study.

1.2 Purpose of the study

The Korean Army foodservice operation has typical non-commercial foodservice operation characteristics, such as nutrition-conscious menu, high-volume purchase and consumption, and non-profit purpose. Foodservice soldiers are usually responsible for preparing foods based upon standardized military recipes and maintaining foodservice facilities. They have an obligation to serve in the Army for 22 months. Logistics officers are involved with procurement, contracting, managing and controlling overall foodservice operations. Unlike the foodservice soldiers, logistics officers volunteer for military service so that the obligatory military service concept cannot be applied to them.

The purpose of this study was to determine the relative importance of motivation factors for general job satisfaction. In addition, this study assessed the applicability of Herzberg's Two-Factor Theory of Motivation to job satisfaction of logistics officers and soldiers in the Korean Army's foodservice operations. Specifically, the following research questions were addressed.

1. Is there a difference between two different respondent groups, i.e., the frontline soldier and middle level logistics officer groups, in job satisfaction?
2. Is there a difference between six different rank groups, i.e., first private, corporal, sergeant, second lieutenant, first lieutenant, captain, in job satisfaction?
3. Is the effect of motivators stronger than that of hygiene factors in increasing job satisfaction for the foodservice soldiers and logistics officers?
4. Which motivation factor has the most significant relationship with job satisfaction of logistics officers and soldiers deployed in the foodservice operations of the Korean Army?

Given that logistics officers and foodservice soldiers have different job specifications and they have different reasons to serve in the Korean Army, the first research question is important to understand whether different group of rank has a distinct level of job satisfaction. The second research question is a further way to investigate job satisfaction for every rank group of workers. As indicated in the introduction part, there were discrepancies between several research results over the issue of the predictable powers of motivators and hygiene factors for job satisfaction (Chitiris, 1988; Herzberg, 1968; Simon & Enz. 1995). Specifically, there have been controversies over the issue whether the predicting power of motivators is greater than that of hygiene factors. Because the Korean Army foodservice is very unique surroundings, the predictable power of each motivation factor needs to be re-examined through the third research question. With respect to practical application of this study to the Korean Army foodservice, the relative importance of each motivation factor revealed by the fourth research question can encourage commanders to manipulate deficient and sufficient motivation factor for increased job satisfaction, which eventually can lead to enhanced productivity.

1.3 Significance of the study

It has been very difficult for the soldiers stationed in the Korean military foodservice system to become motivated because they did not have significant incentives related to their contribution to their units. In addition, the basic recruitment system of the Korean military is conscription, which makes the soldiers more difficult to be motivated. Lack of motivated soldiers often led to quality issues in the military foodservice. In this situation, understanding motivation factors will help high-ranking commanders motivate and satisfy foodservice

soldiers in more effective ways. Additionally, job satisfaction stemming from effective motivation was found to be negatively associated with employee turnover, and operational costs of an organization (Ruble, 1986; Taunton, Krampitz, and Woods, 1989). More importantly, this research was the first attempt to study middle management staff (logistics officers) and front-line employees (soldiers) simultaneously in a military organization, in application of Herzberg's Two-Factor Theory of Motivation.

1.4 Definition of terms

Definitions of terms used throughout the research study are as follows:

1. Logistics officer: A professional officer who is responsible for supplying, distributing, procuring, managing foods, all kinds of oils, and combat devices in the Army of Republic of Korea. The main role of these officers is to ensure that the fighting force is supplied with enough food, water, fuel, and ammunition to complete the task at hand. In this study, logistics officer stands for the middle management staff who takes care of military foodservice operations.
2. Soldiers: Servicemen who are conscripted for two-year obligatory military service. In particular, this group of people refers to the foodservice soldiers taking care of cooking and serving.
3. Job satisfaction: Locke (1976) defines job satisfaction as the positive emotional state stemming from valuation of a person's experience associated with the job.

CHAPTER 2. LITERATURE REVIEW

2.1 Introduction

The purpose of this chapter is to examine Herzberg's Two-Factor Theory of Motivation and job satisfaction in the hospitality industry with a focus on non-commercial foodservice operations. This review of literature comprises of five parts. A discussion of non-commercial foodservice operations is presented in the first parts. The second part describes Herzberg's Two-Factor Theory of Motivation. Theories of motivation linked to job satisfaction are identified in the third part. In this part, Herzberg's Two-Factor Theory receives a close examination. A single or pair of factors that affect job satisfaction are presented in the fourth part. The last part discusses different ways to measure job satisfaction.

2.2 Non-commercial Foodservice Operation

Onsite foodservice includes the foodservice operations in non-commercial foodservice institutions, such as hospitals, schools, colleges, prisons, and military bases. The sale of food is a secondary goal for these organizations because these operations are not typically for-profit. An advantage of onsite foodservice is to offer regular and nutrition-balanced menus. On the other hand, it is difficult to reflect individuals' tastes in such institutional foodservice operations (Son, 2005).

Onsite foodservice is characterized as providing meals primarily to those directly involved with the facility such as students, prisoners, patients, enlisted men and women, and employees (Gregoire and Spears, 2007). According to a Society for Foodservice Management (SFM) study, the most important attribute of onsite foodservice cited by managers was the added level of convenience to employees because employees are more

likely to save time for lunch if food is available at work. A positive effect on employee morale and the potential for increased employee productivity were also cited as important attributes of onsite foodservice (Buzalka, 1999). A rising trend in onsite foodservice operations is careful attention to higher nutrition demand as an increasing number of people become diet-conscious consumers in the United States (Peters, 2004).

However, these types of foodservice organizations have gradually been trying to add a profit-making purpose. According to Silverman et al. (2000), efforts to increase revenues, such as installing food kiosks, retail bakeries, and coffee carts are becoming commonplace in hospitals. Many college and university foodservice operations are offering extended hours and take-out or delivery services to better meet student demands and increase profits at nontraditional times and places through outsourcing or co-sourcing (Gregoire and Spears, 2007). The commercial foodservice chains, such as Taco Bell and Manhattan Bagel Co., are being even added to U.S. military bases. The move to improve quality of life in the U.S. military has encouraged enlisted men and woman to be moved out of foodservice duties by outsourcing the work to contract management companies such as Compass Group and Aramark (Matsumoto, 2002).

Unlike U.S. military, all foodservice processes in the Republic of Korea Army, such as planning, organizing, staffing, leading, and controlling, are operated by its own capability. Moreover, the recruitment system of the Army of Korea is conscription so that each soldier is discharged from military service two years after enlistment unless they want to extend their active duty obligations. Thus, it is very difficult to motivate soldiers in military foodservice operations and retain skilled soldiers. To overcome these limitations, outsourcing the military foodservice operation was undertaken by three battalions in 2006 to improve the quality of

foods in military foodservice (Kim, 2006). As the Army of Republic of Korea officially announced a reduction in the number of soldiers in its 'National Defense Reorganization 2020' project, outsourcing, or motivating foodservice soldiers could be key to upgrading the military foodservice operation (Kim, 2007).

2.3 Herzberg's Two-Factor Theory of Motivation

It has always been important to lead employees to do what employers or customers want and to give satisfaction to employees in the workplace for improved productivity. Vroom (1964) defined motivation as an internal energy, based on an individual's needs that encourage oneself to accomplish something. Herzberg (1968) suggested in a Two-Theory of Motivation that there were two factors driving employee satisfaction in the workplace: motivation factors and hygiene factors. Hygiene factors, if lacking in a vocational environment, can lead to workers' job dissatisfaction. The role of hygiene factors is simply to prevent workers' discontent. In other words, these factors do not lead to higher levels of motivation but, without them, there is dissatisfaction. Unlike hygiene factors, motivation factors can truly encourage employees to work hard and enjoy their jobs. These factors involve what people actually do on the job and should be engineered into the jobs employees do in order to develop intrinsic motivation within the workforce (Herzberg, 1976, 1984). Specific examples of hygiene factors are organizational policy, interpersonal relations, job conditions, traffic during the commute, career stability, supervision, and guaranteed retirement fund. Motivators are personal growth, passion for the job, social responsibility, opportunity for advancement, respect, praise, recognition, and the feeling of achievement (Daft, 2003). An interesting point is that salary can be a hygiene factor or a motivator according to the meaning of itself. If salary does not have any meaning other than 'buying

power', it should be just considered a hygiene factor. On the contrary, salary could be a motivator if it represents a symbol of achievement at work (Daft, 2003).

2.4 Theories Related to Motivation and Job Satisfaction

Research on motivation and job satisfaction has been conducted for many years. Ronen and Sadan (1984) noted most researchers consider Herzberg's Two-Factor Theory as best in incorporating the general research trends on the topic regarding the range of job satisfaction theories, which include Taylor's Scientific Management, Hawthorne Studies, and Maslow's Need Hierarchy Theory. According to the research related to motivation and job satisfaction, it is obvious that motivation factors are closely related to job satisfaction. However, it is still ambiguous whether intrinsic (motivators) or extrinsic motivators (hygiene factors) have more significant associations with job satisfaction, especially in the context of military foodservice operations. Likert (1961) and McGregor (1960) argued a more positive correlation exist between intrinsic motivators and job satisfaction. On the other hand, extrinsic motivators, such as good wages, job security, and opportunities for advancement and development, are more significant than intrinsic motivators in motivating employees in the hospitality industry (Simons & Enz, 1995).

Additionally, employee satisfaction is directly linked with customer satisfaction. Higher customer satisfaction could be generated by increasing job satisfaction among service personnel (Rogers, Clow, & Kash, 1994). Employees' negative internal perceptions of their organizations can negatively impact customer satisfaction. In other words, satisfied employees are a crucial resource through which service organizations can obtain a competitive advantage (Schneider & Bowen, 1993). According to Solnet (2007), employee identification with their company, a measure of job satisfaction, determines employee

attitudes and their subsequent behavior. It has a significant correlation with customer satisfaction. In the foodservice industry, employee satisfaction is very important because it is the best way to ensure the quality of customer service. Opportunities for bonuses as an incentive are another good way to increase employee satisfaction (Walkup, 2002). Thus, it is logical that motivators related to employee satisfaction can eventually have an effect on customer satisfaction.

There have been a number of empirical studies on Herzberg's Two-Factor Theory of Motivation and job satisfaction in the hospitality industry. Herzberg (1968) insisted if the hygiene factors are present, job satisfaction will follow, but it will not encourage employees to increase productivity. However, unlike Herzberg's assertion, Simons and Enz (1995) pointed out that hygiene factors, such as good wages and job security, are more important than motivators, such as interesting work and full appreciation of work done, in satisfying hotel employees. In addition, according to Chitiris (1988), when an organization did not allow employees an opportunity to satisfy most of their needs, hygiene factors became more powerful sources of motivation than motivators, and they led to improved performance and productivity. Methodological inconsistencies and the fact that different researchers have used different motivation variables have affected the contraposition about Herzberg's Two-Factor Theory (Chitiris, 1988). Therefore, we cannot conclude that Herzberg's proposal regarding motivation is readily applicable to all kinds of organizations. In other words, Herzberg's Two-Factor Theory needs to be reexamined to understand which motivation factors are more significant in different organizations.

2.5 Factors Influencing Job Satisfaction

Many researchers have studied factors leading to job satisfaction. Mullins, Nelson, Busciglio, and Weiner (1988) surveyed the job satisfaction of 439 employees who were department heads, dietary managers, licensed practical nurses, and nurse's aides from 46 non-profit nursing homes. Findings suggested this group of employees had the highest level of job satisfaction with working conditions where they were rewarded for good work.

Pizam and Neumann (1988) chose 145 hotel employees in Central Florida to identify the effects of task characteristics as indicators of job satisfaction for employees in the hospitality industry. Task characteristics strongly determine two aspects of job satisfaction, satisfaction with co-workers and supervisors, which was determined by feedback from supervisors and peers, and the experienced meaningfulness of the job.

Job characteristics as the indicators of job satisfaction were studied by Duke and Sneed (1989). Results of the study indicated that feedback and dealing with other workers give the highest levels of job satisfaction for 32 managerial and 147 non-managerial university foodservice employees.

Mathieu, Hoffman, and Farr (1993) investigated the relationship between the perceptions of organizational commitment and levels of job satisfaction for 450 male engineers and their supervisors. Results showed that actual work conditions and departmental size was directly related to employees' perceptions of job satisfaction. They also found demographic information such as education levels of the engineers had a significant effect on job satisfaction. The importance of the job itself or work conditions in terms of increasing job satisfaction was also studied by Watson and Slack (1993). They surveyed 82 full-time university employees who took part in a wellness program. They found quality of life

programs within the workplace, such as a fitness center and child care, had a significant association with one's job satisfaction. In addition, among the several factors of job satisfaction of 150 sales representatives in publishing firms, co-workers and working conditions had the most significant effect on organizational commitment and job satisfaction for well-established sales representatives (Russ & McNeilly, 1995).

Extending previous studies considering single or multiple factors as the predictors of job satisfaction, Ting (1997) studied job satisfaction of 56,767 full-time federal government employees. He suggested that there were three primary groups influencing job satisfaction. Those three groups were job characteristics, organizational characteristics, and individual characteristics. Job characteristics were defined as pay satisfaction, task clarity, skill utilization, and task contribution. Organizational characteristics referred to relationships with co-workers and supervisors. Individual characteristics were variables describing the employees themselves. Interesting results were related to pay. Even if pay was revealed to increase job satisfaction at all levels of employees, the effect of pay diminished as the pay level increased. In terms of this result, Ting (1997) insisted extrinsic factors (pay) were less significant motivators than intrinsic rewards (making contributions to the organization) for job satisfaction as employees advanced to higher levels of position.

2.6 Measuring Job Satisfaction

Considerable attention has been given to the measurement of job satisfaction since the Job Diagnostic Inventory (JDI) was developed in 1969 as a measure of job satisfaction. This instrument included the work itself, pay, supervision, coworkers, and opportunities for promotion as the five variables for job satisfaction (Smith, Kendall, & Hulin, 1969). Based on Herzberg's Two-Factor Theory of Motivation, Weiss, Dawis, England, and Lofquist

(1967) also developed the Minnesota Satisfaction Questionnaire (MSQ) for measuring job satisfaction. Unlike the JDI, the MSQ divided the motivation variables into two categories: the intrinsic and extrinsic satisfaction factors. The former includes achievement, independence, security, and variety, and the latter refers to pay, promotion, policies, supervision, coworkers and working conditions. Both long and short forms of the MSQ have been used for measuring job satisfaction based on Herzberg's Two-Factor Theory of Motivation. The long-form MSQ measures job satisfaction by using 20 scales, such as achievement, activity, advancement, authority, and independence, and each scale consists of five items. The short-form, in contrast, is composed of three scales: intrinsic satisfaction, extrinsic satisfaction, and general satisfaction. The long-form of the MSQ was used by Walsh (1980) to assess job satisfaction for residence hall service personnel. DeMicco and Olsen (1987) used the short-form MSQ to study how job satisfaction affected retirement intention in older employees.

In hospitality research, job characteristics which are used to predict job satisfaction measured by some variations of the JDI or MSQ facets have been widely studied and generally supported as tools for measuring job satisfaction (Mount & Bartlett, 2002). Focusing on intrinsic job contents, Hackman and Lawler (1971) described the six dimensions of job characteristics (e.g. variety, autonomy, feedback) in greater detail for examining how those job characteristics are related to job satisfaction. More specifically, the Job Satisfaction Survey (JSS) was developed for assessing satisfaction of institutional foodservice supervisors (Gilmore & Vyskocil-Czajkowski, 1992). Nine facets of satisfaction-, including the nature of work, supervision, co-workers, and promotion-, were assessed in the JSS. One significant difference here is the division of rewards into pay, benefits, and contingent rewards on JSS.

By using the JSS scale, Chong, Unklesbay, & Dowdy (2000) investigated job satisfaction of the hospital workers who were both in managerial and non-managerial positions. The most noticeable result was that satisfaction with the type of work done had the strongest correlation with total job satisfaction regardless of the managerial or non-managerial positions held. However, no hospitality research appears to have examined job satisfaction for the officers and soldiers involved with the Korean Army foodservice operations, especially in terms of Herzberg's Two-Factor Theory of Motivation.

2.7 Summary

A rising trend in on-site foodservice operations is that these types of foodservice organizations have gradually been trying to add a profit-making purpose. However, in the on-site foodservice institution, such as the Republic of Korean army, there is still no additional purpose except for keeping the soldiers well-fed. Moreover, the basic recruitment system is conscription so that it has been always difficult to motivate soldiers serving in the military foodservice.

Herzberg suggested two-different categories of motivation to inspire workers more effectively: one is motivators and the other is hygiene factors. The presence of motivators, such as recognition, achievement, advancement, and responsibility, increases job satisfaction, but the absence of these does not bring about job dissatisfaction. On the other hand, the presence of hygiene factors, such as interpersonal relations, organizational policy and administration, supervision, working conditions, and job security, does not encourage employees to have higher job satisfaction, but the absence of these leads to fatal job dissatisfaction.

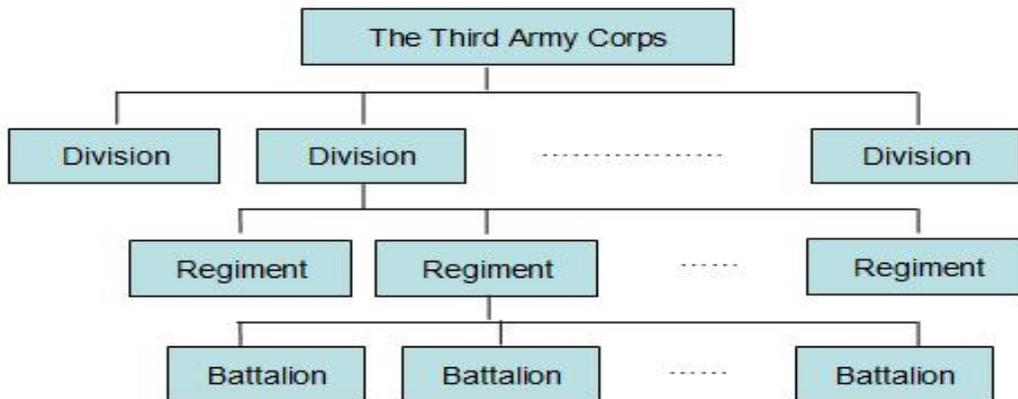
Among several theories regarding motivation factors leading to job satisfaction, most researchers consider Herzberg's Two-Factor model theory as the best method in predicting job satisfaction. However, different research results were found regarding Herzberg's Two-Factor Theory of Motivation predicting job satisfaction. Some researchers insisted motivators were more significant in increasing job satisfaction for employees as Herzberg pointed out. Other researchers argued hygiene factors were more important predictors of job satisfaction. Therefore, we cannot conclude Herzberg's proposal regarding motivation as applicable to all kinds of organizations.

Several different ways to measure job satisfaction have been developed. The long and short forms of MSQ have been used for measuring job satisfaction based on Herzberg's Two-Factor Theory of Motivation, and it divided the motivation variables into two categories: intrinsic and extrinsic. Also, general job satisfaction is measured by 20 of the total 100 items in the long-form of MSQ. Given the fact that South Korea and the United States of America (USA) have significantly different levels of the five cultural dimensions suggested by Hofstede (1996), some of the measurement scales in MSQ developed in the USA need to be modified when the motivation theory originated in the USA is applied to the South Korean culture. For non-commercial foodservice institutions, the Job Satisfaction Survey (JSS) which includes nine facets of satisfaction, pertaining to the nature of work, supervision, co-workers, and promotion, has been used as well.

CHAPTER 3. METHODOLOGY

3.1 Study Sample

The population in this study was all soldiers and officers serving in the Korean Army foodservice operation. The sample was drawn from the Third Army Corps, which was representative of the Korean Army in terms of its organizational structure and type of foodservice operations. The sample was categorized into two different groups: the soldiers group that represented frontline employees and the logistics officers group that was representative of the middle management of military foodservice. Figure 1 sketches the organizational structure of the Third Army Corps. Only logistics officers serving at the battalion-level of units were chosen for the second group of the sample.



Note. The number and identity of units, such as division, regiment, and battalion, cannot be released because of military security.

Figure 1. The organizational structure of the Third Army Corps for sampling

All foodservice soldiers ($N=671$) serving in the Third Army Corps, except for those who had served for less than four months in the Third Army Corps, were selected. As the required service period for private soldiers was too short (four months at most) to evaluate their foodservice system, these soldiers were excluded from the first group of the sample.

Likewise, all logistics officers ($N=131$) serving the Third Army Corps were chosen as the second group. Only the logistics officers serving at the battalion-level of units in the Third Army Corps were selected for the sample because those serving at higher levels of units than the regiment-level were not appropriate for reflecting middle management.

3.2 Questionnaire Design

According to the manual for the Minnesota Satisfaction Questionnaire (MSQ) by Weiss, Dawis, England, and Lofquist (1967, p. vi), “the MSQ is an instrument that measures job satisfaction with several different aspects of the work environment”. The several different aspects of the work environment refer to the intrinsic-, and extrinsic factors that can lead to job satisfaction. The intrinsic and extrinsic factors can be assumed as motivators and hygiene factors in Herzberg’s Two-Factor Theory of Motivation.

To measure the motivators and hygiene factors as the independent variables and general job satisfaction as the dependent variable, the long-form MSQ was used because Weiss, et al (1967) strongly recommended that the long-form MSQ provided much more information for the very short additional time that it additionally required than the short-form MSQ. Even if the long-form MSQ had 100 items, a fifth grade reading level could have the participants complete the questionnaire within 15 to 20 minutes at most. More importantly, the reliability and validity of the long-form MSQ were reported to be stronger than those of the short-form MSQ (Weiss, et al., 1967).

The first part of the long-form MSQ asked about the demographic information of the participants. The second part measured three different dimensions of job satisfaction: intrinsic (motivator factors), extrinsic (hygiene factors), and general satisfaction. This part

consisted of 100 items in 20 scales, each scale containing five measurement items. The 20 scales are classified into intrinsic and extrinsic satisfaction measures. Of the 100 items, one set of the five 20-item sets measured general job satisfaction. All items were anchored on a 5-point satisfaction scale (1 = very dissatisfied to 5 = very satisfied).

The five scales representing *activity*, *social service*, *social status*, *compensation*, and *security*, were excluded from the original long-form MSQ because they were not applicable to the Korean Army context where all foodservice soldiers and logistics officers were assigned to such duties as part of their mandatory military service. Thus, the nature of their duties was primarily internal to the military organization and it implied little social service or status. Also, the fact that it was part of their military service removed concerns about job security. Unlike most employees of commercial foodservice operations, these military foodservice personnel received a fixed salary regardless of their performance. The finalized 15 scales are presented in Table 1.

Table 1. Measures of Intrinsic and Extrinsic Satisfaction of MSQ

Intrinsic job satisfaction scale (Motivator factors)		Numbers in Original MSQ
Ability utilization	The chance to do something that makes use of my abilities	7 27 47 67 87
Achievement	The feeling of accomplishment that I get from the job	19 39 59 79 99
Creativity	The chance to try my own methods of doing the job	2 22 42 62 82
Independence	The chance to work alone on the job	4 24 44 64 84
Moral values	Being able to do things that don't go against my conscience	3 23 43 63 83
Responsibility	The freedom to use my own judgment	17 37 57 77 97
Recognition	The praise I get for doing a good job	18 38 58 78 98
Extrinsic job satisfaction scale (Hygiene factors)		Items
Policies and procedures	The way organization policies are put into practice	9 29 49 69 89
Authority	The chance to tell other people what to do	6 26 46 66 86
Co-workers	The way my co-workers get along with each other	16 36 56 76 96
Supervision (technical)	The competence of my supervisor in making decisions	15 35 55 75 95
Supervision (human relations)	The way my boss handles his people	10 30 50 70 90
Working conditions	The physical environment where I work	13 33 53 73 93
Variety	The chance to do different things from time to time	5 25 45 65 85
Advancement	The chances to advance on this job	14 34 54 74 94

3.3 Data Collection

The Korean Army was operating the Workflow system that was developed for reporting and approving official documents on the Intranet. The system could provide convenience and accessibility for collecting data from the sample, and allow the participants flexibly to take part in the study in their convenient time and pace.

Data collection was handled in the following steps. Prior to sending the questionnaire, the purpose and method of the study were explained in detail to the officer in charge in the Headquarters of the Korean Army. Upon approval, the questionnaire file including a cover letter was sent to the Headquarters of the Korean Army via email and relayed to the Third Army Corps Headquarters via the Army's Intranet. All foodservice soldiers and logistics officers serving at the battalion-level of units under the Corps were asked to fill out the questionnaire during the 14-day study period in a paper-and-pencil method. After collecting the responses for the 14 days, the Headquarters of the Korean Army sent all collected copies to the researcher by using an international postal service. The fact that participation was encouraged by the chief commander of the Third Army Corps was likely to have increased the response rate.

3.4 Data Analysis

Data were analyzed by STATA Version 10. According to the MSQ manual, of the 567 Hoyt reliability coefficients reported in 27 different groups to test internal consistency, 83% were .80 or higher and only 2.5% were lower than .70 (Weiss, et al., 1967). As the scales of MSQ were applied to a very unique situation in this study, i.e., a military

foodservice, a factor analysis and internal consistency reliability test were conducted again to check the reliability of different survey items intended to measure the same characteristic.

Descriptive statistics were used to analyze demographic characteristics of the respondents. Multiple regression, independent sample *t*-tests, and analysis of variance (ANOVA) were used to answer the research questions. A multiple regression was used to examine the predictive power of each independent variable for job satisfaction. Independent *t*-tests assessed whether the means of two groups were statistically different from each other. Statistical differences in mean values among three or more groups were tested by using ANOVA. First, the independent sample *t*-test was applied and *p*-values were computed to determine whether general job satisfaction differed between foodservice soldiers and logistics officers. ANOVA was used for similar purposes to compare six different rank groups. Second, multiple regression analysis was used to re-examine the effects of motivators and hygiene factors on job satisfaction for each sample group. Finally, to test the predictive power of the 15 different motivation factors for the general job satisfaction of both soldiers and logistics officers, multiple regression models were used again to determine the priority of each motivation factor for both sample groups.

CHAPTER 4. RESULTS

4.1 Profile of respondents

The survey response rate was 73%, with 605 military soldiers and officers participating. The response rate for the foodservice soldiers and logistics officer groups were 70% and 88%, respectively. Given that the response rates for previous studies, which attempted to measure job satisfaction for hospitality workers in application of Herzberg's Two-Factor Theory of Motivation (Walsh, 1980; DeMicco & Olsen, 1987), were 52% and 46%, the response rate for this study is deemed good.

Table 2. Demographic information of the respondents in two groups

	Group ¹	
	Foodservice soldier (%)	Logistics officer (%)
Gender		
Female	0	1.73
Male	100	98.26
Age(yr)		
<20	1.29	0
21-23	87.38	5.43
24-26	8.33	72.31
27-29	2.80	20.53
30-32	0.20	1.73
Rank		
First Private	36.89	0
Corporal	33.48	0
Sergeant	29.63	0
Second Lieutenant	0	16.52
First Lieutenant	0	66.08
Captain	0	17.40

¹ Number of respondents (*n*): foodservice soldiers = 490; logistics officers = 115.

Demographic information is given in Table 2. Because the Korean army had conscripted only males for soldiers, there was no female soldier in the sample.

Approximately 87% of the foodservice soldiers' ages were between 21 and 23. The notable

feature of demographic information of the participants is that as the rank for the foodservice soldiers was increased, the proportion of the work force decreased.

4.2 Predicting job satisfaction

4.2.1 Comparison of job satisfaction for two different groups

An independent-sample *t*-test was conducted to compare the mean scores of job satisfaction between foodservice soldiers and logistics officers (See Table 3), which was to answer the first research question in this study. The test result was significant, $t(603) = -11.32, p < .00$. The mean job satisfaction score for foodservice soldiers ($M = 2.85, SD = .36$) was significantly lower than that for logistics officers ($M = 2.92, SD = .36$). The 95% confidence interval for the difference in mean job satisfaction scores ranged from -8.33 to -5.86.

Table 3. Comparison of job satisfaction between two sample groups

Group	<i>n</i>	Mean ^a	<i>SD</i>	<i>t</i> -value	<i>p</i> -value
Foodservice soldiers	490	2.85	.36	-11.32	0.00**
Logistics officers	115	2.92	.36		

^a 1 not satisfied, 2 only slightly satisfied, 3 satisfied, 4 very satisfied, 5 extremely satisfied
Note: df = 603

4.2.2 Comparison of job satisfaction among different rank groups

Table 4 and 5 present the results of one-way ANOVA conducted to test differences in job satisfaction scores among the military rank groups, which was to address the second research question of the study. The independent variables were six different ranks: first private, corporal, sergeant, second lieutenant, first lieutenant, and captain. The dependent variable was average job satisfaction measured by a revised long form of MSQ. The ANOVA result was significant, with $F(5, 598) = 51.67, p < 0.001$, and the model explained

32% of the variance in the satisfaction score. This means there was a significant difference in the job satisfaction level among the different soldier groups.

Table 4. Simple statistics regarding job satisfaction

Group	<i>n</i>	<i>Mean</i>	<i>SD</i>
First Private	181	2.86	.38
Corporal	164	3.08	.30
Sergeant	145	3.26	.34
Second Lieutenant	19	3.46	.30
First Lieutenant	76	3.53	.41
Captain	20	3.75	.32

Note: *F* value = 51.67, *df* = 603

Follow up tests were conducted to evaluate differences in pairs of groups by mean job satisfaction scores. The Bartlett's test for equal variances was statistically significant ($p = .025$) so that equal variances could not be assumed. Tamhane multiple comparisons were conducted due to unequal variances among the five groups on the motivation measurement items (See Table 5). There were significant differences in mean job satisfaction scores between almost all different rank groups. Of the 15 possible rank-to-rank comparisons, only four comparison groups (Sergeant – Second Lieutenant, Second Lieutenant – First Lieutenant, Second Lieutenant – Captain, and First Lieutenant – Captain) showed no difference in job satisfaction scores. The interesting point is that three of the four comparisons that showed no differences in job satisfaction were comparisons between logistics officers (Second Lieutenant – First Lieutenant, Second Lieutenant – Captain, and First Lieutenant – Captain). This implies that there were no differences in job satisfaction between logistics officers.

Table 5. Tamhane multiple comparisons of job satisfaction scores by the different rank groups

	First Private	Corporal	Sergeant	Second Lieutenant	First Lieutenant
Corporal	3.04 ¹ <.001 ²				
Sergeant	5.57 <.001	2.54 <.001			
Second Lieutenant	8.40 <.001	5.34 <.001	2.77 0.55		
First Lieutenant	9.29 <.001	6.31 <.001	3.75 <.001	.94 1.00	
Captain	12.47 <.001	9.45 <.001	6.91 <.001	4.10 .32	3.13 .38

Note: Bartlett's test for equal variances: $\chi^2(5) = 12.81, p = .025$

¹ Mean difference; ² *p*-value

4.3 Re-examination of Herzberg's Two Factor Theory of Motivation

One of Herzberg's assertions was that if employees were to be motivated in order to boost job performance and thus to increase productivity in workplaces, motivators should satisfy the workers. He also insisted that if hygiene factors existed in workplaces, it would increase the worker's job satisfaction, but without increasing productivity. These assertions were confirmed by Chitiris (1984) who argued that professional, skilled workers in hospitals supported Herzberg's theory. However, it is logical to assume that unskilled, non-professional employees are much more likely to hold seasonal and temporary positions-, and, thus, it is expected that motivators (job-centered factors) may not result in job satisfaction as much as hygiene factors (environmental-centered factors) (Chitiris, 1988).

Thus, it is obvious that Herzberg's Two-Factor Theory of Motivation needs to be re-examined to see whether motivators had a more significant relationship with job satisfaction than hygiene factors, according to characteristics of workers. This addresses the third research question of this study. In the Korean military Army foodservice operations, logistics officers usually oversee overall foodservice operations and professional issues regarding procurement and contracts with outside organizations, but they lack specific skills to prepare foods or use foodservice equipment. On the other hand, foodservice soldiers are responsible for preparing foods and maintaining dining facilities. Due to these job characteristics, the effects of motivators and hygiene factors need to be examined in this study.

Even if the reliability and validity of MSQ were already justified in the MSQ manual (Weiss, et al., 1967), factor analysis and internal consistency test were conducted again for this study to show that different survey items loaded on the same subscale, because MSQ scales were applied to a very unique situation, the Korean Army foodservice. The principal factor analysis results for each subscale on MSQ showed that each subscale consisted of a single underlying common factor because there was only one eigenvalue exceeding 1 (See Appendix C for summary results). Furthermore, each of the question items had a communality value of at least 50% to a maximum of nearly 79% of the variability "explained" by the linear combination of the items loading on the same factor. Thus, the factor analysis supported summing items of subscales (Allen & Yen, 2002). The reliability coefficient (α) of each subscale ranged from .838 to .859 (See Appendix C), which was acceptable (See Chapter 3.4). Thus, the summed score of each subscale (each motivation factor) could be justified because the internal consistency reliabilities of the revised MSQ were all strong.

Likewise, factor analysis and Cronbach's alpha were applied to all subscales of both motivators and hygiene factors. The principal factor analysis results for both the motivators and hygiene subscales demonstrated that each subscale consisted of a single underlying common factor. This is evident from the fact that in each case there was only one eigenvalue (for Factor 1) that exceeded 1 (See table 6 and Appendix C). Furthermore, each of the motivator and hygiene factor items had a communality value of, at least 51% to a maximum of nearly 76% of the variability "explained" by the linear combination of the items on the same factor. Hence, the factor analysis supported that the summation scores of motivators and hygiene factors were valid (Allen & Yen, 2002).

Table 6. Results of factor analysis on motivators and hygiene factors

	Factor Loading	Eigenvalues	Percentage of variance explained	Communality
Motivators		2.38	66.26	
Ability utilization	.64			.58
Achievement	.66			.55
Creativity	.56			.65
Independence	.51			.69
Moral values	.46			.76
Responsibility	.61			.61
Recognition	.61			.62
Hygiene factors		2.21	50.26	
Variety	.49			.69
Advancement	.50			.69
Policy	.59			.65
Authority	.49			.68
Coworkers	.49			.69
Technical supervision	.69			.51
Human supervision	.52			.68
Working condition	.39			.76

Additional evidence of the unidimensionality of both the motivator and hygiene subscales was provided by Cronbach's alpha values of .78 for the motivator subscale and .74

for the hygiene subscale (See Table 7). Combined, the factor analysis and reliability alpha results supported summing the items within each scale for subsequent use in regression analysis (Tabachnick & Fidell, 2001).

Table 7. Cronbach's alpha for motivators and hygiene factors

	Item total correlations ¹	Item-to-total correlations ²	Alpha ³	Alpha ⁴
<i>Motivators</i>				
Ability utilization	.71	.57	.74	.75
Achievement	.71	.57	.74	.75
Creativity	.64	.48	.76	.76
Independence	.62	.46	.77	.77
Moral values	.58	.41	.77	.78
Responsibility	.68	.54	.75	.75
Recognition	.68	.54	.75	.75
Mean test scale	-	-	.78	.79
<i>Hygiene factors</i>				
Variety	.59	.43	.72	.73
Advancement	.59	.43	.72	.73
Policy	.66	.52	.70	.71
Authority	.57	.40	.72	.73
Coworkers	.57	.40	.72	.73
Technical supervision	.69	.60	.69	.69
Human supervision	.60	.44	.72	.73
Working condition	.50	.33	.74	.75
Mean test scale	-	-	.74	.75

Note: ^{1,2} values from standardized items ³ unstandardized alpha; ⁴ standardized alpha

The regression model containing the motivators and hygiene factors was run to compare the effects of the two motivation factors on the foodservice soldiers' job satisfaction. Results in Table 8 present that 73% of the variance in the job satisfaction score was explained by both motivators and hygiene factors. The beta value ($\beta=.52$) of hygiene factors was larger than that of motivators ($\beta=.42$) for the foodservice soldiers, the result implying that hygiene factors had a stronger effect on the foodservice soldiers' job satisfaction score than motivators.

Likewise, the regression equation model for the logistics officers was run in order to compare the effects of motivators and hygiene factors that could lead to job satisfaction.

Table 8 also shows that 87% of the variance in the job satisfaction score was accounted for by both motivators and hygiene factors ($p < .001$). Interestingly, the result for the logistics officers was in the opposite direction to that for the foodservice soldiers. That is, the beta value of motivators ($\beta=.67$) was greater than that of the hygiene factors' ($\beta=.37$) for the logistics officers, which meant that motivators were more powerful predictors than hygiene factors for the logistics officers.

Table 8. The effects of motivators and hygiene factors on job satisfaction

	Regression coefficient	SE	t	β^1	R^2	F value	p-value
<i>Foodservice soldiers</i> ²					.73	653.76	<.001
Motivators	.17	.01	13.34	.42			
Hygiene factors	.21	.01	16.60	.52			
<i>Logistics officer</i> ³					.87	333.56	<.001
Motivators	.23	.01	15.37	.67			
Hygiene factors	.15	.02	8.46	.37			

Note.¹ standardized value ² $n=490$ ³ $n=115$

4.4 Priority of motivation factors

To determine the relative importance of the motivation factors as reflected in the fourth research question of this study, a regression model containing all the 15 motivation factors as independent variables was run. To check for potential multicollinearity among the independent variables, variance inflation factor (VIF) values were examined and they also appear in Appenedix C. All VIF values were small enough to suggest no serious multicollinearity (Hesketh-Rabe & Everitt, 1999).

The three most important predictors of foodservice soldiers' general job satisfaction were *human supervision* ($\beta=.200$), *independence* ($\beta=.199$), and *moral value* ($\beta=.187$), whereas the factors, such as *creativity* ($\beta=.032$), and *responsibility* ($\beta=.048$), did not have contribution to predicting general job satisfaction for the foodservice soldiers. Although it was disclosed in Table 8 that hygiene factors had a significantly stronger relationship with the foodservice soldiers' general job satisfaction than motivators, not all the hygiene factors were significant predictors of general job satisfaction. Specifically, even though *advancement* ($\beta=.044$) and *working condition* ($\beta=.054$) were categorized into the hygiene factors in this study, its relative importance to predicting general job satisfaction was quite low as compared to that of the other 15 motivation factors.

The three most important predictors of logistics officers' general job satisfaction were: *achievement* ($\beta=.321$), *working condition* ($\beta=.219$), and *human supervision* ($\beta=.198$), whereas *technical supervision* ($\beta=.018$) and *creativity* ($\beta=.042$) did not have significant associations with the logistics officers' general job satisfaction. Even though it was revealed in Table 8 that motivators had a more significant relationship with the logistics officers' general job satisfaction than hygiene factors, not all the motivation factors were significant predictors of their general job satisfaction. For example, although *creativity* ($\beta=.042$) and *moral value* ($\beta=.065$) were categorized into motivators in this study, its relative importance to predicting general job satisfaction was quite low among the 15 motivation factors.

The results indicate that the relative importance of the 15 motivation factors was also different for the two sample groups. Unlike the results for the foodservice soldiers, *achievement* ($\beta=.064$) and *working condition* ($\beta=.054$), which were regarded as relatively less-important motivation factors by the foodservice soldiers, had the most powerful

association ($\beta=.321$, $\beta=.219$) with general job satisfaction for the logistics officers. An interesting point is that the *creativity* factor had low power to predict general job satisfaction for both groups.

Table 9. Regression results of predicting Job Satisfaction for each sample group

Group	Motivation factor	VIF	Parameter estimate	Standardized coefficient (β)	F	R^2
Foodservice soldiers	Human Supervision **	1.40	.363	.200	128.55	.81
	Independence **	1.36	.314	.199		
	Moral value **	1.46	.326	.187		
	Authority **	1.49	.285	.152		
	Recognition **	1.57	.236	.128		
	Variety **	1.43	.229	.110		
	Policy **	1.50	.235	.108		
	Technical supervision **	1.76	.227	.106		
	Co-workers **	1.42	.190	.105		
	Ability utilization **	1.53	.168	.089		
	Achievement *	1.58	.127	.064		
	Working condition *	1.49	.102	.054		
	Responsibility	1.45	.092	.048		
	Advancement (*)	1.34	.084	.044		
Creativity	1.41	.056	.032			
Logistics officers	Achievement **	4.42	.539	.321	53.41	.90
	Working condition **	2.13	.276	.219		
	Human Supervision **	2.30	.363	.198		
	Independence **	2.90	.281	.189		
	Recognition (*)	3.98	.183	.114		
	Authority **	1.46	.222	.108		
	Ability utilization (*)	3.34	.206	.103		
	Responsibility (*)	3.06	.184	.093		
	Variety	2.51	.155	.074		
	Advancement	2.55	.118	.073		
	Moral value	2.69	.088	.065		
	Co-workers	2.44	.082	.049		
	Creativity	3.40	.083	.042		
	Technical supervision	2.71	.042	.018		
Policy (*)	1.99	-.204	-.083			

Note: (*) $p < .1$; * $p < .05$; ** $p < .01$

CHAPTER 5. DISCUSSION AND CONCLUSION

5.1 Implication

In the previous studies that attempted to examine correlation between job satisfaction and demographic variables (Jaffe *et al* 1994; Chong *et al* 2000), no significant correlation was found. However, the demographic variables in those studies did not include variables such as the respondent's rank and job satisfaction. This study found a significant correlation between the respondent's rank and job satisfaction. In particular, the results of this study indicated that logistics officers had a higher level of job satisfaction than foodservice soldiers (See Table 3). Tables 4 and 5 present that workers in higher ranks had a higher level of job satisfaction. The general commander in the Third Army Corps needs to consider that the largest proportion (36.9%) of work forces in the military foodservice operation was at the lowest rank, which was the *first private* rank (See Table 2). Thus, when the lower-rank workers had low job satisfaction, it can be a serious threat to the organization due to the large number of workers in such positions.

Additionally, the results of this study regarding the effects of motivation factors and hygiene factors on job satisfaction were similar to those of the previous studies (Chitiris 1984, 1988) in that hygiene factors were more powerful predictors in increasing the foodservice soldiers' job satisfaction level than motivators, while the logistics officers were more significantly affected by motivators than hygiene factors (See Table 8). Interestingly, Herzberg's view that motivators should increase job satisfaction was not supported in the case of the Korean Army foodservice soldiers. One possible interpretation of these results is that foodservice workers might prefer to receive more job-related supports (extrinsic

motivation; hygiene factors) than psychological pride or mental satisfaction (Intrinsic motivation: motivators), due possibly to the nature of their military service. If commanders of the Korean Army want foodservice soldiers to have a higher level of job satisfaction, they should consider that hygiene factors accounted for a larger amount of variation in the foodservice soldier's job satisfaction than motivators. For example, investigating human relations with coworkers or their supervisors and making necessary measurements might be a good policy that the commanders could take to increase their job satisfaction. Specifically, if most of foodservice soldiers in low ranks have conflicts with their supervisory officers over the issue of their tasks, commanders need to explore what kind of human relation adjustments, such as personnel shifts, can relieve those conflicts. On the other hand, motivators have more significant association with the logistics officer's job satisfaction than hygiene factors. Extending promotion opportunities or job enrichment which allows workers to apply the range of their capabilities might be good examples to increase the logistics officer's job satisfaction. In the Korean military foodservice, when middle management officers needed to make an important decision, lack of authority might discourage them to deal with their tasks with enthusiasm. Thus, according to the result of this study, the applicability of Herzberg's Two-factor Theory of Motivation depends on a nature of the job position, especially in the military situation.

The relative importance of all motivation factors (See Table 9) for each sample group can inspire commanders to adopt specific motivation factors for particular staff groups in order to make a direct impact on job satisfaction. Although there have been attempts to rank several different motivation factors for hospitality and industrial workers (Simons & Enz 1995; Chong et al., 2000), they were not based on Herzberg's Two-factor Theory of

Motivation and the MSQ questionnaire, and, thus, the results of this study provide another way to look at the relative importance of each motivation factor.

Also, comparing the effects of motivators and hygiene factors on job satisfaction needs to be re-considered in view of the relative importance of each motivation factor. In other words, even if motivators are more powerful predictors of job satisfaction than hygiene factors, it cannot be concluded that all individual motivation factors categorized into motivators have more significant associations with job satisfaction than all other hygiene factors. Specifically in this study, although it was disclosed that hygiene factors had a more significant relationship with the foodservice soldiers' general job satisfaction than motivators (See Table 8), all the factors included in the hygiene factor group did not impact job satisfaction. For instance, *working condition* ($\beta=.054$) and *advancement* ($\beta=.044$), which were the hygiene factors, were relatively trivial in their effects on the job satisfaction of foodservice soldiers. On the other hand, *independence* ($\beta=.199$) and *moral values* ($\beta=.187$), which were motivators, appeared strong for the same group. The same logic can be applied to the logistics officers. Even if the logistics officers showed that motivators were more significant than hygiene factors in increasing job satisfaction (See Table 8), some motivation factors, such as *working condition* ($\beta=.219$) and *human supervision* ($\beta=.198$) that were included in hygiene factors, were considered moderately important predictors of general job satisfaction for the logistics officers. This implies that when commanders need to focus on several motivation factors to increase job satisfaction for workers, they should consider the individual effect of each motivation factor rather than comparing the effects of motivators with those of hygiene factors at the overall level.

5.2 Conclusion

The purpose of this study was to determine the relative importance of motivation factors for general job satisfaction and assess the applicability of Herzberg's Two-Factor theory of Motivation to job satisfaction of logistics officers and soldiers in the Korean Army's foodservice operations. This study, therefore, was designed to investigate job satisfaction and two different motivation factors for both respondent groups.

For the first and second research questions, significant differences were found between the respondents' group (rank) and job satisfaction. The higher the rank, the higher job satisfaction. For the third research question, the two respondent groups had the opposite results. The foodservice soldiers regarded hygiene factors as more powerful predictors of their job satisfaction than motivators. In contrast to foodservice soldiers, motivators were considered as the more significant predictors of the logistics officers' job satisfaction. For the fourth research question, *human supervision* was the most powerful predictor of job satisfaction for foodservice soldiers and *achievement* for logistics officers. However, not all hygiene factors were more important than motivators for the foodservice soldiers. Likewise, not all motivators appeared to be more important factors than hygiene factors for logistics officers.

5.3 Limitation and future research

Hofstede (1980) emphasized that many differences in employee motivation, management style, and organizational structures of companies could be traced to differences in the collective mental programming of people in a country that made them distinct from the people of other countries. This study did not consider five different organizational cultural

differences between the U.S. and South Korea in its study design. A future study may need to account for potential impacts of the cultural factors on this study's findings.

In addition, sampling limitations are acknowledged. This study was limited to one of 11 different corps in the Korean Army, which might limit generalization of the results to all military foodservice operations. However, given the fact that the foodservice organizational structure of those corps was very similar with each other, it is possible that the results could be applicable to the other units in the Korean Army.

Another limitation is a limited sample size for each rank group in comparisons. Determining relative importance of the 15 different motivation factors for each rank group was not conducted because sample size for each rank group was somewhat too small. Tabacnick and Fidell (2001) suggested a general rule for selecting a sample size based on the number of variables: $N \geq 50 + 8m$, where 'm' is the number of independent variables. Thus, to make a reliable conclusion for the relative importance of motivation factors, the sample size of each rank group should be more than 170. Even though the response rate was 88% and the sample size for the logistics officer was 115, the conclusions and implications made from this group of sample could have a low power.

The outcomes of this research suggest a number of possible ways to improve. First, given that the foodservice officers in this study were more significantly affected by hygiene factors than motivators, researchers can study further why Herzberg's Two-Factor Theory of Motivation was applicable only to a certain job position (logistics officers in this study). Second, further examination can be undertaken to assess the priority of motivation factors for each rank group with a larger sample power. A large sample size will also allow testing, the relative importance of the 15 motivation factors by education level, age, and the department.

Additionally, depending upon the results regarding the relative importance of the 15 different motivation factors, future research may attempt to conduct qualitative research to understand why certain motivation factors do not have a significant association with general job satisfaction and how commanders or officers in management positions can minimize negative effects stemming from certain, unsatisfied motivation factors.

APENDIX A. COVER LETTER

Dear foodservice soldiers and logistics officers serving in the Third Army Corps

The purpose of this study is to collect your opinions regarding job satisfaction and reflect those in a positive way to improve your working environment. You are being invited to participate in this study because you are the foodservice workers in the Korean Army.

If you agree to participate in this study, your participation will last for approximately 15 minutes. Your participation in this study is completely voluntary and you may refuse to participate at any time. Return of a completed questionnaire indicates your willingness to participate in this study. During the study you may expect the following study procedures to be followed: You will be asked to complete a survey about your attitudes towards your present job related to foodservice operation. You may skip any question that you do not wish to answer or that makes you feel uncomfortable.

To ensure confidentiality to the extent permitted by law, the following measures will be taken.

- 1) Questionnaires will remain completely anonymous and no personal identification will be asked.
- 2) No military unit will be identified by name in the published research, rather pooled data will be reported.
- 3) Only identified researchers will have access to the study records.
- 4) Study records will be kept in a locked office.

While participating in this study you may experience the following risks: If there is no guarantee for anonymity in filling the questionnaire out, the participants who feel their jobs are not satisfactory may get a kind of penalty from their units. To avoid this kind of potential risk, the questionnaire will be completed without indicating participants' personal information.

If you have questions regarding this questionnaire or if you would like a summary of research findings, please contact Sungmin Hyun at 515-451-8735 or Dr. Haemoon Oh at 515-294-7409.

Thank you for your assistance with this project

Sincerely,

Sungmin Hyun

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Associate Professor

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APENDIX B. SURVEY INSTRUMENT

설문조사

본 설문조사의 목적은 여러분의 취사 및 급식 업무관련 직무에 대한 느낌, 즉 어떤 부분에서 만족을 하고 있으며 어떤 부분에서 만족스럽지 못한지를 조사하는 것입니다. 여러분의 답변에 기초하여 **취사 및 급식 업무 보직 종사자들의 업무 만족도에 대한 심층 깊은 연구**를 하게 될 것입니다.

다음 페이지부터 여러분의 현재 직무에 관련된 진술을 읽게 될 것입니다.

● 각 문장을 주의 깊게 읽고 각 문장에 묘사된 여러분 직무의 특정 측면에 대해 어느 정도 만족하고 있는지 정하시길 바랍니다.

- 여러분의 직무가 기대보다 더 좋다고 느낄 때, ‘매우 만족’이라고 되어 있는 박스에 표기해 주세요.
- 여러분의 직무가 기대한 만큼 좋다고 느낄 때, ‘만족’이라고 되어 있는 박스에 표기해 주세요.
- 여러분의 직무가 기대한 만큼 좋은지 나쁜지 결정을 못한다고 느낄 때, ‘중립’이라고 되어 있는 박스에 표기해 주세요.
- 여러분의 직무가 기대보다 덜 좋다고 느낀다면, ‘불만족’이라고 되어 있는 박스에 표기해 주세요.
- 여러분의 직무가 기대에 훨씬 미치지 못한다고 느낀다면, ‘매우 불만족’이라고 되어 있는 박스에 표기해 주세요.

당신의 직무에 대한 만족도를 결정할 때 해당 진술을 상기한 상태에서 **모든 문항에 대해서 솔직하고 성실하게** 선택하시기 바랍니다.

본 설문지는 무기명으로 작성되며 설문지 상의 당신의 답변은 모두 비밀로 유지됩니다.

1. 계급 일병 상병 병장 소위 중위 대위

2. 현 보직 취사병 취사담당관 군수장교 기타

3. 현 보직에서의 근무 기간

3 개월 ~ 9 개월 9 개월 ~ 15 개월 15 개월 ~ 24 개월

24 개월 ~ 30 개월 30 개월 이상

4. 현 보직에서 각 항목에 대해서 귀하가 느끼고 있는 만족 정도를 표기해 주십시오.

	매우 불만족	불만족	중립	만족	매우 만족
2. 아이디어나 발상을 제시할 기회가 충분하다	<input type="checkbox"/>				
3. 내 직무가 도덕적으로 나쁘다는 느낌 없이 임무 수행 할 수 있는 정도	<input type="checkbox"/>				
4. 스스로의 힘으로 일을 할 수 있는 기회가 충분하다	<input type="checkbox"/>				
5. 내 직무는 다양하다.	<input type="checkbox"/>				
6. 나 이외의 다른 인원에게 직무 관련 지시를 할 수 있는 기회가 충분하다	<input type="checkbox"/>				
7. 최선을 다할 수 있는 직무에 종사할 기회가 충분하다	<input type="checkbox"/>				
9. 취사 및 급식 업무 관련 부대원에 대한 규정과 정책의 적합성.	<input type="checkbox"/>				
10. 나의 직무 관련 상사와 나는 서로 잘	<input type="checkbox"/>				

이해한다.					
13. 냉난방, 환기 등의 업무 환경이 쾌적하다	<input type="checkbox"/>				
14. 현 보직이나 직무를 통한 진급에 대한 기회가 충분히 제공된다	<input type="checkbox"/>				
15. 업무관련 직속상관(들)은 기술적인 노하우가 풍부하다.	<input type="checkbox"/>				
16. 동료들 간 협동 및 협조가 원활하다	<input type="checkbox"/>				
17. 직무 계획에 대한 책임의 기회가 충분하다	<input type="checkbox"/>				
18. 내가 훌륭하게 임무 수행 했을 때 그에 상당한 인정을 받는다	<input type="checkbox"/>				
19. 내가 한 직무 수행 결과에 대해 알 수 있다	<input type="checkbox"/>				
22. 새롭고 참신한 것들을 실행할 수 있는 기회가 충분하다	<input type="checkbox"/>				
23. 개인적인 종교적 믿음에 어긋나는 것들은 하지 않을 수 있다.	<input type="checkbox"/>				
24. 나 혼자 힘으로 직무를 수행할 수 있는 기회가 충분하다	<input type="checkbox"/>				
25. 언제든지 직무 관련 다양한 시도를 할 수 있는 기회가 충분하다	<input type="checkbox"/>				
26. 다른 부대원에게 내가 어떻게 임무 수행하는지 이야기할 기회가 충분하다	<input type="checkbox"/>				
27. 내 개인적인 능력에 적합한 직무를 수행할 기회가 충분하다	<input type="checkbox"/>				
29. 부대의 내규나 규정이 임무수행에 적합하다	<input type="checkbox"/>				
30. 직무 관련 상사가 그(녀)의 실무자 및 취사병들을 적절히 지휘 통솔한다	<input type="checkbox"/>				
33. 근무 하는 곳의 물리적 환경이 쾌적하다	<input type="checkbox"/>				
34. 직무를 통해서 먼저(좋은 보직이나 상위 계급으로) 진출할 수 있는 기회가 충분하다	<input type="checkbox"/>				

35. 직무 관련 상사의 합리적인 의사결정가 합리적인 의사결정을 내린다	<input type="checkbox"/>				
36. 직무를 통해 부대원들과 친밀해질 수 있는 기회가 충분하다	<input type="checkbox"/>				
37. 내 스스로 의사결정을 내릴 기회가 충분하다	<input type="checkbox"/>				
38. 내가 일한 성과만큼의 대가를 받는다	<input type="checkbox"/>				
39. 임무 수행에 대한 자부심을 갖는다	<input type="checkbox"/>				
42. 무엇인가 색다른 것을 시도할 기회	<input type="checkbox"/>				
43. 양심에 어긋나는 것들은 하지 않을 수 있다.	<input type="checkbox"/>				
44. 직무 관련 홀로 임무 수행할 수 있는 기회가 충분하다	<input type="checkbox"/>				
45. 내 직무는 반복적이며 일상적이다.	<input type="checkbox"/>				
46. 직무 관련 다른 부대원들을 감독 하는 기회가 충분하다	<input type="checkbox"/>				
47. 최고 역량을 발휘할 수 있도록 하는 기회가 충분하다	<input type="checkbox"/>				
49. 부대 내규나 규정에 관한 교육을 정기적으로 받는다	<input type="checkbox"/>				
50. 상사가 부하직원을 적절하게 후원하고 격려한다	<input type="checkbox"/>				
53. 업무 환경이 쾌적하다	<input type="checkbox"/>				
54. 직무 관련 진급 방식이 바람직하다	<input type="checkbox"/>				
55. 직무 관련 상사의 업무 분할 방식이 적절하다	<input type="checkbox"/>				
56. 직무 관련 동료 부대원들은 친절하다	<input type="checkbox"/>				
57. 다른 부대원의 직무에 대해 책임질 때가 있다	<input type="checkbox"/>				
58. 완수한 직무에 대해서 그에 합당한 인정을	<input type="checkbox"/>				

받는다					
59. 직무를 통해서 뭔가 의미 있는 일한다는 느낌이 있다	<input type="checkbox"/>				
62. 직무를 수행 시 참신하고 더 좋은 방법을 만들 수 있는 기회가 충분하다	<input type="checkbox"/>				
63. 다른 인원에게 해를 끼치지 않는 일을 한다.	<input type="checkbox"/>				
64. 임무 수행 시 다른 인원으로부터 독립성이 충분히 보장된다	<input type="checkbox"/>				
65. 매일 다른 직무를 수행할 기회가 충분하다	<input type="checkbox"/>				
66. 어떤 직무를 수행하는지 다른 인원들에게 말 할 기회가 충분하다	<input type="checkbox"/>				
67. 내 능력을 이용하는 무엇인가를 할 기회가 충분하다	<input type="checkbox"/>				
69. 부대 내규나 규정이 실행되는 방식이 바람직하다	<input type="checkbox"/>				
70. 나의 직무 관련 상사는 실무자 혹은 취사병들의 건의사항을 주의 깊게 듣고 조치한다	<input type="checkbox"/>				
73. 물리적 직무 환경이 바람직하다	<input type="checkbox"/>				
74. 나의 직무를 통해 진급할 수 있는 기회가 충분하다	<input type="checkbox"/>				
75. 나의 직무 관련 상사가 내가 어려운 상황에 처했을 때 도움을준다	<input type="checkbox"/>				
76. 직무 관련 동료들과 쉽게 친해질 수 있다	<input type="checkbox"/>				
77. 내 스스로 판단할 수 있는 자유가 있다	<input type="checkbox"/>				
78. 내가 훌륭하게 임무 수행했을 때에 다른 사람이 인정해준다	<input type="checkbox"/>				
79. 내 보직은 나로 하여금 항상 최선을 다하게끔 한다	<input type="checkbox"/>				

82. 직무 수행 시 자신만의 방법을 사용할 수 있다	<input type="checkbox"/>				
83. 다른 사람을 속인다는 느낌 없이 일한다.	<input type="checkbox"/>				
84. 다른 사람과 떨어져서 일할 수 있는 기회가 충분하다	<input type="checkbox"/>				
85. 직무 관련 다양한 일들을 할 기회가 충분하다	<input type="checkbox"/>				
86. 무슨 일을 하는지 다른 사람에게 말 할 기회가 충분하다	<input type="checkbox"/>				
87. 나의 능력과 기술을 활용할 수 있는 기회가 충분하다	<input type="checkbox"/>				
89. 조직 (부대)이 구성원(장병)을 적절하게 대한다.	<input type="checkbox"/>				
90. 직무 관련 상사와 그의 실무자나 취사병들 간의 개인적인 관계가 양호하다.	<input type="checkbox"/>				
93. 총체적인 업무 환경이 양호하다.	<input type="checkbox"/>				
94. 진급에 대한 기회가 충분하다	<input type="checkbox"/>				
95. 직무 관련 상사가 그의 실무자나 취사병들을 적절하게 교육훈련 시킨다.	<input type="checkbox"/>				
96. 내 동료들은 서로 친하게 지낸다.	<input type="checkbox"/>				
97. 내 직무의 책임부과 정도는 적절하다.	<input type="checkbox"/>				
98. 훌륭하게 임무 수행했을 때 그에 상당한 칭찬을 듣는다.	<input type="checkbox"/>				
99. 직무로부터 성취감을 느낀다.	<input type="checkbox"/>				

APPENDIX C. STATISTICAL RESULTS

1. Factor analysis results for each subscale on MSQ*

	Survey item number					Factor Loading	Eigenvalues	Percent of variance explained
Ability utilization	7	27	47	67	87	.62	2.60	51.98
Achievement	19	39	59	79	99	.81	3.52	70.44
Creativity	2	22	42	62	82	.46	2.75	55.06
Independence	4	24	44	64	84	.74	3.31	66.25
Moral values	3	23	43	63	83	.83	3.45	68.91
Responsibility	17	37	57	77	97	.74	2.55	51.03
Recognition	18	38	58	78	98	.80	3.16	63.12
Variety	5	25	45	65	85	.85	2.50	49.96
Advancement	14	34	54	74	94	.84	3.93	78.51
Policy	9	29	49	69	89	.74	2.16	43.10
Authority	6	26	46	66	86	.61	2.70	53.98
Coworkers	16	36	56	76	96	.80	2.42	48.39
Technical supervision	15	35	55	75	95	.56	1.94	38.71
Human supervision	10	30	50	70	90	.85	2.83	56.69
Working condition	13	33	53	73	93	.77	3.89	77.70

*All subscales of MSQ resulted in an acceptable single-factor structure as shown in the table.

2. Internal consistency reliability for each subscale

	Item rest correlation	Average inter-item correlation	Alpha
Ability utilization	.59	.28	.84
Achievement	.65	.27	.84
Creativity	.53	.28	.84
Independence	.39	.29	.85
Moral values	.37	.29	.85
Responsibility	.53	.28	.85
Recognition	.58	.28	.84
Variety	.47	.28	.85
Advancement	.40	.29	.85
Policy	.54	.28	.84
Authority	.48	.28	.85
Coworkers	.47	.28	.85
Technical supervision	.64	.27	.84
Human supervision	.45	.29	.85
Working condition	.27	.30	.86

3. Factor analysis results for motivators and hygiene factors

	Factor Loading	Eigenvalues	Percent of variance explained
Factor1: motivators		2.36	51.30
Ability utilization	.64		
Achievement	.65		
Creativity	.56		
Independence	.51		
Moral values	.45		
Responsibility	.61		
Recognition	.61		
Factor 2: hygiene		2.20	50.48
Variety	.50		
Advancement	.50		
Policy	.58		
Authority	.49		
Coworkers	.48		
Technical supervision	.69		
Working condition	.38		

4. Variance Inflation Factor (VIF) Values

	VIF
Ability utilization	1.66
Achievement	1.89
Creativity	1.55
Independence	1.39
Moral values	1.57
Responsibility	1.55
Recognition	1.64
Variety	1.53
Advancement	1.42
Policy	1.54
Authority	1.40
Coworkers	1.54
Technical supervision	1.77
Human supervision	1.42
Working condition	1.40

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