JOB SATISFACTION AND ITS RELATION WITH PERCEIVED WORKLOAD:
AN APPLICATION IN A RESEARCH INSTITUTION

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ABSTRACT

JOB SATISFACTION AND ITS RELATION WITH PERCEIVED WORKLOAD: AN APPLICATION IN A RESEARCH INSTITUTION

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In this thesis, it was aimed to determine the factors which affect the satisfaction level of employees and measure these levels by using both global/general and facet approach. For this purpose, a new job satisfaction questionnaire with 70 questions was formed by adding some necessary questions to an existent Turkish survey previously used in a study which is based on Spector's Job Satisfaction Survey (JSS). NASA-TLX questionnaire was attached to the satisfaction survey for measurement of mental workload. Thus, it was aimed to investigate whether there is a relationship between level of mental workload perceived at the time satisfaction is being assessed and general job satisfaction score.

By using SPSS 21.0 software, factor analysis was applied on data collected via the satisfaction survey from 88 employees working in a public institution, and 10 factors were obtained. Then, effects of demographic properties of participants on both level of general satisfaction and level of factor satisfaction were tested by using variance analysis techniques (ANOVA-MANOVA). Additionally, whether total workload score and its 6 sub-dimensions are related with general satisfaction was investigated by using correlation tests and regression analysis.

In conclusion, especially additional items used in the satisfaction questionnaire were discussed in order to light the way for future studies aiming to develop new job satisfaction scales. Moreover, findings about satisfaction level of employees and recommendations for management were presented.

Keywords: Job Satisfaction, Job Satisfaction Theories, Factor Analysis, Mental Workload, NASA-TLX.

ÖZ

İŞ TATMİNİ VE ALGILANAN İŞ YÜKÜ İLE İLİŞKİSİ: BİR ARAŞTIRMA KURUMUNDA UYGULAMA

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Bu tezin amacı, bir kamu kuruluşunda çalışan kişilerin iş tatminlerini etkileyen faktörlerin belirlenmesi ve tatmin düzeylerinin hem genel anlamda hem de boyut bazında ortaya konulmasıdır. Kapsamlı bir literatür taraması sonucunda, Spector tarafından geliştirilen İş Tatmini Anketini (JSS) baz alan ve Türkçe sorulardan oluşan mevcut bir ankete bir iş tatmini anketinde yer alması gerektiği düşünülen diğer konularla ilgili sorular ilave edilerek 70 soruluk bir iş tatmini anketi oluşturulmuştur. Söz konusu ankete zihinsel iş yükünü ölçmek üzere literatürde sıkça kullanılan bir ölçek olan NASA-TLX anketi iliştirilmiş, böylece iş tatmini anketi doldurulurken algılanan iş yükünün anketin sonucunda ortaya çıkan, bireyin genel iş tatmini düzeyiyle bir ilişkisi olup olmadığı araştırılmıştır.

Bir kamu kuruluşunun bünyesindeki bir başkanlık birimi altında çalışan 88 kişiden iş tatmini anketi yolu ile toplanan verilere SPSS 21.0 istatistiksel analiz programı kullanılarak faktör analizi uygulanmış, neticede iş tatminine etki eden 10 faktör elde edilmiştir. Katılımcıların demografik özelliklerinin hem genel tatmin düzeyine hem de faktör bazında tatmin düzeylerine etkisi varyans analiz yöntemleriyle (ANOVA-MANOVA) test edilmiştir. Diğer yandan, NASA-TLX ile elde edilen toplam iş yükü skorunun ve 6 adet alt boyutunun genel iş tatmini ile ilişkisi olup olmadığı korelasyon testleri ve regresyon analizi uygulanarak araştırılmıştır.

Araştırmanın sonucunda, çalışmada kullanılan ankette yer alan sorular ileride yapılacak ölçek geliştirme çalışmalarına ışık tutabilmek amacıyla tartışılmış, ayrıca çalışanların işle alakalı memnuniyet düzeylerine ilişkin bulgulara ve bu hususlarla ilgili yönetime sunulan tavsiyelere yer verilmiştir.

Anahtar Kelimeler: İş Tatmini, İş Tatmini Kuramları, Faktör Analizi, Zihinsel İş Yükü, NASA-TLX.

To My Dear Family

ACKNOWLEDGEMENTS

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LIST OF ABBREVIATIONS

ABBREVIATIONS

AUT	: Autonomy
CAD	: Cadre
COW	: Coworkers
DEP	: Department
EL	: Educational Level
FB	: Fringe Benefits
GEN	: Gender
GNS	: Growth Need Strength
JDI	: Job Descriptive Index
JDS	: Job Diagnostic Survey
JIG	: Job in General Scale
JS	: Job Security
JSS	: Job Satisfaction Survey
MPS	: Motivating Potential Score
MS	: Marital Status
MSQ	: Minnesota Satisfaction Questionnaire
NA	: Negative Affectivity
NASA-TLX	: NASA Task Load Index
NW	: Nature of Work
P	: Pay
PA	: Positive Affectivity
POS	: Position
P&R	: Promotions&Rewards
QWL	: Quality of Work Life
SIPA	: Social Information Processing Approach
SUP	: Supervision
SWAT	: Subjective Assessment Technique
SWE	: Social Work Environment
TEN	: Tenure

WAMI   : Work and Meaning Inventory

WOC   : Working Conditions

WP   : Workload Profile

CHAPTER 1

INTRODUCTION

Today, job satisfaction level of individuals working in an organization in public or private sector has great importance in terms of organization's success, physiological and psychological well-being of themselves and social welfare. Therefore, despite plenty of theoretical and applied studies since the first half of the 20th century, the issue of job satisfaction to fill the gaps in the literature and to respond to today's needs to be examined from different angles continues to be an ongoing issue.

1.1. Problem Definition

Despite numberless studies around the world, the issue of job satisfaction has gained importance it deserves in Turkey in recent decades. Relevant research in this country mostly studied on employees working in educational institutions, banking sector, call centers and hospitals. There are limited numbers of studies conducted in governmental authorities. This thesis study was conducted in a prestigious governmental research institution in Turkey. The institution has an important mission for development of this country. Top management is responsible for fulfillment of this mission. Since human resource is crucial factor for the success of this organization, leading people should not ignore the importance of job satisfaction levels of workers serving in here. This study points out the fact that an effective human resource management is required for not only companies trying to survive in a competitive market but also nonprofit public institutions serving for sustainable development of country. Since it was considered that one of the most important indicators of an effective human resource management is job satisfaction, it was aimed to investigate how satisfied people are with their jobs in this organization.

This study surely pays attention to measure general job satisfaction, but actually concerns with the facet-specific levels of job satisfaction. By using both global and

facet approach getting a complete picture of employee job satisfaction is aimed. Areas of dissatisfaction are identified to improve upon them.

Therefore, the main objective of this thesis is to identify job satisfaction levels of employees and indicate which work facets they are satisfied with and which factors they are not. This makes possible for managers to affect the sense satisfaction by adjusting these job aspects.

This study also searches differences, if there is any, in both general job satisfaction levels and facet satisfaction levels when demographic factors are considered.

In this institution, all of the employees are office workers working with computers, and they always engage in mental activities related with application, formal and scientific evaluation, pursuance and finalization processes of research projects and financial procedures about them. Starting from the idea that high mental workload can exist in this institution; possible relationships between perceived workload and job satisfaction are investigated. In other words, another purpose of this thesis is to investigate particularly, if there is a relationship between perceived mental workload of a person and general job satisfaction level. Whether there is a relationship between dimensions of perceived mental workload and general satisfaction is also examined in this study.

Only antecedents of job satisfaction were examined in this study, potential effects of it were not tested.

1.2. Research Questions

This study mainly aimed to find answers for the following questions:

Q1. How are the factors that affect job satisfaction structured?
Q2. Is there any difference in general job satisfaction levels and facet satisfaction levels when demographic factors are considered?

Q3. Are general satisfaction variable measured by one item and total satisfaction variable obtained from a multi-item scale dependent? In other words, if a quick finding about general satisfaction is desired, can a global satisfaction scale with a single item be used?

Q4. Is there any relationship between perceived workload and general job satisfaction? If there is a relationship, how is it?

Q5. Is there any relationship between dimensions of perceived workload and general job satisfaction? If general satisfaction is related with any dimension of perceived workload, how is this relationship?

1.3. Structure of the Thesis

This thesis is presented in six chapters. Chapter 1 is the introductory chapter containing purpose and questions of this study.

Chapter 2 includes the major approaches in the literature related with job satisfaction. In this chapter, environmental and personal factors which affect job satisfaction level are mentioned elaborately, and previous studies investigating relationships between these factors and job satisfaction are given. Moreover, job satisfaction measurement techniques are explained. In the last part of this chapter, concept of mental workload, measurement techniques of it and comparisons between selected method and its alternatives.

In Chapter 3, methodology of the thesis is explained. How the tools used in the study were developed and administered is presented in detail.

Chapter 4 contains findings about properties of participants and results of the analysis.

Finally, Chapter 5 is dedicated for discussion. In this part of the report, especially remarkable findings are discussed, and recommendations for management related

with these findings are given. Limitations of this study and probable future studies are also presented in Chapter 5.

In Chapter 6, what has been done in this study and which findings have been obtained are summarized.

At the end, references used through the whole study are presented. Most of the outputs such as tables or figures used for analysis are given in the Appendices part.

CHAPTER 2

LITERATURE REVIEW

2.1.   Meaning and Importance of Job Satisfaction

Self-motivated human resource has a great importance in professional business life (Khalatbari, Ghorbanshiroudi, & Firouzbakhsh, 2013). Therefore, job satisfaction, has aroused great interests from the field of management, social psychology, and practice in recent years (Trivellas, Reklitis, & Platis, 2013; Zhu, 2012).

People exhibit mental and physical abilities and spend time for their jobs. The reason for looking for a job is generally more than just a paycheck. Jobs can be considered as the means used to reach personal targets. When expectations are met by a job, the individual often experiences positive feelings. These positive emotions indicate job satisfaction (Green, 2000).

Job satisfaction can be defined as in regard to one's feelings or state of mind regarding the nature of their work. Every job can provide a level of satisfaction (Chughati & Perveen, 2013). On the other hand, the level of this satisfaction varies from person to person because of the fact that an employee's job appraisal process is affected by personal characteristics, needs, values, feelings, and expectancies; similarly, it varies from organization to organization, since affecting factors such as job characteristics, organizational policies, opportunities offered to employees, and working environment differ according to organization. The factors influencing job satisfaction are detailed in the following parts.

There are various definitions of job satisfaction. The formal definition of the job satisfaction dates back to the 1930s. According to them, job satisfaction is a product of non-regulatory mood tendency (Zhu, 2012). A group of researchers represent the view that 'job satisfaction is a single concept and employees produce overall

attitude'. Job satisfaction was described as the employees' subjective reflections to working scenarios. Other scholars in relevant studies advocate that this is a specific element concept. According to Locke, it may be defined as 'the pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences' (A. Judge & Klinger, 2008). Locke's definition implying both affective states and cognitive appraisal process is important because of this multiple perspective. By that time, job satisfaction is interpreted only based on the perspective of affection. The affection-based job satisfaction is to measure feelings and emotions of employees. Positive feelings and emotions lead to high job satisfaction. In the 1980s, it was recognized that job satisfaction could be explored in perspective of cognition. According to some researchers, job satisfaction is not measured effectively because of the affection-based interpretation. They advocate that job satisfaction is a more logical and rational evaluation. The measures of job satisfaction are mostly about the evaluations on jobs, instead of the descriptions of feelings (Zhu, 2012). Spector (1997) also defines job satisfaction as 'people's feelings about their jobs and different aspects of their jobs'.

Some researchers advocate that concept of job satisfaction sometimes can be confused with motivation, but job satisfaction can not be substituted for motivation (Başar, 2011). However, there is an apparent relationship between these two concepts. Highly motivated people experience much satisfaction (Chughati & Perveen, 2013).

Job satisfaction is not a kind of behavior. In work motivation models, job satisfaction is regarded as a concept which predicts employees' behaviors (Başar, 2011). Prediction of employees' behaviors can be very beneficial for management in terms of an efficient policy making.

In the following diagram, job satisfaction concept is handled as a job attitude, it is shown that it as an antecedent of actual behaviors (Porter, Bigley, & Steers, 2003):
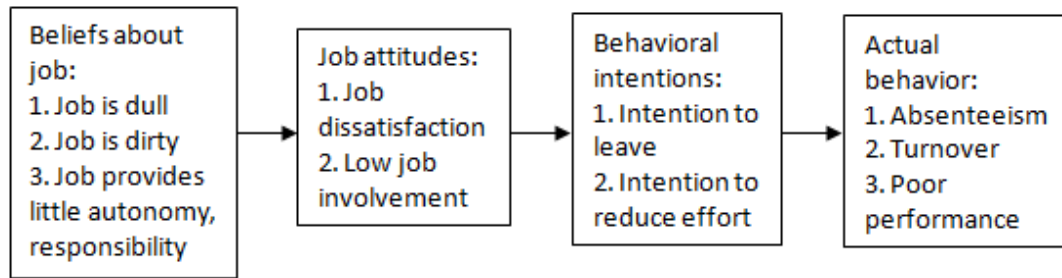
Figure 2.1 Relationships of Job satisfaction as an Attitude (Porter et al., 2003)

Job satisfaction is also defined as the positive emotional reactions and attitudes of individuals towards their job (Roelen, Koopmans, & Groothoff, 2008).

In practice, managers are not concerned with all attitudes of employees. They only pay attention to the attitudes that are related with the work. Among of them, the most crucial attitude is the job satisfaction. Therefore, to discuss the employees' attitudes generally means a discussion of job satisfaction (Zhu, 2012).

Judge & Klinger (2008) emphasize that more than half of the nonretired adult population spends most of its daily lives at work. Thus, research on subjective well-being can not be complete without considering subjective well-being at work. According to Roelen et al. (2008), if people are not satisfied with their job, they probably feel unhappy for most of the day, resulting in poor general mood and decreased sense of self-worth. Employees with low levels of satisfaction are more likely experience emotional exhaustion. Job satisfaction affects the emotional well being and psychological health of organizational members (Baş, 2011).

Dissatisfaction with work life negatively influences people's daily lives. Their physical and mental health gets worse. They can not get enough satisfaction from life and their relationships with other people are negatively affected (Altuntaş, 2014).

Satisfaction levels of employees are also important for organizations, since satisfied workers contribute to effectiveness and long-term success of the organization they work in.

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Productivity and sense of attachment to the institution are positively related with their job satisfaction level. Since organizations can take on a 'utilitarian position' (Spector, 1997), it is not difficult to understand why employers/managers have to be committed to employees' degree of job satisfaction.

Job satisfaction makes workers productive, successful and happy at work (Altuntaş, 2014). Organizations can survive and be successful in the competitive global market if they have highly motivated and satisfied human resource that can produce quality goods at low costs (Saleem, Mahmood, & Mahmood, 2010).

Job dissatisfaction reduces individual performance and leads to employee loss. Therefore, job dissatisfaction should be investigated in order to determine which measures may increase the efficiency and productivity of employees and retain them in institutions, and in order to develop effective strategies to reach organizational goals (Altuntaş, 2014). It is more expensive to eliminate or prevent the negative effects of job dissatisfaction, than it is to prevent job dissatisfaction itself. Dissatisfaction may lead to undesired results such as alienation to the job, decreasing in the sense of organizational commitment, low productivity, absenteeism and quitting the job (turnover) (Altuntaş, 2014). Contingent effects of job satisfaction are also mentioned in the following sections.

Organizations including highly satisfied workers are most probably more successful in attracting qualified people than other organizations (Başar, 2011), thus, in personnel selection process it is not difficult to get workers having desired qualifications to come to work. Qualified, productive, and happy workers are necessary for organizations in order to be able to survive, achieve long-term success and maintain it.

Looking at the broader framework, job satisfaction is important for not only individuals and organizations but also society. Psychological and physical well-being increase productivity of private and public sector, hereby development of the

country. Healthy, productive, and satisfied work force (physiologically and psychologically) lead to peaceful and prosperous society.

2.2. Relationship Between Job satisfaction and Motivation

The word of 'motivation' is derived from the Latin word movere, and it means 'to move'. Motivation can be defined as the forces that cause the arousal, direction, and persistence of goal directed, voluntary effort. Motivation theory is about processes which explain activation of human behavior (Barnet & Simmering, 2006).

De Cenzo & Robbins (1994) point out a descriptive definition of motivation that is the willingness to do something which has ability to meet some need for the person, and they portray the motivation process by using the following schema:

| Unsatisfied need (Deprivation) | → | Increased tension (Functional vs. dysfunctional) | → | Effort (Outward behaviour) | → | Satisfied need (Goal attainment) | → | Decreased tension (Calm state) |
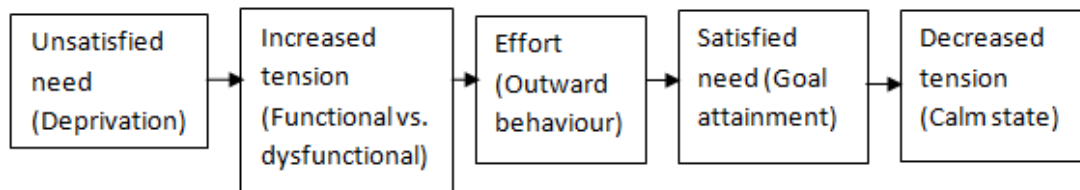
Figure 2.2 The Process of Motivation (De Cenzo & Robbins, 1994)

Whenever we are in state of deprivation, or having unsatisfied needs, this state results in tension. Tension is not always a negative notion. Even some tension is definitely necessary. As a result of this tension, individuals exhibit a particular behavior which is called effort. Effort is an action of individuals in the direction of a particular goal to be able to achieve it. If our effort is successful in reaching our goal, then we expect our needs to be satisfied. Satisfied needs then reduce or eliminate the deprivation we experienced at the beginning. However, when an individual put forth the effort but did not satisfy his/her need in some trials, this creates stress and leads to dysfunctional tension. Significant dysfunction tension results in no effort being made which is called apathy (De Cenzo & Robbins, 1994).

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According to Atasoy (2004), the relationship of motivation and job satisfaction is some sort of a chicken and egg connection. She states that "job satisfaction is the pivotal part of the motivation". One employee can not be motivated without being satisfied from his/her job, since only a satisfied employee is ready for motivating and changing his/her behavior. Similarly, if an employee has job satisfaction, this means that he/she is also motivated toward his/her work. That is, motivation can create job satisfaction. Therefore, theories of motivation can also be considered as job satisfaction theories (Atasoy, 2004).

Basically, there are two major approaches in work motivation literature: Content theories and process theories.

2.3. Major Approaches to Motivation and Job Satisfaction

2.3.1. Content Theories

According to content theorists, meeting of needs can lead to job satisfaction. Therefore, content theories mainly deal with determining particular needs that must be satisfied for a worker in order to be satisfied with his job and how these needs/drives are prioritized. They do not necessarily predict work motivation or behavior, but are still important to understanding what motivates people at work (Luthans, 1995).

Theories of job-satisfaction start with the idea of 'scientific movement' or 'Taylorism' by Frederick W. Taylor in 1911. Frederick W. Taylor, Frank Gilbreth and Henry L. Gantt proposed salary incentive models to motivate people at work (Luthans, 1995). According to this idea, workers could be motivated only by money. If they were paid a flat day rate, there is no reason (as a motivator) to increase their productivity relative to the previous day (Bell & Martin, 2012). Therefore, the idea of 'a fair day's pay for a fair day's work' was promoted. According to this idea, if a worker did not succeed enough in a work day, he/she did not deserve to be paid as much as another worker who was highly productive (Eyre, n.d.).

According to human relations movement, on the other hand, workers should be treated as individuals in order to motivate them to perform their best.

Elton Mayo who introduced the Human Relation School of thought believed that workers are interested in not only earning money from the work but also making their social needs met by this work. In his study, Mayo revealed that employees are best motivated by: better communication, greater care of manager, more teamworks (Riley, 2012).

More recently, content of motivation was also worked by Maslow, Herzberg and Alderfer. Following parts give a brief overview of their theories about work motivation.

2.3.1.1 Maslow's Hierarchy of Needs

In this theory, needs of people are divided into five levels. The levels are ranked hierarchically from the bottom to the top as physiological needs, safety needs (physical and emotional safety), love needs, esteem needs (self-esteem and esteem from others) and self-actualization (Luthans, 1995).

Maslow's hierarchy of needs is converted into the content model of work motivation by Luthans (1995). The levels of this hierarchy of work motivation are as the following:

1- Basic needs (Pay)
2- Security needs (Seniority plans, health insurance etc.)
3- Social needs (Formal and informal relationships at work)
4- Esteem needs (Titles, promotions, social status)
5- Self-actualization (Personal growth, realization of potential)

According to Maslow, a satisfied need is no longer a motivator. This need loses its importance and the person tries to be satisfied with the next level of needs.

Maslow created awareness of diverse needs of workers. His hierarchy made a significant contribution to modern management approach to motivation (Luthans, 1995). However, he has been criticized by some researchers since he simplified human needs by grouping them with only five categories, and there is no scientific proof showing that these categories are structured in a special hierarchy (Green, 2000). Because of surface logic of the theory, Maslow's hierarchy of needs is insufficient to understand the complexity of work motivation.

Douglas McGregor proposed Theory X and Theory Y which explain two different assumption sets reflecting thoughts of managers about employees (De Cenzo & Robbins, 1994). The main assumption of Theory X is that employees dislike work and they have tendency to avoid it whenever possible. Since they dislike work, they must be continuously controlled and threatened with punishment in order to succeed the desired aims. On the other hand, by Theory Y, it is assumed that employees can view work as rest or play and a person will have self direction and self control if he/she is committed to the objectives (Gerçeker, 1998). According to McGregor, Theory Y assumptions are more valid and employee motivation can be increased by giving employees greater job involvement and autonomy (De Cenzo & Robbins, 1994).

2.3.1.2 Alderfer's ERG Theory

Alderfer (1972), in his Existence-Relatedness-Growth theory, classified core needs into three groups rather than five:

- Existence needs: corresponding to Maslow's physiological and safety needs
- Relatedness needs: similar to Maslow's love needs and esteem needs from others.
- Growth needs: including self-actualization and self-esteem needs. According to Alderfer (1972), satisfaction of growth needs depends on a person's being able to find ways to utilize his capabilities and to develop new talents.

He proposed that individuals are motivated to move forward and backward through these levels (Ramprasad, 2013). In other words, according to Alderfer (1972), if relatedness satisfaction decreases, the existence desires tend to increase while growth desires tend to decrease (backward movement). On the other hand, if relatedness satisfaction increases, growth desires tend to increase while existence desires tend to decrease (forward movement).

Unlike Maslow's hierarchy of needs, according to the ERG theory, lower-level needs are not necessarily and completely satisfied before upper-level needs become motivational. If a person continually fails to meet their upper-level needs, then lower-level needs become motivators for this person (Barnet & Simmering, 2006).

2.3.1.3 Herzberg's Two Factor Theory of Motivation

Herzberg used critical incident method in his motivational study. He grouped the good and bad responses down to two classes: satisfiers and dissatisfiers. He realized that satisfiers were related to intrinsic features of work such as achievement, completing an important task successfully, recognition, responsibility, advancement and growth, and dissatisfiers were related to extrinsic factors such as pay, salary increase, supervision, interpersonal relations, working conditions and job security. He called satisfiers as motivators, and dissatisfiers as hygiene factors (Luthans, 1995).

According to this theory, when the hygiene factors are not satisfied to workers, this will cause dissatisfaction, but when they are met, existence of them will not lead to satisfaction. Luthans (1995) states that hygiene factors serve as a takeoff point for motivation. Similarly, when the motivators are not met, workers will not be dissatisfied, but existence of motivator factors will motivate workers and will lead to satisfaction. In this way, Herzberg points out the importance of intrinsic (job related) factors.

Herzberg's theory is important since it creates awareness of motivators to management. If managers only concentrate on hygiene factors, they do not motivate their employees.

Although Herzberg extended Maslow's need hierarchy theory and made it more implementable to work motivation, he was criticized since he oversimplified complexities of work motivation (Luthans, 1995). Also, some researchers argue that Herzberg's theory is method dependent. Other methods applied instead of critical incident technique have revealed that hygiene factors indeed can be associated with job satisfaction and motivators with dissatisfaction (Green, 2000).

2.3.1.4 McClelland's Learned Needs Theory

According to McClelland, people acquire certain needs by learning from the events that they experience in society and these needs are considered as their personal inclinations that influence the way people perceive the work. Four of the needs which may be learnt by people are the need for achievement (n Ach), the need for power (n Pow), the need for affiliation (n Aff), and the need for autonomy (n Aut) (Porter et al., 2003).

2.3.2. Process Theories

While the content theories investigate what motivates people at work, the process theories are mainly interested in cognitive process that go into motivation or effort and the interactions between cognitive components that reflects individual differences in this complex motivation process.

According to cognitive theorists such as Tolman and Lewin, the organism has beliefs, opinions, or expectations concerning the world around him. Both Tolman and Lewin viewed behavior as purposeful, goal-directed, and based on conscious intentions, with organisms striving to attain positively valent objects or events and to avoid negatively valent objects or events (Vroom, 1964).

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In Hull's revised drive theory, motivation is seen as a multiplicative function of the energizing influence that determined the intensity of behavior (drive), the strength of relationship between past stimulus and response (habit), and attraction to future potential rewards (incentive). Incentive factor added later to the equation of Hull's drive theory brought his theory into fairly close agreement with the early cognitive theorists. Because behavior function contained in this way not only antecedents factors but also anticipatory reactions to future goals (Porter et al., 2003).

Hull's drive theory with the other early cognitive theories provided a basis for the most important process theories.

2.3.2.1 Expectancy Theories

One of the most well-known expectancy theories was developed by Vroom (1964). In fact, Vroom's ideas originated from the models of Lewin and Tolman proposed in 1930s.

According to expectancy theory, people link between the effort they put forth at work, the performance obtained in return for this effort, and the rewards they get from their effort and performance. They become motivated when they believe that strong effort will lead to good performance and good performance will lead to desired rewards (Lunenburg, 2011a).

Vroom's expectancy theory which is called VIE theory has three key elements: Expectancy, instrumentality and valence.

Expectancy (effort-performance expectancy): an individual's subjective probability that job-related effort will actually lead to a given level of performance. This estimation value can be between 0 and 1.
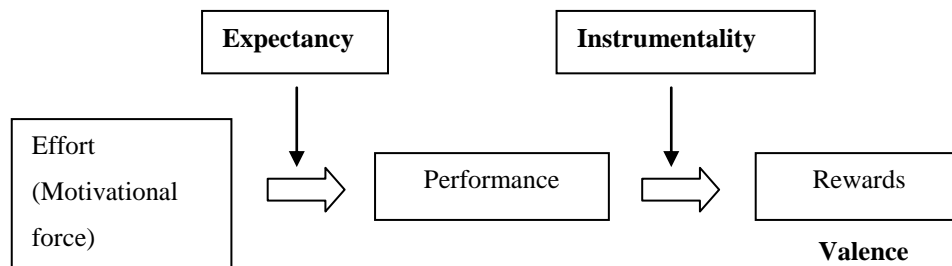
Figure 2.3 Vroom's Expectancy Model (Lunenburg, 2011)

Instrumentality (performance-outcome expectancy): an individual's estimate of probability that a particular level of achieved performance will lead to a particular set of work outcomes. As with expectancy, instrumentality can get the value of between 0 and 1.

Outcomes may be positive such as pay, security, and trust. On the other hand, they may be viewed by employees as negative such as fatigue, boredom, and frustration (Robbins, 1988).

Valence: An outcome is positively valent when a person prefers obtaining it to not obtaining it. The valence of an outcome is zero if the person is indifferent to obtaining it or not obtaining it, and it has a negative valence when he prefers not obtaining it to obtaining it (Vroom, 1964). As it is seen, unlike expectancy and instrumentality, valences can be negative as well.

A reward has a valence because it is associated with an employee's needs, therefore valence provides a connection to need theories (Lunenburg, 2011a).

Vroom explained interactions between three elements of expectancy theory (expectancy, instrumentality and valence) and motivation by the following equation (Lunenburg, 2011a):

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$$\text{Motivation} = \text{Expectancy} \times \text{Instrumentality} \times \text{Valence}$$

<div align="right">(2.1)</div>

Lunenburg (2011a), focuses on importance of multiplier effect of motivation equation, and he points out that higher levels of motivation will result when three factors are all high than when they are all low. Also, because of the multiplication, if any one of the three factors is zero, motivation will be zero.

Unlike content theories, expectancy theory recognizes complexities of motivation process, and does not take a simplistic approach. However, it is hard to understand and apply for managers. According to Luthans (1995), Vroom's model does not attempt to explain how motivational decisions are made or to solve real motivational problems encountered by a manager.

Porter and Lawler extended Vroom's expectancy model. As with Vroom's model, effort is determined by valences of outcomes and the perceived probability that job-related effort will actually lead to desired rewards (Porter et al., 2003).
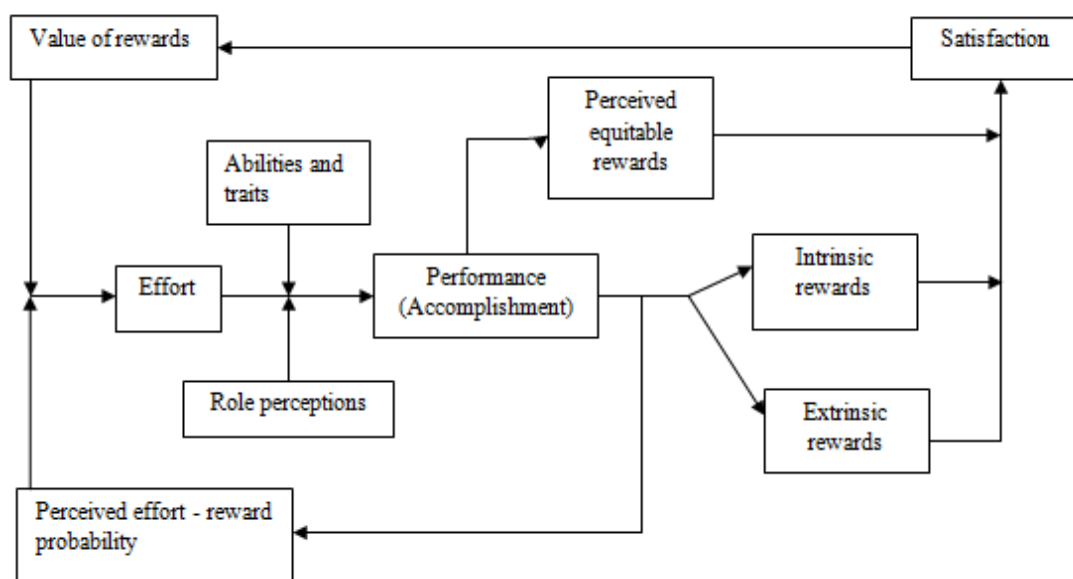
Figure 2.4 Porter & Lawler's Expectancy Model (Porter et al., 2003)

Until Porter and Lawler model, relationship between performance and satisfaction was not dealt with directly by a motivation model. Although content theories implicitly imply that job satisfaction causes high performance, Porter and Lawler model proposes that performance leads to job satisfaction (Luthans, 1995).

Unlike Vroom's model, in this model effort does not necessarily result in performance. It is required that employee has the ability to perform the tasks and he also has to understand clearly the tasks to be accomplished. Also, belief that rewards are equitable is important to obtain satisfaction.

Porter and Lawler made an important contribution to more comprehensive understanding of complex work motivation process, and the link between job satisfaction and performance.

However, this theory has been subject to many objections. For example, critics say that the research accompanying the development of the model exclusively focus on pay as a reward, and according to them, it is required to search whether other consequences of performance (such as promotion, fatigue etc.) have the same effects on employee motivation (Porter et al., 2003).

Another theory which can be presented in this subheading is Cornell Model. According to this model developed by Smith, Kendall and Hulin, job satisfaction is an individual's feelings about his/her job or affective reactions towards different job facets. This feelings result from employee's perception of discrepancy between reasonable and fair outcomes expected by considering given current alternatives and actually received outcomes. The concept of "frame of reference" is also proposed by these researchers firstly. This concept refers to internal standards used while making an evaluation. These standards are generated by individuals' past experiences and expectancies (Sun, 2002). Employees make a comparison by using a standard/reference point in order to make a judgement about their work. In other words, Cornell model suggests that an individual's frames of reference reflecting experiences about past outcomes affects how he or she perceives current outcomes

received (A. Judge & Klinger, 2008). For example, an individual considers the best and the worst ones among attainable job alternatives for him/her. If his/her current job is close to the best one, he/she becomes satisfied with this job (Sun, 2002).

More recently, Hulin et al. provide an integrated model of job satisfaction which complements to Cornell Model. According to this model, in periods of labor oversupply (i.e. high unemployment), individuals will place less value on their inputs due to the lack of alternatives. In such an economical situation, perceived utility of inputs decreases and becomes less relative to outcomes, thus satisfaction increases (A. Judge & Klinger, 2008).

In fact, it is possible to say that almost all job satisfaction theories support the idea that discrepancy influences satisfaction level. However, two most developed theories based on discrepancy approach were presented by Katzell and Locke. According to Katzell, satisfaction is the differences between an actual amount and some desired amount. According to Locke, perceived discrepancy is important, not the actual discrepancy and that satisfaction is determined by the simple difference between what an individual wants and what he/she receives/perceives. The literature on job satisfaction contains three different discrepancy approaches: they look at what people want, what people feel they should receive and what people expect to receive (Atasoy, 2004). Need theories might be as an example for the first approach, while equity theory is for the second one. The last approach also forms the basis to the expectancy theories.

Job judgment/evaluation process contains comparison of "expected working environment" and "actual working environment". Expected working environment is affected by personal features, needs and values. Comparison and influence of contemporary society and previous working experience also contribute expectations related with working environment. On the other hand, actual working environment is the real one and consists of some factors such as compensations, management style, job, job safety, colleagues and promotion (Zhu, 2012).

2.3.2.2 Equity Theory

Equity theory developed by J. Stacy Adams is concerned with how people react to the content of allocation decisions. This theory focuses on how workers judge whether the allocations they receive in organizations are fair and how they react if they perceive that they are not equitable (Mowday & Colwell, 2003)

According to Adams, in order to make judgment about equity, people compare ratio of their outcomes to inputs with the ratio of outcomes to inputs of relevant others. This other is called 'referent' which can be considered as the concept of "the frame of reference" in the Cornell Model.

Referents are grouped into three categories: "other", "system" and "self". The "other" category implies the workers with similar jobs in the same organization, friends, neighbors, or professional associates. The "system category" is about organizational pay policies and procedures and the supervision of this system. Precedents by the organization in terms of allocation of pay are the most important factors for this category. Determinants of the "self" category are special to the individual such as past work experience (Robbins, 1988). The concept of 'referent' used for explaining of this theory can be considered as the concept of "the frame of reference" explained in the Cornell Model before.

Education, work experience, organizational position, qualifications, and effort on the job and time are examples of perceived input variables. Outcomes contain pay, fringe benefits, promotion, growth opportunities, job security and intrinsic interest in the job. If ratios are equal, people are satisfied and they try to maintain this equality or increase their contribution to the organization in order to obtain more outcomes. On the other hand, unequal ratios cause tension or distress and motivate people to restore equity.

There are six alternative methods of restoring equity: (1) changing inputs, (2) changing outcomes, (3) cognitively distorting inputs or outcomes, (4) quitting the

job, (5) taking actions in order to alter the inputs or outcomes of the referent other, (6) choosing a different comparison referent (Mowday & Colwell, 2003).

Not only perceived inequity caused by perception of being underrewarded but also inequity caused by perception of being overrewarded can make employees dissatisfied. For example, in an appliance store in Oakland, California the employer allowed his workers to adjust their own wages. Surprisingly, none of them increase their wages, even one of them would earn lower wage since he did not want to work as hard as the others (Luthans, 1995).

In their paper, Mowday and Colwell (2003) reviewed some researches related with individual differences in justice behavior. These studies propose that females may be more tolerant of underpayment inequity than males, and they may experience less perceived inequity since they compare themselves with only other females in the similar jobs. Also, one of these studies suggests that employees having the highest organizational commitment can perceive unfair treatment more negatively than the employees with lower commitment.

Adam's theory made a significant contribution to motivation theory by pointing out social comparison processes. Differently from expectancy theories which focus on the relationship between performance and rewards, Adam's theory suggests that motivation process is more complicated since it contains a subprocess through which employees evaluate their rewards by social comparisons.

As with Adam's Equity Theory, Salancik and Pfeffer's Social Information Processing Approach (SIPA) also contains a social comparison process. They propose that an employee's evaluation of his/her satisfaction level is influenced by his/her observations from other employees' degree of satisfaction. In other words, social environment influences individuals' attitudes and behaviors. This theory is important due to the fact that it emphasizes social factors which affect emotional reactions toward a job (Başar, 2011). According to Salancik and Pfeffer, need theories and expectancy theories ignore social context in a work. However, this

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approach suggests that individuals can form their satisfaction effectively by perceiving and interpreting social environment, past experiences and attitudes. The theory advocates that with job satisfaction surveys conducted to employees, distorted answers might be obtained because of survey takers' (social environment) orientations through the questions. Therefore, they criticize demonstrativeness of Job Descriptive Survey (JDI) developed by Hackman and Oldham, since it tries to determine job characteristics by asking some questions to employees (Sun, 2002).

Social Information Processing Approach is one of the job design approaches with job engineering, job enrichment, job characteristics which is explained in the following part in detail, and quality of work life (QWL) approaches. Job design is an applied area of motivating performance. Many studies have shown that employee satisfaction can increase by designing jobs appropriately. Approaches to job design start with historically significant job engineering which is an industrial engineering approach. Job enrichment which refers to vertically loading the job to provide more autonomy and responsibility still dominates the job design literature from the perspective of job characteristics (Luthans, 1995).

2.3.2.3 Job Characteristics Theory

Hackman and Oldham (1976) developed job characteristics model to explain antecedents of job satisfaction. According to this theory, job design makes employees feel that they are engaging in meaningful and precious work (Lunenburg, 2011b). The basic job characteristics model is presented in Figure 2.5. The model is based on five core job characteristics that foster the emergence of three critical psychological states: Experienced meaningfulness of the work, experienced responsibility for outcomes of the work, knowledge of the actual results of the work activities. Each one of these is examined in more detail below:

Experienced meaningfulness: Three job characteristics are used to determine meaningfulness of the work:

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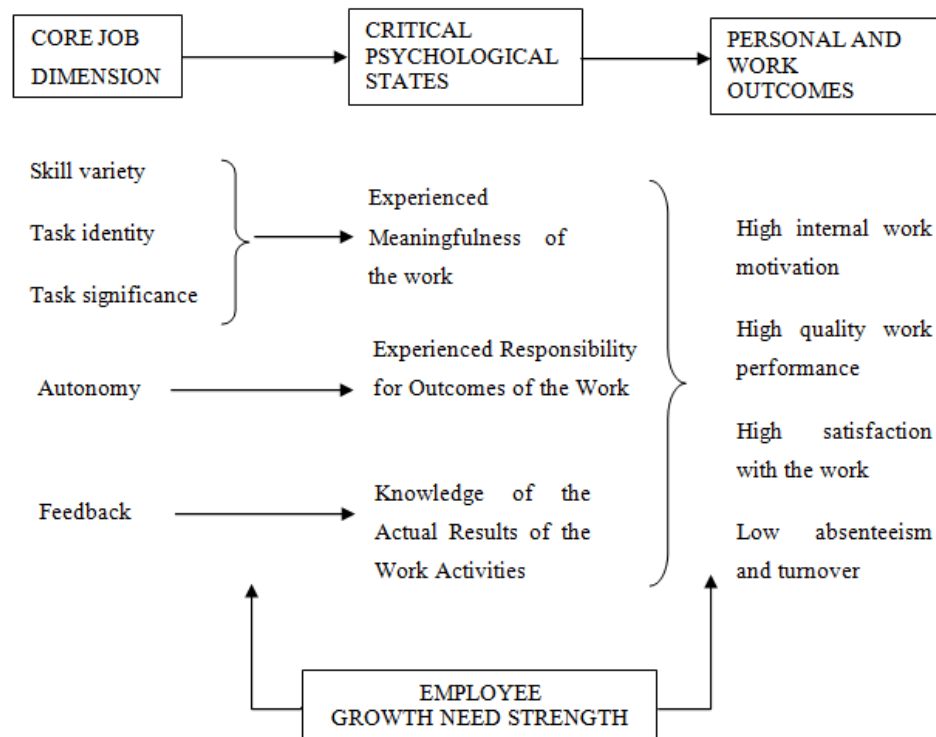
Figure 2.5 The Job Characteristics Model of Work Motivation (Hackman & Oldham, 1976)

Skill variety: Skill variety is the degree to which a job requires a variety of different activities in performing the work and involves the use of number of different skills and abilities of the employee (Hackman & Oldham, 1976). A job which allows for exhibiting different skills of an employee is found meaningful by this person. Jobs having high skill variety is more challenging to people because using many different skills prevents monotony that results from repetitive activity (Lunenburg, 2011b).

Task identity: Task identity is about doing a job from beginning to end. This provides workers to master whole process, to feel responsibility for the whole product and the sense of completion with their efforts (Hackman & Oldham, 1976; Lunenburg, 2011b).

Task significance: Task significance is the degree to which the job has an important effect on the lives of other people in both internal and external environment. For example doctors, teachers and scientists are most likely aware of the significance of their jobs for society. Being part of an organization which has a critical mission for

society also contributes to feel sense of having an important role (Hackman & Oldham, 1976; Lunenburg, 2011b).

Experienced responsibility: The job characteristic which fosters sense of personal responsibility for the work outcomes is autonomy.

<u>Autonomy:</u> Autonomy is the degree to which the job provides freedom and independence to the worker in scheduling his/her own work and in identifying procedures to be used in performing it (Hackman & Oldham, 1976). It can be mentioned two types of job autonomy which affect job satisfaction positively: control of task (determining method, organizing daily tasks etc.) and control of time (taking time off during work hours, deciding break times etc.) (Jin & Lee, 2012). A salesman can be given as an example worker who has high job autonomy (Lunenburg, 2011b).

Knowledge of actual results: The job characteristic which prompts knowledge of results is feedback.

<u>Feedback:</u> Feedback means clear information about the effectiveness of performance (Hackman & Oldham, 1976). It can be obtained directly from the job itself, supervisor or coworkers (Lunenburg, 2011b).

The Motivating Potential Score (MPS) is computed by the following formula 2.2 (Hackman & Oldham, 1976):

$$MPS = \frac{[\text{Skill variety} + \text{Task identity} + \text{Task significance}]}{3} \times \text{Autonomy} \times \text{Feedback}$$

(2.2)

Since three characteristics contributing meaningfulness of work are additive, even if one of them is zero, employee can find his or her job meaningful. However, when either autonomy or feedback is zero the job does not have motivating potential.

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It was proposed by Hackman and Oldham that high levels of these five job characteristics may not necessarily be preferred by everyone (Lunenburg, 2011b). Therefore, they integrated a personality variable into their theory: growth need strength (GNS).

Growth Need Strength (GNS): GNS is a worker's degree to personal growth and accomplishment (Lunenburg, 2011b). People who have high GNS perceive jobs having high MPS more positively (Hackman & Oldham, 1976).

Job characteristics theory is important due to the fact that it can be practically implemented to reach desired satisfaction levels. There is some evidence to this suggestion obtained from some well-known companies in the world which have actually applied job design changes in accordance with the job characteristics model (Luthans, 1995).

According to situational theorists, interaction of task characteristics, characteristics of workers and organizational characteristics affects job satisfaction (Green, 2000). Therefore, job characteristics theory can be called as a situational theory (A. Judge & Klinger, 2008). As with job characteristics model, some other situational models such as situational occurrences theory and predictors of job satisfaction were also proposed by some researchers to predict job satisfaction. It was suggested that job characteristics were the best predictors of job satisfaction, while characteristics of workers would be poor predictors, and organizational characteristics were moderate predictors (Green, 2000).

2.3.2.4 Goal Setting Theory

Goal setting theory which was developed by Locke is another applied area of motivating performance and satisfaction in addition to job design. In this part of the report, theoretical background of this approach is examined.

According to this theory, rational human action is goal-directed, so goal setting is one of the most significant components of job satisfaction. Human goals are determined by needs, values, knowledge and premises. By the same token, since expectancies and valences affect goal choice and commitments, goal setting theory is linked to the expectancy theory (Atasoy, 2004).

Luthans (1995) summarizes the goal setting theory by the Figure 2.6:
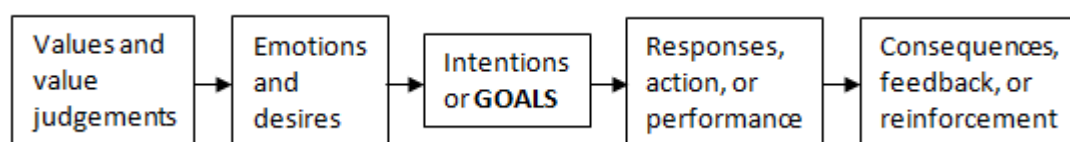
Figure 2.6 Locke's Goal Setting Theory of Work Motivation (Luthans, 1995)

In goal-setting process, people strive to attain goals in order to satisfy emotions and desires. Goals lead to people's thoughts and actions to one outcome rather than another. People perform according to these intentions or goals. Finally, their actions result in consequences, feedback, or reinforcement (Luthans, 1995).

According to goal setting theory, specific and difficult goals cause the highest performance. Another finding obtained from his studies was that goal setting would be most effective when effective feedback process existed. Such feedback process leads to a diagnostic appraisal process. This means that managers assess the reasons why objectives were either attained or not attained, rather than giving punishments or rewards for failure or success in meeting objectives (Luthans, 1995).

Self-efficacy refers to "an individual's beliefs about his or her abilities to successfully execute a specific task." (Stajkovic & Luthans, 2003) Concept of self-efficacy can be thought as self-confidence or a task-specific version of self-esteem. Self-efficacy and goal-setting theories are complement to each other. Difficult goals

assigned to employees by a supervisor increase their level of self-efficacy, and lead them to set higher personal goals for their own performance (Lunenburg, 2011c).

2.3.2.5 Attribution Theory

Attribution theorists focus on the important role of attributions in the cognitive motivation process of individuals. According to Fritz Heider who is recognized as the initiator of this theory, behavior is determined by both internal/personal (skills, effort, and fatigue) and external/environmental forces (rules, task difficulty, and luck). The perception of these determinants internally or externally differentiates the human behavior. Similarly, researchers advocate that differences in the work behavior of the employees can be explained by perception of outcomes as controlled internally or externally. Internals feel that they influence their outcomes through the internal forces, while employees who perceive external control feel that their outcomes are controlled by external forces beyond their own control. Therefore, differently perceived locus of control can have different impacts on job performance and job satisfaction (Luthans, 1995).

According to Spector (1997), there was a relationship between locus of control and job satisfaction. He pointed out that internals tend to perform their jobs better than externals. If there is a reward system associated with the job performance, when good job performance is appreciated, this may result in job satisfaction. Therefore, internals have higher satisfaction than externals since they are rewarded because of their better performance.

Additionally, individuals with high self-efficacy tend to make positive internal attributions about their successes. Similarly, when individuals attribute their success to internal factors, this will improve their self-efficacy belief (Luthans, 1995).

Contemporary theories emerged after 1980s, mostly in attempt to better understand the effects of personality/disposition on job satisfaction, so some of the most

remarkable ones are mentioned later under the subheading of personality as a determinant of job satisfaction.

2.4. Determinants of Job Satisfaction

According to Spector (1997), the factors influencing job satisfaction can be categorized into two main groups: environmental factors and personal factors. Environmental factors include nature of work, pay, promotion, rewards, fringe benefits, supervision, co-workers, working conditions, job security, personal development opportunities, and communication. However, personal factors of job satisfaction are personality traits, prior experiences, and demographic variables.

In accordance with the theories and models explained in detail above, antecedents of job satisfaction will be examined separately under these major groups in this part of the report.

2.4.1. Environmental Factors

2.4.1.1 Nature of Work

Content and nature of job imply job characteristics. The most widely-recognized theory of how job characteristics influence attitudes of people towards their job is Hackman and Oldham's job characteristics theory explained above in detail (Spector, 1997). After this theory was proposed, many researchers support it with their studies and developed some instruments for evaluation of employees about their jobs' characteristics.

Steger, Dik, & Shim (2005) developed The Work and Meaning Inventory (WAMI), a measure of meaningful work, and a study performed by using with an earlier version of WAMI in the year 2010 showed that meaningful work scores were positively correlated with using one's strengths at work and with job satisfaction.

People finding their jobs meaningful are more satisfied from both job and life. If they work in a job meeting their expectations they have more positive attitudes toward the job. Jobs requiring more skills and work-related specialty provide with more satisfaction to employees. People continuously and monotonously working on highly similar and simple tasks are generally more dissatisfied (Keser, 2006).

The more workers are given freedom in workplace, the more they experience job satisfaction (Keser, 2006). This concept contain scheduling own work, participation to work-related decision making and determination the means to accomplish objectives (Luthans, 1995). As perceived control over the job decreases, possibility of experience intrinsic motivation also becomes low (Başar, 2011).

Tasks which are compatible with employees' qualifications, personalities, values and interests lead to satisfaction with job. Interesting and challenging tasks attract employees' attention. Such tasks satisfy workers by contributing continuous learning and growth, increasing creativity and leading to take responsibilities (Beşiktaş, 2009).

A previous study showed that degree of interest is the primary thing contributing to job satisfaction for employees, while good salary is the fifth. On the contrary, in the same study, managers thought that good salary is the most important factor for employees, while interesting work has the fifth priority (Chatzoglou, Vraimaki, & Komsiou, 2011).

Interests can differ from person to person because of past experiences and successes, directions by family and individual ways of thinking, but generally jobs which are found interesting by many people become more valued (Başar, 2011).

The use of current skills and abilities to carry out tasks affects job satisfaction positively (Chatzoglou et al., 2011). Repetitive tasks which do not offer the opportunity to exhibit their skills and knowledge to employees cause boredom.

As the level of boredom due to sameness/monotony increases, satisfaction level decreases and if the level of boredom decreases, job satisfaction increases (Beşiktaş, 2009).

Employees prefer to have jobs that allow them for applying their abilities and skills and contain a diversity of tasks, freedom, and performance feedback. These characteristics make work mentally challenging. Mental challenge should be balanced. Low challenge can cause boredom, while excessive challenge can lead to frustration. Well-balanced mental challenge contributes to job satisfaction ("Concepts and Review of Related Literature," n.d.). According to Locke, there is an inverted-U shape relationship between mental challenge and job satisfaction (Cook & Salvendy, 1999).

Additionally, working for an organization which is prestigious (positively perceived and recognized by society) is more preferable for individuals. Social status of the work also influences job satisfaction. For instance, although teachers are low-paid or doctors work during too long working hours, they are still satisfied with their jobs due to the respectability of them.

2.4.1.2 Pay and Other Economic Factors

People who work in order to survive want to earn enough money to attain their basic needs. Therefore, pay is one of the most important factors principally evaluated before accepting a job. If enough wages is not paid for subsistence of them and their families, this can cause estrangement, absenteeism, and intention to quit job for another organization providing a better payment opportunity. Higher salary than the amount being necessary for basic needs means satisfaction of higher level needs, herewith higher satisfaction.

Pay means more to a worker than just the purchasing power. Salary is also an indicator of success, recognition, and status at work (Waskiewicz, 1999).

In addition to amount of pay, there are many aspects related with this factor such as amount of increases, frequency of increases, fairness, pay policies, adequacy to satisfy financial needs, future opportunities for rasies (Spector, 1997). According to Vroom, the belief of the fairness of payment is more crucial than the actual amount of pay received. Individuals evaluate fairness of compensation within the framework of a moral system. If an employee is paid less than has been deserved, he/she perceive inequity. If the employee thinks that more is paid than has been deserved, he/she feels guilt. Some researchers suggest that relative pay is a better predictor of job satisfaction than actual pay. According to them, people know what they should to be paid in comparison with others and in relation with their inputs (Waskiewicz, 1999).

Another issue that people give importance to at least earning money is job security. Nikolaou, Theodossiou, & Vasileiou (2002) examined effects of job security on job satisfaction in European countries. The results reveal that employees in jobs with low possibility of dismissal provide higher utility from work compared to those in insecure jobs. Nikolaou et al. (2002) also proposed that job satisfaction arising from job security is a major factor improving the quality of the employer-employee relationship. On the other side, "a supervisor who is reassuring, supportive, consistent in decisions, and easy to talk with strongly reinforces employees' feelings of security" (Yeltan, 2007). In conclusion, people need to believe that the organization provides for steady employment and to be sure of a job with this organization as long as they perform well.

The benefits that go with the job, such as social security, sick leave, unemployment compensation, retirement benefits, paid vacations, health insurance and paid holidays are other economic factors in addition to pay. These benefits are received as a result of being in a position, not because of an appreciable performance (Yeltan, 2007).

In addition to benefits mentioned above, fringe benefits also include providing employees with a service provided to customers in a free way or at a reduction, meals, employer-provided vehicles, and very minimal benefits such as tickets for

entertainment or sporting events, holiday gifts, soft drinks during working hours, and occasional parties or picnics for employees. These benefits are not as influential as the wages on job satisfaction. Nevertheless, raising level of this factor positively affects job satisfaction level (Yeltan, 2007).

Employees can be willing to give up an amount of salary in return more benefits. However, benefits can have a negative impact on job satisfaction if workers think that they are forced to sacrifice salaries for fringe benefits they do not actually desire (Artz, n.d.).

2.4.1.3 Rewards

In the relevant literature, contingent rewards are divided into some categories. Extrinsic rewards coming from an external source (mainly management) include money, promotions, and benefits. Intrinsic rewards such as having pride in one's work, having a sense of achievement, or being part of a team are also the satisfactions one gets from the job itself. Job enrichment makes work seem more meaningful, thus it can be considered as an intrinsic reward to employee. Rewards can not be necessarily financial. Nonfinancial rewards can be as simple as a pat on the back, a smile, or more responsibility on the job (De Cenzo & Robbins, 1994). Workers want to be appreciated verbally because of their performance. In this way, they feel recognized by their supervisors. Praises, incentive bonuses, or letters of appreciation are some indicators of recognition (Başar, 2011).

Remuneration system plays an important role in determining job satisfaction level. If individuals believe they are not compensated well, sense of dissatisfaction will increase. This affective discrepancy will grow over times and give rise to unhappiness and dissatisfaction (Mustapha & Chepa, 2013).

Despite common view which is that high motivation depends on performance-based rewards, performance may be only a minor factor of rewards. Organizations may design reward systems to pay off merit, but there may be different definitions of

merit. Deserving rewards may take into consideration many factors such as effort, seniority, skills held, or job difficulty as well as performance (De Cenzo & Robbins, 1994).

As a result, there are a number of qualities that an effective reward system should contain. Reward system work best if rewards are individualized with respect to differences in what employees prioritize and give important to them, are perceived as fair, are clear and flexible (De Cenzo & Robbins, 1994).

2.4.1.4 Promotion

Promotion means not only more amount of salary but also a more important job, more responsibilities, higher social status and more social esteem. Therefore, people want to be promoted at their works. The most important point is that promotion opportunities should meet needs and expectancies of workers and be equitable (Beşiktaş, 2009).

Promotion opportunities take a number of different forms. Seniority-based promotion do not provide satisfaction as much as performance-based promotion (Yeltan, 2007). This may be a result of high internal locus of control. Also, promotions more positively affect managers' satisfaction levels than employees', since a promotion in a management level provides more salary increase (Beşiktaş, 2009).

Perception of promotional opportunity has an important effect on job satisfaction. If workers find advancement opportunities inadequate, they have negative attitudes toward their job (Waskiewicz, 1999).

2.4.1.5 Supervision

Employees' thoughts and feelings about their immediate supervisors are important for employers, since commitment between employee and organization mainly consists of attachment between employee and his/her immediate supervisor being a

representative for employer. Therefore, if supervisors are regarded as a supportive, helpful and gracious people by their subordinates, then the organization is also perceived as the same by these employees. However, if supervisors do not have these positive qualifications, the employees perceive the organization negatively (Emhan, Mengenci, Taşdöven, & Garayev, 2014).

Some researchers also claimed that job satisfaction is related to supervisors' behaviors in organizations. Treating employee as important person was one supervisory behavior that was proved to be associated with job satisfaction (Waskiewicz, 1999).

In this context, there are two major supervisory styles influencing job satisfaction: employee-centeredness and participation. The first one includes checking to see subordinate's performance, giving advice and help him/her, and communicating with employee both formally and informally. In the other supervisory style, managers allow their subordinates to participate in decisions that influence their own jobs. It is apparent that this approach motivate people by increasing satisfaction levels of their self-esteem needs (Yeltan, 2007). However, frequency and form of the checking are crucial for the first approach since it is required not to be irritating in terms of employees. It should be made the employees to feel that this checking is intended to cooperate with together, help for solving task-related problems, review their progress, and give constructive feedback periodically, but not to exhibit superiority, find a fault and humiliate them (Beşiktaş, 2009).

 "Communication", "frankness", "consistence" and "encouragement to make suggestions" are some of other managerial variables related to job satisfaction (Waskiewicz, 1999). A supervision approach appreciating workers' opinions and suggestions and encouraging them to perform their best increase employee job satisfaction (Başar, 2011).

Strength of communication between supervisors and their subordinates influences employees' attitudes towards their jobs. When supervisors effectively communicate their vision, they gain the confidence of subordinates, which in turn contributes to

communication satisfaction between the supervisor and subordinate. Lack of interpersonal communication between workers and supervisors negatively affects job satisfaction and sometimes causes employees to leave their jobs (Madlock, 2008). "Emotional dissonance is a precursor of work stress and work stress is a precursor of supervision satisfaction." (Getahun, Sims, & Hummer, 2008)

Competency of supervisors in terms of technical capabilities, getting along with both their subordinates and other people, and task coordination affect job satisfaction level (Başar, 2011). In a job in which roles are ambiguous, supervisors who decide task allocation continuously are preferred, while if there is a clear role sharing in a work place, supervisors giving responsibilities their subordinates without keeping a "watchful eye" (De Cenzo & Robbins, 1994) upon them (Başar, 2011). Role ambiguity is one of the most important variables that affect organizational behavior since it causes stress and dissatisfaction (Beşiktaş, 2009).

Although supervision satisfaction is mainly influenced by relationships between employees and their immediate supervisors, policies and decisions made by top managers also affect how employees perceive supervision factor. Top managers can increase employee job satisfaction through equitable and transparent management implementations.

According to Locke, fairness of pay and rewards allocation and transparency of decision making processes (related with all managerial decisions especially promotion and allocation of compensation decisions) are crucial for management to construct the perception of organizational justice in employees' cognitions and gain their confidence (Başar, 2011).

2.4.1.6 Co-workers

Interactions between employees working together is an important factor in terms of job satisfaction. Many workers meet their socialization needs at work.

According to Locke, even though it is not an absolute necessity to make fast friendships, employees prefer to work with people being friendly, supportive, cooperative and having the same values and expectancies (Başar, 2011).

Although some people do not like their job, spending time with their co-workers can make them happy at work (Beşiktaş, 2009). Conversely, if employees face difficulties to get along with other workers, this may have a negative impact on job satisfaction (Yeltan, 2007). Working alone may cause feeling of distaste towards job because of the feeling of socially loneliness, and this may result in job dissatisfaction (Beşiktaş, 2009).

Moreover, doing different social activities with their co-workers in out of working hours keeps people from probable monotony of working life (Başar, 2011).

2.4.1.7 Working and Operating Conditions

Work environment can be defined as the physical and social conditions in which an individual must function. "Physical work environment satisfaction equates to the extent to which employees considers themselves as being satisfied, or happy, within the conditions of their physical working environment." (MacMillan, 2012)

People desire to work in a comfortable and safe environment. Appropriate temperature, lighting, and noise level keep workers from being uncomfortable (Green, 2000). All forms of noise cause strain especially when trying to concentrate on something (MacMillan, 2012). Therefore, people become disturbed when they get distracted by unexpected noises, such as telephones and other people's conversations (Bridger & Brasher, 2011). Perceptions of crowding were associated with lower levels of job satisfaction (Weiss & Cropanzano, 1996). Similarly, some researchers examining relationships between employee proximity to others and ratings of job autonomy and satisfaction found that employees reported low autonomy and satisfaction when close to many co-workers (Oldham & Rotchford, 1983). Architectural privacy is positively associated with overall job satisfaction. "Thus it is

possible that the greater the number of enclosures around an individual's workspace and the lower the opportunity for visual scrutiny by others, the less strain will be experienced." Furthermore, possibility for personalization of the physical environment increase perceived environmental control, and herewith, physical work environment satisfaction (MacMillan, 2012). People prefer to work in a clean, modern and enough-equipped working environment (Sun, 2002). In recent years, it has been recognized by many organizations that a key element of managing the diverse work force is flexibility. Some programs such as unpaid childbirth leave, unpaid parenting leave and childcare services that allow personnel to make adjustment in their work schedules are developed, thus the demands that are being placed on them are better met (Luthans, 1995). Also close distance between work and home is an important factor for employees especially working in the big cities, since "time, which passes on the road effect the employee's psychological and physical conditions positively or negatively, and this effect may reflect on the working performance as well as the job satisfaction level of the employee" (Atasoy, 2004).

In this context, effects of working in open offices on work environment satisfaction have been studied. It was found that lack of privacy was a major complaint of employees one year after moving from a conventional office to an open office. Also significant decreases in task identity, task significance, friendship opportunities and supervisor feedback, as well as in work and social satisfaction were observed after employees moved from a conventional, closed office to an open office. On the other hand, it was demonstrated that ease of communication improved significantly after employees moved from a closed office to an open office." (Oldham & Rotchford, 1983)

Lee (2006) also found that workplace satisfaction was positively correlated with job satisfaction. In his study gap measures between the perceived environmental features and the expected environmental features were examined. As a result, the most important factors related to workplace satisfaction were found as a quiet and undisturbed environment, quality of equipment, control over temperature, flexible

workplace, amount of storage and lighting control. Findings of this study proposed that physical environmental status below desired levels cause dissatisfaction, however, exceeding desired levels does not contribute to satisfaction levels.

Although Lee (2006) supports Herzberg theory asserting that physical environmental features often play an important role as dissatisfiers, Veitch, Charles, Farley, & Newsham (2007) oppose Herzberg's dismissal of physical environment characteristics. In their study, they proposed that satisfaction with privacy, ventilation and lighting lead to satisfaction with work environment, and they revealed that a satisfactory office environment contributes to employee satisfaction.

Additionally, whether the operating conditions such as procedures make working difficult is important for employees, since they dislike working rules and procedures blocking good jobs. Employees' satisfaction increase when they work in an environment where tasks can be fulfilled in a practical way (Başar, 2011).

2.4.1.8 Communication

Face-to face interactions and communication within the workplace are crucial for organizations in terms of productivity, job satisfaction and organizational commitment (Wolfeld, 2010).

Ozturk, Hancer, & Im (2014) mention about two different dimensions of internal communication in organizations. One of them is managerial communication including activities such as giving oral presentation, managing interpersonal conflict, conducting performance appraisals, and giving feedback. The other one is informal interaction which is the ways of communicating with each other beyond the formal channels. According to them, "building effective interaction or communication systems within the organization is an opportunity to improve job satisfaction and affective commitment". It is proved by many researchers that "effective interaction (or communication) is a key to firms' success since internal communication

positively influences job satisfaction and organizational commitment" (Ozturk et al., 2014).

It was shown that communication satisfaction is related with the amount of information available to them. Communication provides employees with information that explains work tasks and may lead to communication satisfaction. Interactions with co-workers and supervisors satisfy interpersonal needs of pleasure and inclusion (Madlock, 2008).

Briefly, existence of an effective communication in an organization provides people with working in a coordinated way with other workers. Lack of communication is one of the most important sources of dissatisfaction (Beşiktaş, 2009), since it causes work-related misunderstandings and complications (Başar, 2011).

2.4.1.9 Personal Development Opportunities

Workers who are given the opportunity to improve their skills, abilities and knowledge and to learn new things especially what they want experience the sense of personal growth. This leads to meet self actualization needs, which in turn, cause job satisfaction.

However, strength of growth need may be different from person to person. People having strong growth need want to working in a job contributing to their personal development. Hackman and Oldham (1976) use this factor (GNS) as a moderator of the relationship between intrinsic job characteristics and job satisfaction in their job characteristics model (A. Judge & Klinger, 2008).

Job training plays a key role among personal development opportunities given to employees in an organization. Job training can be defined as "a set of planned activities on the part of an organization to increase the job knowledge and skills or to modify the attitudes and social behavior of its members in ways consistent with the goals of the organization and the requirements of the job" (Jin & Lee, 2012).

Existence of employee development programs improves workers' employability, gives them more sense of confidence and control over their career, and increases positive feelings toward their employer and associated with working for this organization. Although job training is a main part of intrinsic motivation, employers generally avoid attempting such employee development programs due to their costs. However, some researchers showed that this kind of investment is repaid in the form of positive employee attitudes (Jin & Lee, 2012).

Van Saane (2003) also states that personal growth is placed more value nowadays, and this factor must be included in a job satisfaction instrument.

2.4.1.10 Workload

Work-related stress is resulted from an imbalance between environmental demands and individual capabilities, and associated with the person's evaluations about the work environment and the foreseen ability to overcome the problems that give rise to stress. In order to describe this situation the term of 'workload' is used (Bos, Donders, van der Velden, & van der Gulden, 2013).

Spector (1997) defines workload as demands placed on the employee by the job. Qualitative workload is the effort required by job tasks or the level of difficulty both mental and physical. For example, having to lift heavy objects and having to solve difficult mathematics problems both cause qualitative workload. However, quantitative workload refers the amount of work that the employee must do.

There is evidence of a negative relationship between prolonged high workload and work motivation (Bos et al., 2013)

Workload is a major work-related stressor. Heavy workload is significantly and negatively associated with all job satisfaction dimensions. In a previous study it was found that one of the best predictors of job satisfaction was workload. Heavy workload and job stress are related to lower job performance and satisfaction in hospitals (Trivellas et al., 2013). Keser (2006)'s study in a call center also revealed a

negative significant relationship between workload and job satisfaction. The fatigue has found as negative predictor of job satisfaction in a previous study. Also it has been discussed in this study that if fatigue get minimized, job satisfaction can be increased by various innovative and encouraging strategies (Saleem et al., 2010).

On the other hand, in Konicek's study, the relationship between diversity of workload and job satisfaction was assessed, but it could not identified any significant relationship ("Concepts and Review of Related Literature," n.d.).

2.4.2. Personal Factors

2.4.2.1 Age

Conflicting results have been obtained from studies investigating any relationship between age and job satisfaction. Some of them propose that there is no relationship, whereas the others reveal significant correlations.

"The prevalent point of view is as age increases, the level of satisfaction also increases." (Yeltan, 2007) Some researchers proposed that the relationship is U-shaped (Sun, 2002). In this context, at the beginning of working life, employees' satisfaction is high since young workers feel positive and up because of his/her employment. In several years, the level of satisfaction starts to decrease, because they become aware of having opportunities to get a better job (especially in terms of job content such as more interesting and challenging work) (Beşiktaş, 2009). "Young workers also have so much expectancy for promotion and other related areas. As an employee's career starts to go higher, the level of satisfaction also gains importance." (Yeltan, 2007) Workers who are at the middle ages have positive feelings toward their jobs, since they become familiar with working life and adjusted/adapted to conditions of their current work by gaining experience. Also, they can have high attitudes because of the ingrained routines and reduced chance to change their jobs. Older people are more satisfied than young people, because their expectancies are

more realistic, and they spend enough time by then to become aware of qualifications of themselves by gaining experience from different jobs (Beşiktaş, 2009).

It was found that younger workers are interested in career development, wage, and recognition, while older workers give importance to use of skills (self-actualization), to help other people and be useful to society (Bos et al., 2013).

In a study the older workers reported lower difference between what he or she had and desired in terms of working conditions. Older people also perceived a higher level of control over rewards (Spector, 1997).

Certainly just before retirement, satisfaction may decrease due to the fear of the future. A retiring person may feel he is treated like a machine and discarded as obsolete and useless. These feelings can make him dissatisfied at work (Sridharan, Liyanage, & Wickramasinghe, n.d.).

According to Bhattacharya (2011), age is not a factor influencing job-satisfaction. Nonetheless, age factor provides a clear understanding of the expectation trend. It will help in job design for a cadre which one reaches at a particular age (Bhattacharya, 2011).

Organizational structure (public/private or service/manufacturing) can have an important effect on the relationship between age and job satisfaction. The researchers studying on this probable relationship claim that there is a strong relationship between age and satisfaction in the organizations except for those in the service sector (Sun, 2002).

2.4.2.2 Gender and Marital Status

Some of researchers proposed that women are more satisfied than men, whereas some of them advocate its reverse. According to Bilgiç, age is not a factor causing a

difference between general satisfaction levels of different genders. She also emphasizes that marital status has no effect on general job satisfaction (Sun, 2002).

Because of the different social roles of men and women, their expectations from job facets are also different. While women give more importance to working conditions and social relationships, some other factors such as pay and promotion opportunities are more significant for men (Beşiktaş, 2009). Women may experience more social satisfaction than men in a job that requires few skills and gives restricted promotion opportunities and thus may perceive higher job satisfaction than men (Green, 2000).

Briefly, it can be said that job satisfaction is actually related with expectation level rather than gender difference (Beşiktaş, 2009).

Expectations of women are relatively less than those of men, so women can be satisfied with less. They expect fewer promotion opportunities and lower pay even for the same jobs. They can perceive lesser rewards as being more fair than would men. These can be some possible explanations for studies revealing that women have equivalent job satisfaction despite nonequivalent work, although this concern still is unclear (Spector, 1997).

2.4.2.3 Organizational Tenure, Vocational Tenure and Title

Tenure refers to how long an employee has been working in his/her current job. In other words, it means length of service. As with age, tenure is also expected to contribute increase of job satisfaction due to familiarity with the work content and adjustment to work environment.

However, studies have shown that if there exists poor economic conditions and unemployment which make difficult to quit the job, tenure and job satisfaction may not be correlated or may be negatively correlated (Beşiktaş, 2009). It is also possible, as evidence provided by De Santis & Durst has shown, that tenure and job satisfaction are negatively related (Green, 2000).

As tenure in an organization increases, opportunities for promotion and having a higher title also develop. According to some researchers, indeed, title is influential on satisfaction rather than age and tenure. According to Robie et al., as title increases, satisfaction also increases. They define two mediators to explain the relationship between title and job satisfaction. One of them is culture which refers to "hierarchical distance". The more inequity exists in terms of social status, wealth and benefits, the more relationship between title and satisfaction is strong. The other mediator is function of title. If management wants to increase employee satisfaction, titles should be identified based on Hackman and Oldham's job characteristics rather than factors which are not easily changeable such as pay (Sun, 2002).

On the other hand, vocational tenure gained by performing the same profession in different organizations can increase job satisfaction unaffectedly from title (Sun, 2002).

2.4.2.4 Educational Level and Intelligence

Previous research revealed that education had negative direct impacts on job satisfaction. Highly educated young workers may be bored and dissatisfied with performing the repetitive tasks (Green, 2000). The relationship between educational level and job satisfaction was examined in terms of fit education received by employees with requirements of their jobs. In this context, if a worker's educational level is so much high for requirements of the job, this causes dissatisfaction (Sun, 2002). Moreover, high-educated people have more expectations from work environment than low-educated ones. As explained in "expectancy theory" part, what important is balancing inputs (knowledge, expectations, values etc.) and outcomes (opportunities through the job etc.) Some researchers also found that the expected negative relationship between level of education and job satisfaction was much stronger in the private-sector than the public sector (Green, 2000).

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Similarly, it was indicated that if people having high level of intelligence work in jobs requiring low level of intelligence, or vice versa, dissatisfaction occurs (Beşiktaş, 2009).

2.4.2.5 Personality

In the mid-1980s, personality effects on job satisfaction increased in importance. Studies have revealed strong evidences showing that personality is clearly a factor (Spector, 1997).

It was noticed in a longitudinal study that when job satisfaction was assessed repeatedly over time, it was remarkably stable. This observation let researchers to speculate that job satisfaction was caused in part by an employee's personality rather than just the job (Spector, 1997). In the relevant literature this idea is known as "Dispositional Approach". Current interest on the topic was stimulated by the work of Staw and Ross (Weiss & Cropanzano, 1996). Staw and Ross evaluated job satisfaction of people who changed organizations they worked for and/or job type. Their results showed that job satisfaction remained stable in people who changed jobs. Workers who liked one job were probably to like another job. Some people tend to like their jobs, while others are not (Weiss & Cropanzano, 1996). However, some researchers criticize job satisfaction consistency idea. According to them, there are reasons of the stability other than personality. For example, certain individuals tend to choose good jobs, whereas others do not (Spector, 1997).

Since Staw and Ross, research on the dispositional component of job satisfaction has followed two paths. One path has tried to explicate the particular personality traits responsible for the dispositional nature of satisfaction. The other path has attempted to demonstrate an inherited tendency to report satisfaction/dissatisfaction (Weiss & Cropanzano, 1996).

Relevant literature has looked at two personality traits of Positive Affectivity (PA) and Negative Affectivity (NA). These personality traits predict general affective

inclinations of people. People who have high Positive Affectivity (PA) incline to be happy, social, and in a positive mood. People who have high Negative Affectivity (NA) incline to be more distressed and sad, focusing on the negative side of things. It was conducted a laboratory study in which they asked people who were either high or low on NA to work on interesting or boring tasks. It was found that their satisfaction with the task was influenced by their degree of Negative Affectivity, but not by the task type (Weiss & Cropanzano, 1996). It was suggested that NA and PA affect mood states at work and these mood states can affect satisfaction (Weiss & Cropanzano, 1996).

Evidence for a genetic component to this consistency of job satisfaction comes from a study by Arvey et al.. They surveyed 34 pairs of monozygotic twins who were reared apart from early childhood and found that their job satisfaction was correlated. It was estimated that approximately %30 of the variance in job satisfaction is ascribable to genetic factors. In other words, if one member of the twin was satisfied with his or her job, the corresponding member was likely to feel the same about work (Spector, 1997).

Affective events theory suggests that disposition may affect experience of affective events at work, which in turn affects job satisfaction. Similarly, Brief and Motowidlo have attempted to explain the relationship between dispositions and job satisfaction (Saari & Judge, 2004). According to Motowidlo's cognition-based approach, an employee makes a judgment about the job by using his/her individual properties such as knowledge and skills, and stores a set of events/conditions which he/she has experienced at work in his/her memory in order to call later at the time of any judgment about the job. Similarly, according to Brief, an individual interprets external factors by using his/her internal features such as personality. That is, these interpretations consist of objective and subjective variables (individual properties/personality/disposition), and influence job satisfaction. Since it emphasizes the integration of cognitive/objective and affective/subjective subprocesses in the complex satisfaction process, Brief's model is one of the most

reasonable models so far, and is highly remarkable among contemporary job satisfaction theories (Sun, 2002).

Locus of control is significantly correlated with job satisfaction. In other words, people who believe in their own ability to control internal and external forces tend to be more satisfied with their job (Spector, 1997).

A growing body of research investigates effects of culture or country on job satisfaction. Cross-cultural dimensions which were found in the most cited cross-cultural work on employee attitudes studied by Hofstede help for understanding differences in attitudes of employees and recognizing cultural reasons of these attitudes (Saari & Judge, 2004).

2.5.   Potential Effects of Job Satisfaction

There are a number of effects of high job satisfaction. Research reveal that highly satisfied employees tend to have better mental and physical health, learn job related tasks more quickly, have fewer on-the-job accidents, and file fewer complaints (Luthans, 1995).

Satisfied employees are willing to exhibit prosocial citizenship type behaviors such as being helpful and more cooperative (Luthans, 1995). This effect is called *Organizational Citizenship Behavior (OCB)*. In other words, people who are happy with their jobs might be willing to do more than what is demanded from them (Spector, 1997).

However, main potential effects of job satisfaction are examined particularly in this part of the report. Spector (1997) uses the word of "potential" in his book consciously, since although many of these hypothesized effects of job satisfaction have been shown to correlate with it, it has not to be established that the relations between job satisfaction and these variables are in fact causal. The phrase of

"potential effects" is also preferred in the title of this part, since direction of causality between job satisfaction and each variable is still uncertain.

2.5.1. Job Performance

In the literature, there are many controversial ideas about the relationship between job satisfaction and performance. The idea of "Happy workers are productive workers" is dominant during the 1930s-1950s among researchers investigating the relationship between job satisfaction and performance. In opposition to this traditional view, Porter and Lawler's model which is mentioned in the previous parts draws attention to the fact that performance can lead to job satisfaction.

However, in a review of the literature in the 1980s it was proposed that correlation between job satisfaction and performance was quite small. Researchers who performed this review stated that relationship previously assumed was "illusory" (Saari & Judge, 2004). According to some researchers, a positive relationship between job satisfaction and performance is probable, but no relationship or a negative relationship is also possible (Green, 2000).

Spector (1997) proposed that people who are happy with their job might be more motivated, work harder, and perform better. On the other hand, there is stronger evidence that people who perform better are more happy and satisfied with their jobs because of the rewards given in return for good performance (Spector, 1997).

Study including the 100 best companies in America investigated whether workers make organizations successful or successful organizations make workers happy. It was revealed that causation between performance and job satisfaction existed in both directions (Green, 2000). T. A. Judge & Klinger (2009) also states that the relationship between job satisfaction and performance may be reciprocal.

In addition, in a more recent and comprehensive review of 301 studies, it was found that correlation between job satisfaction and job performance is a higher 0.30 (Saari & Judge, 2004).

2.5.2. Withdrawal Behaviors

People who dislike their jobs are expected to avoid coming to work or looking for another alternative employment. Unwillingness to coming to work can cause permanent (quitting job) or temporary (being absent or coming in late) behaviors. Many studies revealed that dissatisfied employees are more likely tend to exhibit these behaviors as well as other withdrawal behaviors containing unionization, grievances, drug abuse, and decision to retire (Saari & Judge, 2004).

The costs of withdrawal behaviors can be quite high, so organizations are concerned about them.

Based on the research that demonstrate job satisfaction effects withdrawal behaviors such as turnover and absenteeism, financial impact of employee attitudes can be statistically measured and costs of low job satisfaction can be revealed (Saari & Judge, 2004).

On the other hand, absenteeism and turnover should not be always considered as negative notions. Sometimes, it can be beneficial to leave for a short time for stressful workers in order to get energized and improve their creativity (Yeltan, 2007).

2.5.3. Physical Health and Psychological Well-Being

Researchers reported significant correlations between job satisfaction and physical symptoms, such as headache and upset stomach. Job dissatisfaction was also found to be related with anxiety. Years spent in a dissatisfactory work situation can adversely affect physical and psychological health (Spector, 1997).

2.5.4. Burnout

Burnout is a distressed emotional state experienced on the job, and it is more of an affective response to the job (Spector, 1997).

Tzeng (2002) states that burnout seems to be caused by stressful working conditions, disproportional-high efforts, and dissatisfaction with jobs.

Burnout correlates significantly with job satisfaction. Dissatisfied employees are likely to complain about high levels of burnout. Burnout also correlates with many variables such as life satisfaction, turnover and health symptoms that are correlates of job satisfaction (Spector, 1997).

2.5.5. Organizational Commitment

Commitment can be defined as attachment and loyalty. Three elements of commitment are described as the following:
- acceptance of the goals and values of the organization;
- a willingness to maintain membership in the organization; and
- a desire to exhibit effort on behalf of the organization (Tella, Ayeni, & Popoola, 2007).

Researchers introduced three dimensions for organizational commitment as follows:

(1) *Affective commitment:* employee's attachment to and identification with the organization (Luthans, 1995).

(2) *Continuance commitment:* tendency to remain in an organization because of the negative consequences of quitting this organization like being unemployed (Cherati, Mahdavi, & Rezaeian, 2013).

(3) *Normative commitment:* employee's feelings of obligation to stay with the organization (Luthans, 1995).

Organizational commitment is a notion that is strongly related to job satisfaction (Chatzoglou et al., 2011) Especially affective commitment is strongly related with job satisfaction (Jin & Lee, 2012). Moreover, organizational commitment has a positive effect on some other variables such as attendance, performance and social relationships (Beşiktaş, 2009).

More recent research gives some support the idea of commitment leads to satisfaction (Luthans, 1995). However, organizational commitment in general is seldom considered as a predictor of job satisfaction in the public sector. Rather, it is often used as a dependent variable and as a mediator at best (Jin & Lee, 2012).

2.5.6. Life Satisfaction

Life satisfaction refers to a person's feelings about his/her life. Since a job is significant part of one's life, it is expected that job satisfaction and life satisfaction are related.

Three hypotheses are discussed about this relationship. The *spillover hypothesis* proposes that feelings in one area of life influence feelings in other areas. In other words, people satisfied with their job are more likely satisfied with their lives. That is, this hypothesis suggests a positive correlation. According to the *compensation hypothesis*, people will compensate for dissatisfaction in one area of life by developing satisfaction in another. Thus, this hypothesis implies a negative relationship. In the *segmentation hypothesis,* it is proposed that people departmentalize their lives as work life and nonwork life. It suggests that there is no relationship between job satisfaction and life satisfaction (Spector, 1997).

The research findings in this domain clearly favor the spillover hypothesis. That is, it is possible that job satisfaction causes life satisfaction, or life satisfaction leads to job satisfaction. Some researchers are also supported that both directions of causality are possible (Spector, 1997). An individual's job experiences spill over into his/her life,

however, a happy or unhappy life spills over into the individual's job experiences and evaluations (Saari & Judge, 2004).

2.6.   Measurement of Job satisfaction

In the relevant literature, although there is a general consensus among researchers about the definition of job satisfaction, disagreement about measurement of it could not be resolved yet. Measurement of job satisfaction is a complicated issue since job satisfaction is explained by not only job characteristics but also personal characteristics, needs, values and expectancies of an individual, and job related perceptions of individuals differ from each other. Two employees working in the same job can experience different satisfaction level because of the evaluation process containing subjective elements such as needs, values and expectancies. By the same token, even an employee with high satisfaction level can become completely dissatisfied due to the changes in these subjective factors occurring over time (Pınar, Kamaşak, & Bulutlar, 2008).

Job satisfaction is most commonly measured by using self-report instruments. In the literature, there are two major approaches to the measurement of job satisfaction: 'global approach' and 'facet approach'. Until 1970s, the idea that 'job satisfaction is a single concept and employees produce an overall attitude towards the work' is prominent in relevant studies. In general, scales which are used for measuring global job satisfaction were developed in these years.

Global satisfaction scales can be multi- or single item instruments. One question such as 'Overall, how satisfied are you with your job?' is asked within a single item measure. However, using a single item measure can cause an overestimation of job satisfaction (Green, 2000). Some researchers criticized the use of single items measures based on the measures' assumption that job satisfaction is unidimensional despite the fact that it seems to be multidimensional (Green, 2000). Two examples of global job satisfaction scales having multiple-items are The Job in General Scale (JIG) and Michigan Organizational Assessment Questionnaire Subscale. The JIG

containing 18 items was developed by Ironson et al. who argue that overall job satisfaction is not the sum of individual facets. Michigan Organizational Assessment Questionnaire Subscale containing 3 items is simple and short, so it is ideal for use in studies including many scales (Spector, 1997).

According to Van Saane (2003), global instruments are less suitable for determining satisfaction and dissatisfaction areas. If the purpose is to observe change in job satisfaction, a global instrument is used. A single-item instrument should be used rather than a multi-item instrument since the differences in individual scores are ignored in the total mean score of a multi-item instrument (Van Saane, 2003).

On the other hand, facet approach is used to reveal which aspects of the job cause satisfaction or dissatisfaction. This approach also can provide a more complete assessment of a person's job satisfaction than the global approach (Spector, 1997). There are many reliable and valid instruments for this type of approach.

As with global scales, facet-specific scales can consist of single item or multiple items per facet. Minnesota Satisfaction Questionnaire (MSQ) designed by Weiss et al. covers 20 facets. Long form of MSQ with 100 items contains five items per facet, while 20-item short version contains only one. By the same token, the use of a single-item approach for measuring facet satisfaction was investigated, and it was found that the single-item facet measure was significantly correlated with each of the Job Descriptive Index facets used in the study. Hence, these results support that single-item measures may be easier, less expensive, and take less time to complete. On the other hand, Spector (1997) presents two good reasons to use multiple items per facet. The first one is that multiple item scales are more reliable than single items. This is because, respondents can make mistakes when they fill out questionnaires by misreading an item, by interpreting a question differently than intended, or by indicating the wrong response. Mistakes that occur more or less randomly across people can produce inconsistencies in scores for the same people over time, and this reduces the reliability of the questionnaire. When the number of items in a subscale is large, the effect of inconsistent responses to items will be

small. Another advantage of facet-specific questionnaires with multiple items is that they allow for a more complete assessment of a facet, since one facet can have a number of aspects to it. For example, pay factor contains many aspects such as amount of pay, amount of raises, future prospects for increase, fairness of pay, pay policies and frequency of raises. It is possible to measure pay satisfaction with single item, but this does not provide with a complete assessment and analysis of facet. In this context, Spector developed Job Satisfaction Survey (JSS) included 9 facets and totally 36 items (4 item per facet). Its dimensions are pay, promotion, supervision, fringe benefits, contingent rewards, operating conditions, co-workers, nature of work and communication.

Other examples of facet-specific scales with multiple items are Job Descriptive Index (JDI) and Job Diagnostic Survey (JDS). JDI was developed by Smith, Kendall and Hulin who are the proposer of Cornell Model in the literature. This scale contains 5 facets and 72 items. Each item expresses an evaluative adjective or short phrase. Responses are asked as "Yes", "Uncertain" or "No". There are many published studies that used JDI (Spector, 1997). However, in Van Saane (2003)'s study, the JDI did not meet the quality criteria surprisingly, although it is the most frequently used job satisfaction instrument in organizational science. JDS was also designed by Hackman and Oldham to study the effects of job characteristics on people. It includes subscales to measure the nature of the job, motivation, personality, psychological states, and reactions to the job such as job satisfaction. It covers several areas of job satisfaction: growth, pay, security, social, and supervision, as well as global satisfaction. Each subscale contains from two to five items (Spector, 1997).

In the study of Van Saane et al. (2003), twenty-nine instruments were described and adequacy of their psychometric characteristics (reliability, construct validity, content validity, and responsiveness) was assessed. It was found that seven of the instruments had enough reliability and construct validity. Only JSS of the instruments explained above was included in this group, since it has very good psychometric properties when comparing with the others. It was the second highest

ranked in terms of content validity after a scale designed specifically for nurses, since JSS's sub-scales and items cover 9 out of the 11 work factors predetermined by the authors through an extensive literature review. Only the factors of 'autonomy' and 'growth/development' which must be included in a job satisfaction instrument according to authors are not covered by JSS. Also, 'workload' is referred by only two items of the instrument. As a result, except for these little disadvantages of JSS, it is one of the most reliable and valid instruments.

However, most of the tools mentioned above are originally in English, and researchers also draw attention that translations are crucial in terms of maintaining validity and reliability of the original scales. All items in an original scale should be clear enough for respondents. Yelboğa (2009) especially proved that Turkish version of the JSS is valid and reliable.

The only issue researchers agree on that the most suitable tool among many job satisfaction instruments should be used according to the aim of the study and the targeted population.

2.7. Mental Workload

2.7.1. Definition of Mental Workload

Workload is determined by the interaction of the task demands, the skills, behaviors, and perceptions of the individual. Task demands can contain fulfilling physical actions and/or performing cognitive tasks (DiDomenico & Nussbaum, 2008). Even it can result from physical effort, workload has a mental construct reflecting the interaction of mental demands emerging while performing tasks (Cain, 2004). Mental workload can be defined as the overall cognitive effort an individual puts forth while fulfilling a task (Baldauf, Burgard, & Wittmann, 2009). According to Cain (2004), workload results from aggregation of many different variables, so it is a multidimensional concept. It can not be directly observed, but it can be inferred from

observation of behaviors and measurement of psychological and physiological processes (Cain, 2004).

2.7.2. Measurement of Mental Workload

Currently, the evaluation of mental workload is an important part of studies aiming to obtain more comfortable, more satisfactory, more efficient, and safer workplaces which is the main goal of ergonomics (Rubio et al., 2004).

Cain (2004) also states that the main reason for measuring workload is to predict worker and system performance. The ultimate objective is assumed to be improved working conditions as mentioned by Rubio et al. (2004).

Measures of workload can use an objective or perceived operationalisation. Objective measures focus on the verifiable amount or difficulty of the work, while perceptual measures are concerned with the amount of work relative to individual capabilities and time sufficiency. Because high objective workload is not necessarily something to address in interventions, generally perceived workload is focused on (Bos et al., 2013).

Mental workload measures typically grouped into three broad categories: performance-based measures, subjective measures, and physiological measures. The performance based measures assume that any increase in task difficulty will cause an increase in demands, which will decrease performance. Subjective measures, however, assume that an increased power expense is linked to the perceived effort and can be appropriately assessed by individuals. Physiological indexes assume that the mental workload can be measured by means of the level of some physiological indicators such as heart rate, respiration, electroencephalography (EEG) and eye movement (Rubio et al., 2004).

Performance measures can be classified into two main groups: primary task measures and secondary task measures. Primary task performance measures commonly used

are speed, accuracy, reaction or response times, and error rates (Cain, 2004). Secondary task measures provide an index of the remaining capacity of the worker while performing primary tasks, and are more diagnostic (Cain, 2004). In the studies in which secondary task was used, individuals were required to divide and allocate attentional resources to both tasks. According to Kahneman, when the required activities exceeded the limits of attention, performance degraded (DiDomenico & Nussbaum, 2008). Secondary tasks include rhythmic tapping, random number generation, probe reaction time, verbal shadowing, time estimation and time production.

Subjective measures have been used extensively to assess operator workload, since they can be practically applicable. As human–machine systems have become more complex and automated, evaluations based on the operator's performance have become difficult, and the need for assessing mental workload subjectively has become critical (Rubio et al., 2004). Subjective workload measures quantify the effort put forth during task performance by using numerical ratings that do not attempt to directly measure task performance or physiological responses to work (DiDomenico & Nussbaum, 2008). There are many subjective procedures to measure mental workload. The most outstanding ones are the Cooper-Harper Scale, the Bedford Scale, the SWAT (Subjective Assessment Technique) and the NASA-TLX (Task Load Index). Recently Tsang and Velazquez have proposed a new subjective workload assessment instrument (Workload Profile), which signifies to be a technique with an elevated diagnosticity. This wide range of techniques for the evaluation of subjective mental workload causes confusion among psychologists who very often lack the information to choose the assessment technique that best fits the situation under study (Rubio et al., 2004).

2.7.3. NASA-TLX

The NASA-TLX is a subjective multi-dimensional assessment tool that measures perceived workload. This tool provides a method by which specific sources of

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workload relevant to a given task can be determined and considered in computing a global workload rating (Hart & Staveland, 1988).

The NASA-TLX is widely used in ergonomics and it is common practice to sum the individual scale scores to obtain an overall index of task demands (Bridger & Brasher, 2011). It is quite easy to use and reliably sensitive to experimentally significant manipulations. NASA-TLX was initially designed for use in aviation, but its use spread next to different domains such as military, automobile drivers, the medical profession, users of computers or personal, portable technologies (Hart, 2006). It can be administered either verbally, by paper-and-pencil, or by computer. During 20 years after it was developed, almost in 550 studies NASA-TLX was used or reviewed (Hart, 2006).

2.7.3.1 The Development and Theoretical Rationale for the Scale

"In comparison with other workload assessment methods, subjective ratings may come closest to tapping the essence of mental workload and provide the most generally valid and sensitive indicator." (Hart & Staveland, 1988)

The NASA-TLX was developed by Hart and Staveland (1988). According to them, factors influencing experiences of workload vary between tasks and between individuals since workload is not uniquely defined by the objective properties of the task demands; workload ratings also reflect perception of the task.

Hart and Staveland performed an extensive analysis in order to determine the major factors affecting subjective experience of workload for different people (Hart, 2006). At last, they found 6 factors which best reflect experimental manipulations, and eventually NASA-TLX Scale consisted of these 6 subscales (mental demand, physical demand, temporal demand, performance, effort, frustration) which are rated by subjects. NASA-TLX rating scale definitions are presented in Table 2.1. The assumption is that some combination of these dimensions are likely to represent the

"workload" experienced by most people performing most tasks (Hart & Staveland, 1988).

Table 2.1 NASA-TLX Rating Scale Definitions (Hart & Staveland, 1988)

Title	Endpoints	Descriptions
MENTAL DEMAND	Low /High	How much mental and perceptual activity was required (e.g., thinking, deciding, calculating, remembering, looking, searching, etc.)? Was the task easy or demanding, simple or complex, exacting or forgiving?
PHYSICAL DEMAND	Low /High	How much physical activity was required (e.g., pushing, pulling, turning, controlling, activating, etc.)? Was the task easy or demanding, slow or brisk, slack or strenuous, restful or laborious?
TEMPORAL DEMAND	Low /High	How much time pressure did you feel due to the rate or pace at which the tasks or task elements occurred? Was the pace slow and leisurely or rapid and frantic?
PERFORMANCE	Good/poor	How successful do you think you were in accomplishing the goals of the task set by the experimenter (or yourself)? How satisfied were you with your performance in accomplishing these goals?
EFFORT	Low/High	How hard did you have to work (mentally and physically) to accomplish your level of performance?
FRUSTRATION LEVEL	Low /High	How insecure, discouraged, irritated, stressed and annoyed versus secure, gratified, content, relaxed and complacent did you feel during the task?

Although the index is not intended to be used for measuring physical workload, physical demand is included in NASA-TLX as a subscale. Through this subscale, it is aimed to observe the potential effect of physical activity on the perception of mental workload (DiDomenico & Nussbaum, 2008).

Conventionally, the subscales of the TLX are weighted in order of importance and the scale scores multiplied by the weights are then summed to give the overall TLX

score (Bridger & Brasher, 2011). During the years after it was designed, NASA-TLX was modified by eliminating the weighting process. In this way, six dimensions would equally affect the overall workload score. Modified NASA-TLX has been called as Raw TLX (RTLX) and has gained some popularity since it is simpler to apply; the ratings are simply averaged or added to obtain an estimation of overall workload. In the 29 studies in which modified NASA-TLX was compared to the original NASA-TLX, it was found to be either more sensitive, less sensitive, or equally sensitive (Hart, 2006).

Research report two drawbacks of the conventional method: it is superfluous and it is intrusive. The unweighted TLX score, on the other hand, was found to be psychometrically impure (Bridger & Brasher, 2011).

DiDomenico and Nussbaum (2008) performed additional analyses on modified NASA-TLX scores in their study. NASA-TLX scores were calculated without weights. At last, they supported some other studies in which it had been previously shown that the weightings do not significantly affect the resulting workload scores (DiDomenico & Nussbaum, 2008).

2.7.3.2 Calculations for Finding An Overall Mental Workload Score

Conventional NASA-TLX: In "Conventional NASA-TLX" (or "Weighted NASA-TLX"), twenty step bipolar scales are used to obtain ratings for these dimensions. A score from 0 to 100 is obtained on each scale. After that, respondents are asked to weight factors by choosing one of them (preferred one gain one point) in each pairwise comparison. That is, each paired comparisons require the respondent to choose which dimension is more relevant to workload. Totally 15 comparisons are performed since there are 6 dimensions. The weighting of that factor scale is equal to the number of times a factor is chosen as more relevant. Therefore, sum of weights at the end of the weighting process is 15. Scores obtained from marks of respondents on each subscales and being out of 100 multiplied with the weight of this subscale. Weighted subscale scores are summed, and this summation is divided by 15.

Through this calculation, a total workload score being from 0 to 100 is obtained (Rubio et al., 2004).

RTLX: As distinct from Weighted NASA-TLX, in "Raw-TLX (RTLX)" (or "Unweighted NASA-TLX"), procedure of calculations does not include a weighting process. Scores of each subscale are summed, and divided by 6 because of the 6 subscales. This averaged score being out of 100 gives us a global mental workload score.

2.7.3.3 Comparisons with Other Subjective Workload Assessment Tools

In many studies, NASA-TLX is compared with other well-known scales or it is got as the reference while developing a new workload assessment tool. In this way, reliability and validity of the new tool can be tested through this reliable and valid tool.

NASA-TLX ratings are obtained quickly. In addition, it takes no more than two minutes to obtain the weights for each different type of task. Hart and Staveland (1988) also point out that this scale is a practical tool to apply in operational environments and data analysis is easier to perform than it is with SWAT, which requires a specialized conjoint analysis program (Hart & Staveland, 1988).

In the SWAT technique, only three discrete values (low, medium or high) are assigned to each factor although the scale provided by the conjoint analysis procedure contains interval workload ratings that range from 1-100. According to Hart and Staveland (1988), the use of only three scale values significantly reduces the sensitivity of this instrument. Moreover, word labels for each interval used in SWAT may be risky since each may connote unequal subjective category widths. As a result, although the strength of the SWAT technique resulted from the fact that it provides an interval scale of workload by virtue of the conjoint analysis technique employed, the practical cost of the procedure and the limitations on the range of rating values limits its utility (Hart & Staveland, 1988).

In their study, Rubio et al. (2004) compare each of three instruments for the subjective evaluation of mental workload, the NASA-TLX, the SWAT, and the Workload Profile (WP) with the others in terms of their sensitivity, diagnosticity, validity, intrusiveness, implementation requirements, and operator acceptability that are the requirements for a suitable assessment tool. According to the results of the study, no differences were found in terms of intrusiveness between three instruments. That is, since questionnaires are administered following the task performance, interference of these instruments with performance is almost negligible. NASA-TLX is slightly more sensitive to changes in the objective difficulty of tasks than the other two instruments. It was determined that there was a very high convergent validity between them. In other words, positive correlation coefficients near to 1 were found between the three measures. According to the results, NASA-TLX has higher concurrent validity, since it shows a high correlation with performance. Conversely, the correlations with performance are lower for SWAT and WP. The study also showed that WP had the highest diagnostic power. It has a much higher discriminant power. The three instruments are accepted willingly, although there were some problems concerning comprehension of the dimensions in the WP. With respect to SWAT, the ranking task prior to the performance of the experimental tasks was proved wearisome (Rubio et al., 2004).

CHAPTER 3

METHODOLOGY

In this thesis, questionnaire technique was preferred in order to collect data for the assessment of job satisfaction. Although it is known that more extensive information can be got by interviews, it was not conducted since it is time consuming, hard to standardize responses and measure them. Also, it was taken into account that respondents would not be honest enough in their responses to interview questions due to the need for identity privacy.

3.1. Preparation of the Questionnaires

3.1.1. Job Satisfaction Questionnaire

After a comprehensive literature review, in order to utilize for measurement of job satisfaction, Job Satisfaction Survey (JSS) developed by Spector was found (Spector, 1997). Firstly, one of the most important reasons of this choice was that JSS was proved to have a high reliability and validity. Also, it was considered that this instrument was more suitable for implementing in a public sector compared to other well-known job satisfaction scales since it was originally developed for social service sector which can be regarded as very similar to the sector the institution serves in. The questions of this survey were well-built for searching satisfaction levels of public sector employees. Not only cognitive evaluations of employees but also feelings and emotions of them on their works can be measured by JSS. In this way, it allows for a multiple perspective to the researchers. A job satisfaction questionnaire for performing in this institution was developed based on JSS.

During the preparation of job satisfaction questionnaire, 36 items of JSS were not changed, but additional questions were added in order to close the gaps of JSS and take into account the factors which are specific to this institution. Thus, the

questionnaire consisting of 70 questions was formed (see Appendix A). Some of additional questions which are formed because of special factors to the institution or based on information obtained from literature review were included in the existent dimensions. By adding questions which are related with different aspects of intended dimensions and asking some statements both positively and negatively, it was aimed to increase internal consistency in each factor.

Turkish version of the JSS which was translated by Sun (2002) was used in this study. Sun (2002) applied it in another public institution and obtained almost the same factors with Spector's dimensions as initially constructed, and showed this as evidence of validity.

The questions included in the questionnaire were formed three groups of questions. The first group consists of JSS questions (34 items) translated to Turkish by Sun (2002). Some of them (2., 18., 28., 41., 68.) are translations of Arap, Bulut, Doğan, & Tekinbaş (n.d.) who investigated job satisfaction level of employees working in a vocational school. Although the original JSS contains 36 items, two of them are not included in our questionnaire since it was considered that it was not proper for this organization or it was redundant. The question of "I feel unappreciated by the organization when I think about what they pay me" was excluded from the questionnaire since the amount of pay is decided by the government, not by the organization. Also, only the item of "İş yerindeki kurallar işi hakkıyla yapmamı zorlaştırmaktadır" was asked to the participants so that it corresponds to the statements of "My efforts to do a good job are seldom blocked by red tape" and "Many of our rules and procedures make doing a good job difficult", since it is considered that this question covers both of two items in terms of the meaningfulness and the purpose. The second group of questions (10., 14., 32., 40., 46., 47., 48., 50., 51., 52., 55., 56., 61., 62., 64.) are the additional statements which are not included in JSS but suggested/used by Sun (2002) through open-ended questions and integrated into her questionnaire. These questions were used since they are regarded as suitable for this institution as well by considering similar conditions of two organizations. Moreover, Sun (2002) improved internal consistencies of Spector's dimensions

through these questions. In Sun's (2002) study all questions were evaluated by experts in terms of clearness and reflectivity of intended dimension. In this way, content validity was aimed to increase. Therefore, to receive expert opinions once more was unnecessary. Lastly, the rest of questions (q11, q12, q13, q22, q33, q34, q35, q36, q37, q49, q53, q54, q58, q59, q60, q63, q65, q66, q67, q69) were prepared by us in order to fill in the missing parts of the questionnaire based on the literature survey and by taking into account special points to this organization. For preparing the questions including the specific points, it was taken the advantage of familiarity to the institution in terms of policies, opportunities, conditions etc. acquiring by observations, conversations with immediate surroundings at work and self-experiences. Whether these questions can be understood clearly as intended was tested by performing a pilot study on 10 employees.

Table 3.1 Proposed Dimensions and Questions before Factor Analysis

INITIAL QUESTIONNAIRE	
PAY	1, 23*, 47*, 57
PROMOTION	2*, 21, 24, 44
SUPERVISION	3, 20*, 25*, 43, 48, 58
FRINGE BENEFITS	4, 26, 42*, 45
CONTINGENT REWARDS	5*, 19*, 22, 27, 41*, 46, 49
OPERATING CONDITIONS	6*, 28*, 40*, 50*, 62, 65*
CO-WORKERS	7*, 17, 29*, 39*, 51, 55, 61
NATURE OF WORK	8*, 16, 18*, 30*, 38*, 52, 63, 64, 66, 67, 69
COMMUNICATION	9*, 15*, 31*, 37*, 53, 68
WORKING CONDITIONS	10, 32, 36, 54
AUTONOMY	56, 59, 60
JOB SECURITY	12, 34
PERSONAL GROWTH/DEVELOPMENT	11, 13*, 33, 35

   * Reversed scoring questions

Since JSS does not cover all work factors existing as antecedents of job satisfaction in the relevant literature, four dimensions (working conditions, personal growth

opportunities, job security and autonomy) were added as well as original nine dimensions. In this way, lack of "autonomy" and "growth/development" dimensions in JSS criticized by Van Saane (2003) was tried to be overcomed. Moreover, job security factor which gained importance in recent years was integrated to the proposed model of factors affecting to job satisfaction. Working conditions were also added into the proposed model as another factor based on the relevant literature mentioned in the previous section. Working conditions was found as a factor itself in Sun's (2002) study, as well. In the questionnaire, the point of "flexible working hours" evaluated under the "working conditions" dimension was investigated by asking ease of and flexibility in hourly leave for much needed cases. Thus, expected factors and related question numbers are presented in Table 3.1. Asterisks mean reversed scoring questions. The scoring was based on a 5-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree".

At the beginning of the job satisfaction survey, demographic/personal information also was asked. Only demographic factors (age, gender, marital status and educational level), title and tenure were included in the questionnaire as independent variables, personality factor was ignored. Additionally, department variable was taken into account in order to reveal whether different task types influence satisfaction levels. At the end of the survey, general job satisfaction level was asked by using single item which has 10-point categorical scale. As mentioned earlier, it was aimed to compare results from global scale with a single item and from other scale with 69 items based on facet approach. The last item was generated as 10-point categorical scale instead of 5-point since the more number of category was, the more it could be easier to distinguish differences between groups which were analyzed.

3.1.2. Mental Workload Measurement Tool – NASA-TLX

Because the main interest was actually subjective psychological experiences of employees rather than the amount of work and number of things they fulfilled, a subjective workload assessment technique was used to measure perceived mental workload of employees. Perceptions, feelings and thoughts related with workload

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and its dimensions are more important in this study so that how these subjective assessments influence evaluations of job satisfaction in general can be examined. Among rating-scale techniques, NASA-TLX Workload Index developed by Hart & Staveland (1988) was chosen for this study because of its superiority to other tools and ease of use. Unweighted version of it was preferred, since it is simpler to apply and it is as reliable as the weighted one according to the relevant literature as mentioned in the "Literature Review" part. By contrast with the JSS, this scale was not revised, and its original version was used. It was administered by paper and pencil. Hart and Staveland (1988) looked at the effect of administering the NASA-TLX either verbally, by paper-and-pencil, or by computer. The correlations among the three methods were very high: computer vs verbal = .96, computer vs paper/pencil = .94, and verbal vs paper/pencil = .95. This scale (See Appendix A) was attached to the job satisfaction questionnaire. NASA-TLX consists of six questions, corresponding to six subscales (mental demand, physical demand, temporal demand, performance, effort, frustration). Participants were asked to mark any of twenty intervals on the continuous scale in order to respond to each of these questions. Although there is no numerical expression on the scale, in the calculation process, first interval which is near to low/poor and the last interval which represents high/good as a response (extreme intervals) are regarded as 5 points and 100 points respectively. It means that each interval values five points. Only performance subscale is scored reversely.

In some studies NASA-TLX is performed two times or more in a working day at predetermined time intervals, but in this study NASA-TLX was applied once at the end of a workday since we are not interested in the variation of work load during the day.

3.2. Execution of the Surveys

This study was conducted on employees working in a directorate of the institution. The reason for being limited to one directorate is difficulties in obtaining the

necessary permissions from top management for administering questionnaires in all departments.

After preparation of questionnaires, they were copied and distributed to 100 employees working in 13 departments under the same directorate hierarchically. Paper-based questionnaire was preferred. While 10 of these departments consist of teams that mainly organize scientific evaluations of scientific projects, the other three divisions are responsible for administrative affairs and coordination related with these projects such as applications, formal evaluations, publicity and funding related financial issues. Questionnaires were not given to managers who administer these departments, since head of all these managers is the same person. If managers of 13 departments were included in this study, supervision related questions would address to judge one person in a way out of its intended. Paper-based questionnaires were delivered by hand, thus important instructions were told to participants face to face. Despite detailed explanations, some people thought that this study is a duty assigned by managers, so they rejected to fill the questionnaires. Therefore, only the responses of people who are volunteers were gathered. Questionnaires were distributed to all departments in the same day approximately at 4.30 pm. It was emphasized to participants that two questionnaires must be responded serially, so that effects of perceived workload on general satisfaction can be analyzed. Also, it was told that the questionnaires would be collected at the end of the working hours. Questionnaires were not given to people who are engaged in something in that time. If these people are voluntary for participation, the questionnaires were given in the next day at the same times to them. Thus, the time interval questionnaires were conducted was controlled. All data was obtained in two days. Eventually, 91 surveys were collected. Participants were asked to drop the survey sets they responded in a box provided at their work place. In this way, anonymity of the responses is secured. Three of the responses were excluded from analysis, since one of them thrown in the box was unfilled, in one of them all alternatives were marked for all questions asking demographic information, and in the last one it was realized that the respondent ticked in two different intervals on the same subscale of NASA-TLX. Finally, 88 questionnaires were remained for statistical analysis.

In the period when this study was conducted, all funding groups/teams were very busy since it was the term of panel discussions for scientific evaluations of research projects which were organized and conducted by the group members, while other departments are less busy. In this way, effects of differences in workload levels between individuals would be able to be observed as purposed.

3.3. Statistical Analysis

All data collected through the questionnaires were analyzed statistically by using SPSS 21.0 software program. In order to determine factor structure of the questionnaire, factor analysis was performed. Whether there is any difference in satisfaction levels when demographic variables are considered was investigated by applying variance analysis. At last, probable relationships between perceived mental workload or its dimensions and general job satisfaction were searched through some correlation tests, and types of the relationships, if there is any, were examined.

Before presenting the findings, it is worth a brief mention about concepts of validity and reliability.

3.4. Concepts of Validity and Reliability

"The principles of validity and reliability are fundamental cornerstones of the scientific method." (Shuttleworth, 2008) There are many uses of validity in the literature. Most frequent used ones are given below:

Content validity: is the estimation degree to which a measure covers every single element of a construct (Shuttleworth, 2009). According to Altaban (2013), "an instrument is content-valid if each question reflects the intended latent variable, and this can only be assessed through suitable references as expert opinions and literature surveys".

Construct validity: defines how well a measurement tool (scale, test etc.) measures up to its claims (Shuttleworth, 2009). Factor analysis is the most commonly used method to assess construct validity (Altaban, 2013).

Convergent validity: "tests that constructs that are expected to be related are, in fact, related." (Shuttleworth, 2009) In other words, it tests that items which are expected to be correlated and to form a latent variable (a factor in factor analysis) together are, in fact, correlated and form a latent variable (Altaban, 2013).

Discriminant validity (divergent validity): "tests that constructs that should have no relationship do, in fact, not have any relationship." (Shuttleworth, 2009) In other words, it tests the ability of different latent variables measuring different aspects (Altaban, 2013).

According to Shuttleworth (2008), "reliability is a necessary ingredient for determining the overall validity". Reliability can be referred to as consistency of a measurement. Moreover, a reliable scale must consist of a sufficient number of questions, and these questions must be capable to reveal accuracy of study, correlated with each other and consistent. There are many techniques used for reliability analysis. Commonly used one is Alpha Model (Cronbach alpha coefficient) analysis. It investigates whether k questions which form a scale represent a whole having a homogeneous structure. Cronbach alpha coefficient shows the degree of similarities between questions in scales in which total score is obtained by summing scores/points of all questions. Reliability of scale can be interpreted in the light of the following information after obtaining the value of cronbach alpha coefficient:

- If $0.00 \leq \alpha < 0.40$, then the scale is not reliable,
- If $0.40 \leq \alpha < 0.60$, then reliability of the scale is low,
- If $0.60 \leq \alpha < 0.80$, then the scale is quite reliable,
- If $0.80 \leq \alpha < 1.00$, then the scale is highly reliable (Kalaycı, 2008).

In addition to Cronbach Alpha Model, some other models such as Split Half Model, Guttman Model, Parallel Model and Strict Parallel Model can be used for reliability analysis.

CHAPTER 4

RESULTS

4.1. Findings about Demographic Properties of Participants

Demographic properties of participants and general information about them are examined in this part. Frequencies of these categorical variables are presented in the Table 4.1. According to results, it can be clearly seen that almost half of participants are between 25 and 29 years old. Second ranked age group in terms of number of people is 30-34. In other words, most of the participants are young people (%83 of them are less than 40). Number of females and males are almost the same. Number of married and single people is also well balanced. Approximately, %64 of people has post graduate degree, so it can be said that sample consists of highly educated people. Since participants are generally young people, the most frequently seen title is scientific programs assistant expert, as expected. Cumulatively half of the participants' are assistant experts (Scientific programs assistant expert or assistant expert). "Other" category consists of secretaries and some other positions given to people graduating from high school or having associate degree. Moreover, almost %62 of people has been working for less than or equal to 5 years for this institution. Tenure was not asked categorically, so mean value of it could be obtained (mean value of tenure = 5.89 years). 10 of the 13 divisions in the directorate are research funding groups, so almost %79 of people work in these departments. The category of "Other" contains 3 divisions which are mentioned before.

Table 4.1 Frequencies of Demographic Variables

		Frequency	Valid Percent	Cumulative Percent
Age	20-24	2	2,3	2,3
	25-29	42	47,7	50,0
	30-34	20	22,7	72,7
	35-39	9	10,2	83,0
	40-44	4	4,5	87,5
	45-49	7	8,0	95,5
	≥50	4	4,5	100,0
Gender	Female	42	47,7	47,7
	Male	46	52,3	100,0
Marital Status	Married	47	53,4	53,4
	Single	41	46,6	100,0
Educational Level	High School	1	1,1	1,1
	Associate degree	1	1,1	2,3
	Undergraduate degree	30	34,1	36,4
	Master degree	42	47,7	84,1
	Doctorate degree	14	15,9	100,0
Position/Title	Assistant Expert	9	10,2	10,2
	Scientific Programs Assistant Expert	35	39,8	50,0
	Expert	7	8,0	58,0
	Scientific Programs Expert	17	19,3	77,3
	Chief Expert	7	8,0	85,2
	Scientific Programs Chief Expert	7	8,0	93,2
	Other	6	6,8	100,0
Tenure	0-2 years	29	33,0	33,0
	2-5 years	26	29,5	62,5
	5-10 years	22	25,0	87,5
	10-15 years	3	3,4	90,9
	> 15 years	8	9,1	100,0
Department	Research Funding Teams	69	78,4	78,4
	Other	19	21,6	100,0

Frequencies of a demographic factor should be well balanced for better comparisons between groups in this independent variable. Therefore, in order to compare the categories in each demographic variables with each other, new categorical variables including groups formed by combining two or more categories were defined so that sample size of groups get close to each other as far as possible. For example, the variable of age was redefined as a new variable in which two age groups exist. First group consists of people younger than 30 years old and the second group implies older workers than those in the first group.

4.2. Findings about Job Satisfaction

4.2.1. Factor Analysis

Exploratory factor analysis was used in order to determine factor structure of data collected through the job satisfaction survey. Principal component analysis (PCA) which is commonly used in similar studies was chosen to determine factors.

In PCA, the first factor explained maximum variance between variables is determined. After that, the second factor is computed in order to explain remained maximum variance, and the process continues in this way. At the end of PCA procedure, factors which are not highly correlated with each other are obtained. In other words, factors are orthogonal.

Before performing PCA, it was tested whether data set is available for factor analysis. Factor analysis assumes that all variables and all linear combinations of these variables come from normally distributed population (multivariate normal distribution). If this assumption is hold, the worth of the solution increases. Otherwise it decrease, but it is still valuable (Büyüköztürk, 2002). In this study, normality assumption for all 69 variables is omitted. However, total score obtained from 69 questions was proved to come from normal distribution (Sig. value of Shapiro-Wilk test is 0.919).

Also, it was apparent that sample size was relatively small to perform highly dependable factor analysis since it is under 100. In the relevant literature researchers state that in order to obtain reliable factors sample size must be at least two times of number of variables. On the other hand, it was proposed that a sample which forms 200 people is sufficient for factor analysis, and it can be decreased to 100 if number of factors is small and factor structure is clear (Büyüköztürk, 2002). Moreover, Wuensch (2013) states that larger sample size, higher communalities, high over determination (each factor having at least three or four high loadings) and simple structure (few, nonoverlapping factors) each increase chances of faithfully reproducing the population factor pattern. Also he proposes that strengths in one area can compensate for weaknesses in another area. According to him, if initial communalities are high (>0.60), fewer than 100 subjects can be used. In this study, since all initial communalities were more than 0.60 (see Table B.1), this factor analysis was used despite small sample size. Additionally, there are two statistical tests for assessment adequacy of sample size. One of them is KMO (Keiser-Meyer-Olkin) index which is used for testing adequacy of sample size. If the value of KMO test statistics is less than 0.50, then data set is not suitable for factor analysis because of inadequacy of sample size (Kalaycı, 2008). As seen in Table 4.2, the result of KMO test was found as 0.55 in this study. Although this ratio implies reliability of factor structure obtained at the end of the analysis is poor, it is not an unacceptable value. The other one is Bartlett test used for testing null hypothesis which proposes correlation matrix is an identity matrix. If significance value is smaller than 0.05, null hypothesis is rejected. It means that there are high correlations between variables, and data set is available for factor analysis. The result of Bartlett test in this study shows that correlation matrix is not an identity matrix since p-value (Sig.) is less than 0.05, so data set is available for factor analysis. Correlation matrix for all variables can also be used for testing availability of the data for factor analysis, and high correlations are desired between variables. However, it was not preferred this technique since it would be hard to interpret due to the high number of variables (69 variables). KMO and Bartlett test results were considered sufficient before performing factor analysis.

Table 4.2 Results of Compliance Tests for Factor Analysis

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,550
	Approx. Chi-Square	4632,739
Bartlett's Test of Sphericity	Df	2346
	Sig.	,000

Factor loading is a coefficient which explains relationship between item and factor. It was expected that items have high loadings in factors they are included in. A factor loading/coefficient which is higher than 0.60 implies a strong relationship between factor and item, and a coefficient which is between 0.30 and 0.59 shows a moderate relationship. If there is a set of items which highly correlated with one factor, it means that these items measure the same latent variable/structure/factor together. Also, before performing PCA, it was expected that a variable is correlated with only one factor. This type of variable is called pure variable. On the other hand, a variable which is correlated with more than one factor is defined as complexity variable. Observed variables having high loadings only in one factor and low loadings in other factors facilitate interpretation and denominating of factors (Büyüköztürk, 2002). Therefore, it was made a point of that difference between the two highest loadings should be more than 0.1 (Yaşaroğlu & Akdağ, 2013).

At first, in the initial solution 18 factors were found by SPSS. However, some items were excluded from the analysis one by one if their loadings are nearly the same in two or more factors or if they generate a factor by itself. PCA was done each time again with remained items/variables. Moreover, items whose the highest factor loading is less than 0.30 were not included in the analysis. Exclusion procedure was started with the item in which difference between factor loadings is the smallest, and continued in this way (Yaşaroğlu & Akdağ, 2013) until there is no item having loading value which is less than 0.30, and no item whose the highest two loadings are closer than 0.1 point exists, and no item forming a factor by itself remains. Eventually, 26 items were excluded and 43 items were remained for the analysis. During the analysis, in each PCA implementation, varimax rotation technique which

is one of the orthogonal rotation techniques was used in order to gain more interpretable factors since there was a structure with many factors. Varimax rotation allows for maximum factor variances (Yaşaroğlu & Akdağ, 2013). On the other hand, quartimax technique which is another orthogonal technique is preferred when it is believed/foreseen that there is a general factor which explains most of the variance (Büyüköztürk, 2002). In this study, an orthogonal rotation technique was used because we are interested in generalization of the results for the future studies rather than results which are best fit with data in this study.

As a result, final rotated component matrix given in Table 4.3 contains 43 questions. Components whose eigen values are greater than 1 can be interpreted as factors. Sum of Eigen values is equal to number of variables. In this way, variance explained by one factor is equal to the value calculated by dividing Eigen value of the factor by number of variables. Although rotated component matrix given below shows that there are 11 components having Eigen values which are greater than 1, 10 explainable factors are obtained from this analysis since no items loading in a highest way were found in the 11st component. These 10 factors explain approximately %70 of total variance.

Scree plot and tables of total variance explained and communalities obtained from factor analysis are given in Appendix B. In the scree plot, it can be seen that the line almost becomes horizontal after the 10th point. Also, communalities of all variables are greater than 0.50.

After the exclusion process, KMO ratio was found as 0.74 and Bartlett test gave the same result. The increase in KMO value can result from exclusion of items having low communalities from the analysis.

The residual correlation matrix equals the original/observed correlation matrix minus the reproduced correlation matrix. These residuals are desired to be small (Wuensch, 2013). In this study also it was observed that values in the residual correlation matrix formed by 43 variables are very close to zero. This indicates a good factor analysis.

Table 4.3 Final Rotated Matrix

	Component										
	1	2	3	4	5	6	7	8	9	10	11
q30	.856										
q8	.823										
q64	.798										
q63	.780										
q52	.779										
q38	.766										.373
q16	.717										
q6	.708										
q69	.686			.318							
q40	.558			.322							.359
q13	.520								.329		
q31	.505							.356			.312
q43		.810									
q3		.801									
q25		.775									
q20		.701	.411								
q58		.667				.341					
q48		.665									
q39			.767								
q61			.762								
q29			.712			-.381					
q55			.705								
q17		.335	.695								
q2				.777							
q44				.746							
q46				.685							
q19		.422		.527		.330					
q41				.510				.353			.402
q45					.834						
q26					.815						
q42					.814						
q60	.320					.725					
q59	.373					.690					
q56						.677					
q36							.749				
q14							.737				
q54			.302				.591				
q12								.814			
q34	.398							.681			
q23									.836		
q1									.704		
q10										.779	
q68	.348									.626	

Extraction Method: Principal Component Analysis**. Rotation Method:** Varimax with Kaiser Normalization.
*Loadings which are greater than 0.30 are only presented in the table. Rotation converged in 8 iterations

Also, correlation matrix between 10 factors obtained from factor analysis was controlled, and it was seen that all correlations are less than 0.60 as intended by PCA at first. Since there was no correlation more than 0.80 regarded as high (Pınar et al., 2008) between factors, any problematic situation was not observed and it was continued to perform other analysis.

Denominating factors is the last phase of exploratory factor analysis. In order to compare factor structure which was found in this study to Spector's dimensions, similar factor forms were called in the same way. In other words, while giving a name to each factor, names of Spector's dimensions were utilized.

Questions numbered 30, 8, 64, 63, 52, 38, 16, 6, 69, 40, 13 and 31 grouped under the first factor which explains % 17.056 of total variance. Although a few questions grouped under this factor are related with operating conditions and personal growth, it mostly contains content/nature of work related questions. These questions aim to measure perceptions of employees about job characteristics such as task variety and task significance, hereby challenging and meaningfulness of the work. Therefore, this factor can be called "nature of work".

Questions loading highest in the second factor are related evaluations of employees about their immediate supervisor. Since this factor corresponds to Spector's supervision dimension, it was called "supervision". This factor explains % 9.775 of total variance.

Questions numbered 39, 61, 29, 55 and 17 and forming the third factor are about relationship with co-workers and support from them, so this factor which explains % 8.107 of total variance was named as "co-workers".

The fourth factor contains promotion and reward related questions numbered 2, 44, 46, 19 and 41. Although these dimensions are included separately in the structure proposed by Spector (1997), in this study they grouped under the same factor. Some

employees might have considered promotion as reward. Consequently, this factor was decided to be called as "promotions and rewards".

Three items (45, 26 and 42) examine fringe benefit satisfaction of workers in terms of quality and adequacy of benefits offered by the organizations, so the fifth factor was named as "fringe benefits".

The items 60, 59 and 56 related with perceived control on one's own work formed a separate factor as proposed. Therefore, it will be mentioned as "autonomy" in the following part of the analysis.

The items 36, 14 and 54 implying working conditions such as physical working environment and flexibility of working hours generated a factor by themselves, so it could be called as "working conditions".

Item 12 and item 34 which question perception of "job security" formed a separate factor as predicted before.

"Pay" factor contained two items, 23 and 1, measuring satisfaction with current salary increases and increase opportunities.

Finally, item 10 and item 68 which question satisfaction with social environment offering social, artistic or sport-related activities/opportunities and communication formed a factor. The former one had been included in the working conditions factor, and the other item had been considered as a component of communication dimension at first. However, these two items formed one factor in this analysis. This finding showed that respondents might have perceived the opportunities mentioned in the question which was related with social work environment as an instrument of good informal communication with other workers. Therefore, it was named as "social work environment".

This factor structure which was obtained from factor analysis and consists of 10 dimensions is substantially similar to the structure proposed by Spector (1997). As proposed at first, autonomy, job security and working conditions occurred as separate factors. None of the three autonomy related questions and two job security related questions which were subsequently added into the questionnaire was excluded, over and above, they formed separate factors by themselves.

4.2.2. Validity of the Job Satisfaction Questionnaire

In this study, the questions used in Sun's (2002) study were preferred since they had been formed and included in the questionnaire after receiving opinions from scale experts. In this way, it had been aimed to increase content-validity. Moreover, Sun (2002) revealed a factor structure which was similar to Spector's dimensions as proposed at the beginning of her study. This was an implication to construct validity. In this study, during iterative factor analysis 26 questions were eliminated. Final factor structure formed by remaining items has shown that three dimensions (autonomy, job security and working conditions) proposed at first based on the literature surveys came out as separate factors as expected. In other words, proposed model and obtained model are similar in this study, and this is an indicator of validity. Moreover, according to literature, if factors explain more than %50 of total variance, this contributes to validity of the questionnaire. In this study, total variance explained by 10 factors obtained from factor analysis is approximately %70, so it can be said that the questionnaire is valid.

As a result, an extensive literature survey about main theories and antecedents of job satisfaction was done in order to cover all related items in the target research domain. In this way, content validity of the questionnaire was tried to increase. Moreover, obtained factors are similar to dimensions proposed in the lights of an extensive literature survey. This finding supports construct validity of the final questionnaire. Also, factor analysis discipline already tries to hold convergent validity by collecting correlated items under one factor and to hold discriminant validity by generating factors which are not strongly correlated. On the other hand, some additional

questions could not be integrated to the targeted latent variable and either excluded from the questionnaire or included in another factor unexpectedly.

4.2.3. Reliabilities of the Factors

All dimensions obtained from factor analysis can be analyzed separately. Therefore, each factor should be tested for its reliability. In this study, Cronbach Alpha Model which is commonly used for testing reliability was used.

As a result, cronbach alpha coefficient of the final job satisfaction questionnaire consisting of 43 questions is 0.93. Also, alpha coefficients of all dimensions which form factor structure of this survey (nature of work, supervision, co-workers, promotions & rewards, fringe benefits, autonomy, working conditions, job security, pay, and social work environment) were found as 0.93, 0.88, 0.84, 0.81, 0.85, 0.76, 0.67, 0.69, 0.72 and 0.55 respectively.

According to Spector (1997), "two types of reliability estimates are important for evaluating a scale. First, internal consistency reliability estimates refer to how well items of a scale relate to one another. High internal consistency reflects the assessment of the same underlying variable. Second, test-retest reliability reflects the stability of the scale over time." (Spector, 1997) Spector (1997) tested the reliability of JSS by using both estimates. He found the alpha coefficient of the questionnaire as 0.91. Moreover, cronbach alpha coefficients were found as 0.75 for pay, 0.73 for promotion, 0.82 for supervision, 0.73 for benefits, 0.76 for contingent rewards, 0.62 for operating procedures, 0.60 for co-workers, 0.78 for nature of work, and 0.71 for communication. In addition, test-retest reliability scores ranged from 0.37 to 0.74. Consequently, it can be seen that alpha coefficients of factors regarding as subscales in this study are higher when compared with Spector's study. Increase in factor reliabilities can result from more number of items in each dimension.

Depending on the above discussions, it can be said that the questionnaire is reliable. Especially, factors of nature of work, supervision, co-workers, promotions and

rewards, and fringe benefits are highly reliable. Although factors of working conditions and job security environment have a little bit lower reliability, they can be interpreted as quite reliable scales in the light of information about reliability intervals of alpha coefficients mentioned above. However, reliability of social work environment factor is relatively low.

4.2.4. Mean Values of the Job Satisfaction Factors

Before computing descriptive statistics of factors, outlier analysis was done. Outlier analysis is used to indicate extreme (outlier) responses so that they can be excluded from analysis if necessary for more reliable results. Therefore, Box plots of all factors were examined. At first, only four outliers were determined in co-workers factor. After excluding them, the analysis was repeated. After 5 iterations, no outlier was remained, but sample size decreased in an undesired manner. Such a decline could not be tolerated because of too much missing values. Therefore, responses of these participants to other questions were observed. Because it was not doubted about any problematic situation (e.g. responding items without reading), four outlier responses were not excluded from the data. The same analysis was applied on data obtained from NASA-TLX, and results of this analysis are given in the next parts.

Table 4.4 Mean values of the job satisfaction factors

	N	Mean	Std. Deviation
nature of work	88	2,8428	,86791
supervision	88	3,6799	,75651
co-workers	88	3,7364	,74250
promotions and rewards	88	2,5114	,76043
fringe benefits	88	2,6212	,86537
autonomy	88	3,3295	,81257
working conditions	88	3,2727	,88487
job security	88	2,9716	,93881
pay	88	2,5227	,97353
social work environment	88	2,4489	,84091
Valid N (listwise)	88		

After the outlier analysis, descriptive statistics of 10 variables corresponding to factors obtained from factor analysis and defined as new variables later in SPSS were examined. Mean values of these new 10 variables can be seen in Table 4.4. By looking into mean values of all items included in each factor (see Appendix C), the areas which employees are especially satisfied/dissatisfied with were analyzed in detail.

Mean value of "nature of work" was found as 2.84. It means that employees generally are not satisfied with their works in terms of content. They think that their jobs do not give them the opportunity of using all of their skills and talents. They also think that, their jobs do not help for their personal development. According to most of them, their career related expectations are not met by this job. Moreover, they complain that they are engaged in too much paperwork. Almost half of them think that their jobs are meaningless, and %42 of them finds their jobs boring. Nevertheless, the mean value of the item "I like the things I do at work" is greater than 3. It was observed from the data that due to some latent subfactors people like the things they do at work and despite negations mentioned above they feel a sense of pride in doing their job. It can be expected since they think that their job is prestigious in society. This finding is obtained through the mean value of an excluded item (mean value of q67 is 3.49, and these two questions are significantly (p<0.001) and positively correlated with each other). Almost %35 of them wants to work on the same job in the future. Scores of the items related with ambiguity in task roles and goals are mediocre, so it can not be said that employees are satisfied with these points.

It is understood from the results of supervision factor that workers are satisfied with their immediate supervisors. They think that supervisors are fair to all subordinates, competent in doing their jobs, show interest in feelings, problems and work-related suggestions of subordinates. Therefore, employees generally like supervisors in this organization.

Similarly, relationships with co-workers are also good. Workers love their co-workers even more than they love their supervisors. They find them competent in doing their jobs, enjoyable in office environment, supportive and collaborative. Therefore, this factor is highly satisfactory for employees.

However, people working in this directorate are not satisfied with promotion and reward opportunities. According to them, rewards are insufficient, they have very low chances or too little opportunities for promotion, they do not feel recognized and appreciated when they perform well. In a word, they feel that their efforts are rewarded neither financially nor nonfinancially the way they should be.

Employees also find fringe benefits offered by the organization both insufficient and low qualified. When they compare the benefits offered by this organization to employees to benefits offered by other institutions to their workers, this institution stay behind other institutions.

Perceived control by employees on their own work is relatively high. They can participate to work-related decision making, they can decide how to perform their jobs, and they can solve work related problems by themselves.

The factor of "working conditions" is satisfactory for workers especially in terms of flexible working hours. They can leave easily if they really need. However, it could not obtain a predominant opinion about physical office conditions positively/negatively since mean values of the relevant items are close to 3.

It can be said that they feel insecure in this institution in terms of stable employment. Even if employees perform their tasks well, they can not be absolutely sure to be allowed to continue working for this institution.

Employees are not satisfied with pay in terms of amount of raises. Moreover, they are desperate about future prospects for increase according to result of the first question in the questionnaire.

Social work environment is not satisfactory in this institution according to employees. Especially, employees find social environments which allow for good relationships/friendships insufficient.

As a result, dissatisfiers for employees working in this directorate of the institution are "nature of work", "promotions and rewards", "fringe benefits", "job security", "pay" and "social work environment". On the other hand, satisfiers are "supervision", "co-workers", "autonomy" and "working conditions".

Mean value of the 70th item questioning overall satisfaction out of 10 point was found as 6.08. This finding also implies that employees are not very satisfied in general. The results given above and recommendations about them are discussed in detail in the Chapter 5.

Additionally, new variable which was called "total satisfaction" was defined in SPSS and scores of this the variable were calculated by summing points of all of 43 questions. Mean value of this variable was found as approximately 131 out of 215 (215 is obtained by multiplying number of questions and maximum score that can be given to an item). In other words, total satisfaction score is almost 6.09 out of 10. Therefore, it can be said that scores of "general satisfaction" and "total satisfaction" are almost the same.

4.2.5. Findings about Effects of Demographic Factors, Position, Tenure and Department on Job Satisfaction

This part examines whether there is a difference in total satisfaction levels when variables of age, gender, marital status, educational level, department, title and tenure are considered. In order to reveal total satisfaction differences, if any occurred, between all groups in each factors variance analysis (One way ANOVA) was performed. Instead of using the 70th question which was called "general satisfaction" as a variable, the variable of "total satisfaction" was preferred so that differences between groups can be easily distinguished.

There are two assumptions of One Way ANOVA. One of them is that each group comes from normal distribution. The second one is that variances of groups are relatively homogeneous. In both test, p values (Sig.) must be greater than 0.05 so that null hypotheses are not rejected. If the second assumption holds, it is assumed that both assumptions are valid (Kalaycı, 2008). In this study, normality test of total satisfaction score revealed that underlying distribution of this variable in each groups of independent variables is normal (see Appendix D). Results of homogeneity test of variances (levene statistics) are also presented in Table 4.5. According to these results, except for tenure variable, assumption of variance homogeneity held.

In order to have a meaningful analysis sample size in each group of independent variables are kept close to each other. Therefore, employees were divided into two groups in terms of age so that they had similar numbers of people (workers being younger than 30 years old and workers being older than or equal to 30 years old). Workers grouped into three categories in terms of educational level. Since there are a few people having high school or associate degree, they are integrated into the group of people having undergraduate degree. Other groups correspond to master and doctorate degree. The expression "scientific programs" indicates cadre of a person. Cadre of a worker having a title containing this expression is called AG, while other assistant experts, experts and chief experts have cadre A. Cadre is determined according to foreign language level certificate presented during hiring. If level is above the desired standard which is predetermined, the person is given AG cadre. People working in AG cadre are considered more qualified by the management, so they are paid more salary and given more salary increase and promotion opportunities. In the study, titles are grouped into three categories in terms of position regardless of cadre. Also, cadre variable containing two categories A and AG was formed. Worker groups in each two independent variables were compared with each other.

Table 4.5 Results of ANOVA (Independent Variables and Total Satisfaction)

		N	Mean	Std. Deviation	Homogeneity of Variance (Sig.)	ANOVA (Sig.)
Age	< 30	44	136,5	21,1	0.531	0.022*
	>= 30	44	125,5	23,1		
Gender	Female	42	125,8	23,9	0.349	0.038*
	Male	46	135,8	20,5		
Marital Status	Married	47	127,9	21,9	0.959	0.174
	Single	41	134,5	23,3		
Educational Level	<= undergraduate	32	133,7	21,3	0.882	0.052
	Graduate	42	133,4	22,3		
	Doctorate	14	117,6	23,5		
Department	Research Funding Teams	69	130,4	23,1	0.705	0.673
	Other	19	132,9	21,3		
Position (Title)	Assistant Expert/Scientific Programs Assistant Expert	44	135,9*	21,4	0.717	0.030*
	Expert/Scientific Programs Expert	24	128,0	23,9		
	Chief Expert/Scientific Programs Chief Expert	14	118,0*	22,1		
Cadre	A	23	130,0	17,8	0.134	0.885
	AG	59	130,8	24,9		
Tenure	0-2 years	29	139,5	22,8	0.039	0.018*
	2-5 years	26	132,9	18,7		
	5-10 years	22	120,3	26,2		
	> 10 years	11	125,5	13,7		

(*): Asterisks in the last column mean significant differences between groups.
Asterisks in the 4th column (Mean) show which groups are different from each other in terms of total satisfaction.

As seen in Table 4.5, total satisfaction level of people in predefined groups of age, gender, position and tenure is significantly different than each other (Sig. value is less than 0.05). However, any significant difference was not identified among workers when marital status, educational level, department and cadre were considered. If there are two categories in a variable, it can be easily interpreted in

which group people are more satisfied in general by looking into mean values of total satisfaction these groups. If there are more than two groups, in order to determine which groups are significantly different from each other post-hoc analysis must be performed. Thus, for position and tenure this analysis was applied.

According to results of ANOVA, people who are younger than 30 years are more satisfied than older people. Also, males are more satisfied than females in this directorate.

In post-hoc analysis applied for groups of position, Tukey HSD test was utilized. However, these tests can be used only if homogeneity of variance assumption holds. Otherwise, results of Tamhane's T2 should be used instead of Tukey/Bonferroni (Kalaycı, 2008). In this study, since the assumption is hold for position variable, results of Tukey test were viewed. Multiple comparisons table of three categories can be seen in Appendix E. According to this table, difference is between the first category and the third category. In other words, a significant difference between assistant experts and chief experts was seen. Chief experts are less satisfied with their jobs than assistant experts. Unlike, for analysis of tenure groups, results of Tamhane's T2 test were examined since assumption of variance homogeneity can not hold. Although general satisfaction levels of novices and people who have been working for 5-10 years are significantly different from each other according to results of Tukey test, these results can not be used for interpretation since variances are not homogeneous. According to the results of Tamhane's T2 test, there is not any difference between all groups in terms of general satisfaction level. Post-hoc analysis table of tenure variable is presented in Appendix E.

Consequently, values of homogeneity of variances are greater than 0.05 for all variables except for tenure, so it can be said that results are reliable.

In order to investigate effects of the same independent variables given above on the job satisfaction factors obtained from factor analysis, multivariate variance analysis (MANOVA) was performed. Effects of each independent variable on all satisfaction

factors were examined one by one. In addition to assumptions of ANOVA, MANOVA also assumes that covariance matrices of dependent variables are equal across groups. Therefore, this additional assumption also must hold in MANOVA. For this, Box's test of equality of covariance matrices is utilized. In this test, if Sig. value is greater than 0.05, null hypothesis is not rejected. Therefore, it is concluded that covariance matrices are equal. Levene's test is also used for testing equality of variances as performed in ANOVA.

Before performing MANOVA, normality tests were applied for each group of independent variables for all dependent variables (see APPENDIX D). It was seen that except for the variables of "nature of work" and "promotions and rewards", there is no dependent variable for which all groups of any independent variable come from normal distribution.

On the other hand, Finch (2005) compared the performance of a nonparametric alternative to one of the standard parametric test statistics (Pillai's trace) when the two assumptions of MANOVA (normality and homogeneous covariance matrices) are not met. He found that when the assumption of homogeneous covariance matrices is not met, the nonparametric approach has a lower type I error rate and higher power than the most robust parametric statistic. However, when the assumption of normality is untenable, the parametric statistic is robust, and slightly outperforms the nonparametric statistic in terms of type I error rate and power. He stated that "in no case does the nonparametric approach have higher power than Pillai's trace when only the distributional assumption is violated" (Finch, 2005).

Therefore, despite violation of normality assumption MANOVA was performed, and results were interpreted in the light of information above.

In MANOVA, null hypothesis is that at least two groups of the independent variable differ in terms of at least one factor (dependent variable). Results of multivariate tests, Box's test and Levene's test and Sig. values indicating in which factors employee groups differ are presented in Appendix F. Only the values of Pillai's trace statistics are presented as results of multivariate tests.

Even though Sig. values lower than 0.05 are marked in tables in Appendix F, significance level was limited to 0.01 (%99 confidence interval) while making interpretations.

According to this, it was observed that age groups differed in satisfaction level of supervision. Younger employees than 30 years are more satisfied with their supervisors than others ($p<0.001$).

Satisfaction levels related with nature of work and autonomy are different in females and males. Females are less satisfied than males, since they dislike work content and do not think that they have control over their own work.

Also, results showed that married people found promotion opportunities and rewards insufficient. Single people are not as dissatisfied as married ones about this factor.

Satisfaction with working conditions is significantly different between educational level groups.

People do not differ in any satisfaction factor with %99 confidence interval according to their departments. However, employees working in teams (research funding groups) are more satisfied with pay than the others ($p<0.02$).

In the table of cadre (see Table F.7 in Appendix F), it can be seen that there is a significant ($p<0.002$) difference in pay satisfaction between people working in A and AG cadre as expected.

Position groups differ in terms of supervision, promotion and rewards and social work environment. Tenure groups also differ in terms of supervision, co-workers and promotions and rewards (with %99 confidence interval). Since homogeneity of variance was not met in co-workers variable, this finding was also controlled with Kruskal Wallis which is a nonparametric test. Similarly, difference in satisfaction levels between tenure groups in terms of co-workers was found significant with

nonparametric test. Furthermore, other findings presented above were supported by nonparametric tests (see Appendix G).

Since there are more than two groups of the independent variables of educational level, position and tenure, post hoc analysis was performed for each of them.

It was seen that workers having less than or equal to undergraduate degree as educational level are more satisfied with office conditions and flexibility level of working hours than both workers having master degree ($p<0.05$) and workers having doctorate degree ($p<0.01$). There is no significant difference between groups of workers having master degree and doctorate degree. Also, it was observed that assistant experts are more satisfied with supervision, promotions and rewards and social work environment than chief experts. Similar to the age related result, novices are more satisfied with their supervisors in this directorate. Co-workers satisfaction also decreases after 5 years experience. Similarly dissatisfaction with promotions and rewards arises 5 years after starting on the job.

4.3. Findings about Perceived Workload

Before starting to analyze the data collected through NASA-TLX in order to examine the level of perceived workload in this directorate, outlier analysis was applied on data obtained through NASA-TLX scale (see Appendix J). Responses of 8 participants were excluded, since they were found as outliers. Four participants of them rated physical demand required by their work as 100 point (the highest score). Reality of these responses did not seem hardly possible when the sample participating in the study was considered since they work by sitting during almost whole day. Responses of four people giving low points to performance question were also excluded from the analysis. After excluding these participants, outlier analysis was performed again. In the second step of outlier analysis, there was no outlier, and the analysis was done with remaining data belonging to 80 employees.

4.3.1. Validity and Reliability of NASA-TLX

Hart & Staveland (1988) already proved validity and reliability of NASA-TLX. They found the correlation between the test/retest ratings which is an indicator of reliability as 0.83. In this study, reliability of NASA-TLX was examined by looking at Cronbach alpha coefficient. According to alpha coefficient, reliability of the perceived workload scale which consists of 6 questions was found as 0.71. This finding indicates that the results obtained from NASA-TLX questionnaire are quite reliable.

4.3.2. Mean Values of Total Perceived Workload and Its Dimensions

As mentioned before, total workload score and scores of 6 sub-dimensions were calculated over 100 points. According to this, mean values and other descriptive statistics obtained from responses of 80 participants were found as the following:

Table 4.6 Descriptive Statistics About Total Workload and Its Dimensions

	Mental demand	Physical demand	Temporal demand	Performance	Effort	Frustration	Total workload
Mean	57.75	30.75	59.94	19.06	63.31	49.44	46.71
Median	60.00	25.00	60.00	15.00	65.00	50.00	47.08
Std. Dev.	27.106	21.687	25.314	10.882	23.384	30.010	15.298

Mean value of total perceived workload is 46.71. This result shows that total perceived workload is at a moderate level in this directorate. Similarly the tasks performed in the day the questionnaires are being conducted are not as mentally demanding as expected. Mean value of it was found as 57.75. As expected, physical demand of the tasks is low. Also, it can be said that employees feel time pressure while performing their tasks. According to participants, they can highly accomplish the goals of their tasks. For achieving high performance, there is no need to exert too

much effort, slightly more than moderate level of effort generally sufficient. Additionally, frustration level was found as approximately midpoint of the scale.

4.4. Findings from Correlation Tests

Before performing correlation tests, underlying distributions were examined for all workload variables (see Appendix D). It was observed that 6 variables corresponding to sub-dimensions are not normally distributed. On the other hand, the variable of total perceived workload computed by averaging of sub-dimensions is normally distributed.

In all correlation tests, Spearman rank correlation test which is nonparametric was used, since normality assumption could not hold (see Table D.18) and data (responses given to questions) is ordinal (capable of being ranked).

Before correlation tests, opposing hypotheses to null hypotheses were set as the following:

1. General satisfaction and total satisfaction are directly related.
2. General satisfaction and total workload are inversely related.
3. Total satisfaction and total workload are inversely related.

Additionally, relationships between 6 workload dimensions and general satisfaction were examined. Hypotheses were set as the following:

4. General satisfaction and mental demand are either directly or inversely related.
5. General satisfaction and physical demand are either directly or inversely related.
6. General satisfaction and temporal demand are either directly or inversely related.
7. General satisfaction and performance are either directly or inversely related.

8. General satisfaction and effort are either directly or inversely related.
9. General satisfaction and frustration are either directly or inversely related.

Since directions of the relationships could be predicted in the first three hypotheses, tests of significance were chosen as one-tailed. On the other hand, in the correlation tests in which relationships between satisfaction and workload dimensions were examined two-tailed tests were performed.

According to results (see Appendix K), there is a strongly significant relationship (r=0.74, p<0.001) between general satisfaction which was measured by one item (70th question) and total satisfaction which was calculated by summing all points given by participants as responses to all questions. The finding points out that general satisfaction level can be measured with one item.

Additionally, general satisfaction and total workload are significantly and negatively correlated (r= -0.279, p<0.01). Moreover, the inverse relationship between total workload and total satisfaction expected at the beginning was confirmed through the correlation test (r= -0.215, p<0.05).

For this correlational data, the cause-effect relationship, between high workload and low job satisfaction, or vice versa, can not be determined.

As to the relationships between general satisfaction and workload dimensions, it was observed that one significant relationship. Frustration and general satisfaction is strongly correlated (r= -0.611, p<0.001). Spearman rho coefficient points out that there is a strongly negative relationship between frustration and general satisfaction. Existence of correlation also was confirmed by correlation test applied on frustration and total satisfaction (r= -0.516, p<0.001).

After determination of correlations, curves showing relationships between variables of general satisfaction and total workload, total satisfaction and total workload, and general satisfaction and frustration were estimated by using SPSS.

Type of curve which shows the relationship between general satisfaction and total perceived workload was found as quadratic (p<0.01). As seen in the following figure, despite the negative correlation coefficient, as total workload increases until a certain level of total workload general satisfaction also increases. After reaching this certain level of total workload, increases in level of total workload cause a remarkable decline in general satisfaction.
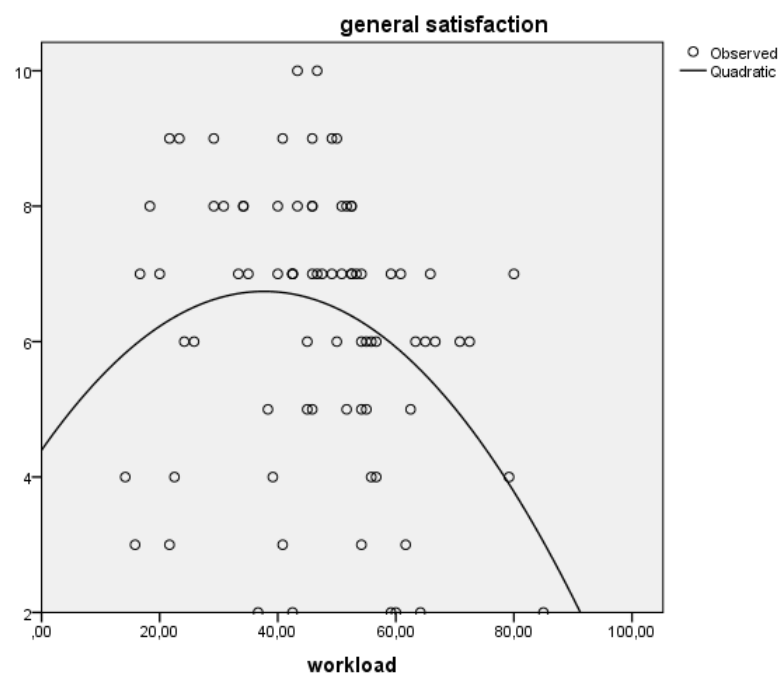
Figure 4.1 Estimated curve showing the relationship between general satisfaction and total workload

Regression model which significantly predicts job satisfaction from total workload scores was found as the following (F(2,77) = 4.653, p<0.02, R^2=0.108):

General satisfaction = 4.398 - 1.157*(total workload)^2

Similar curve was estimated for the relationship between total satisfaction and total workload. This curve is presented in the following figure:
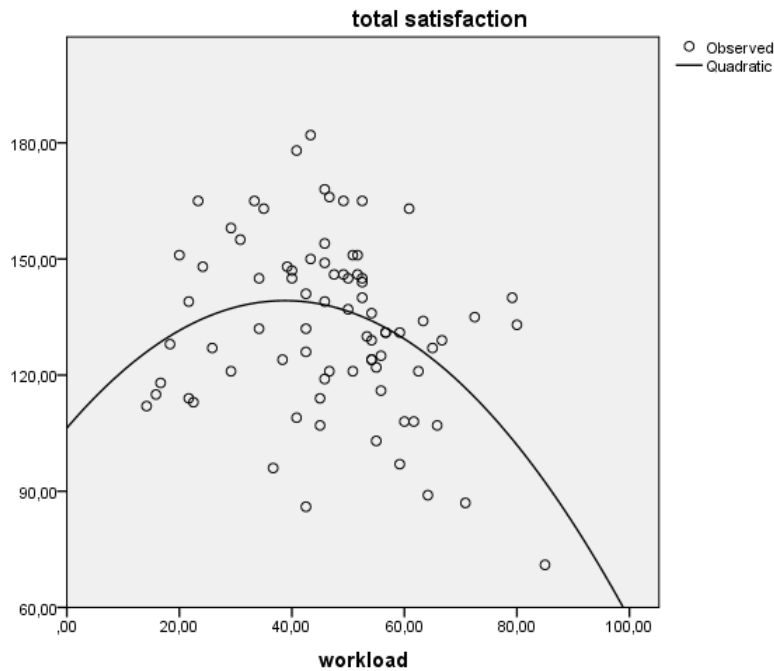
Figure 4.2 Estimated curve showing the relationship between total satisfaction and total workload

Regression model obtained from the equation of this curve was also found as the following ($F_{(2,77)}$=6.799, p<0.003, R^2=0.150):

Total satisfaction = 106.341 + 1.177*(total workload) – 1.434*(total workload)^2

Additionally, curve was fitted for the relationship between frustration and general satisfaction. Estimated curve type was observed as linear (p<0.001).

According to results of linear regression, the following model significantly predicts job satisfaction from frustration scores ($F_{(1,78)}$=41.444, p<0.001, R^2=0.347):

General satisfaction = 8.226 – 0.589*(frustration)

In this model, frustration explains approximately %35 of variance in general satisfaction. Coefficients in all equations given above are standardized coefficients.
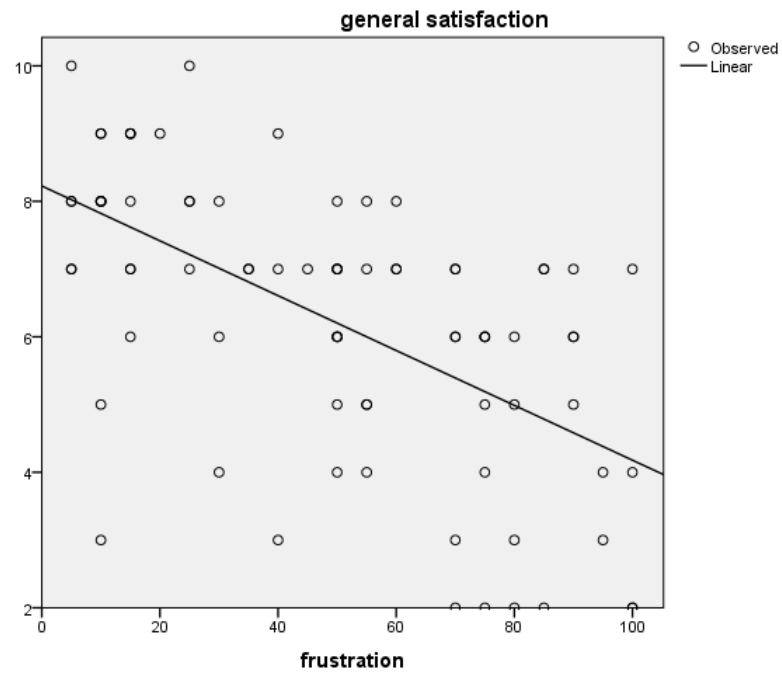
Figure 4.3 Estimated curve showing the relationship between general satisfaction and frustration

CHAPTER 5

DISCUSSION AND RECOMMENDATIONS

5.1. Discussions about Job Satisfaction Questionnaire

In this thesis, structure of the factors which affect the job satisfaction level of employees working in a research institute was determined and satisfaction levels of employees with respect to these factors were assessed. For this purpose, a job satisfaction questionnaire was prepared by revising and integrating some existent questionnaires and previous findings in literature.

As explained in the "Methodology" chapter, 34 of items in the questionnaire were taken from JSS survey, 16 of them (with the inclusion of the 70th question asking general satisfaction) were cited from Sun's (2002) study, and the remaining 20 items were generated in this study. During the factor analysis, 26 items were excluded. 11 of these items (q4, q5, q7, q9, q15, q18, q21, q24, q27, q28, q57) are from JSS, five of them (q32, q47, q50, q51, q62) are from Sun's study, and, 10 items (q11, q22, q33, q35, q37, q49, q53, q65, q66, q67) from those generated in this study. For factors obtained from factor analysis and being the same with Spector's dimensions, it can be concluded that the excluded items are redundant. Remaining items after factor analysis are sufficient in order to assess the satisfaction levels with these factors for this study. On the other hand, personal growth dimension did not appear in the structure of factors obtained from factor analysis even though it was proposed. Except for q13, the items added for personal growth facet were excluded. The 13th item questioning directly whether their jobs contribute to their personal growth was included in nature of work factor. According to mean value of this item (2.57), they think that the work do not support their personal development. By increasing training opportunities which are found dissatisfactory by workers (mean value of q11 is 2.08) and administering training activities in a goal-oriented way can contribute to perception of self-actualization. Also by using job design approaches, especially job

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enrichment leading to learn new things, dissatisfaction with personal growth can be reduced. Furthermore, communication factor was perceived differently than intended. Although it was intended to measure managerial communication and items were prepared for this purpose in proposed model, it was observed from obtained factors after factor analysis that the word of "communication" was associated with informal interaction by respondents rather than a managerial and formal work-related issue. In the proposed factor structure in this study, whereas q68 which is about adequacy of communication in the institution had been included in the communication factor, q10 which is about adequacy of social, sporting, artistic and cultural environments in the institution had been considered as an aspect of working conditions factor. However, this pair of items formed a factor surprisingly, and this factor was called social work environment. As for satisfaction level of this factor, employees find social work environments and activities insufficient. Also, dissatisfactory interactions might have been connected by respondents to the lack of this kind of environments.

Even though promotions and rewards were separate dimensions in the proposed model, after factor analysis the items associated with these dimensions came under the same factor. This shows that employees perceive the concept of promotion as a reward given to them in return their efforts and successes. Some questions related with nonfinancial rewards (q22, q27) were excluded from the questionnaire since their loadings were very close on supervision factor and promotions&rewards factor. This situation shows that, nonfinancial rewards (such as praise) might have been regarded by employees as an outcome of attitudes of their immediate supervisors.

Surprisingly, most of items (q4, q21, q24, q47, q49, q57) in which any facet satisfaction was intended to measure in terms of equity aspect based on the Adams's equity theory were excluded from the questionnaire. One of them (q49) is the item which is about equity of incentive bonus distribution. It had been subsequently integrated into the original questionnaire since this is a special execution to this institution and it had been considered that it can be influential on perception of equity in reward system. However, this item was not included in

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promotions&rewards factor, and it was excluded since it formed a separate factor by itself. As for mean value of it (2.26), lowness of it shows that, according to employees, incentive bonuses are not always given to people who are actually deserve it. Average of mean values of this item and the other five items (q4, q21, q24, q47, q57) investigating perception of equity in promotion, salary and fringe benefits is 2.55. This finding reveals that perception of inequity is high in this directorate.

Job satisfaction factor structure obtained from factor analysis does not contain the factor of operating conditions separately. It was observed that the some items related with this dimension were transferred to the nature of work factor (q6, q40) and the rest of them were excluded during factor analysis.

One of the most important findings of this study is that, working conditions, autonomy and job security came out as separate factors after factor analysis as proposed at the beginning. Furthermore, all items (q12, q34, q59 and q60) proposed in this study by considering these dimensions remained after factor analysis as intended. For instance, it was aimed to assess perception of job security with q12 and q34 at the beginning of study. After factor analysis, the factor of job security formed by these two items. Similarly, two proposed items (q59 and q60) added for assessing perception of autonomy were placed under the factor of autonomy in the final factor structure. Also, q36 (related with undisturbed office environment) and q54 (flexible working hours) were included in working conditions factor as expected. However, reliabilities of these three factors and social work environment factor (0.69, 0.76, 0.67 and 0.55) were not found as high as those of other factors which are the same with Spector's dimensions. Moderate reliabilities can be attributed to low number of items under these factors. As a conclusion, these findings point out that 10 items proposed in this study (q12, q13, q34, q36, q54, q58, q59, q60, q63 and q69) should be included in a job satisfaction survey, since they were highly loaded onto the factors (all of the loadings > 0.5).

General satisfaction was also questioned through one item with 10-point scale. According to results, mean value of general satisfaction was found 6.08 over 10 points. This result showed that, employees are not quite satisfied with their jobs. Job satisfaction levels of them were mediocre. In the analysis, a high positive correlation (r=0.74, p<0.001) was determined between the variable of total satisfaction (generated by summing the scores of 43 items remained after factor analysis) and general satisfaction. This result supported the idea that satisfaction could be measured globally by using one item. Although global satisfaction scales with single item was criticized by some researchers (Green, 2000), Van Saane (2003) stated that it could be used if the aim is to measure change in job satisfaction. This approach can be more suitable when general and rapid results were intended, since it is easy to use and evaluate and it is not time consuming. However, in this study, facet approach was used in addition to global approach so that high and low areas of job satisfaction could be detected.

Mean values of all job satisfaction factors show that employees are mainly dissatisfied with nature of work, promotions and rewards, fringe benefits, job security, pay and social work environment.

Although it can not be said that employees completely dislike their tasks, it is obvious that they do not find them meaningful and challenging. They complain about not being able to use their different skills and abilities. According to job characteristics theory (Hackman & Oldham, 1976), skill variety is one of the determinants of meaningfulness of the work. Therefore, it can be said that lack of skill variety causes to perception of meaninglessness.

According to employees, jobs do not contribute to their personal growth, and do not meet their career expectations. Moreover, employees are not satisfied with operating conditions which are placed within nature of work factor. Especially, they dislike engaging in too much official correspondence and other paperwork. Also, they do not enjoy their work because of ambiguity in duties, powers and responsibilities (q40). Furthermore, they think that aims and objectives are not sufficiently clear

(q31). Despite all complaints about nature of work mentioned above, according to the score of the item which was added into the questionnaire in order to measure task significance, employees feel a sense of pride in doing their jobs. This may result from social status of the job and being respected in society due to working for such a prestigious organization. As mentioned before, being a part of an organization which has a critical mission for society contributes to sense of having important role. Although task significance is another determinant of meaningfulness of the work, apparently this positive feeling may not be sufficient to experience work meaningfulness. Dissatisfaction with other job characteristics and with operating conditions may reduce the feeling of meaningfulness. Therefore, employees are not sure if they want to work at this job in the future. In the light of this information, it can be almost certainly said that employees are not satisfied with the factor of nature of work which has the highest reliability.

In this directorate, employees are not satisfied with promotions&rewards opportunities. They think that their efforts and performances are not recognized and they do not feel that their efforts are not rewarded in the way that they should be. This implies that according to them their outcomes (pay, fringe benefits, promotion, rewards, opportunities for advancement, job security) are controlled by external forces (such as top management, government etc.). Low internal locus of control and inadequate reward system can cause negative attitudes towards job. They do not have sufficient motivation to exhibit their skills and abilities fully. They do not try to increase their job performance since according to them they are not rewarded because of their better performance. Moreover, it can be understood from responses that performance-outcome expectancy (instrumentality component of Vroom's theory) of employees is close to zero due to the inadequacy of reward system. Mean value (1.76) of the item 5 ("There are few rewards for those who work here.") affirmed this interpretation. When Vroom's motivation equation is considered, low motivation of employees in this directorate can be attributed to low instrumentality.

According to results, in general, employees are not dissatisfied with working conditions. It can be said that they find working hours flexible, and they find their

office environments comfortable. Closed office design in this directorate can be an advantage when considered that open offices cause dissatisfaction with working environment because of lack of privacy, noise, decrease in friendship opportunities and supervisor feedback. Closed office design prevents to get disturbed by any distraction. Also, conventional office design helps employees to personalize their working area, store their belongings, and host their guests comfortably. For these reasons, most participants think that their offices are undisturbed environments. In the light of this finding, closed office design can be suggested for some other directorates where people work in open-offices.

Employees do not believe that this institution provides for sufficient job security. Since all of the workers are under special contract, it is natural that they do not have full employment security. In addition, they are not sure that they can work for this organization as long as they perform well. The reason for such a feeling may be due to lack of confidence to employment policies of top management. External locus of control comes into play again in perception of job security.

Previous research shows that fringe benefits are not as influential as the wages. According to Yeltan (2007), one reason for this, most employees do not know how much they are receiving in benefits. Furthermore, some people undervalue those benefits just because they can not see a practical value. But most of all, the raising level of this factor end up with satisfaction of personal needs. According to results of this study, fringe benefits such as meals, health insurance and employer-provided vehicles do not meet employees' expectations. Main available fringe benefits offered by this organization are meals, publications sold to personnel at a reduction, tea service during working hours, discount ticket for entertainment events, pay for transportation instead of shuttle vehicle and other discounts from some contracted hospitals, shops, sports centers and restaurants. Nonetheless, employees find these existing benefits inadequate. Since it was proved that raising level of this factor positively affects job satisfaction level, extension in these fringe benefits as far as possible can be suggested to the management. While making decision about fringe benefits-related policies more vital issues (such as health and family) should be

focused on rather than minimal benefits (e.g. coffee breaks, ticket discounts, etc.). For instance, providing private health insurance to personnel (and maybe to his/her spouse and children) as in some other public institutions can probably be more satisfactory for workers than low discounts for expensive hospitals. According to mean value of 26th question (2.64) they do not think that the benefits they receive are as good as most other organizations offer. Even though the 4th item was excluded in factor analysis, its mean value (2.90) shows that the benefit package employees have is not equitable. Indeed, there are some differences within positions in terms of amount of the fringe benefits offered by the organization. For example, publications are provided to supervisors in a free way, while they are offered to employees only at a small reduction in this organization.

Pay factor is not satisfactory for the employees working in this directorate. Especially, they do not find salary increase opportunities sufficient. In this institution, salary increases can result from annual salary increase determined by government. Therefore institution's management has no control over this issue. Institution can only control tenure-related promotions, performance-related promotions or financial rewards (such as incentive bonus). Participants are dissatisfied with both amount and rate of increase determined by the government and by the management of the institution.

Vroom's research revealed that having management that care about their subordinates as an individual is more important for employees rather than increases on payment (Bell & Martin, 2012). According to results, it can be said that participants in this study are satisfied with their supervisors since they think that supervisors are competent in doing his/her job, treat them fairly as individuals, and show interest in the feelings of subordinates. Satisfaction with supervision factor show that negatively evaluated aspects such as promotions, rewards, pay, fringe benefits and working conditions are associated with top management or government rather than immediate supervisors. Similarly, relationships with coworkers are also satisfactory. They find their coworkers competent in doing their jobs. They have fun together while performing their jobs. Most employees find their coworkers

cooperative and supportive, so they like them. As a result, it can be said that most satisfactory factors are supervision and coworkers. These positive factors keep general job satisfaction at a certain level. If satisfaction level with supervision and coworkers factors were lower, general job satisfaction level would also be lower than the current one.

Autonomy is a job characteristic allowing to experience responsibility. Therefore, it was proposed at the beginning that items related with autonomy must be included in a job satisfaction questionnaire. These items formed a separate factor after factor analysis as expected. Besides, since this factor was found quite reliable, score of this factor can be reliably interpreted. According to results, employees think that they have control over their own work. They have freedom and independence in determining the procedures to be used in carrying out their works. They can generally participate to work-related decision making processes and solve work-related problems by themselves.

Findings obtained from this study supported the studies which revealed that autonomy was important factor for job satisfaction and productivity of government workers. For example, in Haenisch (2012)'s study, it was found that government workers appreciate having freedom and autonomy, but feel limited by poor supervision and management, poor communications, and insufficient budgets and staffing. Similarly, Jin & Lee (2012) found in their study which was conducted on the public sector across 18 countries that autonomy was one of the factors explaining the most variance in the respondents' job satisfaction. Therefore, it can be said that autonomy contributes to general satisfaction in this directorate.

According to results of this study, people who are younger than 30 years old are more satisfied than older workers in this directorate. This finding contradicts with the results of many other studies in the literature, since as mentioned in the literature review, studies generally show that as age increases, the level of satisfaction also increases. In this study, as age increases, employees' expectations of both financial and nonfinancial job satisfaction factors such as promotions, rewards, supervision,

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autonomy and working conditions increase. This may be because they are over qualified for the jobs that they are assigned to, since around 70% of these employees have post graduate degrees. When these expectations are not met, their disappointments cause dissatisfaction. Younger workers, mostly novices, are more satisfied with these factors. Since, they may be still hopeful for promotion, reward and better working conditions opportunities that may arise in the future, and they think they have enough time to exhibit their skills and abilities. In this way, the opportunity of having titles being as high as those of senior workers at a young age motivates young people to develop themselves and increase their educational level. Older workers gaining their titles because of their seniority may dislike such an opportunity, since according to them they more deserve promotion due to the years spending for this job. This is supported by a previous study which proposed that promotion gained in return good performance lead to more satisfaction than tenure-related promotion.

Another finding about total satisfaction is that males are more satisfied than females. Similar to age, effect of gender on general satisfaction is different from the results of some previous studies which proposed that females were more satisfied. According to the previous studies, because of the social roles of men and women their expectations from the job were also different. While females mostly appreciated nonfinancial factors such as working conditions and social relationships, financial factors such as pay and promotion were more important for males. Since females expected less from work, they were satisfied with less. However, in this study, satisfaction level of female workers is found to be lower which indicates that their expectations are higher. This finding may also be attributed to high educational level of females in this sample compared to the other studies. 24 of 42 women have post graduate degrees. Their efforts for personal development and growing level of education can cause increase their expectancies from the job. In this study, since females are more dissatisfied with nature of work and autonomy, their general satisfaction levels were found lower than males. Moreover, they do not think that they have control over their own work. Despite high educational level, not being able to participate in decision-making processes effectively disturbs them. Although this

study does not evaluate gender discrimination, this finding may be interpreted as a reflection of male-dominated social structure to the organizational culture.

Similar to the prevalent point of view which proposes that marital status has no effect on general job satisfaction, it was found no effect of marital status on the general satisfaction. On the other hand, results showed that married workers are more dissatisfied with promotions and rewards than single workers. It is possible to attribute this result to needs of married employees for extra payments since they are obliged to look after their family.

Although there is no difference in general satisfaction between groups of educational level, satisfaction with working conditions are significantly different between them. Workers having undergraduate degree are more satisfied with working conditions than people having master degree or doctorate degree. This finding can also be explained with expectations of employees. As equity theory says, workers compare themselves either with the workers under the same working conditions in the same organization or with professional associates having the same educational level and working in other organizations. If their perceived input variables such as education and qualifications increase, expectations of outcomes also increase. If outcomes are not sufficient despite their increasing inputs to balance equity with relevant others, this can cause dissatisfaction.

There is no significant difference in general satisfaction between members of research funding groups and employees working in other departments. Although group members are mostly employed in groups which are related with their professions (for example chemistry and biology research funding group generally consists of chemists and biologists), their general satisfaction level and satisfaction with work itself are indifferent from the others. The reason of this is probably that they engage in official duties rather than scientific aspects of the work. These duties do not give the chance to apply their professional knowledge. Therefore, they do not find their jobs challenging. As the level of boredom due to monotony increased, satisfaction levels of group members may have decreased. According to results,

employees working in groups are more satisfied with pay than others. However, amount of salary and increase of them depend on cadre rather than department. Analysis satisfaction levels with respect to cadres show that there is a significant difference in pay satisfaction between two cadre groups as expected. People having A cadre are more dissatisfied with pay. As mentioned before, salaries of employees having A and AG cadre are different. This difference becomes larger when position rises, since amount of increase in salaries of people in A cadre is always (when promoting due to tenure or any educational success such as gaining an academic title) less than people in AG cadre. Therefore, the decrease in pay satisfaction scores of people in A cadre is considered as a normal reaction.

In the directorate where the study was conducted, average tenure was found as 5.9 years. In this study, length of service in this institution was used as the tenure variable, not vocational tenure gained by performing the same profession in different organizations. As a result, no difference in general satisfaction was found in tenure groups. Although in the literature common view is that tenure contributes increase of job satisfaction due to familiarity with the work content and adjustment to work environment, results of this study supported some studies emphasizing that in poor economic conditions and existence of unemployment tenure may not be correlated with job satisfaction. On the other hand, in this study, a negative relationship between extrinsic factors (supervision, coworkers and promotions&rewards) and tenure is observed. Novices are more satisfied with their supervisors. Satisfaction with coworkers begins to fall after 5 years experience. Also, dissatisfaction with promotions and rewards begins to increase 5 years after starting on the job. These findings are similar to those of Bilgiç (Sun, 2002). This negative relationship can be attributed to seniors' awareness of the lack of opportunities for promotions and rewards.

5.2. Discussions about Perceived Workload Questionnaire

NASA-TLX is used to assess the perceived workload for a specified job at a specified time. However, in this study NASA-TLX is used to assess the perceived

workload of the workers for the day that the questionnaires are administered. There are a few studies which used NASA-TLX together with satisfaction studies. However, these are conducted under experimental conditions rather than real life situations (Cook & Salvendy, 1999). This study is the only one using NASA-TLX and satisfaction questionnaires in real life conditions.

JSS included one workload-related question (see 18th question in APPENDIX A). During factor analysis this item was excluded since it formed a separate factor by itself. This can result from that workload aspect is not adequately represented (with only one item) in JSS as Van Saane (2003) proposed. The mean value of the scores of this question was found as 2.16. In other words, they think that they have too much to do at work. In the period when this study was conducted, all funding groups/teams were very busy since it was the term of panel discussions for scientific evaluations of research projects which were organized and conducted by the group members, while other departments are less busy. Hence, it was expected that perceived mental workload would be high in this directorate since most of employees were working hard. However, total perceived workload score of NASA-TLX was found at moderate level. Even if they were at the peak period, it seems that their work were not very demanding (total perceived workload is 46.71 out of 100). Moreover, analysis of subfactors of NASA-TLX reveals that; subjects perceive their "performances" (mean: 19.06) as high, while their "effort" (mean: 63.31) is moderate. Employees affirmed that they were engaged in temporally and mentally demanding tasks in that day.

The main concern of this study is; if the differences in workload levels of employees cause any difference in general job satisfaction levels of them. Correlation tests performed for this purpose revealed that there is a significant correlation between total perceived workload and general satisfaction, and also frustration and general satisfaction. Since correlation tests do not provide any information about causal relationships, this relationship is investigated through regression analysis. The relationship between general satisfaction and total workload fitted to an inverted-U shaped quadratic curve, while linear relationship was found between general

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satisfaction and frustration. Quadratic relationship means that perceived workload contributes to increase of job satisfaction until a certain level. However, higher perceived workloads than this level cause to decrease the level of general satisfaction. In other words, too little workload results in low satisfaction with job (can lead to low satisfaction especially with work itself since it can cause monotony and boredom) and similarly too much workload results in dissatisfaction with job (maybe due to frustration and stress). This finding is important since it supports Cook&Salvendy's (1999) results in the literature. They found a higher correlation coefficient between mental workload and job satisfaction (r=0.42) and higher R^2 value (0.21) in their regression models. However, lower values obtained in this study (r= -0.28, R^2= 0.11). This difference can be explained by the fact that their study was conducted laboratory environment and tasks were designed for their experiments. Also, they used a composite job satisfaction score calculated by summing scores from only "work" subscale of JDI and overall satisfaction score developed from general and growth satisfaction items in the JDS. On the other hand, in this thesis, data were obtained in real life conditions and were collected in a randomly selected day without any attempt to manipulate perceived workload. Despite of this, getting similar findings to those of Cook&Salvendy's (1999) experimental study is considered as an important result in the direction of purposes of this study.

In the studies in which NASA-TLX was used, it is common to assess workload with a single total workload scale. However, in this study, it was tried to see correlations between subfactors of workload and general satisfaction. A high correlation coefficient between frustration and general satisfaction was found. This relationship fitted into a linear regression model. In the question corresponding to frustration it was asked how insecure, discouraged, irritated, stressed and annoyed versus secure, gratified, content, relaxed and complacent they felt during performing the tasks in that day. In other words their daily mood is questioned. Weiss & Cropanzano (1996) have argued that moods are general affective states which can arise as residual states after events or in response to the recall of previous emotional events. "It may be that average mood level over a period of time predicts satisfaction." (Weiss & Cropanzano, 1996) In this study, the strong linear relationship between frustration

score questioned people their emotional states (mood) and general satisfaction level make a sign that affective states should not be ignored in measurement of job satisfaction.

5.3. Future Studies

In this study, it was investigated whether there is a direct relationship between perceived workload and general satisfaction. Indirect relationships were not examined. Direct correlation is significant, but not strong. However, it is not true to say that effects of perceived workload on general satisfaction are too low based on only this finding. In fact, existence of indirect relationships is highly likely. The findings of previous research highlight these indirect relations. Latent variables correlated with perceived workload might also affect general satisfaction or its dimensions. It was proposed that an individual's subjective report of perceptions associated with physical or mental work generally reflects the nature of the task (DiDomenico & Nussbaum, 2008) which is one of the job satisfaction facets. Mental workload may be due to procedural uncertainty, outcome uncertainty, task data quality, conflicting demands and desired outcomes (Cook & Salvendy, 1999). These causes related with job satisfaction facets such as operating conditions, nature of work and communication imply that there can be an indirect relationship between mental workload and job satisfaction. Also, research suggested that there is an inverted-U shape relationship between mental workload and task performance (Cook & Salvendy, 1999) that can be also a predictor of job satisfaction. Moreover, Bos et. al. (2013) showed that among the factors that are perceived as increasing the mental workload, three broad themes were distinguished: aspects of the organization (such as obstacles for getting the best out of people, greediness of the organization, strict rules, lack of support, feedback and supervision), aspects of work (such as working overtime and barriers to build a career), and personal (such as work engagement, overcommitment, personal adaptation to long working hours). This also emphasizes that perceived workload is not just amount of work, but also it can be influenced by other job aspects. Taking into account that workload is a job stressor and stress is an antecedent of job dissatisfaction, it can be considered that workload can affect job

satisfaction indirectly and negatively. These probable links can be searched in future studies more deeply, for example by using Structural Equation Modeling (SEM). Also, SEM can be utilized in the future studies to find which factors are more effective on job satisfaction as well.

Additionally, this study does not provide any information about which factors are the most/least contributing aspects to overall satisfaction. Therefore, it can not be said that either intrinsic factors or extrinsic factors are more important than the other one for employees. By performing regression analysis, these factors can be ranked by severity in the future studies.

In this study, reliabilities of three factors (working conditions, job security and social work environment) obtained from factor analysis are moderately reliable. It can result from the limited number of items. Moreover, these factors are the dimensions proposed to be tested in this study, and in fact they are not included in Spector's original dimensions. In order to test proposed model, additional questions corresponding to the new dimensions were prepared by utilizing comprehensive literature survey and then integrated into the questionnaire. Whether these questions can be understood clearly as intended was tested by performing a pilot study on 10 employees. However, expert opinions about the scale were not received. This is a limitation of this study which may decrease validity of it. Nonetheless, it can be said that results are valuable, since the relevant literature comprehensively reviewed and proposed model and the obtained from factor analysis were found similar. On the other hand, if quantifiable techniques are used to test validity in future studies; it can be demonstrated more certainly. Especially for testing content validity, there are some algorithms developed by different researchers such as Rovinelli & Hambleton, Aiken, and Alpar (Altaban, 2013).

Additionally, personality factor was ignored in the scope of this study. In the future studies, some personality tests can be attached to job satisfaction questionnaire and effects of personality factors such as PA and NA on job satisfaction can be investigated.

5.4. Recommendations

In this study, based upon descriptive statistics of the q6 and q37, it can be said that redundant paper works and lack of internal communication are important problems of employees which prevents them to perform their jobs properly. Almost 70 percent of participants think that good jobs blocked by lack of communication inter-departments (mean value: 2.14). Also, approximately 57 percent of respondents are decisively dissatisfied with engaging in too much paperwork (mean value: 2.42). Consequently, since this is one of the most disturbing concerns, in order to increase job satisfaction level of employees, unnecessary paperwork should be eliminated. For this purpose, internal communication can be conducted via e-mail. Official letters can continue to be used in external communications with ministries and other institutions, but communication via e-mail at least between departments of the organization working in the same building will be faster and less tiring method.

Another recommendation to management is about salary gap between different cadre groups. Despite exclusion of q47 from the questionnaire during the factor analysis, responds to this item were examined. It was observed that although workers in A cadre (23 people) are more dissatisfied about salary gap between title groups (title is a mark of the cadre) (mean value: 1.87), surprisingly workers in AG cadre (59 people) are also not satisfied with this gap (mean value: 2.71). In order to solve this problem, chance for transition from A cadre to AG should be offered if employees in A cadre subsequently meet prerequisites for being employed in AG cadre (such as proficiency in English or another foreign language) demanding at the beginning when they were accepted for this job. This type of change in the relevant policy contributes to both increase in pay satisfaction of employees having A cadre and remove AG personnel's possible perception of being overrewarded which can cause dissatisfaction.

Lastly, while deciding fringe benefits related policies, the issues which employees give the most importance should be considered. Because determination of priority issues for each person is hard and it is impossible to offer benefit types as much as

number of employees, cafeteria-style benefit plans can be used. These plans allow employees to select their fringe benefits from a menu of available alternatives (Lunenburg, 2011a). In this way, valence of the fringe benefits (benefits can be regarded as a kind of reward) will not be ignored. High valence of these selected fringe benefits will lead to more satisfaction because of multiplier effect of motivation equation as mentioned before in expectancy theory.

CHAPTER 6

CONCLUSION

This thesis is about job satisfaction and its relation with perceived workload. The reason to choose this topic is to search factors affecting job satisfaction of employees working in a research institution and assess their satisfaction levels with these factors. Also, a direct relationship between employees' workload perceptions and general job satisfaction is investigated.

Initially, main job satisfaction theories are examined, and factors which have been proved to affect on job satisfaction are emphasized. After an extensive literature survey, a new job satisfaction questionnaire with 70 questions is prepared by adding some necessary questions to an existent Turkish survey previously used in a study which is based on Spector's Job Satisfaction Survey (JSS). The additional questions especially cover topics of job security, autonomy, working conditions and personal development. Thus, with additional four dimensions to Spector's original nine dimensions, 13 dimensions affecting job satisfaction are proposed. Some of the twenty new questions prepared for this study are integrated into existing dimensions, while some of them form completely new dimensions. NASA-TLX workload index which is commonly used in the literature is given together with the satisfaction survey for measurement of mental workload.

By using SPSS 21.0 software, factor analysis is applied on data collected by the satisfaction survey from 88 employees working in a public institution, and 10 factors (nature of work, supervision, co-workers, promotions&rewards, fringe benefits, autonomy, working conditions, job security, pay, and social work environment) are obtained. The factor structure is similar to the proposed one. Factor analysis revealing this structure provides information about which items should be included and which ones should not.

According to descriptive statistics of these factors, employees are dissatisfied with nature of work, promotions&rewards, fringe benefits, job security, pay and social work environment. On the other hand, supervision, co-workers, autonomy, and working conditions are satisfactory for the workers. Then, effects of demographic properties of participants on both level of general satisfaction and level of factor satisfaction are tested by using variance analysis techniques (ANOVA-MANOVA). With these analysis, it is determined that people younger than 30 years old, males, and assistant experts are more satisfied with their jobs than people older than 30 years old, females and chief experts respectively. Younger people, especially novices, are more satisfied with supervisors and promotions&rewards than older people. Females are more dissatisfied with nature of work and autonomy. Although there is no significant difference between single and married workers in terms of general satisfaction, married people are more dissatisfied with promotions&rewards. Moreover, workers having undergraduate degrees are more satisfied with working conditions than people having post graduate degrees. There is a significant difference in pay satisfaction between two cadre groups. People having A cadre are more dissatisfied with pay.

According to the results of NASA-TLX, it seems that employees' works are not very demanding. Additionally, correlation tests show that general satisfaction is significantly but weakly correlated with total perceived workload and general satisfaction is significantly and strongly correlated with frustration. While the curve showing relationship between general satisfaction and total perceived workload fits inversed-U shape (quadratic), a linear relationship between general satisfaction and frustration is determined. Inversed-U shaped relationship shows that perceived workload contributes to increase of job satisfaction until a certain level. However, higher perceived workloads than this level cause to decrease the level of general satisfaction.

Consequently, it can be said that this thesis contributes to understand job satisfaction factor structure of employees working in a research institution. Furthermore, this study points out that autonomy can be an important factor affecting job satisfaction

of government workers in Turkey. This finding supports the previous research which studied in other countries and revealed that autonomy was important factor for job satisfaction and productivity of government workers. Results of this thesis about the relationship between total perceived workload and general satisfaction support to the common view in the relevant literature about this relationship. It is considered that significant results obtained from this thesis will guide the future studies related with improvement of work-related issues in this institution and other organizations, and hopefully, the recommendations given in Chapter 5 will help managers of the organization to influence the feeling of satisfaction.

REFERENCES

Alderfer, C. P. (1972). *Existence, Relatedness and Growth*. New York: Macmillan Company.

Altaban, A. (2013). *Structural Equation Modeling of Customer Satisfaction and Loyalty for Residential Air Conditioners*. Middle East Technical University.

Altuntaş, S. (2014). Factors Affecting the Job Satisfaction Levels and Quit Intentions of Academic Nurses. *Nurse Education Today*, *34*(4), 513–9. doi:10.1016/j.nedt.2013.07.002

Arap, S. K., Bulut, Z. A., Doğan, O., & Tekinbaş, F. (n.d.). Meslek Yüksekokullarında Çalışan Personelin İş Doyumu: İzmir Meslek Yüksekokulu Örneği, 68–80.

Artz, B. (n.d.). *Fringe Benefits and Job Satisfaction*. Wisconsin. Retrieved from https://www.google.com.tr/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=0 CCQQFjAB&url=http%3A%2F%2Fwww.uww.edu%2Fdocuments%2Fcolleges%2F cobe%2Feconomics%2Fwpapers%2F08_03_Artz.pdf&ei=EcM-VPiUIoGa7gbJp4D4Dw&usg=AFQjCNHH22hXLXMel9_q8rzjbHFE4ZoPpw [last accessed on 22 Sep 2014]

Atasoy, T. (2004). *A Comparative Study on Job Satisfaction in Large and Small Size Enterprises*. Middle East Technical University.

Baldauf, D., Burgard, E., & Wittmann, M. (2009). Time Perception as a Workload Measure in Simulated Car Driving. *Applied Ergonomics*, *40*(5), 929–35. doi:10.1016/j.apergo.2009.01.004

Barnet, T., & Simmering, M. (2006). Motivation and Motivation Theory. Retrieved from http://go.galegroup.com/ps/i.do?id=GALE%7CCX3446300191&v=2.1&u=cant4804 0&it=r&p=GVRL&sw=w&asid=e78c9bf8ee5f07ade7c55f10a0796b56#contentconta iner [last accessed on 19 Aug 2014]

Baş, S. (2011). *Workplace Mobbing and Its Relationship Between Job Satisfaction and Organizational Trust: A Study On Turkish Academicians*. Yeditepe University.

Başar, U. (2011). *Örgütsel Adalet Algısı, Örgütsel Özdeşleşme ve İş Tatmini Arasındaki İlişkilere Yönelik Görgül Bir Araştırma*.

Bell, R. L., & Martin, J. S. (2012). The Relevance of Scientific Management and Equity Theory in Everyday Managerial Communication Situations. *Journal of Management Policy and Practice*, *13*(3), 106–115.

Beşiktaş, İ. (2009). *İş Tatmini ve Örgütsel Vatandaşlık Davranışı Arasındaki İlişki*. Marmara University.

Bhattacharya, A. (2011). Predictability of Job-Satisfaction : An Analysis from Age. *The Indian Journal of Industrial Relations*, *46*(3), 498–509.

Bos, J. T., Donders, N. C. G. M., van der Velden, K., & van der Gulden, J. W. J. (2013). Perceptions of Mental Workload in Dutch University Employees of Different Ages: A Focus Group Study. *BMC Research Notes*, *6*(102), 1–12. doi:10.1186/1756-0500-6-102

Bridger, R. S., & Brasher, K. (2011). Cognitive Task Demands, Self-Control Demands and the Mental Well-Being of Office Workers. *Ergonomics*, *54*(9), 830–9. doi:10.1080/00140139.2011.596948

Büyüköztürk, Ş. (2002). Faktör Analizi: Temel Kavramlar ve Ölçek Geliştirmede Kullanımı. *Kuram ve Uygulamada Eğitim Yönetimi*, *32*, 472–483.

Cain, B. (2004). A Review of the Mental Workload Literature, 1–34.

Chatzoglou, P. D., Vraimaki, E., & Komsiou, E. (2011). Factors Affecting Accountants' Job Satisfaction and Turnover Intentions: A Structural Equation Model. *8th International Conference on Enterprise Systems, Accounting and Logistics*, (July), 130–147.

Cherati, H., Mahdavi, I., & Rezaeian, J. (2013). The Mediating Role of Job Satisfaction between Spiritual Intelligence and Organizational Commitment. *International Journal of Research in Organizational Behaviour and Human Resource Management*, *1*(1), 1–11.

Chughati, F. D., & Perveen, U. (2013). A Study of Teachers Workload and Job Satısfaction in Public And Private Schools At Secondary Level in Lahore City Pakistan, *2*(1), 202–214.

Concepts and Review of Related Literature. (n.d.). Retrieved from http://shodhganga.inflibnet.ac.in/bitstream/10603/4837/9/09_chapter 2.pdf [last accessed on 9 Aug 2014]

Cook, J. R., & Salvendy, G. (1999). Job Enrichment and Mental Workload in Computer-based Work : Implications for Adaptive Job Design. *International Journal of Industrial Ergonomics*, *24*, 13–23.

De Cenzo, D. A., & Robbins, S. P. (1994). *Human Resource Management: Concepts & Practices* (4th ed., pp. 325–345, 409–441). John Wiley & Sons, Inc.

DiDomenico, A., & Nussbaum, M. a. (2008). Interactive effects of physical and mental workload on subjective workload assessment. *International Journal of Industrial Ergonomics*, *38*(11-12), 977–983. doi:10.1016/j.ergon.2008.01.012

Emhan, A., Mengenci, C., Taşdöven, H., & Garayev, V. (2014). Yapısal Eşitlik Modeli Kullanılarak İş Memnuniyeti, Yönetici Desteği ve Tükenmişlik Kavramları Arasındaki İlişkilerin Analizi: Bankacılık Sektöründe Bir Uygulama. *The Journal of Social and Economic Research*, *14*(27), 75–96.

Eyre, E. (n.d.). Frederick Taylor and Scientific Management: Understanding Taylorism and Early Management Theory. Retrieved from http://www.mindtools.com/pages/article/newTMM_Taylor.htm [last accessed on 15 Aug 2014]

Finch, H. (2005). Comparison of the Performance of Nonparametric and Parametric MANOVA Test Statistics when Assumptions Are Violated. *Methodology: European Journal of Research Methods for the Behavioral and Social Sciences*, *1*(1), 27–38. doi:10.1027/1614-1881.1.1.27

Gerçeker, A. (1998). *A Quantitative Approach for Analysing Motivational Factors; And Its Application*. Middle East Technical University.

Getahun, S., Sims, B., & Hummer, D. (2008). Job Satisfaction and Organizational Commitment Among Probation and Parole Officers: A Case Study, 1–16.

Green, J. (2000). *Job Satisfaction of Community College Chairpersons*. Virginia Polytechnic Institute and State University.

Hackman, R., & Oldham, G. R. (1976). Motivation through the Design of Work : Test of a Theory. *Organizational Behaviour and Human Performance*, *16*, 250–279.

Haenisch, J. P. (2012). Factors Affecting the Productivity of Government Workers. *SAGE Open*, *2*(1), 1–7. doi:10.1177/2158244012441603

Hart, S. G. (2006). Nasa-task load index (NASA-TLX); 20 years later. doi:10.1037/e577632012-009

Hart, S. G., & Staveland, L. E. (1988). Development of NASA-TLX (Task Load Index): Results of Empirical and Theoretical Research. Retrieved from http://humanfactors.arc.nasa.gov/groups/TLX/downloads/NASA-TLXChapter.pdf [last accessed on 20 Sep 2014]

Jin, M. H., & Lee, M. Y. (2012). The Effects of Autonomy, Experience, and Person-Organization Fit on Job Satisfaction : The Case of Public Sector. *The International Journal of Social Sciences*, *6*(1), 18–44.

Judge, A., & Klinger, R. (2008). Job Satisfaction Subjective Well-Being at Work.

Judge, T. A., & Klinger, R. (2009). Promote Job Satisfaction Through Mental Challenge: Indispensable Knowledge for Evidence-based Management. In E. A. Locke (Ed.), *Handbook of Principles of Organizational Behaviour* (2nd ed., pp. 105–122). West Sussex: John Wiley & Sons, Inc.

Keser, A. (2006). Çağrı Merkezi Çalışanlarında İş Yükü Düzeyi ile İş Doyumu İlişkisinin Araştırılması. *Kocaeli Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, *11*(1), 100–119.

Khalatbari, J., Ghorbanshiroudi, S., & Firouzbakhsh, M. (2013, July). *Correlation of Job Stress, Job Satisfaction, Job Motivation and Burnout and Feeling Stress*. *Procedia - Social and Behavioral Sciences*. Elsevier B.V. Retrieved from http://linkinghub.elsevier.com/retrieve/pii/S1877042813017369 [last accessed on 5 Aug 2014]

Lee, S. Y. (2006). Expectations of Employees Toward the Workplace and Environmental Satisfaction. *Facilities*, *24*(9/10), 343–353. doi:10.1108/02632770610677628

Lunenburg, F. C. (2011a). Expectancy Theory of Motivation : Motivating by Altering Expectations, *15*(1), 1–6.

Lunenburg, F. C. (2011b). Motivating by Enriching Jobs to Make Them More Interesting and Challenging, *15*(1), 1–11.

Lunenburg, F. C. (2011c). Self-Efficacy in the Workplace: Implications for Motivation and Performance, *14*(1), 1–6.

Luthans, F. (1995). *Organizational Behaviour* (7th ed., pp. 113–198). McGraw-Hill, Inc.

MacMillan, C. (2012). *The Effects of Physical Work Environment Satisfaction and Shared Workspace Characteristics on Employee Behaviors Toward Their Organization: Using Environmental Control as a Mediator*. The University of Waikato.

Madlock, P. E. (2008). The Link Between Leadership Style, Communicator Competence, and Employee Satisfaction. *Journal of Business Communication*, *45*(1), 61–78. doi:10.1177/0021943607309351

Mowday, R. T., & Colwell, K. A. (2003). Employee Reactions to Unfair Outcomes in the Workplace: The Contributions of Adams's Equity Theory to Understanding Work Motivation. In *Motivation and Work Behaviour* (7th ed., pp. 65–82). New York: McGraw-Hill, Inc.

Mustapha, N., & Chepa, P. (2013). The Influence of Financial Reward on Job Satisfaction among Academic Staffs at Public Universities in Kelantan, Malaysia. *International Journal of Business and Social Science*, *4*(3), 244–248.

Nikolaou, A., Theodossiou, I., & Vasileiou, E. G. (2002). Does Job Security Increase Job Satisfaction? A Study of the European Experience, 1–31.

124

Oldham, G. R., & Rotchford, N. L. (1983). Relationships between Office Characteristics and Employee Reactions: A Study of the Physical Environment. *Administrative Science Quarterly*, *28*, 542–556.

Ozturk, A. B., Hancer, M., & Im, J. Y. (2014). Job Characteristics, Job Satisfaction, and Organizational Commitment for Hotel Workers in Turkey. *Journal of Hospitality Marketing & Management*, *23*(3), 294–313. doi:10.1080/19368623.2013.796866

Pınar, İ., Kamaşak, R., & Bulutlar, F. (2008). İş Tatmini Oluşturan Boyutların Toplam Tatmin Üzerindeki Etkilerinin Doğrulayıcı Faktör Analizi ile İncelenmesi Üzerine Türk İşletmelerinde Bir Araştırma. *Journal of the School of Business Administration*, *37*(2), 151–166. Retrieved from http://www.journals.istanbul.edu.tr/iuisletme/article/view/1023013843/1023013057 [last accessed on 19 Sep 2014]

Porter, L. W., Bigley, G. A., & Steers, R. M. (2003). *Motivation and Work Behaviour* (7th ed.). New York: McGraw-Hill, Inc.

Ramprasad, K. (2013). Motivation and Workforce Performance in Indian industries, *2*(4), 25–29.

Riley, J. (2012). Theories of Motivation. Retrieved from http://tutor2u.net/business/gcse/people_motivation_theories.htm [last accessed on 9 July 2014]

Robbins, S. P. (1988). *Management: Concepts and Applications* (2nd ed.). New Jersey: Prentice Hall.

Roelen, C. a M., Koopmans, P. C., & Groothoff, J. W. (2008). Which work factors determine job satisfaction? *Work (Reading, Mass.)*, *30*(4), 433–9. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/18725706 [last accessed on 5 July 2014]

Rubio, S., Díaz, E., Martín, J., & Puente, J. M. (2004). Evaluation of Subjective Mental Workload : A Comparison of SWAT , NASA-TLX , and Workload Profile Methods. *Applied Psychology: An International Review*, *53*(1), 61–86.

Saari, L. M., & Judge, T. a. (2004). Employee Attitudes and Job Satisfaction. *Human Resource Management*, *43*(4), 395–407. doi:10.1002/hrm.20032

Saleem, R., Mahmood, A., & Mahmood, A. (2010). Effect of Work Motivation on Job Satisfaction in Mobile Telecommunication Service Organizations of Pakistan. *International Journal of Business and Management*, *5*(11), 213–222.

Shuttleworth, M. (2008). Validity and Reliability. Retrieved from https://explorable.com/validity-and-reliability [last accessed on 9 Sep 2014]

Shuttleworth, M. (2009). Types of Validity. Retrieved from https://explorable.com/types-of-validity [last accessed on 9 Sep 2014]

Spector, P. E. (1997). *Job Satisfaction: Application, Assessment, Causes, and Consequences*. Sage Publications, Inc.

Sridharan, S., Liyanage, U., & Wickramasinghe, S. C. (n.d.). Impact of Individual Factors on Job Satisfaction of Nursing Oficers in Sri Lankan Government Hospitals. *Sri Lankan Journal of Management*, *14*(1), 48–70.

Stajkovic, A. D., & Luthans, F. (2003). Social Cognitive Theory and Self-efficacy: Implications for Motivation Theory and Practice. In *Motivation and Work Behaviour* (7th ed., pp. 126–140). New York: McGraw-Hill, Inc.

Steger, M. F., Dik, B. J., & Shim, Y. (2005). Measuring Satisfaction and Meaning at Work, 1–11.

Sun, H. Ö. (2002). *İş Doyumu Üzerine Bir Araştırma: Türkiye Cumhuriyeti Merkez Bankası Banknot Matbaası Genel Müdürlüğü*. Ankara.

Tella, A., Ayeni, C. O., & Popoola, S. O. (2007). Work Motivation, Job Satisfaction, and Organisational Commitment of Library Personnel in Academic and Research Libraries in Oyo State, Nigeria. *Library Philosophy and Practice*, 1–16.

Trivellas, P., Reklitis, P., & Platis, C. (2013). The Effect of Job Related Stress on Employees' Satisfaction: A Survey in Health Care. *Procedia - Social and Behavioral Sciences*, *73*, 718–726. doi:10.1016/j.sbspro.2013.02.110

Tzeng, H.-M. (2002). The Influence of Nurses' Working Motivation and Job Satisfaction on Intention to Quit: An Empirical Investigation in Taiwan. *International Journal of Nursing Studies*, *39*(8), 867–78. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/12379304 [last accessed on 22 June 2014]

Van Saane, N. (2003). Reliability and Validity of Instruments Measuring Job Satisfaction-A Systematic Review. *Occupational Medicine*, *53*(3), 191–200. doi:10.1093/occmed/kqg038

Veitch, J. A., Charles, K. E., Farley, K. M. J., & Newsham, G. R. (2007). A Model of Satisfaction with Open-Plan Office Conditions: COPE Field Findings. *Journal of Environmental Psychology*, *27*(3), 177–189. doi:10.1016/j.jenvp.2007.04.002

Vroom, V. H. (1964). *Work and Motivation*. New York: John Wiley & Sons, Inc.

Waskiewicz, S. P. (1999). *Variables That Contribute to Job Satisfaction of Secondary School Assistant Principals*. Virginia Polytechnic Institute and State University.

Weiss, M. H., & Cropanzano, R. (1996). Affective Events Theory: A Theoretical Discussion of The Structure Causes and Consequences of Affective Experiences at Wok. *Research in Organizational Behaviour*, *18*, 1–74. Retrieved from

https://www.msu.edu/course/psy/962/Weiss & Cropanzano (1996) - AET.pdf [last accessed on 13 Sep 2014]

Wolfeld, L. R. (2010). Effects of Office Layout on Job Satisfaction, Productivity and Organizational Commitment as Transmitted through Face-to-Face Interactions. *Colonial Academic Alliance Undergraduate Research Journal*, *1*, 1–21. Retrieved from http://scholarworks.gsu.edu/caaurj/vol1/iss1/8

Wuensch, K. L. (2013). Factor Analysis-SPSS. Retrieved from https://www.google.com.tr/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=0 CCUQFjAB&url=http://core.ecu.edu/psyc/wuenschk/MV/FA/FA-SPSS.docx&ei=p9QZVKTLDomy7Ab_yIDQCQ&usg=AFQjCNEBzUi2uifPevP9l WU3LJydQ8qDEQ

Yaşaroğlu, C., & Akdağ, M. (2013). İlköğretim Birinci Kademe İçin Çevreye Yönelik Tutum Ölçeği: Geçerlik ve Güvenirlik Çalışması. *Adıyaman Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, *13*(2012), 254–275.

Yelboğa, A. (2009). Bireysel Demografik Değişkenlerin İş Doyumuna Etkisi. *World Applied Sciences Journal*, *6*(8), 1066–1072. Retrieved from http://www.hrm.gen.tr/dosyalar/wasj_6(8).pdf

Yeltan, A. (2007). *Effect of Coaching on Job Satisfaction*. Marmara University.

Zhu, Y. (2012). A Review of Job Satisfaction. *Asian Social Science*, *9*(1), 293–299. doi:10.5539/ass.v9n1p293

APPENDIX A

QUESTIONNAIRES

(IN TURKISH)

Değerli Çalışma Arkadaşlarım,

Bu ankete vereceğiniz yanıtlar, yazmakta olduğum yüksek lisans tezi için bilgi toplamak amaçlıdır. Kimliğinizi açığa çıkaracak hiçbir bilginin talep edilmediği bu ankete vereceğiniz yanıtların kimseyle paylaşılmayacağından ve başka bir amaçla kullanılmayacağından emin olabilirsiniz.

Anket, "İş Tatmini Anketi" ve "İş Yükü Anketi" olmak üzere iki bölümden oluşmaktadır.

Toplam cevaplanma süresi yaklaşık 15 dakika sürmektedir.

Soruları yanıtlarken, size doğru gelmeyen ifadeler için "**Hiç Katılmıyorum**" ya da "**Katılmıyorum**"; doğruluğuna karar veremediğiniz ifadeler için "**Kararsızım**"; doğru olduğunu düşündüğünüz ifadeler için "**Katılıyorum**" ya da "**Tamamen Katılıyorum**" seçeneklerinin altındaki parantezlerin içine X işareti koyunuz.

Lütfen tüm soruları eksiksiz bir şekilde yanıtladığınızdan emin olunuz.

Anketlerin kesinlikle bireysel olarak cevaplanması gerekmektedir.

Yardımlarınız ve güveniniz için şimdiden teşekkür ederim.

Şeniz HARPUTLU

Destek Programları Müdürlüğü (5. Kat)

ÖNEMLİ! Çalışmanın amaçları doğrultusunda sağlıklı bir analiz yapılabilmesi için anketin tümünün 16.30-17.30 saatleri arasında (mesai bitimine yakın) cevaplanması gerekmektedir.

İŞ TATMİNİ ANKETİ

Yaşınız: □ 20-24 □ 25-29 □ 30-34 □ 35-39 □ 40-44 □ 45-49 □ ≥50

Cinsiyetiniz: □ Kadın □ Erkek

Medeni Durumunuz: □ Evli □ Bekar

Öğrenim Durumunuz: □ Lise □ Önlisans □ Lisans □ Yüksek Lisans □ Doktora

Çalıştığınız Birim: □ Araştırma Destek Grupları □ Müdürlükler

Unvanınız: □ Uzman Yardımcısı □ Bilimsel Programlar Uzman Yardımcısı □ Uzman □ Bilimsel Programlar Uzmanı □ Başuzman □ Bilimsel Prog. Başuzmanı □ Diğer

Kaç yıldır burada çalışıyorsunuz? ____ yıl

		Hiç Katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Tamamen Katılıyorum
1.	Maaş artış olanaklarından memnunum.	( )	( )	( )	( )	( )
2.	İşimde yükselebilme şansım çok düşüktür.	( )	( )	( )	( )	( )
3.	Amirim işinin ehlidir.	( )	( )	( )	( )	( )
4.	Bu işyerindeki yan haklardan herkes eşit düzeyde yararlanmaktadır.	( )	( )	( )	( )	( )
5.	Bu işyerinde çalışanlar için çok az ödüllendirme var.	( )	( )	( )	( )	( )
6.	Burada çok fazla yazışma ve benzeri evrak işleriyle uğraşmak zorunda olmaktan rahatsızım.	( )	( )	( )	( )	( )
7.	Burada çok fazla rekabet ve kavga var.	( )	( )	( )	( )	( )
8.	İşimin can sıkıcı olduğunu düşünüyorum.	( )	( )	( )	( )	( )
9.	Burada ne olup bittiğinden genelde haberim yok.	( )	( )	( )	( )	( )
10.	Bu işyerindeki sosyal, sportif, sanatsal ve kültürel ortamların yeterli olduğunu düşünüyorum.	( )	( )	( )	( )	( )
11.	Kurumun sağladığı eğitim olanaklarından memnunum.	( )	( )	( )	( )	( )
12.	Bu Kurum sürekli ve kalıcı iş imkanı sağlar.	( )	( )	( )	( )	( )
13.	Yaptığım işin kişisel gelişimime katkısı olduğunu düşünmüyorum.	( )	( )	( )	( )	( )
14.	Çalıştığım ortamın temiz ve rahat olduğunu düşünüyorum.	( )	( )	( )	( )	( )
15.	Burada verilen işler tam olarak açıklanmıyor.	( )	( )	( )	( )	( )
16.	Yaptığım işten gurur duyuyorum.	( )	( )	( )	( )	( )
17.	İş arkadaşlarımı eğlenceli buluyorum.	( )	( )	( )	( )	( )
18.	Burada yapmam gereken çok iş var.	( )	( )	( )	( )	( )
19.	Yaptığım işin takdir edilmediğini hissediyorum.	( )	( )	( )	( )	( )
20.	Amirim bana karşı adil değil.	( )	( )	( )	( )	( )
21.	Bu işyerinde işini iyi yapanlar adil bir şekilde yükselme şansına sahip olurlar.	( )	( )	( )	( )	( )
22.	Yaptığım işten memnun kalındığında övgü alırım.	( )	( )	( )	( )	( )
23.	Maaş artış oranlarını yeterli bulmuyorum.	( )	( )	( )	( )	( )
24.	İnsanlar burada en az diğer kurumlarda olduğu kadar hızlı yükselirler.	( )	( )	( )	( )	( )
25.	Amirim çalışanlarının hislerini pek dikkate almaz.	( )	( )	( )	( )	( )
26.	Sahip olduğumuz yan haklar diğer pek çok kurumda sağlananlardan daha iyidir.	( )	( )	( )	( )	( )
27.	Verilen bir işi iyi yaptığımda hak ettiğim takdiri görüyorum.	( )	( )	( )	( )	( )
28.	İş yerindeki kurallar işi hakkıyla yapmamı zorlaştırmaktadır.	( )	( )	( )	( )	( )

		Hiç Katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Tamamen Katılıyorum
29.	Birlikte çalıştığım insanların yetersizliklerinden dolayı daha fazla çalışmak zorunda kalıyorum.	( )	( )	( )	( )	( )
30.	Burada yapmakta olduğum işlerden hoşlanmıyorum.	( )	( )	( )	( )	( )
31.	Burada amaç ve hedefler açık ve net değil.	( )	( )	( )	( )	( )
32.	İşimi yaparken kullandığım araç-gereç ve teknolojinin yeterli olduğunu düşünüyorum.	( )	( )	( )	( )	( )
33.	Eğitim düzeyimi yükseltme çabam Kurum tarafından desteklenir.	( )	( )	( )	( )	( )
34.	Bana verilen görevleri aksatmadığım ve işimi iyi yaptığım sürece bu Kurumda çalışmaya devam edebileceğimden eminim.	( )	( )	( )	( )	( )
35.	Burada çalışıyor olmak kariyerim açısından iyi bir referans oluşturmaktadır.	( )	( )	( )	( )	( )
36.	İşe kolaylıkla odaklanabildiğim rahatsız edici olmayan bir ofis ortamında çalışıyorum.	( )	( )	( )	( )	( )
37.	Birimler arası iletişimsizlik işlerin düzgün yapılmasını zorlaştırıyor.	( )	( )	( )	( )	( )
38.	Bazen yaptığım işin anlamsız olduğunu hissediyorum.	( )	( )	( )	( )	( )
39.	Birlikte çalıştığım insanlardan hoşnut değilim.	( )	( )	( )	( )	( )
40.	Burada görev, yetki ve sorumlulukların tanımlı olmaması nedeniyle yaptığım işlerden zevk almıyorum.	( )	( )	( )	( )	( )
41.	Çabalarımın gerektiği kadar ödüllendirildiğini sanmıyorum.	( )	( )	( )	( )	( )
42.	Bu işyerinde sahip olduğum yan haklardan memnun değilim.	( )	( )	( )	( )	( )
43.	Amirimi seviyorum.	( )	( )	( )	( )	( )
44.	Sahip olduğum yükselme olanaklarından memnunum.	( )	( )	( )	( )	( )
45.	Bu işyerinde sağlanan yan haklar yeterlidir.	( )	( )	( )	( )	( )
46.	Burada iyi bir iş yapıldığında hemen fark edilir.	( )	( )	( )	( )	( )
47.	Unvan grupları arasındaki maaş farkı beni rahatsız ediyor.	( )	( )	( )	( )	( )
48.	Amirim kendisine ilettiğim sorunlarla yakından ilgilenir.	( )	( )	( )	( )	( )
49.	Burada başarı teşvik primini gerçekten hak edenler alır.	( )	( )	( )	( )	( )
50.	Burada hiyerarşik kademenin fazla olması işlerin yapılmasını zorlaştırıyor.	( )	( )	( )	( )	( )
51.	Burada yaşadığım sorunları çalışma arkadaşlarımla paylaşırım.	( )	( )	( )	( )	( )

	Hiç Katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Tamamen Katılıyorum
52. Mesleğim doğrultusunda bir iş yapıyor olmak işimi daha fazla sevmemi sağlıyor.	( )	( )	( )	( )	( )
53. İşimle ilgili konularda bilgilendiriliyorum.	( )	( )	( )	( )	( )
54. Gerektiğinde kolaylıkla saatlik izin kullanabiliyorum.	( )	( )	( )	( )	( )
55. İşle ilgili olmayan konularda bile ne zaman ihtiyacım olsa çalışma arkadaşlarım yardıma koşarlar.	( )	( )	( )	( )	( )
56. Yaptığım işle ilgili kararlara katılabiliyorum.	( )	( )	( )	( )	( )
57. Yaptığım iş karşılığında hak ettiğim maaşı aldığımı düşünüyorum.	( )	( )	( )	( )	( )
58. Amirim yaptığım işle ilgili görüş ve önerilerime önem verir.	( )	( )	( )	( )	( )
59. Verilen görevi nasıl gerçekleştireceğime kendim karar verebilirim.	( )	( )	( )	( )	( )
60. İşle ilgili karşılaştığım problemleri kendi kendime çözebilirim.	( )	( )	( )	( )	( )
61. Burada karşılaştığımız sorunları çözmek için çalışma arkadaşlarımla birlikte hareket ederiz.	( )	( )	( )	( )	( )
62. Yaptığım işlerin hangi aşamalardan geçip nasıl sonuçlanacağını biliyorum.	( )	( )	( )	( )	( )
63. Burada yaptığım iş bana sahip olduğum farklı bilgi, beceri ve yetenekleri kullanma fırsatı verir.	( )	( )	( )	( )	( )
64. Bundan sonra da şu an yapmakta olduğum işi yapmaya devam etmeyi isterim.	( )	( )	( )	( )	( )
65. Burada benden yeterince faydalanılmadığını düşünüyorum.	( )	( )	( )	( )	( )
66. İş performansımla ilgili geri bildirim alabiliyorum.	( )	( )	( )	( )	( )
67. İşimin toplum içinde saygın bir yeri var.	( )	( )	( )	( )	( )
68. Bu işyerinde iletişimin iyi olduğunu düşünüyorum.	( )	( )	( )	( )	( )
69. Bu iş, kariyer hedeflerimle alakalı beklentilerimi karşılıyor.	( )	( )	( )	( )	( )

70. İşinizden ne kadar memnunsunuz? (Lütfen 1-10 arasında puan vererek, verdiğiniz puanın altındaki parantezin içine X işareti koyunuz.)

Hiç memnun değilim.   Çok memnunum.

1	2	3	4	5	6	7	8	9	10
( )	( )	( )	( )	( )	( )	( )	( )	( )	( )

Aşağıdaki sorulara verdiğiniz cevapları ölçek üzerindeki <u>herhangi iki çizgi arasına</u> çarpı işareti (X) koyarak işaretleyiniz.

İŞ YÜKÜ ANKETİ

1. Bugün yaptığınız işler zihinsel olarak ne derece zorlayıcıydı?

Çok Düşük   Çok Yüksek
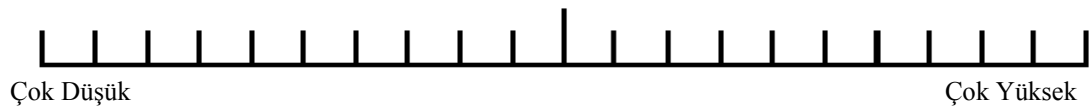
2. Bugün yaptığınız işler fiziksel olarak ne derece zorlayıcıydı?

Çok Düşük   Çok Yüksek
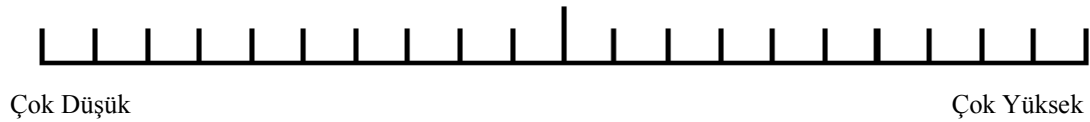
3. Bugün yaptığınız işleri ne ölçüde hızlı (zamanla yarışır) bir şekilde yapmak zorunda kaldınız?

Çok Düşük   Çok Yüksek
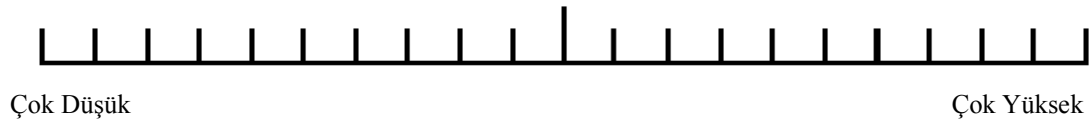
4. Bugün yaptığınız işleri ne ölçüde başarıyla yerine getirdiniz?

Çok Düşük   Çok Yüksek
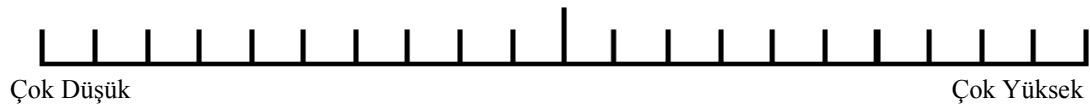
5. Bugün yapmanız gereken işleri yerine getirebilmek için ne kadar çaba sarf etmeniz gerekti?

Çok Düşük   Çok Yüksek
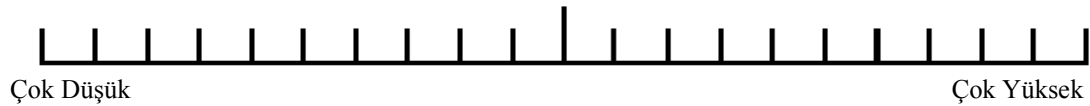
6. Bugün işlerinizi yaparken kendinizi ne ölçüde güvensiz, gönülsüz, keyifsiz ve gergin hissettiniz?

Çok Düşük   Çok Yüksek
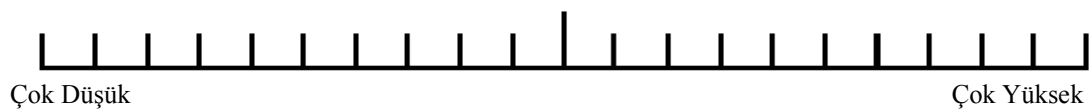
(IN ENGLISH)

My Dear Coworkers,

This survey aims to collect data for using my master thesis. In this survey, no information which causes to reveal your identity is asked. Also, you can be sure that your responses will not be shared with anyone and used for another purpose.

The survey consists of two parts which are Job Satisfaction Questionnaire and Workload Questionnaire.

It takes approximately 15 minutes to answer two questionnaires.

Put a cross into the parenthesis below "Strongly Disagree" or "Disagree" if you think that the expression (item) is not true when your job is considered. If you are indecisive about truth of the statement for your job, please mark "Neither" in the same way. If you think that the statement is accurate for your job, you must put the cross into the parenthesis below the option of "Agree" or "Strongly Agree".

Please be sure that you respond all questions in a complete manner.

Questions must be answered individually.

Thank you in advance for your help and trust.

<div style="text-align:right">

Şeniz HARPUTLU

Funding Programs Division (5th Floor)

</div>

IMPORTANT! **In order to make a dependable analysis in the direction of purposes of the study, all of questions in two questionnaires must be answered at between 4.30 pm and 5.30 pm (towards at the end of working hours).**

JOB SATISFACTION QUESTIONNAIRE

Age:	□ 20-24	□ 25-29	□ 30-34	□ 35-39	□ 40-44	□ 45-49	□ ≥50

Gender:	□ Female	□ Male

Marital Status:	□ Married	□ Single

Educational Level:	□ High School	□ Associate degree	□ Undergrad	□ Master	□ Doctorate

Department:	□ Research Funding Groups	□ Others

Position (Title):	□ Assistant Expert	□ Scientific Programs Ass. Exp.	□ Expert	□ Scientific Programs Exp.	□ Chief Expert	□ Scientific Programs Chief Expert	□ Other

Tenure: ＿＿＿＿ years

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
1. I feel satisfied with my chances for salary increases.	( )	( )	( )	( )	( )
2. There is really too little chance for promotion on my job.	( )	( )	( )	( )	( )
3. My supervisor is quite competent in doing his/her job.	( )	( )	( )	( )	( )
4. The benefit package we have is equitable.	( )	( )	( )	( )	( )
5. There are few rewards for those who work here.	( )	( )	( )	( )	( )
6. I have too much paperwork.	( )	( )	( )	( )	( )
7. There is too much bickering and fighting at work.	( )	( )	( )	( )	( )
8. My job is boring.	( )	( )	( )	( )	( )
9. I often feel that I do not know what is going on with the organization.	( )	( )	( )	( )	( )
10. Social, sporting, artistic and cultural environments in the institution are sufficient.	( )	( )	( )	( )	( )
11. I feel satisfied with training opportunities.	( )	( )	( )	( )	( )
12. This organization provides for steady employment.	( )	( )	( )	( )	( )
13. This job does not contribute to my personal growth.	( )	( )	( )	( )	( )
14. My working environment is clean and comfortable.	( )	( )	( )	( )	( )
15. Work assignments are not fully explained.	( )	( )	( )	( )	( )
16. I feel a sense of pride in doing my job.	( )	( )	( )	( )	( )
17. I enjoy my coworkers.	( )	( )	( )	( )	( )
18. I have too much to do at work.	( )	( )	( )	( )	( )
19. I do not feel that the work I do is appreciated.	( )	( )	( )	( )	( )
20. My supervisor is unfair to me.	( )	( )	( )	( )	( )
21. Those who do well on the job stand a fair chance of being promoted.	( )	( )	( )	( )	( )
22. When I do a good job, I get praise.	( )	( )	( )	( )	( )
23. Salary raises are too few.	( )	( )	( )	( )	( )
24. People get ahead as fast here as they do in other places.	( )	( )	( )	( )	( )
25. My supervisor shows too little interest in the feelings of subordinates.	( )	( )	( )	( )	( )
26. The benefits we receive are as good as most other organization offer.	( )	( )	( )	( )	( )
27. When I do a good job, I receive the recognition for it that I should receive.	( )	( )	( )	( )	( )
28. Many of our rules and procedures make doing a good job difficult.	( )	( )	( )	( )	( )
29. I find I have to work harder at my job because of the incompetence of people I work with.	( )	( )	( )	( )	( )
30. I do not like things I do at work.	( )	( )	( )	( )	( )

		Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
31.	The goals of this organization are not clear to me.	( )	( )	( )	( )	( )
32.	Tools and technology which are necessary to fulfill my job are sufficient.	( )	( )	( )	( )	( )
33.	My efforts for raising my level of education are supported by this organization.	( )	( )	( )	( )	( )
34.	I am sure of a job with this organization as long as I perform well.	( )	( )	( )	( )	( )
35.	Work experience in this job is a good reference for my career.	( )	( )	( )	( )	( )
36.	I work in an undisturbed office environment in which I concentrate my work easily.	( )	( )	( )	( )	( )
37.	Inadequacy of communication between departments makes doing jobs properly difficult.	( )	( )	( )	( )	( )
38.	I sometimes feel my job is meaningless.	( )	( )	( )	( )	( )
39.	I dislike the people I work with.	( )	( )	( )	( )	( )
40.	I do not enjoy with my work because of ambiguity in duties, powers and responsibilities.	( )	( )	( )	( )	( )
41.	I do not feel my efforts are rewarded the way they should be.	( )	( )	( )	( )	( )
42.	I am not satisfied with the benefits I receive.	( )	( )	( )	( )	( )
43.	I like my supervisor.	( )	( )	( )	( )	( )
44.	I am satisfied with my chances for promotion.	( )	( )	( )	( )	( )
45.	There are benefits we do not have which we should have.	( )	( )	( )	( )	( )
46.	Good jobs are recognized immediately.	( )	( )	( )	( )	( )
47.	Salary gaps between title groups are disturbing.	( )	( )	( )	( )	( )
48.	My supervisor cares about my questions and concerns.	( )	( )	( )	( )	( )
49.	Incentive bonuses are given to workers who actually deserve them.	( )	( )	( )	( )	( )
50.	Hierarchy in here makes doing jobs difficult.	( )	( )	( )	( )	( )
51.	I share my work-related problems with my coworkers.	( )	( )	( )	( )	( )
52.	Practicing my profession makes me like my job more.	( )	( )	( )	( )	( )
53.	I feel informed about my job.	( )	( )	( )	( )	( )
54.	I can leave easily if I really need.	( )	( )	( )	( )	( )
55.	Even in non-work-related problems, my coworkers help me.	( )	( )	( )	( )	( )
56.	I can participate in decisions that affect my own job.	( )	( )	( )	( )	( )
57.	I feel I am being paid a fair amount for the work I do.	( )	( )	( )	( )	( )
58.	My supervisor cares about my work-related opinions and suggestions.	( )	( )	( )	( )	( )

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
59. I decide how to perform my job task.	( )	( )	( )	( )	( )
60. I can solve work-related problems by myself.	( )	( )	( )	( )	( )
61. We act together with my coworkers to solve work-related problems.	( )	( )	( )	( )	( )
62. I know whole job processes and how my tasks are concluded.	( )	( )	( )	( )	( )
63. This job allows me for utilizing my different skills, abilities and knowledge.	( )	( )	( )	( )	( )
64. I want to spend the rest of my career in this organization.	( )	( )	( )	( )	( )
65. I feel underutilized in my job.	( )	( )	( )	( )	( )
66. I can get feedback about my job performance.	( )	( )	( )	( )	( )
67. My job has respectability in the society.	( )	( )	( )	( )	( )
68. Communications seem good within this organization.	( )	( )	( )	( )	( )
69. My career expectations are met in this job.	( )	( )	( )	( )	( )

70. Overall, how satisfied are you with your job? (Please, give a point between 1 and 10 and put a cross into the parenthesis under this point.)

I am very dissatisfied.   I am very satisfied.

1	2	3	4	5	6	7	8	9	10
( )	( )	( )	( )	( )	( )	( )	( )	( )	( )

IMPORTANT! Please do not rip to separate this questionnaire from the job satisfaction questionnaire. This questionnaire must be answered at between 4.30 pm and 5.30 pm (towards at the end of working hours).

Please respond the following questions by marking any of twenty intervals in each scale.

WORKLOAD QUESIONNAIRE

1. How mentally demanding were the tasks you performed today?

Very low | | | | | | | | | | | | | | | | | | | | | Very high
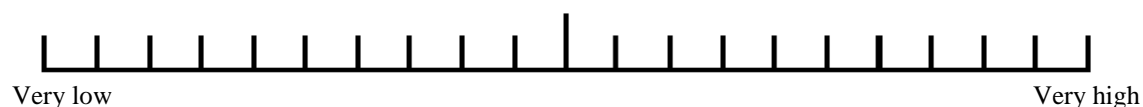
2. How physically demanding were the tasks you performed today?

Very low | | | | | | | | | | | | | | | | | | | | | Very high
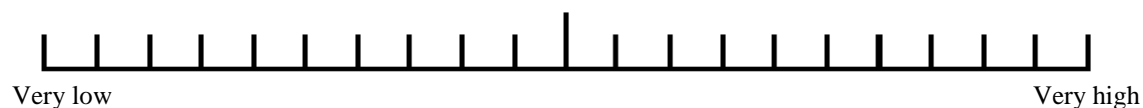
3. How hurried or rushed were the paces of the tasks you performed today?

Very low | | | | | | | | | | | | | | | | | | | | | Very high
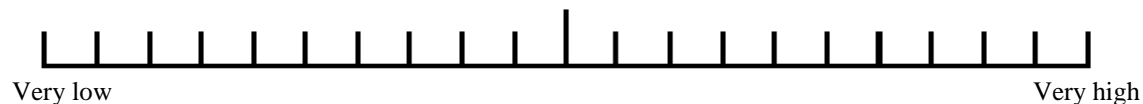
4. How successful were you in accomplishing what you were asked to do today?

Failure | | | | | | | | | | | | | | | | | | | | | Perfect

5. How hard did you have to work to accomplish your level of performance today?

Very low | | | | | | | | | | | | | | | | | | | | | Very high
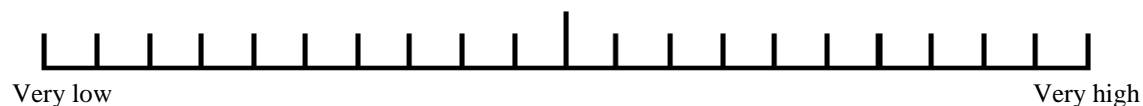
6. How insecure, discouraged, irritated, stressed, and annoyed were you today?

Very low | | | | | | | | | | | | | | | | | | | | | Very high
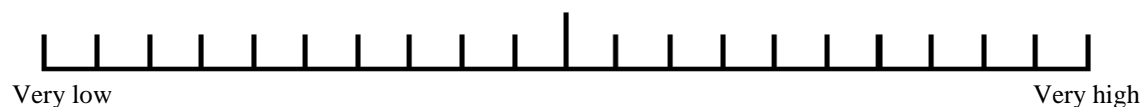
APPENDIX B

RESULTS OF FACTOR ANALYSIS

Table B.1 Initial Communalities

Item	Initial	Extraction
q1-Maaş artış olanaklarından memnunum.	1.000	.775
q2-İşimde yükselebilme şansım çok düşüktür.	1.000	.730
q3-Amirim işinin ehlidir.	1.000	.855
q4-Bu işyerindeki yan haklardan herkes eşit düzeyde yararlanmaktadır.	1.000	.753
q5-Bu işyerinde çalışanlar için çok az ödüllendirme var.	1.000	.710
q6-Burada çok fazla yazışma ve benzeri evrak işleriyle uğraşmak zorunda olmaktan rahatsızım.	1.000	.738
q7-Burada çok fazla rekabet ve kavga var.	1.000	.733
q8-İşimin can sıkıcı olduğunu düşünüyorum.	1.000	.795
q9-Burada ne olup bittiğinden genelde haberim yok.	1.000	.755
q10-Bu işyerindeki sosyal sportif sanatsal ve kültürel ortamların yeterli olduğunu düşünüyorum.	1.000	.713
q11-Kurumun sağladığı eğitim olanaklarından memnunum.	1.000	.714
q12-Bu Kurum sürekli ve kalıcı iş imkanı sağlar.	1.000	.805
q13-Yaptığım işin kişisel gelişimime katkısı olduğunu düşünmüyorum.	1.000	.720
q14-Çalıştığım ortamın temiz ve rahat olduğunu düşünüyorum.	1.000	.791
q15-Burada verilen işler tam olarak açıklanmıyor.	1.000	.700
q16-Yaptığım işten gurur duyuyorum.	1.000	.735
q17-İş arkadaşlarımı eğlenceli buluyorum.	1.000	.793
q18-Burada yapmam gereken çok iş var.	1.000	.766
q19-Yaptığım işin takdir edilmediğini hissediyorum.	1.000	.804
q20-Amirim bana karşı adil değil.	1.000	.814
q21-Bu işyerinde işini iyi yapanlar adil bir şekilde yükselme şansına sahip olurlar.	1.000	.812
q22-Yaptığım işten memnun kalındığında övgü alırım.	1.000	.789
q23-Maaş artış oranlarını yeterli bulmuyorum.	1.000	.758
q24-İnsanlar burada en az diğer kurumlarda olduğu kadar hızlı yükselirler.	1.000	.774
q25-Amirim çalışanlarının hislerini pek dikkate almaz.	1.000	.847
q26-Sahip olduğumuz yan haklar diğer pek çok kurumda sağlananlardan daha iyidir.	1.000	.785
q27-Verilen bir işi iyi yaptığımda hak ettiğim takdiri görüyorum.	1.000	.743
q28-İş yerindeki kurallar işi hakkıyla yapmamı zorlaştırmaktadır.	1.000	.766

Table B.1 Initial Communalities (continued)

Item	Initial	Extraction
q29-Birlikte çalıştığım insanların yetersizliklerinden dolayı daha fazla çalışmak zorunda kalıyorum.	1.000	.816
q30-Burada yapmakta olduğum işlerden hoşlanmıyorum.	1.000	.839
q31-Burada amaç ve hedefler açık ve net değil.	1.000	.753
q32-İşimi yaparken kullandığım araç-gereç ve teknolojinin yeterli olduğunu düşünüyorum.	1.000	.696
q33-Eğitim düzeyimi yükseltme çabam Kurum tarafından desteklenir.	1.000	.715
q34-Bana verilen görevleri aksatmadığım ve işimi iyi yaptığım sürece bu Kurumda çalışmaya devam edebileceğimden eminim.	1.000	.694
q35-Burada çalışıyor olmak kariyerim açısından iyi bir referans oluşturmaktadır.	1.000	.765
q36-İşe kolaylıkla odaklanabildiğim rahatsız edici olmayan bir ofis ortamında çalışıyorum.	1.000	.713
q37-Birimler arası iletişimsizlik işlerin düzgün yapılmasını zorlaştırıyor.	1.000	.729
q38-Bazen yaptığım işin anlamsız olduğunu hissediyorum.	1.000	.811
q39-Birlikte çalıştığım insanlardan hoşnut değilim.	1.000	.781
q40-Burada görev yetki ve sorumlulukların tanımlı olmaması nedeniyle yaptığım işlerden zevk almıyorum.	1.000	.676
q41-Çabalarımın gerektiği kadar ödüllendirildiğini sanmıyorum.	1.000	.751
q42-Bu işyerinde sahip olduğum yan haklardan memnun değilim.	1.000	.806
q43-Amirimi seviyorum.	1.000	.856
q44-Sahip olduğum yükselme olanaklarından memnunum.	1.000	.805
q45-Bu işyerinde sağlanan yan haklar yeterlidir.	1.000	.863
q46-Burada iyi bir iş yapıldığında hemen fark edilir.	1.000	.775
q47-Unvan grupları arasındaki maaş farkı beni rahatsız ediyor.	1.000	.793
q48-Amirim kendisine ilettiğim sorunlarla yakından ilgilenir.	1.000	.811
q49-Burada başarı teşvik primini gerçekten hak edenler alır.	1.000	.749
q50-Burada hiyerarşik kademenin fazla olması işlerin yapılmasını zorlaştırıyor.	1.000	.644
q51-Burada yaşadığım sorunları çalışma arkadaşlarımla paylaşırım.	1.000	.728
q52-Mesleğim doğrultusunda bir iş yapıyor olmak işimi daha fazla sevmemi sağlıyor.	1.000	.741
q53-İşimle ilgili konularda bilgilendiriliyorum.	1.000	.771
q54-Gerektiğinde kolaylıkla saatlik izin kullanabiliyorum.	1.000	.737
q55-İşle ilgili olmayan konularda bile ne zaman ihtiyacım olsa çalışma arkadaşlarım yardıma koşarlar.	1.000	.817
q56-Yaptığım işle ilgili kararlara katılabiliyorum.	1.000	.676
q57-Yaptığım iş karşılığında hak ettiğim maaşı aldığımı düşünüyorum.	1.000	.689
q58-Amirim yaptığım işle ilgili görüş ve önerilerime önem verir.	1.000	.765
q59-Verilen görevi nasıl gerçekleştireceğime kendim karar verebilirim.	1.000	.856
q60-İşle ilgili karşılaştığım problemleri kendi kendime çözebilirim.	1.000	.771

Table B.1 Initial Communalities (continued)

Item	Initial	Extraction
q61-Burada karşılaştığımız sorunları çözmek için çalışma arkadaşlarımla birlikte hareket ederiz.	1.000	.797
q62-Yaptığım işlerin hangi aşamalardan geçip nasıl sonuçlanacağını biliyorum.	1.000	.635
q63-Burada yaptığım iş bana sahip olduğum farklı bilgi beceri ve yetenekleri kullanma fırsatı verir.	1.000	.774
q64-Bundan sonra da şu an yapmakta olduğum işi yapmaya devam etmeyi isterim.	1.000	.787
q65-Burada benden yeterince faydalanılmadığını düşünüyorum.	1.000	.700
q66-İş performansımla ilgili geri bildirim alabiliyorum.	1.000	.737
q67-İşimin toplum içinde saygın bir yeri var.	1.000	.771
q68-Bu işyerinde iletişimin iyi olduğunu düşünüyorum.	1.000	.741
q69-Bu iş. kariyer hedeflerimle alakalı beklentilerimi karşılıyor.	1.000	.714
Extraction Method: Principal Component Analysis.		

Table B.2 Communalities after Factor Analysis

Item	Initial	Extraction
q1-Maaş artış olanaklarından memnunum.	1.000	.790
q2-İşimde yükselebilme şansım çok düşüktür.	1.000	.732
q3-Amirim işinin ehlidir.	1.000	.742
q6-Burada çok fazla yazışma ve benzeri evrak işleriyle uğraşmak zorunda olmaktan rahatsızım.	1.000	.676
q8-İşimin can sıkıcı olduğunu düşünüyorum.	1.000	.792
q10-Bu işyerindeki sosyal sportif sanatsal ve kültürel ortamların yeterli olduğunu düşünüyorum.	1.000	.774
q12-Bu Kurum sürekli ve kalıcı iş imkanı sağlar.	1.000	.772
q13-Yaptığım işin kişisel gelişimime katkısı olduğunu düşünmüyorum.	1.000	.657
q14-Çalıştığım ortamın temiz ve rahat olduğunu düşünüyorum.	1.000	.688
q16-Yaptığım işten gurur duyuyorum.	1.000	.644
q17-İş arkadaşlarımı eğlenceli buluyorum.	1.000	.669
q19-Yaptığım işin takdir edilmediğini hissediyorum.	1.000	.719
q20-Amirim bana karşı adil değil.	1.000	.811
q23-Maaş artış oranlarını yeterli bulmuyorum.	1.000	.794
q25-Amirim çalışanlarının hislerini pek dikkate almaz.	1.000	.749
q26-Sahip olduğumuz yan haklar diğer pek çok kurumda sağlananlardan daha iyidir.	1.000	.757
q29-Birlikte çalıştığım insanların yetersizliklerinden dolayı daha fazla çalışmak zorunda kalıyorum.	1.000	.805

Table B.2 Communalities after Factor Analysis (continued)

Item	Initial	Extraction
q30-Burada yapmakta olduğum işlerden hoşlanmıyorum.	1.000	.815
q31-Burada amaç ve hedefler açık ve net değil.	1.000	.641
q34-Bana verilen görevleri aksatmadığım ve işimi iyi yaptığım sürece bu Kurumda çalışmaya devam edebileceğimden eminim.	1.000	.765
q36-İşe kolaylıkla odaklanabildiğim rahatsız edici olmayan bir ofis ortamında çalışıyorum.	1.000	.716
q38-Bazen yaptığım işin anlamsız olduğunu hissediyorum.	1.000	.771
q39-Birlikte çalıştığım insanlardan hoşnut değilim.	1.000	.776
q40-Burada görev yetki ve sorumlulukların tanımlı olmaması nedeniyle yaptığım işlerden zevk almıyorum.	1.000	.715
q41-Çabalarımın gerektiği kadar ödüllendirildiğini sanmıyorum.	1.000	.774
q42-Bu işyerinde sahip olduğum yan haklardan memnun değilim.	1.000	.789
q43-Amirimi seviyorum.	1.000	.848
q44-Sahip olduğum yükselme olanaklarından memnunum.	1.000	.730
q45-Bu işyerinde sağlanan yan haklar yeterlidir.	1.000	.803
q46-Burada iyi bir iş yapıldığında hemen fark edilir.	1.000	.655
q48-Amirim kendisine ilettiğim sorunlarla yakından ilgilenir.	1.000	.722
q52-Mesleğim doğrultusunda bir iş yapıyor olmak işimi daha fazla sevmemi sağlıyor.	1.000	.716
q54-Gerektiğinde kolaylıkla saatlik izin kullanabiliyorum.	1.000	.630
q55-İşle ilgili olmayan konularda bile ne zaman ihtiyacım olsa çalışma arkadaşlarım yardıma koşarlar.	1.000	.654
q56-Yaptığım işle ilgili kararlara katılabiliyorum.	1.000	.656
q58-Amirim yaptığım işle ilgili görüş ve önerilerime önem verir.	1.000	.686
q59-Verilen görevi nasıl gerçekleştireceğime kendim karar verebilirim.	1.000	.796
q60-İşle ilgili karşılaştığım problemleri kendi kendime çözebilirim.	1.000	.739
q61-Burada karşılaştığımız sorunları çözmek için çalışma arkadaşlarımla birlikte hareket ederiz.	1.000	.758
q63-Burada yaptığım iş bana sahip olduğum farklı bilgi beceri ve yetenekleri kullanma fırsatı verir.	1.000	.707
q64-Bundan sonra da şu an yapmakta olduğum işi yapmaya devam etmeyi isterim.	1.000	.750
q68-Bu işyerinde iletişimin iyi olduğunu düşünüyorum.	1.000	.698
q69-Bu iş. kariyer hedeflerimle alakalı beklentilerimi karşılıyor.	1.000	.681
Extraction Method: Principal Component Analysis.		

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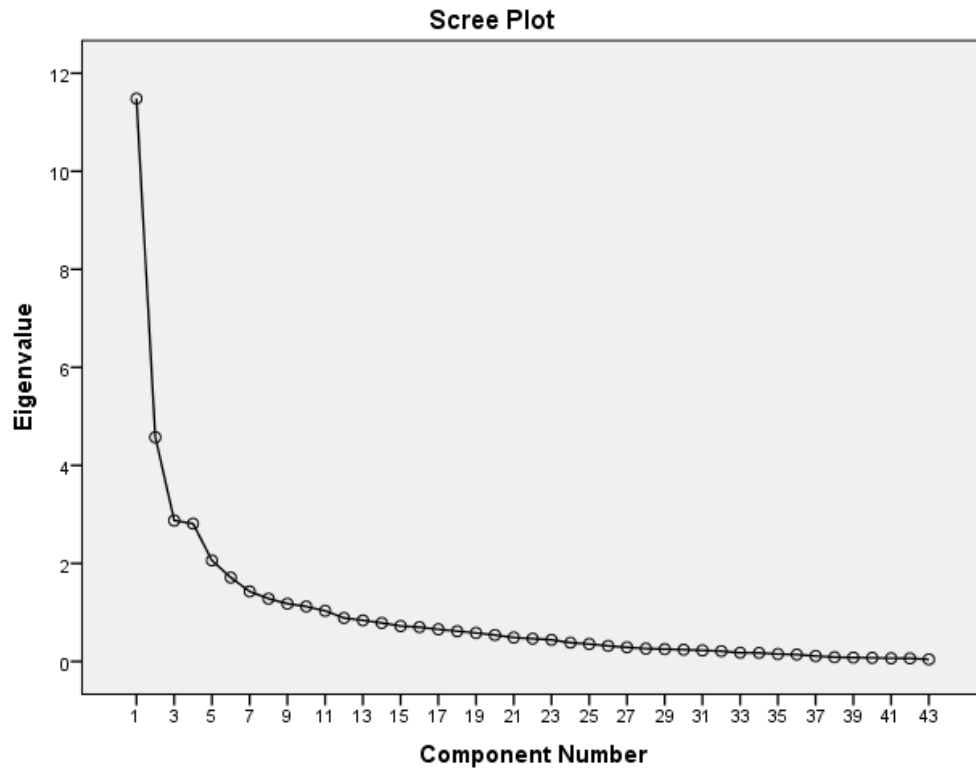
Figure B.1 Scree plot

Table B.3 Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11.482	26.703	26.703	11.482	26.703	26.703	7.334	17.056	17.056
2	4.574	10.638	37.341	4.574	10.638	37.341	4.203	9.775	26.831
3	2.875	6.685	44.026	2.875	6.685	44.026	3.486	8.107	34.938
4	2.811	6.536	50.562	2.811	6.536	50.562	2.999	6.973	41.911
5	2.061	4.793	55.355	2.061	4.793	55.355	2.788	6.484	48.396
6	1.712	3.981	59.337	1.712	3.981	59.337	2.331	5.422	53.818
7	1.428	3.322	62.658	1.428	3.322	62.658	2.092	4.866	58.684
8	1.282	2.982	65.640	1.282	2.982	65.640	1.871	4.351	63.035
9	1.179	2.742	68.383	1.179	2.742	68.383	1.753	4.076	67.111
10	1.121	2.607	70.989	1.121	2.607	70.989	1.477	3.436	70.547
11	1.033	2.403	73.392	1.033	2.403	73.392	1.224	2.845	73.392

Table B.3 Total Variance Explained (continued)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
12	.888	2.064	75.456						
13	.840	1.954	77.410						
14	.786	1.829	79.239						
15	.722	1.680	80.919						
16	.700	1.628	82.547						
17	.656	1.526	84.072						
18	.619	1.439	85.511						
19	.583	1.355	86.866						
20	.539	1.254	88.120						
21	.488	1.135	89.256						
22	.466	1.085	90.340						
23	.442	1.027	91.367						
24	.383	.891	92.259						
25	.357	.831	93.089						
26	.319	.741	93.830						
27	.290	.674	94.504						
28	.263	.612	95.115						
29	.252	.586	95.701						
30	.241	.561	96.262						
31	.226	.526	96.789						
32	.211	.490	97.279						
33	.179	.417	97.696						
34	.175	.408	98.104						
35	.151	.351	98.455						
36	.141	.329	98.784						
37	.111	.258	99.041						
38	.087	.203	99.245						
39	.081	.189	99.433						
40	.074	.172	99.606						
41	.065	.152	99.757						
42	.062	.145	99.902						
43	.042	.098	100.000						

Extraction Method: Principal Component Analysis.

DESCRIPTIVE STATISTICS FOR JOB SATISFACTION QUESTIONNAIRE ITEMS

Table C.1 Descriptive Statistics of Items in Job Satisfaction Questionnaire

Item	Mean	Std. Deviation
q1-Maaş artış olanaklarından memnunum.	2.60	1.03
q2-İşimde yükselebilme şansım çok düşüktür.	2.53	1.17
q3-Amirim işinin ehlidir.	3.64	1.07
q4-Bu işyerindeki yan haklardan herkes eşit düzeyde yararlanmaktadır.	2.91	1.10
q5-Bu işyerinde çalışanlar için çok az ödüllendirme var.	1.76	0.83
q6-Burada çok fazla yazışma ve benzeri evrak işleriyle uğraşmak zorunda olmaktan rahatsızım.	2.42	1.25
q7-Burada çok fazla rekabet ve kavga var.	3.61	0.84
q8-İşimin can sıkıcı olduğunu düşünüyorum.	2.94	1.22
q9-Burada ne olup bittiğinden genelde haberim yok.	3.73	1.08
q10-Bu işyerindeki sosyal sportif sanatsal ve kültürel ortamların yeterli olduğunu düşünüyorum.	1.97	1.00
q11-Kurumun sağladığı eğitim olanaklarından memnunum.	2.08	1.10
q12-Bu Kurum sürekli ve kalıcı iş imkanı sağlar.	2.82	1.06
q13-Yaptığım işin kişisel gelişimime katkısı olduğunu düşünmüyorum.	2.57	1.19
q14-Çalıştığım ortamın temiz ve rahat olduğunu düşünüyorum.	3.17	1.23
q15-Burada verilen işler tam olarak açıklanmıyor.	3.41	1.08
q16-Yaptığım işten gurur duyuyorum.	3.32	1.00
q17-İş arkadaşlarımı eğlenceli buluyorum.	3.73	0.97
q18-Burada yapmam gereken çok iş var.	2.16	1.03
q19-Yaptığım işin takdir edilmediğini hissediyorum.	2.77	1.05
q20-Amirim bana karşı adil değil.	3.81	0.93
q21-Bu işyerinde işini iyi yapanlar adil bir şekilde yükselme şansına sahip olurlar.	2.24	0.96
q22-Yaptığım işten memnun kalındığında övgü alırım.	2.95	1.05
q23-Maaş artış oranlarını yeterli bulmuyorum.	2.44	1.16
q24-İnsanlar burada en az diğer kurumlarda olduğu kadar hızlı yükselirler.	2.32	1.00
q25-Amirim çalışanlarının hislerini pek dikkate almaz.	3.45	1.07

Table C.1 Descriptive Statistics of Items in Job Satisfaction Questionnaire (continued)

Item	Mean	Std. Deviation
q26-Sahip olduğumuz yan haklar diğer pek çok kurumda sağlananlardan daha iyidir.	2.64	1.02
q27-Verilen bir işi iyi yaptığımda hak ettiğim takdiri görüyorum.	2.86	1.02
q28-İş yerindeki kurallar işi hakkıyla yapmamı zorlaştırmaktadır.	3.24	1.09
q29-Birlikte çalıştığım insanların yetersizliklerinden dolayı daha fazla çalışmak zorunda kalıyorum.	3.69	1.07
q30-Burada yapmakta olduğum işlerden hoşlanmıyorum.	3.26	1.12
q31-Burada amaç ve hedefler açık ve net değil.	2.94	1.16
q32-İşimi yaparken kullandığım araç-gereç ve teknolojinin yeterli olduğunu düşünüyorum.	2.83	1.14
q33-Eğitim düzeyimi yükseltme çabam Kurum tarafından desteklenir.	2.82	1.29
q34-Bana verilen görevleri aksatmadığım ve işimi iyi yaptığım sürece bu Kurumda çalışmaya devam edebileceğimden eminim.	3.13	1.09
q35-Burada çalışıyor olmak kariyerim açısından iyi bir referans oluşturmaktadır.	3.42	1.05
q36-İşe kolaylıkla odaklanabildiğim rahatsız edici olmayan bir ofis ortamında çalışıyorum.	2.90	1.22
q37-Birimler arası iletişimsizlik işlerin düzgün yapılmasını zorlaştırıyor.	2.14	1.04
q38-Bazen yaptığım işin anlamsız olduğunu hissediyorum.	2.80	1.17
q39-Birlikte çalıştığım insanlardan hoşnut değilim.	3.84	0.91
q40-Burada görev yetki ve sorumlulukların tanımlı olmaması nedeniyle yaptığım işlerden zevk almıyorum.	2.93	1.06
q41-Çabalarımın gerektiği kadar ödüllendirildiğini sanmıyorum.	2.40	0.94
q42-Bu işyerinde sahip olduğum yan haklardan memnun değilim.	2.69	1.01
q43-Amirimi seviyorum.	3.76	0.91
q44-Sahip olduğum yükselme olanaklarından memnunum.	2.31	0.98
q45-Bu işyerinde sağlanan yan haklar yeterlidir.	2.53	0.93
q46-Burada iyi bir iş yapıldığında hemen fark edilir.	2.55	0.87
q47-Unvan grupları arasındaki maaş farkı beni rahatsız ediyor.	2.44	1.16
q48-Amirim kendisine ilettiğim sorunlarla yakından ilgilenir.	3.68	0.89
q49-Burada başarı teşvik primini gerçekten hak edenler alır.	2.26	0.97
q50-Burada hiyerarşik kademenin fazla olması işlerin yapılmasını zorlaştırıyor.	2.90	1.04
q51-Burada yaşadığım sorunları çalışma arkadaşlarımla paylaşırım.	3.78	0.88
q52-Mesleğim doğrultusunda bir iş yapıyor olmak işimi daha fazla sevmemi sağlıyor.	2.76	1.17
q53-İşimle ilgili konularda bilgilendiriliyorum.	3.15	1.02
q54-Gerektiğinde kolaylıkla saatlik izin kullanabiliyorum.	3.75	0.95
q55-İşle ilgili olmayan konularda bile ne zaman ihtiyacım olsa çalışma arkadaşlarım yardıma koşarlar.	3.75	0.89

Table C.1 Descriptive Statistics of Items in Job Satisfaction Questionnaire (continued)

Item	Mean	Std. Deviation
q56-Yaptığım işle ilgili kararlara katılabiliyorum.	3.25	1.04
q57-Yaptığım iş karşılığında hak ettiğim maaşı aldığımı düşünüyorum.	3.15	1.15
q58-Amirim yaptığım işle ilgili görüş ve önerilerime önem verir.	3.74	0.80
q59-Verilen görevi nasıl gerçekleştireceğime kendim karar verebilirim.	3.31	0.95
q60-İşle ilgili karşılaştığım problemleri kendi kendime çözebilirim.	3.43	0.97
q61-Burada karşılaştığımız sorunları çözmek için çalışma arkadaşlarımla birlikte hareket ederiz.	3.67	0.92
q62-Yaptığım işlerin hangi aşamalardan geçip nasıl sonuçlanacağını biliyorum.	3.77	0.87
q63-Burada yaptığım iş bana sahip olduğum farklı bilgi beceri ve yetenekleri kullanma fırsatı verir.	2.67	1.15
q64-Bundan sonra da şu an yapmakta olduğum işi yapmaya devam etmeyi isterim.	2.93	1.18
q65-Burada benden yeterince faydalanılmadığını düşünüyorum.	2.60	1.25
q66-İş performansımla ilgili geri bildirim alabiliyorum.	2.43	0.97
q67-İşimin toplum içinde saygın bir yeri var.	3.49	1.17
q68-Bu işyerinde iletişimin iyi olduğunu düşünüyorum.	2.93	1.03
q69-Bu iş. kariyer hedeflerimle alakalı beklentilerimi karşılıyor.	2.57	1.15
q70-general satisfaction	6.08	2.12
Total satisfaction	130.99	22.65

APPENDIX D

NORMALITY TESTS

Table D.1 Tests of Normality for "Total Score" of 69 questions in initial questionnaire

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
total score	.055	88	.200*	.993	88	.919
*. This is a lower bound of the true significance.						
a. Lilliefors Significance Correction						

Table D.2 Tests of Normality for "10 Satisfaction Factors" in "Age" groups

	Age	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	Df	Sig.
nature of work	< 30	.082	44	.200*	.968	44	.246
	>= 30	.092	44	.200*	.952	44	.063
Supervision	< 30	.149	44	.016	.935	44	.016
	>= 30	.119	44	.135	.971	44	.315
Co-workers	< 30	.168	44	.003	.943	44	.030
	>= 30	.202	44	.000	.883	44	.000
promotions and rewards	< 30	.111	44	.200*	.956	44	.093
	>= 30	.117	44	.153	.964	44	.184
fringe benefits	< 30	.135	44	.042	.933	44	.014
	>= 30	.122	44	.102	.943	44	.031
Autonomy	< 30	.198	44	.000	.936	44	.017
	>= 30	.138	44	.035	.940	44	.023
working conditions	< 30	.206	44	.000	.943	44	.029
	>= 30	.136	44	.039	.931	44	.011
job security	< 30	.177	44	.001	.939	44	.022
	>= 30	.134	44	.045	.953	44	.073
Pay	< 30	.153	44	.011	.956	44	.089
	>= 30	.167	44	.003	.902	44	.001
social work environment	< 30	.172	44	.002	.927	44	.008
	>= 30	.161	44	.006	.929	44	.010

Table D.3 Tests of Normality for "Total Satisfaction" in "Age" groups

	age	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
total satisfaction	< 30	.107	44	.200[*]	.979	44	.597
	>=30	.085	44	.200[*]	.972	44	.344

Table D.4 Test of Normality for "10 Satisfaction Factors" and "Gender" groups

	Gender	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
nature of work	Female	.093	42	.200[*]	.972	42	.389
	Male	.103	46	.200[*]	.960	46	.117
Supervision	Female	.152	42	.016	.952	42	.073
	Male	.085	46	.200[*]	.980	46	.604
co-workers	Female	.210	42	.000	.867	42	.000
	Male	.129	46	.054	.970	46	.275
promotions and rewards	Female	.135	42	.052	.964	42	.208
	Male	.093	46	.200[*]	.966	46	.195
fringe benefits	Female	.111	42	.200[*]	.945	42	.041
	Male	.138	46	.028	.946	46	.034
Autonomy	Female	.120	42	.140	.971	42	.367
	Male	.202	46	.000	.935	46	.013
working conditions	Female	.164	42	.006	.927	42	.010
	Male	.157	46	.006	.930	46	.008
job security	Female	.150	42	.018	.950	42	.062
	Male	.170	46	.002	.933	46	.011
Pay	Female	.162	42	.007	.919	42	.005
	Male	.138	46	.028	.937	46	.015
social work environment	Female	.147	42	.023	.944	42	.041
	Male	.140	46	.024	.942	46	.024

Table D.5 Tests of Normality for "Total Satisfaction" in "Gender" groups

	Gender	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
total satisfaction	Female	.099	42	.200[*]	.974	42	.449
	Male	.075	46	.200[*]	.982	46	.701

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Table D.6 Tests of Normality for "10 Satisfaction Factors" in "Marital Status" groups

	Marital Status	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
nature of work	Married	.119	47	.094	.952	47	.053
	Single	.087	41	.200[*]	.971	41	.376
Supervision	Married	.134	47	.035	.959	47	.095
	Single	.118	41	.163	.955	41	.108
co-workers	Married	.194	47	.000	.870	47	.000
	Single	.119	41	.156	.971	41	.373
promotions and rewards	Married	.143	47	.017	.947	47	.034
	Single	.117	41	.168	.967	41	.283
fringe benefits	Married	.122	47	.075	.939	47	.017
	Single	.141	41	.040	.947	41	.053
Autonomy	Married	.162	47	.003	.950	47	.044
	Single	.182	41	.002	.941	41	.035
working conditions	Married	.149	47	.010	.931	47	.008
	Single	.171	41	.004	.957	41	.126
job security	Married	.175	47	.001	.926	47	.005
	Single	.179	41	.002	.943	41	.039
Pay	Married	.133	47	.035	.912	47	.002
	Single	.168	41	.005	.947	41	.053
social work environment	Married	.164	47	.003	.941	47	.019
	Single	.172	41	.004	.927	41	.012

Table D.7 Tests of Normality for "Total Satisfaction" in "Marital Status" groups

	Marital status	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
total satisfaction	Married	.088	47	.200[*]	.975	47	.421
	Single	.080	41	.200[*]	.981	41	.720

Table D.8 Tests of Normality for "10 Satisfaction Factors" in "Educational Level" groups

	educationlevel	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
nature of work	<= undergrad.	.112	32	.200*	.913	32	.014
	graduate	.111	42	.200*	.986	42	.872
	doctorate	.135	14	.200*	.965	14	.797
Supervision	<= undergrad.	.138	32	.126	.919	32	.020
	graduate	.130	42	.071	.971	42	.349
	doctorate	.253	14	.015	.849	14	.021
co-workers	<= undergrad.	.133	32	.161	.923	32	.024
	graduate	.188	42	.001	.940	42	.029
	doctorate	.182	14	.200*	.924	14	.248
promotions and rewards	<= undergrad.	.187	32	.006	.937	32	.061
	graduate	.095	42	.200*	.971	42	.363
	doctorate	.151	14	.200*	.948	14	.533
fringe benefits	<= undergrad.	.127	32	.200*	.929	32	.036
	graduate	.134	42	.056	.948	42	.056
	doctorate	.222	14	.060	.920	14	.219
Autonomy	<= undergrad.	.174	32	.015	.934	32	.051
	graduate	.187	42	.001	.917	42	.005
	doctorate	.163	14	.200*	.871	14	.044
working conditions	<= undergrad.	.176	32	.013	.923	32	.025
	graduate	.148	42	.021	.931	42	.014
	doctorate	.140	14	.200*	.932	14	.323
job security	<= undergrad.	.170	32	.019	.914	32	.015
	graduate	.181	42	.001	.923	42	.008
	doctorate	.203	14	.124	.879	14	.056
Pay	<= undergrad.	.255	32	.000	.888	32	.003
	graduate	.176	42	.002	.940	42	.030
	doctorate	.170	14	.200*	.877	14	.053
social work environment	<= undergrad.	.147	32	.078	.948	32	.123
	graduate	.178	42	.002	.926	42	.009
	doctorate	.220	14	.064	.857	14	.028

Table D.9 Tests of Normality for "Total Satisfaction" in "Educational Level" groups

	educational level	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
total satisfaction	<=undergrad	.103	32	.200[*]	.962	32	.306
	Graduate	.088	42	.200[*]	.987	42	.906
	Doctorate	.159	14	.200[*]	.959	14	.705

Table D.10 Tests of Normality for "10 Satisfaction Factors" in "Department" groups

	Department	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
nature of work	Teams	.086	69	.200[*]	.978	69	.270
	Other	.107	19	.200[*]	.940	19	.266
Supervision	Teams	.132	69	.004	.971	69	.102
	Other	.117	19	.200[*]	.952	19	.422
co-workers	Teams	.170	69	.000	.936	69	.002
	Other	.177	19	.119	.887	19	.029
promotions and rewards	Teams	.117	69	.020	.967	69	.064
	Other	.214	19	.022	.924	19	.131
fringe benefits	Teams	.118	69	.018	.957	69	.018
	Other	.184	19	.091	.889	19	.031
Autonomy	Teams	.151	69	.000	.968	69	.078
	Other	.245	19	.004	.850	19	.007
working conditions	Teams	.176	69	.000	.937	69	.002
	Other	.139	19	.200[*]	.958	19	.528
job security	Teams	.158	69	.000	.948	69	.006
	Other	.197	19	.051	.917	19	.101
Pay	Teams	.131	69	.005	.939	69	.002
	Other	.196	19	.054	.865	19	.012
social work environment	Teams	.154	69	.000	.943	69	.003
	Other	.207	19	.032	.933	19	.197

Table D.11 Tests of Normality for "Total Satisfaction" in "Department" Groups

	Department	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
total satisfaction	Teams	.054	69	.200[*]	.991	69	.910
	Other	.115	19	.200[*]	.970	19	.768

Table D.12 Tests of Normality for "10 Satisfaction Factors" in "Cadre" group

	Cadre	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
nature of work	A	.139	23	.200[*]	.909	23	.039
	AG	.074	59	.200[*]	.982	59	.532
Supervision	A	.105	23	.200[*]	.950	23	.288
	AG	.132	59	.013	.963	59	.070
co-workers	A	.177	23	.060	.931	23	.118
	AG	.193	59	.000	.933	59	.003
promotions and rewards	A	.189	23	.033	.901	23	.026
	AG	.116	59	.045	.967	59	.113
fringe benefits	A	.185	23	.039	.917	23	.058
	AG	.119	59	.037	.946	59	.012
Autonomy	A	.243	23	.001	.837	23	.002
	AG	.161	59	.001	.961	59	.056
working conditions	A	.180	23	.051	.894	23	.019
	AG	.148	59	.003	.956	59	.032
job security	A	.205	23	.013	.889	23	.015
	AG	.162	59	.001	.944	59	.009
Pay	A	.228	23	.003	.855	23	.003
	AG	.143	59	.004	.948	59	.014
social work environment	A	.171	23	.081	.935	23	.139
	AG	.139	59	.006	.941	59	.007

Table D.13 Tests of Normality for "Total Satisfaction" in "Cadre" groups

	Cadre	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
total satisfaction	A	.131	23	.200[*]	.953	23	.340
	AG	.075	59	.200[*]	.984	59	.650

Table D.14 Tests of Normality for "10 Satisfaction Factors" and "Position" groups

	position	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	Df	Sig.
nature of work	assistant experts	.097	44	.200[*]	.957	44	.100
	experts	.130	24	.200[*]	.923	24	.069
	chief experts	.143	14	.200[*]	.945	14	.481
Supervision	assistant experts	.119	44	.134	.953	44	.070
	experts	.114	24	.200[*]	.962	24	.484
	chief experts	.144	14	.200[*]	.906	14	.139
co-workers	assistant experts	.175	44	.002	.934	44	.014
	experts	.211	24	.007	.888	24	.012
	chief experts	.218	14	.069	.836	14	.014
promotions and rewards	assistant experts	.109	44	.200[*]	.950	44	.057
	experts	.134	24	.200[*]	.972	24	.704
	chief experts	.143	14	.200[*]	.934	14	.351
fringe benefits	assistant experts	.118	44	.142	.939	44	.021
	experts	.171	24	.068	.938	24	.148
	chief experts	.176	14	.200[*]	.913	14	.175
Autonomy	assistant experts	.178	44	.001	.944	44	.034
	experts	.246	24	.001	.859	24	.003
	chief experts	.187	14	.198	.909	14	.153
working conditions	assistant experts	.200	44	.000	.944	44	.033
	experts	.151	24	.167	.946	24	.220
	chief experts	.134	14	.200[*]	.947	14	.510
job security	assistant experts	.164	44	.005	.943	44	.031
	experts	.191	24	.024	.918	24	.054
	chief experts	.232	14	.039	.849	14	.022
Pay	assistant experts	.173	44	.002	.949	44	.052
	experts	.152	24	.162	.905	24	.027
	chief experts	.208	14	.102	.880	14	.058
social work environment	assistant experts	.157	44	.008	.937	44	.018
	experts	.237	24	.001	.847	24	.002
	chief experts	.157	14	.200[*]	.914	14	.177

Table D.15 Test of Normality for "Total Satisfaction" in "Position" groups

	position	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
total satisfaction	assistant experts	.096	44	.200*	.978	44	.571
	experts	.178	24	.047	.941	24	.171
	chief experts	.175	14	.200*	.931	14	.318

Table D.16 Tests of Normality for "10 Satisfaction Factors" in "Tenure" groups

	tenure	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
nature of work	0-2	.165	29	.043	.914	29	.021
	2-5	.119	26	.200*	.966	26	.522
	5-10	.133	22	.200*	.927	22	.107
	> 10	.158	11	.200*	.957	11	.732
Supervision	0-2	.119	29	.200*	.946	29	.146
	2-5	.180	26	.030	.935	26	.102
	5-10	.146	22	.200*	.969	22	.689
	> 10	.198	11	.200*	.934	11	.450
Co-workers	0-2	.122	29	.200*	.931	29	.058
	2-5	.239	26	.001	.886	26	.008
	5-10	.159	22	.156	.893	22	.021
	> 10	.271	11	.024	.887	11	.127
promotions and rewards	0-2	.148	29	.106	.940	29	.102
	2-5	.118	26	.200*	.919	26	.042
	5-10	.126	22	.200*	.939	22	.185
	> 10	.284	11	.014	.870	11	.077
fringe benefits	0-2	.176	29	.022	.904	29	.012
	2-5	.148	26	.147	.931	26	.083
	5-10	.167	22	.114	.947	22	.273
	> 10	.113	11	.200*	.961	11	.782
Autonomy	0-2	.175	29	.023	.929	29	.051
	2-5	.188	26	.019	.953	26	.277
	5-10	.208	22	.014	.921	22	.079
	> 10	.153	11	.200*	.895	11	.160

Table D.16 Tests of Normality for "10 Satisfaction Factors" in "Tenure" groups (continued)

	tenure	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
working conditions	0-2	.205	29	.003	.903	29	.011
	2-5	.144	26	.175	.957	26	.332
	5-10	.185	22	.048	.921	22	.079
	> 10	.226	11	.123	.881	11	.108
job security	0-2	.182	29	.015	.943	29	.118
	2-5	.159	26	.089	.937	26	.112
	5-10	.222	22	.006	.926	22	.102
	> 10	.139	11	.200[*]	.945	11	.580
Pay	0-2	.200	29	.005	.945	29	.136
	2-5	.132	26	.200[*]	.928	26	.069
	5-10	.227	22	.004	.887	22	.016
	> 10	.245	11	.064	.877	11	.096
social work environment	0-2	.157	29	.067	.953	29	.216
	2-5	.220	26	.002	.885	26	.007
	5-10	.253	22	.001	.832	22	.002
	> 10	.231	11	.104	.876	11	.093

Table D.17 Tests of Normality for "Total Satisfaction" in "Tenure" groups

	tenure	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
total satisfaction	0-2	.125	29	.200[*]	.964	29	.414
	2-5	.088	26	.200[*]	.955	26	.297
	5-10	.145	22	.200[*]	.912	22	.052
	>10	.111	11	.200[*]	.979	11	.963

Table D.18 Tests of Normality for workload dimensions

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
mentaldemand	,135	80	,001	,948	80	,003
physicaldemand	,164	80	,000	,901	80	,000
temporaldemand	,124	80	,004	,961	80	,015
effort	,112	80	,014	,954	80	,006
frustration	,124	80	,004	,932	80	,000
performance	,158	80	,000	,919	80	,000
total workload	,079	80	,200[*]	,981	80	,286

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

APPENDIX E

POST-HOC ANALYSIS IN ANOVA

Table E.1 Multiple comparisons of position groups

Dependent Variable: total satisfaction

	(I) position	(J) position	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Tukey HSD	1.00	2.00	7.93182	5.65271	.344	-5.5707	21.4343
		3.00	**17.93182**[*]	6.83530	.028	1.6045	34.2591
	2.00	1.00	-7.93182	5.65271	.344	-21.4343	5.5707
		3.00	10.00000	7.49128	.380	-7.8942	27.8942
	3.00	1.00	**-17.93182**[*]	6.83530	.028	-34.2591	-1.6045
		2.00	-10.00000	7.49128	.380	-27.8942	7.8942
Tamhane	1.00	2.00	7.93182	5.85073	.453	-6.6018	22.4654
		3.00	**17.93182**[*]	6.73015	.043	.5009	35.3627
	2.00	1.00	-7.93182	5.85073	.453	-22.4654	6.6018
		3.00	10.00000	7.66122	.492	-9.4050	29.4050
	3.00	1.00	**-17.93182**[*]	6.73015	.043	-35.3627	-.5009
		2.00	-10.00000	7.66122	.492	-29.4050	9.4050
*. The mean difference is significant at the 0.05 level.							

Table E.2 Multiple comparisons of tenure groups

Dependent Variable: total satisfaction

	(I) tenure	(J) tenure	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Tukey HSD	1.00	2.00	6.59814	5.86468	.675	-8.7744	21.9707
		3.00	19.16458*	6.13936	.013	3.0720	35.2572
		4.00	14.02821	7.68924	.269	-6.1269	34.1833
	2.00	1.00	-6.59814	5.86468	.675	-21.9707	8.7744
		3.00	12.56643	6.29030	.197	-3.9218	29.0546
		4.00	7.43007	7.81028	.777	-13.0423	27.9025
	3.00	1.00	-19.16458*	6.13936	.013	-35.2572	-3.0720
		2.00	-12.56643	6.29030	.197	-29.0546	3.9218
		4.00	-5.13636	8.01859	.919	-26.1548	15.8821
	4.00	1.00	-14.02821	7.68924	.269	-34.1833	6.1269
		2.00	-7.43007	7.81028	.777	-27.9025	13.0423
		3.00	5.13636	8.01859	.919	-15.8821	26.1548
Tamhane	1.00	2.00	6.59814	5.59862	.813	-8.7064	21.9027
		3.00	19.16458	7.01021	.054	-.1975	38.5267
		4.00	14.02821	5.91483	.137	-2.6264	30.6828
	2.00	1.00	-6.59814	5.59862	.813	-21.9027	8.7064
		3.00	12.56643	6.69216	.346	-6.0269	31.1598
		4.00	7.43007	5.53418	.720	-8.3435	23.2037
	3.00	1.00	-19.16458	7.01021	.054	-38.5267	.1975
		2.00	-12.56643	6.69216	.346	-31.1598	6.0269
		4.00	-5.13636	6.95885	.977	-24.6945	14.4217
	4.00	1.00	-14.02821	5.91483	.137	-30.6828	2.6264
		2.00	-7.43007	5.53418	.720	-23.2037	8.3435
		3.00	5.13636	6.95885	.977	-14.4217	24.6945

*. The mean difference is significant at the 0.05 level.

MANOVA TEST RESULTS

Table 12.1 Results of MANOVA for Age and Satisfaction Factor

Source	Multivariate test (Sig. of Pillai's Trace)	Box's Test of Equality of Covariance Matrices		Dependent Variable	Levene's Test of Equality of Error Var.		Tests of Between-Subjects Effects		
					F	Sig.	F	Sig.	Partial Eta Squared
age: 1: < 30 2: >=30	0.028	Box's M	75.610	nature of work	.319	.573	.120	.730	.001
				Supervision	.003	.959	15.928	**0.000****	.156
		F	1.205	co-workers	.035	.853	2.832	.096	.032
				promotions and rewards	.348	.557	5.708	**0.019***	.062
		df1	55	fringe benefits	.952	.332	.241	.625	.003
				Autonomy	.561	.456	4.389	**0.039***	.049
		df2	23883.981	working conditions	3.010	.086	5.307	**0.024***	.058
				job security	.154	.695	.156	.693	.002
		Sig.	**.142**	Pay	2.698	.104	.429	.514	.005
				social work environment	.117	.733	1.163	.284	.013

Table F.2 Results of MANOVA for Gender and Satisfaction Factors

Source	Multivariate test (Sig. of Pillai's Trace)	Box's Test of Equality of Covariance Matrices		Dependent Variable	Levene's Test of Equality of Error Var.		Tests of Between-Subjects Effects		
					F	Sig.	F	Sig.	Partial Eta Squared
gender: 1: female 2: male	**0.011**	Box's M	76.718	nature of work	.565	.454	7.356	**0.008****	.079
				Supervision	3.041	.085	.662	0.418	.008
		F	1.222	co-workers	.174	.678	.144	0.705	.002
				promotions and rewards	.043	.837	3.396	0.069	.038
		df1	55	fringe benefits	.000	.997	1.474	0.228	.017
				Autonomy	2.383	.126	10.090	**0.002****	.105
		df2	23470.932	working conditions	.558	.457	1.156	0.285	.013
				job security	.296	.588	.167	0.684	.002
		Sig.	**.125**	Pay	.060	.806	.000	0.992	.000
				social work environment	.000	.994	.027	0.871	.000

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Table F.3 Results of MANOVA for Marital Status and Satisfaction Factors

Source	Multivariate test (Sig. of Pillai's Trace)	Box's Test of Equality of Covariance Matrices		Dependent Variable	Levene's Test of Equality of Error Var.		Tests of Between-Subjects Effects		
					F	Sig.	F	Sig.	Partial Eta Squared
marital status: 1: married 2: single	0.119	Box's M	73.962	nature of work	.603	.439	.523	.472	.006
				Supervision	.000	.997	2.569	.113	.029
		F	1.178	co-workers	.105	.746	.263	.609	.003
				promotions and rewards	.196	.659	9.035	**0.003****	.095
		df1	55	fringe benefits	1.704	.195	.597	.442	.007
				Autonomy	.022	.883	.152	.698	.002
		df2	22970.319	working conditions	1.275	.262	.357	.551	.004
				job security	3.607	.061	.693	.407	.008
		Sig.	**.173**	Pay	1.248	.267	.796	.375	.009
				social work environment	1.053	.308	3.849	.053	.043

Table F.4 Results of MANOVA for Educational Level and Satisfaction Factors

Source	Multivariate test (Sig. of Pillai's Trace)	Box's Test of Equality of Covariance Matrices		Dependent Variable	Levene's Test of Equality of Error Var.		Tests of Between-Subjects Effects		
					F	Sig.	F	Sig.	Partial Eta Squared
educational level: **1: ≤undergrad** **2: graduate** **3: doctorate**	**0.003**	Box's M	132.953	nature of work	1.357	.263	1.529	.223	.035
				supervision	3.773	.027	2.414	.096	.054
		F	.927	co-workers	1.398	.253	.780	.461	.018
				promotions and rewards	.494	.612	2.953	.058	.065
		df1	110	fringe benefits	.326	.722	3.878	**0.024***	.084
				autonomy	.305	.738	2.964	.057	.065
		df2	5073.968	working conditions	1.637	.201	7.814	**0.001****	.155
				job security	.743	.479	.133	.876	.003
		Sig.	**.693**	Pay	.807	.450	.201	.818	.005
				social work environment	.231	.794	3.371	**0.039***	.073

Table F.5 Results of MANOVA for Department and Satisfaction Factors

Source	Multivariate test (Sig. of Pillai's Trace)	Box's Test of Equality of Covariance Matrices		Dependent Variable	Levene's Test of Equality of Error Var.		Tests of Between-Subjects Effects		
					F	Sig.	F	Sig.	Partial Eta Squared
department: 1: teams (groups) 2: other	**0.043**	Box's M	58.266	nature of work	.001	.972	.005	.944	.000
				Supervision	.628	.430	.007	.933	.000
		F	.828	co-workers	.630	.430	.396	.531	.005
				promotions and rewards	.451	.504	.054	.817	.001
		df1	55	fringe benefits	.876	.352	1.590	.211	.018
				Autonomy	.150	.700	1.699	.196	.019
		df2	3647.657	working conditions	4.624	.034	2.968	.089	.033
				job security	.079	.780	.179	.673	.002
		Sig.	**.813**	Pay	.568	.453	6.714	**0.011***	.072
				social work environment	.273	.603	.869	.354	.010

Table F.6 Results of MANOVA for Position and Satisfaction Factors

Source	Multivariate test (Sig. of Pillai's Trace)	Box's Test of Equality of Covariance Matrices		Dependent Variable	Levene's Test of Equality of Error Var.		Tests of Between-Subjects Effects		
					F	Sig.	F	Sig.	Partial Eta Squared
position (title): 1: assistant exp./sc.prog.assistant exp. 2: exp./sc.prog. exp. 3: chief exp./sc.prog. chief exp.	**0.021**	Box's M	162.692	nature of work	.589	.557	.699	.500	.017
				supervision	.122	.885	5.780	**0.005****	.128
		F	1.11	co-workers	.295	.745	2.966	.057	.070
				promotions and rewards	.862	.426	7.003	**0.001****	.151
		df1	110	fringe benefits	.464	.630	1.225	.299	.030
				autonomy	.283	.754	2.329	.104	.056
		df2	5080.635	working conditions	1.993	.143	4.408	**0.015***	.100
				job security	.482	.619	.159	.853	.004
		Sig.	**.204**	Pay	1.632	.202	.865	.425	.021
				social work environment	2.295	.107	4.947	**0.009****	.111

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Table F.7 Results of MANOVA for Cadre and Satisfaction Factors

Source	Multivariate test (Sig. of Pillai's Trace)	Box's Test of Equality of Covariance Matrices		Dependent Variable	Levene's Test of Equality of Error Var.		Tests of Between-Subjects Effects		
					F	Sig.	F	Sig.	Partial Eta Squared
cadre: 1: A 2: AG	0.032	Box's M	72.484	nature of work	.188	.666	.046	.831	.001
				Supervision	.247	.621	.190	.664	.002
		F	1.076	co-workers	9.685	.003	2.901	.092	.035
				promotions and rewards	2.297	.134	2.289	.134	.028
		df1	55	fringe benefits	.808	.371	.264	.609	.003
				Autonomy	.255	.615	.010	.920	.000
		df2	6.067.037	working conditions	2.479	.119	.457	.501	.006
				job security	1.100	.297	4.083	.047	.049
		Sig.	.326	Pay	.191	.663	10.860	0.001**	.120
				social work environment	1.933	.168	.614	.436	.008

Table F.8 Results of MANOVA for Tenure and Satisfaction Factors

Source	Multivariate test (Sig. of Pillai's Trace)	Box's Test of Equality of Covariance Matrices		Dependent Variable	Levene's Test of Equality of Error Var.		Tests of Between-Subjects Effects		
					F	Sig.	F	Sig.	Partial Eta Squared
tenure: 1: 0-2 years 2: 2-5 years 3: 5-10 years 4: >10 years	0.006	Box's M	259.110	nature of work	1.222	.307	.476	.700	.017
				Supervision	1.269	.290	4.224	**0.008****	.131
		F	1.139	co-workers	2.943	.038	5.042	**0.003****	.153
				promotions and rewards	.288	.834	7.860	**0.000****	.219
		df1	165	fringe benefits	.071	.976	1.866	.142	.062
				Autonomy	.994	.400	.729	.538	.025
		df2	5527.469	working conditions	3.348	.023	2.810	**0.044***	.091
				job security	.702	.553	.217	.884	.008
		Sig.	**.110**	Pay	2.395	.074	1.313	.276	.045
				social work environment	.804	.495	3.011	**0.035***	.097

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RESULTS OF NONPARAMETRIC TESTS

Table G.1 Results of Kruskal Wallis Tests

		NW	SUP	COW	P&R	FB	AUT	WOC	JS	P	SWE
AGE	Chi-Square	.047	15.013	2.692	5.579	.089	3.601	3.786	.182	.442	.869
	Df	1	1	1	1	1	1	1	1	1	1
	Asymp. Sig.	.828	**.000**	.101	**.018**	.765	.058	.052	.669	.506	.351
GEN	Chi-Square	7.181	.213	.003	3.056	1.748	8.557	1.220	.275	.016	.042
	Df	1	1	1	1	1	1	1	1	1	1
	Asymp. Sig.	**.007**	.645	.960	.080	.186	**.003**	.269	.600	.899	.838
MS	Chi-Square	.296	2.821	.872	8.982	.822	.151	.106	.372	.691	3.105
	Df	1	1	1	1	1	1	1	1	1	1
	Asymp. Sig.	.586	.093	.350	**.003**	.365	.697	.745	.542	.406	.078
EL	Chi-Square	2.999	4.284	.985	5.466	7.047	6.409	13.132	.574	.229	6.021
	Df	2	2	2	2	2	2	2	2	2	2
	Asymp. Sig.	.223	.117	.611	.065	**.029**	**.041**	**.001**	.750	.892	**.049**
DEP	Chi-Square	.026	.001	.298	.030	1.241	2.411	1.840	.254	5.818	1.124
	Df	1	1	1	1	1	1	1	1	1	1
	Asymp. Sig.	.871	.980	.585	.863	.265	.121	.175	.615	**.016**	.289

Table G.1 Results of Kruskal Wallis Tests (continued)

		NW	SUP	COW	P&R	FB	AUT	WOC	JS	P	SWE
POS	Chi-Square	1.445	10.942	5.606	11.873	2.048	5.283	6.822	.514	1.835	7.644
	Df	2	2	2	2	2	2	2	2	2	2
	Asym. Sig.	.485	**.004**	.061	**.003**	.359	.071	**.033**	.774	.400	**.022**
CAD	Chi-Square	.134	.000	1.670	2.871	.187	.010	.358	3.559	9.164	.328
	Df	1	1	1	1	1	1	1	1	1	1
	Asym. Sig.	.714	.992	.196	.090	.666	.921	.549	.059	**.002**	.567
TEN	Chi-Square	1.470	12.897	13.482	18.960	4.966	2.015	7.200	.809	4.167	6.832
	df	3	3	3	3	3	3	3	3	3	3
	Asym. Sig.	.689	**.005**	**.004**	**.000**	.174	.569	.066	.847	.244	.077

MEAN VALUES OF DEPENDENT VARIABLES FOR EACH GROUPS OF INDEPENDENT VARIABLES

(Only dependent variables in which groups significantly differ are presented.)

Table H.1 Mean Values of Dependent Variables in Age Groups

Dependent Variable	Age	N	Mean	Std. Error	95% Confidence Interval	
					Lower Bound	Upper Bound
supervision	< 30	44	3.977	0.105	3.768	4.187
	>= 30	44	3.383	0.105	3.173	3.592
promotions and rewards	< 30	44	2.7	0.112	2.478	2.922
	>= 30	44	2.323	0.112	2.101	2.545
autonomy	< 30	44	3.508	0.12	3.269	3.746
	>= 30	44	3.152	0.12	2.913	3.39
working conditions	< 30	44	3.485	0.13	3.226	3.744
	>= 30	44	3.061	0.13	2.802	3.319

Table H.2 Mean Values of Dependent Variables in Gender Groups

Dependent Variable	Gender	N	Mean	Std. Error	95% Confidence Interval	
					Lower Bound	Upper Bound
nature of work	Female	42	2.589	.129	2.332	2.846
	Male	46	3.074	.124	2.829	3.320
autonomy	Female	42	3.056	.119	2.818	3.293
	Male	46	3.580	.114	3.353	3.806

Table H.3 Mean Values of Dependent Variables in Marital Status Groups

Dependent Variable	Marital status	N	Mean	Std. Error	95% Confidence Interval	
					Lower Bound	Upper Bound
promotions and rewards	Married	47	2.294	.106	2.083	2.505
	Single	41	2.761	.114	2.535	2.987

Table H.4 Mean Values of Dependent Variables in Department Groups

Dependent Variable	department	N	Mean	Std. Error	95% Confidence Interval	
					Lower Bound	Upper Bound
Pay	Teams	69	2.659	.114	2.434	2.885
	Other	19	2.026	.216	1.596	2.456

Table H.5 Mean Values of Dependent Variables in Cadre Groups

Dependent Variable	Cadre	N	Mean	Std. Error	95% Confidence Interval	
					Lower Bound	Upper Bound
Pay	A	23	1.957	.190	1.578	2.335
	AG	59	2.695	.119	2.459	2.931

POST HOC ANALYSIS IN MANOVA FOR EDUCATIONAL LEVEL.
POSITION AND TENURE VARIABLES

Table I.1 Multiple comparisons of educational level groups

Dependent Variable	Test	(I) educational level	Mean	(J) educational level	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
								Lower Bound	Upper Bound
fringe benefits	Tukey HSD	<= undergrad	2.95	Graduate	.5352*	.19666	.021	.0661	1.0043
				Doctorate	.4479	.26855	.223	-.1927	1.0885
		Graduate	2.41	<= undergrad	-.5352*	.19666	.021	-1.0043	-.0661
				Doctorate	-.0873	.25864	.939	-.7043	.5297
		Doctorate	2.50	<= undergrad	-.4479	.26855	.223	-1.0885	.1927
				Graduate	.0873	.25864	.939	-.5297	.7043
working cond.	Tukey HSD	<= undergrad	3.69	Graduate	.5446*	.19306	.016	.0841	1.0052
				Doctorate	.9732*	.26365	.001	.3443	1.6021
		Graduate	3.14	<= undergrad	-.5446*	.19306	.016	-1.0052	-.0841
				Doctorate	.4286	.25391	.216	-.1771	1.0343
		Doctorate	2.71	<= undergrad	-.9732*	.26365	.001	-1.6021	-.3443
				Graduate	-.4286	.25391	.216	-1.0343	.1771
social work environment	Tukey HSD	<= undergrad	2.53	Graduate	-.0283	.19215	.988	-.4866	.4301
				Doctorate	.6027	.26240	.062	-.0233	1.2286
		Graduate	2.56	<= undergrad	.0283	.19215	.988	-.4301	.4866
				Doctorate	.6310*	.25271	.038	.0281	1.2338
		Doctorate	1.93	<= undergrad	-.6027	.26240	.062	-1.2286	.0233
				Graduate	-.6310*	.25271	.038	-1.2338	-.0281

Based on observed means.
 The error term is Mean Square(Error) = .671.
*. The mean difference is significant at the .05 level.

Table I.2 Multiple comparisons of position groups

Dependent Variable	Test	(I) position	Mean	(J) position	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
								Lower Bound	Upper Bound
Supervision	Tukey HSD	assistant expert	3.91	Expert	.3744	.18055	.102	-.0569	.8056
				chief expert	.6948*	.21832	.006	.1733	1.2163
		expert	3.53	assistant expert	-.3744	.18055	.102	-.8056	.0569
				chief expert	.3204	.23927	.378	-.2511	.8920
		chief expert	3.21	assistant expert	-.6948*	.21832	.006	-1.2163	-.1733
				Expert	-.3204	.23927	.378	-.8920	.2511
promotion & rewards	Tukey HSD	assistant expert	2.78	Expert	.3902	.18170	.087	-.0439	.8242
				chief expert	.7818*	.21971	.002	.2570	1.3066
		expert	2.39	assistant expert	-.3902	.18170	.087	-.8242	.0439
				chief expert	.3917	.24080	.241	-.1835	.9669
		chief expert	2.00	assistant expert	-.7818*	.21971	.002	-1.3066	-.2570
				Expert	-.3917	.24080	.241	-.9669	.1835
working conditions	Tukey HSD	assistant expert	3.50	Expert	.6111*	.21935	.018	.0871	1.1351
				chief expert	0.47619	.26524	.178	-.1574	1.1098
		expert	2.89	assistant expert	-.6111*	.21935	.018	-1.1351	-.0871
				chief expert	-.1349	.29070	.888	-.8293	.5595
		chief expert	3.02	assistant expert	-0.47619	.26524	.178	-1.1098	.1574
				Expert	.1349	.29070	.888	-.5595	.8293
social work environment	Tukey HSD	assistant expert	2.68	Expert	.3693	.20761	.183	-.1266	.8652
				chief expert	.7532*	.25105	.010	.1536	1.3529
		expert	2.31	assistant expert	-.3693	.20761	.183	-.8652	.1266
				chief expert	.3839	.27514	.348	-.2733	1.0412
		chief expert	1.93	assistant expert	-.7532*	.25105	.010	-1.3529	-.1536
				Expert	-.3839	.27514	.348	-1.0412	.2733

Based on observed means.
 The error term is Mean Square(Error) = .671.
*. The mean difference is significant at the .05 level.

Table I.3 Multiple comparisons of tenure groups

Dependent Variable	Test	(I) tenure	Mean	(J) tenure	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
								Lower Bound	Upper Bound
Supervision	Tukey HSD	0-2	3.94	2-5	.1291	.19383	.910	-.3790	.6372
				5-10	.4822	.20291	.090	-.0496	10.141
				> 10	.7853*	.25413	.014	.1191	14.514
		2-5	3.81	0-2	-.1291	.19383	.910	-.6372	.3790
				5-10	.3531	.20789	.331	-.1918	.8981
				> 10	.6562	.25813	.061	-.0204	13.328
		5-10	3.45	0-2	-.4822	.20291	.090	-10.141	.0496
				2-5	-.3531	.20789	.331	-.8981	.1918
				> 10	.3030	.26501	.664	-.3916	.9977
		> 10	3.15	0-2	-.7853*	.25413	.014	-14.514	-.1191
				2-5	-.6562	.25813	.061	-13.328	.0204
				5-10	-.3030	.26501	.664	-.9977	.3916
co-workers	Tamhane	0-2	3.93	2-5	-.0228	.18013	1.000	-.5158	.4702
				5-10	.6674*	.22570	.030	.0454	12.894
				> 10	.2765	.19799	.679	-.2806	.8336
		2-5	3.95	0-2	.0228	.18013	1.000	-.4702	.5158
				5-10	.6902*	.20722	.012	.1136	12.668
				> 10	.2993	.17663	.481	-.2085	.8071
		5-10	3.26	0-2	-.6674*	.22570	.030	-12.894	-.0454
				2-5	-.6902*	.20722	.012	-12.668	-.1136
				> 10	-.3909	.22292	.430	-10.179	.2361
		> 10	3.65	0-2	-.2765	.19799	.679	-.8336	.2806
				2-5	-.2993	.17663	.481	-.8071	.2085
				5-10	.3909	.22292	.430	-.2361	10.179
promotions and rewards	Tukey HSD	0-2	2.95	2-5	.4286	.18469	.101	-.0555	.9128
				5-10	.7790*	.19335	.001	.2722	12.858
				> 10	.9517*	.24215	.001	.3170	15.865
		2-5	2.52	0-2	-.4286	.18469	.101	-.9128	.0555
				5-10	.3503	.19810	.296	-.1689	.8696
				> 10	.5231	.24597	.153	-.1217	11.678
		5-10	2.17	0-2	-.7790*	.19335	.001	-12.858	-.2722
				2-5	-.3503	.19810	.296	-.8696	.1689
				> 10	.1727	.25253	.903	-.4892	.8347
		> 10	2.00	0-2	-.9517*	.24215	.001	-15.865	-.3170
				2-5	-.5231	.24597	.153	-11.678	.1217
				5-10	-.1727	.25253	.903	-.8347	.4892

Table I.3 Multiple comparisons of tenure groups (continued)

Dependent Variable	Test	(I) tenure	Mean	(J) tenure	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
working conditions	Tamhane	0-2	3.55	2-5	.3081	.20658	.602	-.2583	.8746
				5-10	.6881	.28219	.109	-.0914	14.676
				> 10	.1275	.28903	.999	-.7107	.9656
		2-5	3.24	0-2	-.3081	.20658	.602	-.8746	.2583
				5-10	.3800	.25434	.609	-.3331	10.930
				> 10	-.1807	.26191	.984	-.9707	.6094
		5-10	2.86	0-2	-.6881	.28219	.109	-14.676	.0914
				2-5	-.3800	.25434	.609	-10.930	.3331
				> 10	-.5606	.32489	.455	-14.844	.3632
		> 10	3.42	0-2	-.1275	.28903	.999	-.9656	.7107
				2-5	.1807	.26191	.984	-.6094	.9707
				5-10	.5606	.32489	.455	-.3632	14.844
social work environment	Tukey HSD	0-2	2.69	2-5	.0935	.21963	.974	-.4822	.6692
				5-10	**.6215***	.22991	.041	.0188	12.241
				> 10	.4624	.28795	.381	-.2924	12.172
		2-5	2.60	0-2	-.0935	.21963	.974	-.6692	.4822
				5-10	.5280	.23556	.121	-.0895	11.454
				> 10	.3689	.29249	.590	-.3978	11.355
		5-10	2.07	0-2	**-.6215***	.22991	.041	-12.241	-.0188
				2-5	-.5280	.23556	.121	-11.454	.0895
				> 10	-.1591	.30029	.952	-.9462	.6280
		> 10	2.23	0-2	-.4624	.28795	.381	-12.172	.2924
				2-5	-.3689	.29249	.590	-11.355	.3978
				5-10	.1591	.30029	.952	-.6280	.9462

Based on observed means.

The error term is Mean Square(Error) = .661.

*. The mean difference is significant at the .05 level.

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OUTLIER ANALYSIS FOR WORKLOAD DIMENSIONS
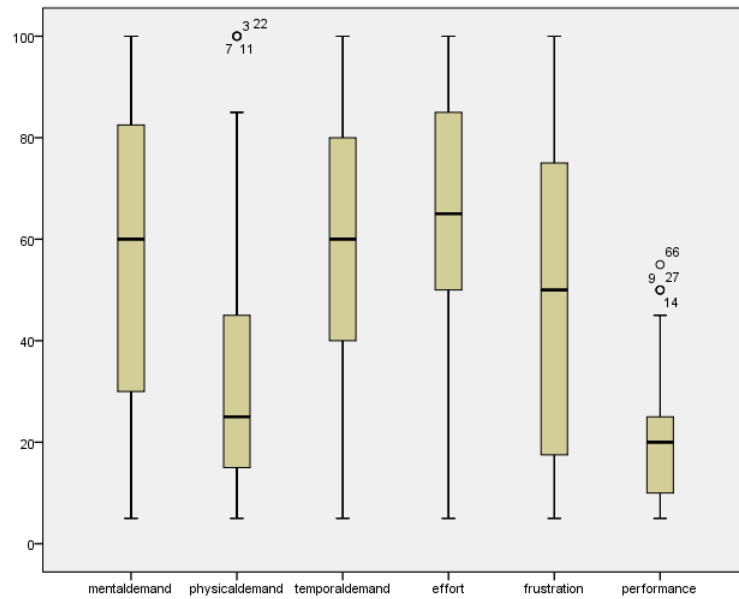

Figure J.1 First step of outlier analysis for workload dimensions

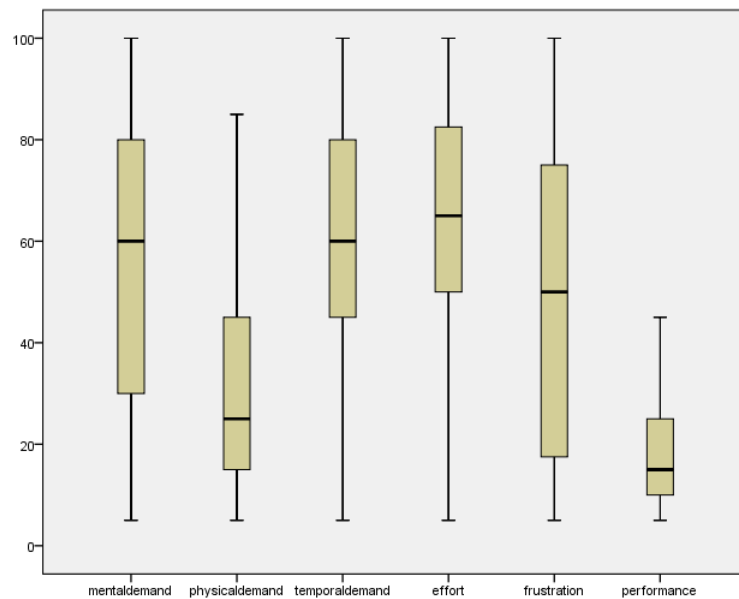
Figure J.2 Second step of outlier analysis for workload dimensions

CORRELATION TESTS

Table K.1 Correlation between general satisfaction and total satisfaction

		general satisfaction	total satisfaction
Spearman's rho	general satisfaction Correlation Coefficient	1.000	.741**
	Sig. (1-tailed)	.	.000
	N	80	80
	total satisfaction Correlation Coefficient	.741**	1.000
	Sig. (1-tailed)	.000	.
	N	80	80

**. Correlation is significant at the 0.01 level (1-tailed).

Table K.2 Correlation between general satisfaction and total workload

		general satisfaction	total workload
Spearman's rho	general satisfaction Correlation Coefficient	1.000	-.279**
	Sig. (1-tailed)	.	.006
	N	80	80
	total workload Correlation Coefficient	-.279**	1.000
	Sig. (1-tailed)	.006	.
	N	80	80

**. Correlation is significant at the 0.01 level (1-tailed).

Table K.3 Correlation between total workload and total satisfaction

		total workload	total satisfaction
Spearman's rho	total workload Correlation Coefficient	1.000	-.215*
	Sig. (1-tailed)	.	.028
	N	80	80
	total satisfaction Correlation Coefficient	-.215*	1.000
	Sig. (1-tailed)	.028	.
	N	80	80

Table K.4 Correlation between general satisfaction and mental demand

			general satisfaction	Mentaldemand
Spearman's rho	general satisfaction	Correlation Coefficient	1.000	.039
		Sig. (2-tailed)	.	.732
		N	80	80
	mentaldemand	Correlation Coefficient	.039	1.000
		Sig. (2-tailed)	.732	.
		N	80	80

Table K.5 Correlation between general satisfaction and pyhsical demand

			general satisfaction	Physicaldemand
Spearman's rho	general satisfaction	Correlation Coefficient	1.000	-.037
		Sig. (2-tailed)	.	.746
		N	80	80
	physicaldemand	Correlation Coefficient	-.037	1.000
		Sig. (2-tailed)	.746	.
		N	80	80

Table K.6 Correlation between general satisfaction and temporal demand

			general satisfaction	Temporaldemand
Spearman's rho	general satisfaction	Correlation Coefficient	1.000	-.146
		Sig. (2-tailed)	.	.196
		N	80	80
	temporaldemand	Correlation Coefficient	-.146	1.000
		Sig. (2-tailed)	.196	.
		N	80	80

Table K.7 Correlation between general satisfaction and performance

			general satisfaction	performance
Spearman's rho	general satisfaction	Correlation Coefficient	1.000	.005
		Sig. (2-tailed)	.	.962
		N	80	80
	performance	Correlation Coefficient	.005	1.000
		Sig. (2-tailed)	.962	.
		N	80	80

Table K.8 Correlation between general satisfaction and effort

			general satisfaction	effort
Spearman's rho	general satisfaction	Correlation Coefficient	1.000	-.015
		Sig. (2-tailed)	.	.894
		N	80	80
	Effort	Correlation Coefficient	-.015	1.000
		Sig. (2-tailed)	.894	.
		N	80	80

Table K.9 Correlation between general satisfaction and frustration

			general satisfaction	frustration
Spearman's rho	general satisfaction	Correlation Coefficient	1.000	-.611[**]
		Sig. (2-tailed)	.	.000
		N	80	80
	Frustration	Correlation Coefficient	-.611[**]	1.000
		Sig. (2-tailed)	.000	.
		N	80	80

**. Correlation is significant at the 0.01 level (2-tailed).

APPENDIX L

CURVE FITTING AND REGRESSION ANALYSIS

Table L.1 Model summary for the relationship between general satisfaction and total workload

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.328	.108	.085	1.973

The independent variable is total workload.

Table L.2 ANOVA table for the relationship between general satisfaction and total workload

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	36.227	2	18.114	4.653	.012
Residual	299.723	77	3.893		
Total	335.950	79			

The independent variable is total workload.

Table L.3 Coefficients of regression model for the relationship between general satisfaction and total workload

Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
total workload	.124	.066	.923	1.900	.061
total workload ** 2	-.002	.001	-1.157	-2.381	.020
(Constant)	4.398	1.491		2.949	.004

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Table L.4 Model summary for the relationship between total satisfaction and total workload

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.387	.150	.128	20.605

The independent variable is total workload.

Table L.5 ANOVA table for the relationship between total satisfaction and total workload

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	5773.145	2	2886.573	6.799	.002
Residual	32690.242	77	424.549		
Total	38463.388	79			

The independent variable is total workload.

Table L.6 Coefficients of regression model for the relationship between total satisfaction and total workload

Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
total workload	1.698	.684	1.177	2.482	.015
total workload ** 2	-.022	.007	-1.434	-3.024	.003
(Constant)	106.341	15.576		6.827	.000

Table L.7 Model summary for the relationship between general satisfaction and frustration

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.589	.347	.339	1.677

The independent variable is frustration.

Table L.8 ANOVA table for the relationship between general satisfaction and frustration

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	116.567	1	116.567	41.444	.000
Residual	219.383	78	2.813		
Total	335.950	79			

The independent variable is frustration.

Table L.9 Coefficients of regression model for the relationship between general satisfaction and frustration

Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
frustration	-.040	.006	-.589	-6.438	.000
(Constant)	8.226	.363		22.661	.000