



# The Effect of Training on Employee Job Satisfaction in the National Institute of Forensic Science of Mongolia

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# The Effect of Training on Employee Job Satisfaction in the National Institute of Forensic Science of Mongolia

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# Abstract

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The Law on Civil Service of Mongolia came into effect on June 1, 1995. According to this law, civil servants are representatives of public policy implementation, and their level of education and training is the most important key to providing high quality public services to citizens. Therefore, the civil service strives to have the best human resources. The criminal justice system relies heavily on forensic science. Many previous scholars discovered that training has a positive affect on employee job satisfaction around the world. But there are no studies on the link between job training and job satisfaction of employee in the forensic science organization in the Mongolia. This study examines how training provided by the Mongolian National Institute of Forensic Science (NIFS) affects employee job satisfaction. This research was a cross-sectional and quantitative survey research. Using simple random selection from a population of 250 central public officials, the study examined a sample of 173 employees of the Mongolian central NIFS. Through a single survey using updated work training questionnaire (Mugenda & Mugenda, 2003) and job satisfaction survey (Brayfield-Rothe, 1951), the viewpoint of employees about job training and job satisfaction was gathered. The data was examined using statistical processes such as descriptive analysis, factor analysis, VIF test, ANOVA, correlation and regression analysis in SAS software.

The main conclusion of this study was that job training significantly affects employees' job satisfaction at the National Institute of Forensic Science of Mongolia. As a result of regression analysis, job training has a significant effect on job satisfaction even after controlling other factors that affect job satisfaction, such as supervision, opportunities and rewards, benefits, and coworkers.

The policy implications of the results of the research are to fully reform the training plan of the National Institute of Forensic Science of Mongolia and increase the job satisfaction of employees by incorporating high-level professional training content. In this way, a high level of satisfaction will be achieved and the services provided to the citizens will be improved and the government mechanism will become a solid foundation.

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Further research will include a detailed study of the local organizations in the National Institute of Forensic Science of Mongolia. Finding out what influences their training system and employee job satisfaction is the key objective. It will contribute to better local employee satisfaction.

Keywords: Job training, job Satisfaction, National Institute of Forensic Science of Mongolia. Student ID: 2021-27282

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# **Chapter 1. Introduction**

## **1.1 Background of the study**

In forensic science, the continuity of preservation and management is very important until evidence is collected from the crime scene, moved to the police and prosecution, and commissioned to a legal institution is very important. If evidence is contaminated and lost in the middle, the real culprit can be missed or left as an unsolved case, and when collecting evidence for forensic science analysis of crime scenes, it can be convicted of clear evidence. A representative example is the O.J. Simpson case in the United States. The case was not properly managed and preserved at the scene of the murder. So, Simpson, who was suspected of murder, was indicted and tried, but the judges' final verdict was acquitted after accepting Simpson's opinion on the contamination at the scene (Kim, 2021). As such, analysis is important, but since the preservation of evidence or the scene of the incident is also important, education of forensic scientists and police dispatched to the scene of the incident is also very important.

We have seen forensic science as a science, especially in movies and television dramas about the forensic scientists. Forensic scientists are very important people who, based on science, detect traces left by criminals. Holmes, a well-known novel, is the first to use ballistics, including shoe prints, handprints, line studies, biological sciences, and arrowheads, as evidence in criminal cases (O' Brien, 2014). In recent years, the Korean film industry has produced many tv serials on forensic science. For example, such as Sign (2011), Partners for justice (2018), God's quiz (2010), Doctor john (2019). These tv serials frequently portray forensic scientists as laid-back, well-trained crime fighters who are really satisfied with their jobs. The glamorization of forensic scientists has reached the point where it is influencing university curricula (Sungkyunkwan university's forensic science major, Daejeon institute of science and technology's forensic science major).

The concept of forensic science is a very broad and complex term. First of all, the English notation of Forensic science is Forensic, an adjective that derives its etymology from the Latin word Forum of the ancient Roman era and means 'trial of the courts of forensic science and criminal science investigation'.<sup>①</sup> To sum up the meaning of the term, it can be said to be 'the science used in the realm of law' (Holmes, 1899).

The demand for certain scientific sorts of analysis, along with the field of forensic science's rising popularity via periodicals, movies, and television shows, makes this demographic of people perfect to learn more about, especially in regard to job satisfaction. Employees in the area of forensic science are highly skilled professionals who have earned postgraduate degrees and have completed a rigorous training program in their chosen specialty: forensic questioned documents examiners, serologists, DNA analysts, toxicology and drug chemists, digital analysis,

<sup>&</sup>lt;sup>①</sup>Accessed at: https://www.vocabulary.com/dictionary/forensic

foot print, latent print, weapons, and trace evidence examiners are among the disciplines. A forensic scientist's expertise necessitates learning a very specialized set of abilities that are extremely hard, sophisticated, and evaluated by both prosecutors and defense counsel (Becker & Dale, 2004).

According to Article 17.4 of the Law on Mongolian Forensic Examination, the Forensic Scientist shall be responsible for the accuracy of his / her conclusion.<sup>(2)</sup>Additionally in accordance with Article 14.1.1 of this law, to conduct a comprehensive and objective analysis within the scope of special knowledge and profession based on science. <sup>(3)</sup> Therefore, the diversity of skills, the diversity of the work, the importance of the task, the independence, and being constantly trained are connected to their job satisfaction. Therefore, continuous training is very important in this field and the organization should increase employee satisfaction by designing training courses.

## **1.2. Statement of the problem**

Job training is contained in certain research as a point in determining job satisfaction (Mau & Kopischke, 2001; Traut, 2000). It added as an independent variable in some cases (Burkey & Sharipo 1996; Schwepker, 2001). Continuous training throughout employees' careers has been identified as a key component in improving job satisfaction. Mentoring program, in which more skilled employees present newer

<sup>&</sup>lt;sup>(2)</sup>Mongolian Forensic Examination Law, Article 17.4

<sup>&</sup>lt;sup>(3)</sup>Mongolian Forensic Examination Law, Article 14.1.1

workers to the company and educate particular skills, have been suggested as a method to raise job satisfaction among aged workers (Traut, 2001). Likewise, enhanced employee training programs and train-the-trainer programs for employee trainers have been demonstrated to boost job satisfaction (Hatcher, 1999). Based on the aforementioned facts, certain essential presumptions were made, research question was developed, and a study will be done to further explore the effect of job training on job satisfaction of public sector forensic employees.

There has been a lot published on forensic technique and technical aspects of the subject of forensic science. However, despite substantial literature study, there was essentially no research to set up the elements effecting of job training on forensic employees' job satisfaction or general job satisfaction in the Mongolian forensic sector. As a result of this research, a gap in the literature has been filled. This research will aid in determining the elements that effects of job training on forensic employees' job satisfaction. It is also obvious that this is significant research in the Mongolian National Institute of Forensic Science (NIFS).

## **1.3.** Purpose of the study

This quantitative study's goal is to investigate the theory behind forensic science education. The goal is to investigate how job training and job satisfaction are related. There have been attempts to investigate at how NIFS' job training effects employee job satisfaction.

#### The following research question prompted this study:

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1. What are the effects of job training on employee job satisfaction at NIFS of Mongolia?

## **1.4. Significance of the study**

Firstly, this study was the first study on the job satisfaction and job training of the employees of Mongolian NIFS, so it is useful as a basic study for the renewal of the training system of the organization in the future.

Secondly, the practical application of this study will be supported to public personnel management reform and employee training system in the National Institute of Forensic Science. Next, the findings of this study contributed to making employees with high level of satisfaction.

Finally, this research provided one more literature in the field of public administration with regards to job satisfaction and this research is useful for the researchers who would like to develop the similar research topic in developing country like Mongolia.

### **1.5. Definition of terms**

Job Satisfaction (JS) "How individuals feel about various parts of their professions and how they operate" is the definition of job satisfaction. It reflects how much people enjoy or detest their employment (Spector, 1997, p. 2). The relevance of certain work components might also affect how those components are weighted when determining total job satisfaction (Spector, 1997).

According to Landy (1985), job training (JT) is an activity undertaken by an organization to improve the knowledge and skills required for a given position or to change the attitudes and social behavior of employees in accordance with organizational goals and job requirements. Training is the methodical acquisition of knowledge, skills, and abilities necessary for the proper performance of any job or occupation (Patrick, 2000).

The term job training satisfaction refers to how people feel about various aspects of job training. These were created by combining the concepts of job training and job satisfaction (Landy, 1985; Patrick, 2000; Spector, 1997). The level of liking and disliking of a set of pre-planned activities designed to help people develop the knowledge, skills, and attitudes needed to successfully perform a specific activity or job is called job training satisfaction (Schmidt, 2007).

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# **Chapter 2. Background and Literature review 2.1. National Institute of Forensic Science of Mongolia**

The organization belongs to the Ministry of Justice and Home Affairs of Mongolia (figure 1). System of Forensic examination institution consists of Provincial forensic services and Central forensic services. The NIFS is the government agency and regulated by the Law of Forensic Science. Primary service of the institute is to detect, collect and examine the evidences from the crime scene and provide accurate analysis of evidences during dispute resolution process of criminal, civil and administration disputes. It is made up of a total of 10 departments including the division of forensic medicine, special examination, finance, and tax investigation, evidence investigation records, administrative support, finance, and planning, etc. thus having a similar structure as that of the Korean National Forensic Service (KNFS). There are approximately 600 employees and under the management (figure 2) of the director (1) and vicedirector (1), it is in charge of the public administration sector that budgets, laws, human resource and forensic science services, and five main divisions of criminalistics examination, forensic medicine, specialized examination, forensic accounting, and evidence control division. Specifically, the population involved in the study is 250 employees of the central organization of NIFS.

The criminal inspection division, which is in charge of the forensic science division, is set up with a lab for digital forensics, a lab for firearms

analysis, a lab for traffic accident analysis, a lab for document analysis, and a lab for fingerprint testing. A biological analysis, a bacterium detection analysis, a DNA analysis, a chemical analysis, and a physical analysis are all part of the specialized scientific division. Toxic compounds, drugs, blood alcohol are only a few examples of the extensive evaluation work that the chemical analysis division conducts, in contrast to Korea.

The division in charge of forensic medicine performs autopsies in connection with criminal cases like the Korean NFS. But unlike the Korean forensic medical system, NIFS also performs damage evaluation work for ophthalmology, orthopedics, obstetrics and gynecology, and ear-nosethroat for assault, traffic accident, and sex crime victims.

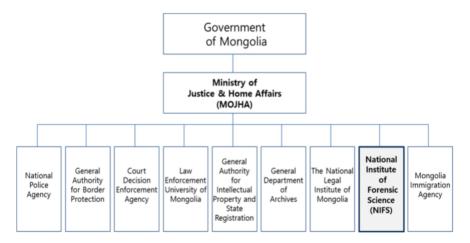


Figure 1. MOJHA Organization

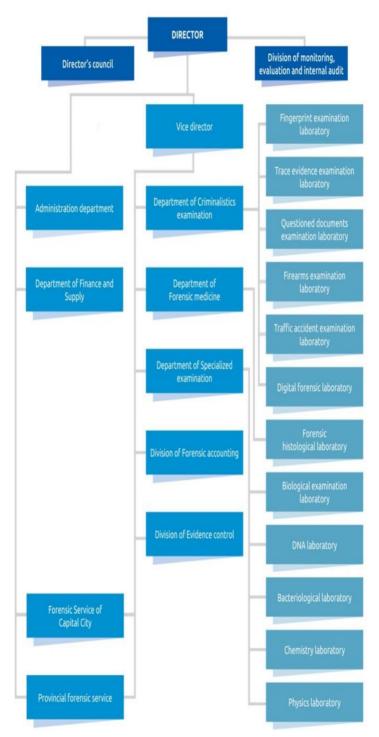


Figure 2. Structure of NIFS

## 2.2. Annual Operations Budget of NIFS

As of 2022, the NIFS total budget is 3.1 million USD (Table 1), which covers salaries, supply operations, equipment maintenance and repairs, equipment purchases, and material costs. The budget is too small to buy new equipment or reagents after taking wages and costs for running the research center out. And the fact that the training budget for empowering employees is not included at all is a factor that negatively affects the quality of training of employees.

#### Table 1. Annual Operations Budget of NIFS

(Unit:USD)

Evnonsos	Budget			
Expenses	2019	2020	2021	2022
Total expenses	3,777,911	3,782,589	4,106,253	3,136,443
Goods and services, salary expenses	2,561,472	2,613,836	2,867,154	1,974,564
Social insurance	90,617	93,844	99,721	0
Accommodation expenses	89,485	92,182	111,904	142,403
Expendables	121,376	157,632	151,826	131,456
Uniform expenses, medical preparation	383,061	466,093	510,183	508,853
Corrective maintenance, inventory	138,452	170,558	92,101	41,541
Appointment expenses	30,447	49,135	39,932	49,345
Work done by others	56,463	52,074	56,552	66,464
Tuition fees	10,412	5,741	5,741	7,235
Operating	296,126	81,794	171,139	214,582

### **2.3. Job satisfaction**

#### Definitions

Job satisfaction is a positive feeling about the job that results from evaluating the quality of the job. (Judge & Robbins, 2013). Job satisfaction is linked to the performance quality, motivation, leadership behavior, moral concerns, conflict, and so on. Various studies have been conducted to determine the level of satisfaction (Kabir & Parveen, 2011).

Edwin A. Locke is a pioneer in the field of job satisfaction research, having written "What is Job Satisfaction" in 1969. According to his definition (Locke, 1969), job satisfaction is "a foundation for how one interprets the link between what they desire from their employment and what they think it offers or entails" (p.316). According to Locke (1969), evaluation is determined by three factors:

(a) how a work component is perceived,

(b) whether the value is implicit or explicit,

(c) how the link between value and perception is appraised.

#### Significant Researchers and Studies

According to Tharinia Dukes (2013), The main purpose of the study was to answer the following research question: How do forensic scientists' ordinary work experiences impact job satisfaction? This study looked at whether daily chores, excessive expectations, and other factors influenced forensic scientists' job satisfaction. The forensic scientists talked about their undying commitment to their current jobs and the discipline of forensic science. The forensic scientists' answers to interview questions revealed that the participants' day-to-day work experience has little impact on their overall job satisfaction. The participants' remarks suggest that, like with every profession, there are small daily activities that can be frustrating at times, but that these duties are insufficient to generate overall job dissatisfaction. The main takeaway from the interviews for the researcher was that forensic scientists genuinely like their employment and could not envision themselves doing anything else. Each participant discussed the significance of their role in the forensic science process and how what they do affects the lives of the victims they assist. Overall, each forensic scientist feels that there is no other employment that they would choose, and that if they could do it all over again, they would still choose to be a forensic scientist. Furthermore, participants' general sentiments were that the joy of knowing that their talents and expertise are positively contributing to the community and society surpasses any negative aspects of their professions that daily duties, unrealistic expectations, or media perceptions might bring (Ashraf, Esmail, Dukes & Robinson, 2013).

According to a report by the CCLRTF (2009), income, lack of advancement possibilities, and burnout from large caseloads are some of the top causes for disgruntled forensic scientists in crime laboratories across the state (California).<sup>(4)</sup> The findings of survey (CCLRTF) of forensic scientists working in a California crime lab revealed that they are

<sup>&</sup>lt;sup>(4)</sup>CCLRTS: California Crime Laboratory Review Task Force

happy with their employment, salaries, and other elements of their work. Many factors contributed to the overall job satisfaction of the California forensic scientists in this study. Workplace, supervision, coworker relationships, lab size, and other factors all play a role in job satisfaction.

The basis of Jill M. Dooley's research (2010) was to look at the degree of job satisfaction among public-sector forensic scientists and see if certain aspects had an effect on total job satisfaction. The findings suggest that coworker, work itself, pay, advancement opportunities, and supervision had an effect on job satisfaction. The five facets that were employed as variables were not the sole certain predictors for assessing this population's total degree of job satisfaction. However, age, length of service, and educational level were found to influence overall job satisfaction.

Compensation, organization, and work environment are some of the potential variables discussed previously that impact job satisfaction (Christen, 2006). Christen et al. (2006) characterizes each of these broad categories with more particular words, claiming that compensation include income, promotion, and social climate. They consider about work in respect of job attractiveness, part conflict, and part overload. Potential position ambivalence and supervisor participation are taken into account while organizing. Other scholars have proposed other factors, despite the fact that these domains are comprehensive. In contrast, Glisson and Durick (1988) discovered that job satisfaction effected by skill diversity and position ambiguity. The happier a worker is with their employment, the less confused they are about their obligations in performing work tasks. These findings, in particular, have the capacity to be useful in the present study since, in the field of forensic science, case analyses are usually obvious depending on the kind of case and type of evidence.

### 2.4. Job training

There are numerous training methods to train the employees of Forensic science sector. These techniques must be chosen to best suit the forensic science organization's training needs assessment in terms of cost, time approach. Human resource managers put a lot of effort into offering their staff high-quality on-the-job and off-the-job training in order to improve and boost their productivity (Lu, 2016; Grip & Sauermann, 2013). Training programs are an effective executive technique that encourages workers to feel more-fulfilled and happy at work (Budiatma & Hidayat, 2018).

#### **On-the-job training**

Distinguishing between general and special talents is a concept developed by Becker (2007). On-the-job training invests in certain skills, while formal education is an investment in general skills. An organization spends on training certain skills to increase employee performance (Dobbs & Sun, 2008). Employees receive on-the-job training while carrying out their usual duties. They avoid wasting time while studying in this way (Omar, 2011).

On-the-job training method can take following forms: (1) Job rotation, job rotation refers to the practice of rotating trainees from one department to another in direction to extend their mastery, abilities, and understanding of all aspects of the organization. For example, a forensic expert from central forensic organization is rotated at a local forensic center. (2) Internship training, this training program provided organizations that allows students to obtain real-world experience while learning how to conduct work in organization. This allows employees and students to learn from each other about the new generation of curricular features and methodologies and their own expertise. For example, students in the forensic science class are provided with the opportunity to practice at the National Institute of Forensic Science of Mongolia each year. (3) Apprenticeship training which a person joining a skilled profession is taught the practical and theoretical components of the job through instructions and experience. For example, the Forensic Expert Apprentice Training course will provide basic training (theoretical instruction) and practical training at the actual workplace. (4) Action learning. This is an approach that allows managers to work full-day on projects, assessing and addressing problems in departments other than their own. Trainees meet in a three-or-four-person team to talk about their results on systematic basis. Action learning of work is improved by understanding the specifics of the work of other departments, so it means to understand the reality by doing the work of other departments. (5) Supervisory assistant and mentoring training. Supervisory help is provided on a daily basis by the

supervisor, whereas mentoring is counsel given to a trainee over a long period time for career advancement. (6) Coaching scheme, in which a more skilled employee guides the development of less skilled employees, can improve employees' performance, achievement, skill and understanding of the firm (Schuler, 1998). Coaching scheme, this approach guides new employees through more experienced employees and provide more realistic information about the organization. This method can increase the job satisfaction of new employees (Fiemer, Larson & Traut, 2000). For example, in NIFS, in a newly hired employee is entrusted to another experienced employee and is regularly trained on a daily.

#### **Off-the-job training**

Away from their place of employment, employees can enroll in day releases, online or distance learning courses, and block releases. Off-thejob training method can take following forms: (1) Case Study Methods. Practitioners provide written explanations of organizational issues in case study techniques. The employee studies the case in private before sharing their findings and ideas with the other trainees in a group discussion. This method is designed to provide trainees with practical experience recognizing and evaluating complicated problems in a setting where their progress may be steered gently by a skilled discussion leader. (2) Lectures or classroom instructions. Lectures are a frequent classroom instruction approach with a straightforward style. A professor delivers knowledge to his pupils during lectures, while the students take notes and absorb the material. This type of teaching is more successful with adult learners (Sheahan, 2017). (3) The conference method. A conference is a group meeting structured around the goal of developing knowledge and comprehension of a certain topic via spoken participation. It is a useful training tool for both conference participants and conference leaders (Chand, 2011). (4) Seminar. A seminar is organized similarly to a conference, but on a smaller scale. It usually focuses on a specific topic, such as "Emerging Issues in Human Resource Development" or "Information Technology in 2022." Various specialists in the relevant professions explore the topic in great depth. The professionals give their presentations and respond to the attendees' queries. The phrases conference and seminar are sometimes used interchangeably in practice (Chand, 2011).

## 2.5. Theoretical assumption

Herzberg's two-factor theory (1959) proposed factors influencing job satisfaction. A key concept in this approach is the distinction between hygiene factors and incentive elements. These two factors affecting job satisfaction are divided into two categories. Motivational factors are believed to be more important in job satisfaction. Hygiene issues are related to the goal of "avoid discomfort". Motivational factors influence job satisfaction because of "human demand for self-development and selfactualization." It is one of the most widely used concepts in job satisfaction research (Dion, 2006). Many nursing research studies have used this idea as a theoretical framework to examine nurses' job satisfaction (Jones, 2011; Kacel, 2005; Mitchell, 2009). The results of these studies are consistent with Herzberg's motivation-hygiene theory, in which the motivation variable is more important and can increase job satisfaction, but the hygiene aspect is less important and has little effect on job satisfaction. This concept seems to reveal and explain the phenomenon of job satisfaction. Therefore, the theoretical hypothesis of the proposed study was that increased employee training was associated with increased job satisfaction.

According to the Becker and Schultz (1961) human capital theory, investing in training and education is a kind of investing in people. Only through training can employees be helped to make the most use of their knowledge, skills, and talents in the workplace.

The 2 theories mentioned above are the basis of this study and prove that job training directly affects job satisfaction by increasing employee capabilities.

### 2.6. Training system in NIFS

The content of forensic science training is provided in the following areas.

Type of training	Activity
On-the-job	
Mentoring	Schools related to forensic science, such as the chemistry department of the University of Mongolia and the forensic science department of the University of Internal Affairs, are given the opportunity to practice at NIFS. This gives students real-world

Table 2. Training program of NIFS

	experience and allows employees to develop themselves while mentoring students.
Job coaching	Job coaching for new employees assigned as interns for a period of 3-6 months.
Job rotation	Forensic scientists from local forensic services to the central NIFS forensic laboratories. And forensic scientists from the center are rotated to local areas to provide diverse work experience.
Job mentor	Supervisory help is provided on a daily basis, whereas mentoring is counsel given to a trainee over a long period time for career advancement.
Off-the-job	
Conference	Organize a "Scientific Conference" in cooperation with the University of Science and Technology, the Academy of Sciences and other legal, regulatory and health organizations.
Course	Organize professional courses and workshops for employees (DNA-Work shop, Digital National course, Specific forensic science courses).
Seminar	Organize electronic and regional seminars on laws, rules, regulations, related to the organization's activities and professions of forensic organizations.
Lesson	Take a lesson from researchers, scholars and doctors specializing in forensic science, archive, ethics, corruption, police uniform, safety and hygiene, Mongolian language, personal development.

In summary, the National Institute of Forensic Science of Mongolia conducts on-the-job and off-the-job training. These trainings are traditionally held every year, and it is a big issue whether the trainings increase the satisfaction of the employees of the National Institute of Forensic Science or not. Furthermore, the lack of research on the strengths and weaknesses of training content raises a very important.

### 2.7. Relationship between job training and job

### satisfaction

The majority of studies found a positive link job satisfaction and job training (Hoekstra, 2013; Khan, 2017; Noe, 1986; Schemidt, 2004; Truitt, 2011; Zumrah, 2013). The relevance of job training satisfaction in connection to employee job satisfaction has been noticed by researchers researching it as a stand-alone variable. According to a UK poll of nurses, unhappiness with advancement and training possibilities had a higher influence on job content than discontent with job task and compensation. The level to which people agree or disapprove of a planned set of events intended to teach them the knowledge, skills, and attitudes necessary to do a particular job successfully is known as job training satisfaction (Schmidt, 2007).

According to Truitt (2011), training plays a key role in developing a positive attitude towards work ability, and although it is clear that inadequate training is associated with a sense of incompetence. It shows that poor training leads to poor performance attitudes which can then lead to job dissatisfaction. Workers who entirely accepted that they got productive training and those who fully accepted that they received considerable training thought they had validated a gain in work performance, according to the findings. Schmidt (2007) investigated the link between job satisfaction and job training among contact center workers and discovered a considerable positive correlation between the two. In a study of commercial bankers, Rowden and Conin (2005) found that "a significant percentage of employee job satisfaction related to on-the-job training opportunities." (p. 463). Temporary employees who participated in the training scored much better on the job satisfaction survey than those who did not, according to Lowry, Simon, and Kimberly (2002).

Rowden (2002) discovered that workers at small and mid-sized firms ascribed a major percentage of their job satisfaction to the availability of job training chances, despite the lack of study on labor force development in these organizations. "Job training is now closely connected to employees job satisfaction," he concluded (p. 141). Jalanjas and Bommer (1999) emphasize the importance of job training to improve desired behavior. They pointed out that the level to which workers and management can be taught to do their redesigned duties is critical to effective downsizing management.

Based on the current literature review, a favorable relationship between job training and job satisfaction is predicted. Hypotheses related to this study are as follows:

There is a positive relationship between job satisfaction with job training

#### **2.8.** Control variables

Age.

Age is positively associated with employee satisfaction (Alexander, Chase & Weismen, 1981; Ang & Savery, 1996; Borgen & Decker, 1993; Goh & Koh, 1993). However, age has not been discussed in job satisfaction theories, and few research have looked into the causes of this positive relationship between age and job satisfaction (Gibson & Klein, 1970; Hoppock, 1960).

#### Tenure.

Rainey (1982) discovered that job satisfaction is positive linked to tenure and position among upper-level employees or those in highly compensated roles. A number of past research hypothesized that job satisfaction tended to rise in tandem with employee service time (Clark, Oswald, & Warr, 1996; Oshagbemi, 2000). There are two presumptions that underlie this particular conclusion. First, unhappy workers quit while content ones continue in their positions (Oshagbemi, 2000). Second, workers often adapt their work values to the workplace environment, which increases satisfaction (Mottaz, 1987). Although an alternative viewpoint contends that prolonged employment may reduce work satisfaction because of monotony, this perspective has received very little empirical support (Clark, 1996).

#### Education.

Eddy Omei (2003) found that job satisfaction and educational attainment are positively related. Overall job satisfaction decreases as education levels increase and that job satisfaction levels are inversely related to workers' relative hourly wages (Clark & Oswald, 1996). Using a sample of UK managers, education was negatively related to job satisfaction (Watson, 1996). Other studies found a negative relationship between the two variables, such Brown and McIntosh (1998), Gazioglu and Tansel (2006), Buysse, Devoldre, Korte and Verhofstadt, (2007), Hartog and Oosterbek (1998).

The fact that the educational variable is included as an independent characteristic and often as a control variable in many studies of job satisfaction is one of the main factors explaining these results. In this sense, the findings of such studies demonstrate that people with greater level of education feel more content when they acquire higher-quality employment. The comparison made by the independent between the job acquired and her or his desires and substitutes which increase with education results in a pessimistic connection between job satisfaction and education when work characteristics are controlled (Hachiya & Hulin, Roznowski, 1985; Watson, 1996).

#### Gender.

Several studies have investigated the connection between job satisfaction and gender (Mason, 1995). The findings of several research on the subject of the gender of employees and job satisfaction, however, have been conflicting. In reality, research on gender variations in work satisfaction has been contradictory since the 1950s (Hickson & Oshagbemi, 1999). While some research (Sloane & Ward, 1998) reported that women were more contented than males, other investigations revealed that men were more content (Forgionne & Peters, 1982).

But it's crucial to remember that the majority of research in this field show no discernible variations in work satisfaction between the sexes (Mottaz, 1986). For instance, Witt and Nye (1992) discovered that there was no concrete information about the levels of pleasure among men and women. Manning (2002) also found commonalities in the work satisfaction of male and female managers. Additionally, it was shown that gender had no influence on job satisfaction (Dole & Schroeder, 2001). Eskildsen, Kristensen and Westlund (2004) discovered no statistically significance between employment satisfaction and gender in the Nordic nations. Despite the fact that they experience discrimination, women are just as content with their professions as men are (Dolliver, 2003). Gender is not substantially connected directly with total job happiness, according to Oshagbemi's 2003 research on personal correlates of job satisfaction. Not to mention, Donohue and Heywood (2004) found no evidence of a gender satisfaction gap among younger American employees.

#### Job Status.

Individuals pick professions that align with social preferences and personal worths, according to Knafo and Sagiv (2004). As a result, people in the same position tend to hold the same attitudes and views. A substantial positive association between occupation and work satisfaction was found by Fried (1991) after reviewing 79 empirical research to investigate this link (r =.21, p .05). At r =.39, p =.05, a related meta-analysis research found a somewhat greater association between occupation and work satisfaction (Loher, Moeller, Noe & Fitzgerald, 1985). According to Judge and Hurst (2008), each person's level of satisfaction with a work's qualities is different and can have an impact on work satisfaction. Stamps and Piedmont noted that the occupational level, such as unskilled, skilled, or professional, closely correlated with the influence of employment status on job satisfaction. Another part of the idea of job satisfaction as articulated by Stamps and Piedmont was interpersonal interaction (Crickenberger, 2010).

#### **Opportunities and rewards.**

Salary and promotion are included in the same section as opportunities and rewards. Employee life includes key aspects like promotions. An employee's employment is significantly impacted by a big increase in their pay or benefits (Michelle, 2001). Promotions are used by many businesses or institutions as a reward for their employees' excellent production levels, which speed up their efforts. If an employee values promotion significantly, then it can only be a helpful kind of remuneration; otherwise, a pay raise or salary increase is the greatest approach to recognize increased effort. According to several experts, there is a direct and positive connection between work satisfaction and promotion chances, and that relationship is substantially connected with job satisfaction (McCauseland, 2005). The studies by Musmiller et al. (2020), Muti (2020), Putri et al. (2018), and Bahnassy et al. (2018), the wage factor was directly associated to job satisfaction (2014). Job satisfaction, according to Oshagbemi (1997), can be found in firms that reward individuals with career advancement for their success in all roles.

#### Coworkers.

Studies on the topic have shown that an employee's job happiness increases with the strength of their interactions with coworkers (Baron & Warton, 1991). That suggests that one of the most important aspects of a workplace is its coworkers (Schneider, 1987). If someone can communicate well with their coworkers while spending a large amount of time at work, they will eventually be satisfied with their job (Erdoan, 1996). Employees can work together for 12 hours a day in several divisions of the Mongolian National Police, including police stations and forensic science investigation centers, which run on a shift system. As a result, more than any other business, the forensic science field has a high need for employee's teamwork (Bat-Erdene, 2011).

#### Supervision.

Supervisors act in a way that encourages their staff to display the abilities, information, and attitudes (Eisenberger & Rhoades, 2002). Bhatti et al. (2013) assert that a supervisor's contributions to job performance are significant. The work performance procedure cannot be successful without the supervisor's help. This is because an unmonitored or unsupervised employee tends to lose attention.

According to Putter (2013), the help might come in the form of practical or emotional support. Additional supervisor assistance includes providing feedback (Klink, 2001). This is because feedback is often seen as part of supervisor support, where a manager identifies areas for improvement, encourages employees to participate in training programs, and helps them use the skills they have learned to increase their job satisfaction.

#### Benefits.

According to Williams (1995), there is a link between benefits and work satisfaction. People who felt that their present level of benefit coverage was superior to that of others were happier.

The relationship between job satisfaction and job training will be investigated using the following control variables as the basis of the analysis: age, gender, education, length of service (tenure), employment status (job status), opportunities and rewards (pay and promotion), supervision, benefits, and co-worker satisfaction levels.

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## **Chapter 3. Research Methodology**

The proposed study's approach is detailed in Chapter 3. The statement of purpose is restated at the beginning of the chapter. The research question for the research is identified. This research was quantitative, cross-sectional and survey-based. The target population, sample techniques, and justifications are provided. The procedure for gathering data is extensively outlined. Additionally, the instrumentation is clearly detailed with evidence of its validity and reliability. The data analysis plan describes the statistical analysis that was done on the research question. Threats to validity and ethical issues are discussed in the chapter's conclusion.

#### **3.1. PURPOSE OF THE STUDY**

The current study's goal was to investigate at the effect between job training and job satisfaction among employees at the National Institute of Forensic Science of Mongolia. The research methods and design chosen for this research are described and justified in current chapter. The targeted demographic, data gathering strategy, and sampling techniques are all presented.

## **3.2. RESEARCH QUESTIONS AND HYPOTHESIS**

The conceptualization of job satisfaction advanced by Steven W. Schmidt (2004), emphasizing the idea of public organization character and the Herzberg's two-factor theory by Herzberg (1959). A key concept in this approach is the distinction between hygiene factors and incentive elements. These two factors affecting job satisfaction are divided into two categories. Motivational factors are believed to be more important in job satisfaction. Motivational factors influence job satisfaction because of "human demand for self-development and self-actualization." These include work itself, recognition, achievement job status, benefits, promotion and training factors as personal growth. In this study, pay, benefits, coworkers, supervision and promotion were taken as control variables and training was taken as the main independent variable.

According to the Becker and Schultz (1961) human capital theory, investing in training and education is a kind of investing in people. Only through training can employees be helped to make the most use of their knowledge, skills, and talents in the workplace, these theories served as the foundation for the research issues examined in this study. The connection linking job satisfaction and job training had been considered by numerous scholars. In the context of the Mongolian public service, the current study looked at the connection linking job satisfaction and job training.

## Does job training effect on employees' job satisfaction in the National Institute of Forensic Science of Mongolia?

The following hypothesis were examined in this study in response to this question:

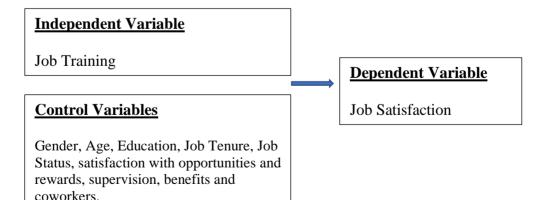
H1: There is a significant positive relationship between job training and job satisfaction among employees of Mongolian National Institute of Forensic Science.

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## **3.3. RESEARCH DESIGN**

To investigate the impact of job training on job satisfaction in the Mongolian NIFS, the researcher used a quantitative and correlational research approach. When attempting to discover the relationship between constructs that are quantitatively measurable, quantitative research is the most appropriate method (Howell, 2013).

Both correlational and regression analyses are applied in correlational designs, and these analyses were used to answer the study's research question. A quantitative methodology has the advantage of allowing for some statistical proof that the variables are significantly related. Job satisfaction was the dependent variable, and job training was the independent variable. In addition, the relationship between key control variables affecting job satisfaction would be explored (Schmidt, 2001). Figure 3 clearly illustrates the study methodology and the connections of the variables.



#### Figure 3. Conceptual Framework of the Study

A quantitative approach's drawback is that it does not provide a thorough investigation of participants' underlying perceptions. However, because all survey items in this study are closed-ended and statistically quantifiable, a qualitative analysis of the replies was not required.

This study analyzed data collected from a random sample of public employees in the central organization of the National Institute of Forensic Science (NIFS), Mongolia. The sample was chosen with random sampling from the employee of the central NIFS of Mongolia. Data was collected by with job training questionnaires developed by Mugenda and Mugenda (2003) and job satisfaction survey developed by Brayfield-Rothe (1951). Also, the control variables were measured using an instrument created by Paul E. Spector (1985). This survey was tested the connection between job training and job satisfaction among central employee in the National Institute of Forensic Science of Mongolia. Since there was a need to translate the instruments in English into Mongolian language without loss of meaning, it was translated with instructions from Dr. B. Solongo, who graduated from the University of Mongolia with a degree in English language.

## **3.4. POPULATION**

NIFS has a total of 600 employees and 350 of them work in the local area. Since the training system is different from that of the central organization, the research population is 250 employees of the NIFS central organization. The population for this study consisted of central organization of the Mongolian NIFS employees. The goal of the study stated in online secure survey method, including the anonymity involved and the possibility to request a copy of the finished dissertation at the end of the research. Participations were entirely voluntary. To protect the privacy of the participants, the Google form-based file was encrypted, the file was stored in a locked form, and no personal information such as name, ID number, or work ID was collected. The secure URL link of survey provided in the NIFS employees online group chat (NIFS intranet communication platform).

A total of 250 employees of the central organization of the NIFS who are part of the joint group of employees were requested to participate in the questionnaire voluntarily. A total of 174 people participated in the survey and 1 respondent failed to finish off the questionnaire, so a total of 173 people were valid

The majority of participants were female (n = 95, 55.2%). Participants' highest level of education corresponded to bachelor's degree (n = 90, 51.7%) and master's degree (n = 75, 43.7%). Participants' ages ranged from 23 to 65 years. Ages were heavily concentrated in the 30-39-year-old range. The sample was chosen with random sampling from the employee of the central NIFS of Mongolia.

### **3.5. Data Collection and Sample**

Total population of this study was 250 which contains the central organization employees in the NIFS of Mongolia. Theoretically the minimum sample size is 152 (confidence level 95%, Margin of error 5%).

Out of the total population, 174 employees were participated the questionnaires and 1 respondent failed to finish off the questionnaire, so a total of 173 people were valid. This made 69.2% response rate of the total population. The questionnaire was kept open for 21 days and was reminded to participate in a total of 3 times.

An online google form survey was administered as the data gathering method. The information below provides specifics on participant selection, rights protection, and data collecting. Respondents were also informed about the reason of the study and the time it would take to finish off the survey.

Respondents were first provided with information describing the goal, risks, and benefits of the research. Before participating in the survey, participants were given the opportunity to continue the study by reviewing the online information. Participants had the option to leave the research at any time. Identifying information such as name, id number or phone number was not collected during the survey. In addition, raw data were not shared with anyone other than the researcher.

The researcher carefully separated the request letter from each questionnaire and checked whether every question was fully responded or not. The researcher separated the incomplete questionnaire and took completed questionnaire as the final sample. Data were then recorded in Microsoft excel, negative questions were changed to positive, and imported into SAS software for statistical analysis.

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## **3.6.** Analytic Strategy

SAS software received the collected data and processed it for descriptive, factor analysis, VIF test, ANOVA test, correlation and regression analysis. The descriptive statistics of the variables were computed, including mean, maximum, minimum, and standard deviation. The descriptive statistics will be reported within the range of the point scales because this study used survey questions on a Likert point scale. It was determined whether there was a correlation between each aspect of job training and workers' job satisfaction. Also calculated was the association between job training and job satisfaction. For those dependent and independent variable pairs that are statistically significant, regression and correlational analysis were conducted. Furthermore, the technique of linear regression analysis was employed to investigate the relationship between job training and job satisfaction.

The 95% confidence level was used to test the model's significance and the coefficients of correlation and regression.

#### **3.7. MEASUREMENT**

#### Job satisfaction.

Job satisfaction was measured with the five items selected from the overall job satisfaction index used by Brayfield-Rothe (1951) with fivepoint Likert-type scale (1 = strongly disagree, 5 = strongly agree). "I feel fairly well satisfied with my present job," "I am satisfied with my job for the time being," "Most days I am enthusiastic about my work," "I like my job better than the average worker does," "I find real enjoyment in my work" ( $\alpha$ =0.896).

#### Job training.

Job training, the primary explanatory variable of the study, was measured using instrument by Mugenda and Mugenda (2003) with a five point - Likert scale of 1 = strongly disagree, 2 = disagree, 3 = neither agree or disagree, 4 = agree and 5 = strongly agree. An eight-item scale will be used to assess job training. "I receive job coaching to help me achieve my objectives and create my future." "Job rotation allows me to become accustomed to executing a wide range of activities, which results in high levels of flexibility." "I receive work mentoring, which assists me in developing and acquiring skills and information that will assist me in doing my duties." "Job mentorship enables me to put out my best effort at work every day." "I get expertise from the conferences I attend, which allows me to accomplish my task on time." "I am offered professional courses that allow me to get new information skills that I can utilize to perform my tasks." "I am given seminars that allow me to meet with personnel from various firms, which allows me to get more expertise." "I am given lessons that improve and raise my level of job freedom" ( $\alpha$ =0.861).

#### Control variables.

The control variables were measured using an instrument created by Paul E. Spector (1985). Participants respond to survey items using five choices per item ranging from "strongly disagree" to "strongly agree."

#### **Opportunities and rewards.**

Satisfaction with opportunities and rewards has a total 6 items; 1. My employment offers far too few opportunities for promotion. 2. Those who perform well on the job have a good chance of advancement. 3. People advance as quickly here as they do anywhere. 4. I am pleased with my possibilities for promotion. 5. I feel unappreciated by the organization when I think about what they pay me. 6. I feel satisfied with my chances for salary increases.

#### Supervision.

Satisfaction with supervision has a total 4 items; 1. My boss is quite capable of completing his or her job. 2. My boss is unconcerned with the sentiments of his staff. 3. I enjoy working with my boss. 4. My boss is unjust to me.

#### Benefits.

Satisfaction with benefits has a total 4 items: 1. I am not satisfied with the benefits I receive. 2. The benefits we receive are as good as most other organizations offer. 3. The benefit package we have is equitable. 4. There are benefits we do not have which we should have.

#### Coworkers.

Satisfaction with coworkers has a total 3 items: 1. I enjoy my coworkers. 2. I like the people I work with. 3. There is too much bickering and fighting at work.

#### Tenure.

The duration of employment was operationalized as a job's tenure (<1 year = 1, 1-3 years = 2, 4-6 years = 3, 7-10 years = 4, 11-14 years = 5, >15 years = 6).

#### Age.

What is your age: \_\_\_\_\_ (20-29 years old = 1, 30-39 years old = 2, 40-

49 years old = 3, 50-59 years old = 4, 60-65 years old = 5).

#### Education.

What is your highest degree: high school diploma = 1, associate's degree = 2, bachelor's degree = 3, master's degree = 4, Ph.D.= 5.

#### Gender.

What is your gender: female = 1, male = 2.

#### Employment status.

What is your current employment status: Forensic scientist = 1, other = 2.

#### SUMMARY

The goal of this study was to investigate at the relationship between job satisfaction and job training among NIFS central employees. This chapter explained why a quantitative, correlational study strategy was chosen and provided supporting evidence. The population and sample were also described. The methods for gathering data were described, along with the variables' instrumentation and operationalization. The statistical methods to answer the research question were covered in the data analysis plan. With ethical considerations, the chapter concluded. The study results will be presented in the following chapter.

## **Chapter 4. Data analysis and Research findings**

## **4.1. Introduction**

This chapter described the analysis of data which was derived from discussion of the research findings to answer the research question. Data were analyzed to describe and explore the effect of job training on employees' job satisfaction in the central organization of National Institute of Forensic Science (NIFS) of Mongolia and to identify how control variables influenced on employees' job satisfaction and which control variable most influenced on job satisfaction of civil servants in the NIFS.

The statistical results from the data gathering are presented in Chapter 4. The nominal and continuous level variables were trended by using descriptive statistics including frequencies, means, and standard deviations. Correlation analysis was performed after the descriptive analysis. After that, the ANOVA test was performed and finally the regression analysis was completed. The research question was addressed using regression and Pearson's correlation coefficient r. The traditional threshold of statistical significance (a=.05.) was used to analyze the results.

## **4.2. DESCRIPTION OF THE SAMPLE**

#### **Demographic variables**

The sample is refined in this stage by removing incomplete replies and identifying outliers. Following the determination of the final sample size, demographic information is presented using frequencies and percentages.

The number of participants in the sample, as gathered using a Google form, was 173. All of these respondents gave honest answers to every question on the survey. The majority of participants (n = 95, 54.9%) were female and aged 30-39 (n = 101, 58.4%). The highest level of education among the participants was a bachelor's degree (n = 90, 52.02%), followed by a master's degree (n = 75, 43.35%) and there were no participants who were with high school diploma. Considering the years of service of the surveyed employees, the maximum number is 7-10 years (n = 49, 28.3%), followed by 11-14 years (n = 38, 22%), and the minimum was less than one year (n = 8, 4.62%). The majority of the employees surveyed were forensic scientists (n = 107, 61.9%). Table 3 displays percentages and frequencies.

	(N = 173)			
Variables	Percentage	n		
Gender				
Male	45.1	78		
Female	54.9	95		
Age				
20-29	20.2	35		
30-39	58.4	101		
40-49	15.0	26		
50-59	5.25	9		
60-69	1.15	2		
Educational level				
High School Diploma	-	-		
Associate's Degree	2.89	5		
Bachelor's Degree	52.02	90		
Master's Degree	43.36	75		

Table 3. Demographic Characteristics of the Survey Respondents

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Ph.D.	1.73	3
Job Tenure		
Less than 1 year	4.63	8
1-3 years	13.87	24
4-6 years	15.6	27
7-10 years	28.33	49
11-14 years	21.97	38
More than 15 years	15.6	27
Job status		
Forensic scientist	61.9	107
Other	38.1	66

## **4.3 Factor analysis**

#### Independent and dependent variables

Survey questionnaires were conducted using 5 items to measure job satisfaction (JS) and 8 items to measure job training (JT).

There are eight items are loaded into Factor 1 (Job training) and five items are assigned into Factor 2 (Job satisfaction) as summarized in Table 4.

For the sake of clarity, the findings for the items and factor loading for the rotational factors with loading less than 0.50 were left out. Table 4 displays this. Item train2 "Job rotation allows me to become accustomed to executing a wide range of activities, which results in high levels of flexibility" was deleted due to result loading less than 0.50. The KMO value in this study was 0.870, which may be taken as being sufficient to predict each factor.

	<b>Rotated Factor Pattern</b>		
Item	Description	Factor	Factor 2
train1	I receive job coaching to help me achieve my objectives and create my future	0.595*	2
train2	Job rotation allows me to become accustomed to executing a wide range of activities, which results in high levels of flexibility	0.392	
train3	I receive work mentoring, which assists me in developing and acquiring skills and information that will assist me in doing my duties	0.757*	
train4	Job mentorship enables me to put out my best effort at work everyday	0.735*	
train5	I got expertise from the conferences I attend, which allows me to accomplish my task on time	0.632*	
train6	I am offered professional courses that allow me to get new information skills that I can utilize to perform my tasks	0.678*	
train7	I am given seminars that allow me to meet with personnel from various firms, which allows me to get more expertise	0.604*	
train8	I am given lessons that improve and raise my level of job freedom	0.509*	
jobsat1	I feel fairly well satisfied with my present job		0.812*
jobsat2	I am satisfied with my job for the time being		0.758*
jobsat3	Most days I am enthusiastic about my work		0.724*
jobsat4	I like my job better than the average worker does		0.700*
jobsat5	I find real enjoyment in my work		0.723*

## Table 4. Exploratory factor analysis of dependent and independent variable scale items (N=173) Rotated Factor Pattern

Note: Printed values are multiplied by 100 and rounded to the nearest integer. Values greater than 0.5 are flagged by an '\*'.

Table 5 shows that 0.87 (good) for job training after excluding train2 item. The Cronbach alpha coefficient of the job training variable is not low, but when excluded for the train2 variable, the overall Cronbach alpha value increases. Therefore, it is desirable to exclude train2.

	Factor 1	Factor 2
Factor name	Job training	Job satisfaction
	train1 train2	jobsat1 jobsat2
Item retained	train3 train4	jobsat3 jobsat4
	train5 train6	jobsat5
	train7 train8	
Finally retained	train1 train3	jobsat1 jobsat2
items	train4 train5	jobsat3 jobsat4
	train6 train7	jobsat5
	train8	
Kmo value	0.870	0.896

 Table 5. Final result of factor analysis (dependent and independent variables)

Table 5 shows that Cronbach's alpha is 0.896 (excellent) for job satisfaction. The Cronbach alpha coefficient of job satisfaction is 0.896, which is quite high. It is desirable to include all variables because the alpha.

#### **Control variable**

In this research, the loading factor were set at the minimum level with 0.5. The outcome was established using the original Eigenvalues. The presumption met a common standard for a factor's usefulness—it described the overall variation as larger than 1.0. (Barre, Leech & Morgan, 2011). There are four items are loaded into Factor 1 (Supervision), six items are assigned into Factor 2 (Opportunities and rewards), four items are loaded into Factor 3 (Benefits) and finally, three items are assigned into Factor 4 (Coworkers) as summarized in Table 6.

For the sake of clarity, the findings for the items and factor loading for the rotational factors with loading less than 0.50 were left out. Table 3 displays this. Item cowork3 "There is too much bickering and fighting at work" was deleted due to result loading less than 0.50. Item oppo1 "There are benefits we do not have which we should have" and oppo6 "I feel satisfied with my chances for salary increases" were deleted due to result loading less than 0.50. And item bene1 "I am not satisfied with the benefits I receive" was deleted. The KMO value in this study was 0.848 (table 4), which may be taken as being sufficient to predict each factor. 

 Table 6. Exploratory factor analysis of control variable scale items (N=173)

Rotated Factor Pattern						
Item	Description	Factor	Factor	Factor	Factor	
		1	2	3	4	
super4	My boss is unjust to me	.81 *	.18	.16	.5	
super2	My boss is unconcerned with the sentiments of his staff	.81 *	.23	.7	1	
super3	I enjoy working with my boss	.77 *	.15	.27	.19	
super1	My boss is quite capable of completing his or her job	.72 *	.15	.31	.18	
cowork3	There is too much bickering and fighting at work	.47	.1	5	.36	
oppo2	Those who perform well on the job have a good chance of advancement	.12	.68 *	.45	.9	
oppo3	People advance as quickly here as they do anywhere	.15	.66 *	.45	.20	
oppo4	I am pleased with my possibilities for promotion	.4	.60 *	1	.4	
oppo5	I feel unappreciated by the organization when I think about what they pay me	.16	.53 *	.8	18	
bene1	I am not satisfied with the benefits I receive	.21	.50	.29	11	
bene2	The benefits we receive are as good as most other organizations offer	.14	.17	.65 *	.10	
bene3	The benefit package we have is equitable	1	.18	.60 *	.7	
bene4	There are benefits we do not have which we should have	.24	.42	.58 *	7	
oppo1	My employment offers far too few opportunities for promotion	.19	.50	.51 *	.12	
орроб	I feel satisfied with my chances for salary increases	.21	1	.42	.9	
cowork2	I like the people I work with	.15	3	.13	.88 *	
cowork1	I enjoy my coworkers	.16	1	.15	.86 *	

Note: Printed values are multiplied by 100 and rounded to the nearest integer. Values greater than 0.5 are flagged by an '\*'.

	<b>D</b> ( 1	<b>F</b> ( <b>A</b>	<b>F</b> ( )	<b>T</b> ( 4				
	Factor 1	Factor 2	Factor 3	Factor 4				
Variance explained	2.959	2.411	2.295	1.842				
Factor name	supervision	opportunities and rewards	benefits	coworkers				
Item retained	super1 super2 super3 super4	oppo1 oppo2 oppo3 oppo4 oppo5 oppo6	bene1 bene2 bene3 bene4	cowork1 cowork2 cowork3				
Finally retained items	super1 super2 super3 super4	oppo2 oppo3 oppo4 oppo5	bene2 bene3 bene4	cowork1 cowork2				
Cronbach's alpha	0.900	0.757	0.743	0.924				
KMO value 0.848								

 Table 7. Final result of factor analysis (control variable)

Note: oppo1, oppo6, bene1 and cowork3 were deleted due to result loading less than 0.50

Table 7 shows the after excluding items due to result loading less than 0.50 satisfaction with opportunities and rewards has a Cronbach's alpha of 0.757 (acceptable), satisfaction with coworkers 0.924 (excellent), satisfaction with supervision 0.90 (excellent) and satisfaction with benefits 0.743 (acceptable) as control variables.

A number equal to or more than 0.90 is considered excellent, above.80 is good, between .70 and .80 is acceptable, between .60 and .70 is questionable, .50 to .60 is poor, and less than .50 is unacceptable (Altman & Bland, 1997).

## **4.4 Descriptive statistics of the variables**

It is descriptive analysis that reflects the question excluded through factor analysis and reliability analysis. Means and standard deviations are used to show descriptive statistics for continuous variables. The narrative tabulates all statistics and explains them.

Table 8 provided descriptive statistics for the variables. The mean value of dependent variable job satisfaction is 3.258 (average) and standard deviation is 0.960. Satisfaction with coworkers had 4.000 (high) mean score compared to supervision 3.303 (average), benefits 2.462 (low) and opportunities and rewards 2.283 (low). The independent variable job training had 2.994 (average) mean score and standard deviation is 0.881.

A number equal to or more than 4.21 is considered very high, between 3.41 - 4.20 is high, between 2.61 and 3.40 is average and less than 2.60 is low (Moidunny, 2009).

Construct	Variable	Min	Max	Mean	Std Dev
Job Satisfaction	jobsat	1	5	3.258	0.960
Job Training	train	1	5	2.994	0.881
Opportunities and rewards	oppo	1	4.5	2.283	0.825
Coworkers	cowork	1	5	4.000	0.781
Supervision	super	1	5	3.303	0.946
Benefits	bene	1	5	2.462	0.854

 Table 8. Descriptive statistics of variables (n=173)

## 4.5 Descriptive statistics by demographic variables

Age.

According to the age group (Table 9), the research showed that workers between the ages of 50 and 59 have higher job satisfaction with 4.044 (high) mean than other age groups and job training with 3.508 (high). However, it can be seen that the difference between the other age groups in job satisfaction is almost invisible.

age	variable	Ν	mean	SD	min	max
8	Job	35	3.229	0.999	1	4.8
	satisfaction					
	Job training	35	3.090	0.965	1	4.857
1	Supervision	35	3.607	0.847	2	5
(20-29)	Opportunities and rewards	35	2.514	0.868	1	4.5
	Benefits	35	2.643	0.886	1	4.25
	Coworkers	35	3.971	0.848	1	5
	Job satisfaction	101	3.212	0.948	1	5
2	Job training	101	2.943	0.791	1.143	5
(30-39)	Supervision	101	3.267	0.913	1	5
	Opportunities and rewards	101	2.228	0.827	1	4.25
	Benefits	101	2.386	0.798	1	5
	Coworkers	101	3.990	0.775	1	5
	Job satisfaction	26	3.292	0.957	1.8	5
3	Job training	26	2.956	1.089	1	5
(40-49)	Supervision	26	2.952	1.020	1.25	4.25
	Opportunities and rewards	26	2.048	0.678	1	3.25
	Benefits	26	2.394	0.912	1	4.5
	Coworkers	26	3.962	0.786	2	5
	Job satisfaction	9	4.044	0.639	2.6	4.8
4	Job training	9	3.508	0.739	2.429	4.571
(50-59)	Supervision	9	3.750	1.097	1.75	5
	Opportunities and rewards	9	2.806	0.778	2	4.25
	Benefits	9	3.028	0.972	2	5

Table 9. Descriptive statistics (n=173) by age

	Coworkers	9	4.444	0.527	4	5
	Job satisfaction	2	2.100	0.141	2	2.2
5	Job training	2	2.071	0.707	1.571	2.571
(60-69)	Supervision	2	2.375	0.530	2	2.75
	Opportunities and rewards	2	1.750	0.354	1.5	2
	Benefits	2	1.500	0.354	1.25	1.75
	Coworkers	2	3.500	0.707	3	4

#### Gender.

Data analysis was shown in Table 10 to look at any gender relationships with variables. Despite the fact that it appeared that there is no difference between job satisfaction levels among gender variable.

gender	variable	Ν	mean	SD	min	max
	Job	95	3.259	0.899	1.2	5
	satisfaction					
_	Job training	95	2.899	0.874	1.143	5
1 (famala)	Supervision	95	3.226	1.003	1	5
(female)	Opportunities	95	2.213	0.795	1	4.25
	and rewards					
	Benefits	95	2.355	0.871	1	5
	Coworkers	95	3.947	0.804	1	5
	Job satisfaction	78	3.256	1.036	1	5
2	Job training	78	3.110	0.880	1	5
(male)	Supervision	78	3.397	0.867	1.25	5
	Opportunities and rewards	78	2.369	0.858	1	4.5
	Benefits	78	2.593	0.819	1	5
	Coworkers	78	4.064	0.753	1	5

Table 10. Descriptive statistics (n=173) by gender

#### Education.

When classified by level of education (Table 11), it was found that workers with associate's degree have higher job satisfaction (4.040) than workers with higher education levels. Employees with the Ph.D. have the lowest job satisfaction level 3.00 (average). Employees with master's degree 3.320 (average) and bachelor's degree 3.171 (average) have similar satisfaction level.

The employees who received the associate's degree showed the highest job training score 3.657 (high) and the lowest score 2.238 (low) was those who received the doctor's degree. Bachelor's 3.041 (average) and Master's degree 2.924 (average) employees showed similar job training scores. When workers were classified by educational level, workers with Ph.D. had the lowest scores compared to others. Conversely, workers with the least educational level scored significantly higher than other workers.

edu	variable	Ν	mean	SD	min	max
	Job satisfaction	5	4.040	0.477	3.4	4.6
	Job training	5	3.657	0.682	2.857	4.571
2	Supervision	5	4.300	0.411	4	5
(associate's degree)	Opportunities and rewards	5	3.050	0.798	2	4.25
	Benefits	5	3.750	0.729	3.25	5
	Coworkers	5	4.400	0.548	4	5
	Job satisfaction	90	3.171	0.990	1	5
3	Job training	90	3.041	0.895	1	5
	Supervision	90	3.328	0.996	1	5

Table 11. Descriptive statistics (n=173) by education

(bachelor's degree)	Opportunities and rewards	90	2.264	0.886	1	4.5
0 /	Benefits	90	2.478	0.876	1	5
	Coworkers	90	4.050	0.814	1	5
	Job satisfaction	75	3.320	0.934	1	5
	Job training	75	2.924	0.861	1	5
4	Supervision	75	3.203	0.888	1	5
(master's degree)	Opportunities and rewards	75	2.287	0.730	1	4.25
	Benefits	75	2.387	0.774	1	4.5
	Coworkers	75	3.913	0.760	1	5
	Job satisfaction	3	3.000	0.917	2.2	4
5	Job training	3	2.238	0.644	1.571	2.857
( <b>Ph.d.</b> )	Supervision	3	3.417	0.629	2.75	4
	Opportunities and rewards	3	1.500	0.500	1	2
	Benefits	3	1.750	0.433	1.25	2
	Coworkers	3	4	0.5	3.5	4.5

Tenure.

According to the tenure group (Table 12), the research showed that new employees who have been working for up to 1 year have high job satisfaction 3.925 (high). Next, there were employees who had been working for 1-3 years is 3.617 (high), and as the years of service progressed, the level of job satisfaction decreased. However, the job satisfaction of employees who have been working for more than 15 years is high with mean score 3.711 (high).

Table 12. Descriptive statistics (n=173) by tenure

tenure	variable	Ν	mean	SD	min	max
	Job satisfaction	8	3.925	0.770	2.6	4.8

1	Job training	8	3.732	0.817	2.429	4.857
(less	Supervision	8	4.125	0.598	3.25	5
than 1 year)	Opportunities and rewards	8	3.344	0.855	2	4.5
	Benefits	8	3.156	1.008	1.25	4.25
	Coworkers	8	4.125	1.356	1	5
	Job satisfaction	24	3.617	0.873	1.2	4.8
	Job training	24	3.107	0.920	1.286	4.714
	Supervision	24	3.615	1.096	1	5
2	Opportunities	24	2.354	0.918	1	4
( <b>1-3</b>	and rewards	2.	2.001	0.710	1	·
years)	Benefits	24	2.521	0.831	1	4
	Coworkers	24	4.229	0.589	2.5	5
	Job satisfaction	27	3.104	1.075	1	5
3	Job training	27	3.122	0.939	1	5
(4-6	Supervision	27	3.176	0.965	1.25	5
years)	Opportunities and rewards	27	2.389	0.821	1	3.75
	Benefits	27	2.676	0.912	1.25	5
	Coworkers	27	4.000	0.809	1	5
	Job satisfaction	49	2.886	0.882	1	4.4
	Job training	49	2.837	0.697	1.286	3.714
4	Supervision	49	3.260	0.792	1	4.25
(7-10 years)	Opportunities and rewards	49	2.092	0.655	1	3.5
	Benefits	49	2.311	0.596	1	3.75
	Coworkers	49	3.908	0.741	1.5	5
	Job satisfaction	38	3.158	0.836	1.8	4.6
	Job training	38	2.778	0.825	1.143	4.286
5	Supervision	38	3.289	0.841	1.5	5
(11-14 years)	Opportunities and rewards	38	2.224	0.817	1	4.25
	Benefits	38	2.322	0.836	1	4

	Coworkers	38	3.816	0.783	2	5
	Job satisfaction	27	3.711	0.953	1.8	5
	Job training	27	3.138	1.059	1	5
6 (mana	Supervision	27	3.009	1.119	1.25	5
(more than 15	Opportunities and rewards	27	2.231	0.840	1	4.25
years)	Benefits	27	2.463	1.089	1	5
	Coworkers	27	4.185	0.736	2	5

#### Job status.

Data analysis was shown in Table 13 to look at job status relationships with variables. Despite the fact that it appeared that the job satisfaction of employees working as forensic scientists was lower 3.164 (average) than other types of employees 3.409 (high).

status	variable	Ν	mean	SD	min	max
	Job	107	3.164	0.965	1	5
	satisfaction					
1	Job training	107	2.881	0.918	1	5
(Forensic	Supervision	107	3.236	0.953	1	5
scientist)	Opportunities	107	2.147	0.847	1	4.5
	and rewards					
	Benefits	107	2.336	0.811	1	4.5
	Coworkers	107	4.042	0.684	1.5	5
	Job	66	3.409	0.940	1	5
	satisfaction					
_	Job training	66	3.177	0.790	1	5
2 (others)	Supervision	66	3.413	0.930	1.25	5
(others)	Opportunities	66	2.504	0.744	1	4.25
	and rewards					
	Benefits	66	2.667	0.887	1	5
	Coworkers	66	3.932	0.919	1	5

Table 13. Descriptive statistics (n=173) by job status

## 4.6 Correlation analysis

Table 14 displayed the correlation between independent variable Job Training, dependent variable Job Satisfaction and four control variables. It showed that there is strong correlation between Job Satisfaction and Job Training (r=0.628\*\*\*, P<0.001). On the other hand, there are medium correlation between Job Satisfaction (JS) and supervision (super, r=0.447\*\*\*, P<0.001), opportunities and rewards (oppo, r=0.459\*\*\*, P<0.001), benefits (bene, r=0.430\*\*\*, P<0.001) and coworkers (cowork, r=0.412\*\*\*, P<0.001).

<b>Pearson correlation coefficient</b> , N = 173									
	uder H0: Rho=0, Prob >  r								
	Job satisfaction	Job training	Super vision	Oppor tunities and rewards	Benefits	Co workers			
Job satisfaction									
Job training	0.628***								
Supervision	0.447***	0.460***							
Oppor tunities and rewards	0.459***	0.557***	0.388 ***						
Benefits	0.430***	0.574***	0.400 ***	0.581***					
Coworkers	0.412***	0.249**	0.274 ***	0.103	0.150*				

Table 14.	Pearson	correlation	coefficient

Note: \*<.05, \*\*<.01, \*\*\*<0.001

## 4.7 Regression analysis

Table 15 shows ANOVA test, where the F-test tests whether the regression model itself is statistically significant. The null hypothesis of F-test is the regression coefficient is zero for all variables in the regression model. Since the Pr>F value is less than 0.001, the null hypothesis can be rejected, so the regression model can be said to be statistically significant.

Analysis of Variance								
Source	DF	Sum of Squares	Mean Square	F Value	<b>Pr &gt; F</b>			
Model	10	83.43285	8.34329	18	<.0001			
Error	162	75.10911	0.46364					
Corrected Total	172	158.542						

Table 15. ANOVA test

As a result of regression analysis, job training has a positive significant effect on job satisfaction even after controlling other factors that affect job satisfaction, such as supervision, opportunities and rewards, benefits, and coworkers. Every time the training satisfaction rises by 1 point, the job satisfaction rises by 0.458 points with p. <.0001 (Table 16). Compared to the size of the regression coefficient, training has a larger contribution factor, whose standardized regression coefficient was 0.458. Adj R-square indicates how much the regression model explains the variation of the dependent variable. 0.497 indicates that the regression model explains 49.7% of the variation in the dependent variable

Variance Inflation Factor can measure of the amount of multicollinearity. If the VIF value exceeds 10, multicollinearity can be

suspected in the corresponding variable. However, no multicollinearity found in the analysis result model of this study (table16).

			Paramete	er Estimate	s			
Variable	Lab el	D F	Parame ter Estimat	Standar d Error	t Val ue	$\mathbf{Pr} >  \mathbf{t} $	Varian ce (VIF)	
Intercept	Inter cept	1	е -1.034	0.536	-1.93	0.056	0	
Job training	cept	1	0.458	0.080	5.71	<.0001	1.85538	
Super vision		1	0.142	0.066	2.17	0.032	1.42458	
Oppor tunities and rewards		1	0.162	0.084	1.94	0.055	1.77796	
Benefits		1	0.055	0.082	0.67	0.504	1.82576	
Cowor kers		1	0.333	0.072	4.62	<.0001	1.17406	
Age	age	1	0.003	0.010	0.31	0.759	1.84491	
Gender	gend er	1	-0.197	0.106	-1.86	0.065	1.03689	
Education	edu	1	0.179	0.095	1.88	0.062	1.14224	
Tenure	tenur e	1	0.040	0.051	0.78	0.435	1.88533	
Job status	job	1	0.065	0.118	0.55	0.584	1.21974	
Coeff Var		20.90085						
Adj R-Sq				0.497				

Table 16. Regression analysis (n = 173)

Note: dependent variable: Job Satisfaction

## 4.9 Summary

This chapter provided statistical analysis of data collected from the survey conducted with the sample size of 173 civil employees from the central National Institute of Forensic Science of Mongolia. The results showed that the mean differences in Job Satisfaction for age demographic variable indicating employees between 50-59 years have the highest job satisfaction 3.69 (high) level. Therefore, it was found that workers with associate's degree have higher job satisfaction 4.04 (high) than workers with higher education levels. Also, according to the tenure group, the research showed that new employees who have been working for up to 1 year have high job satisfaction 3.93 (high). Next, there were employees who had been working for 1-3 years is 3.62 (high) and employees who have been working for more than 15 years is high is 3.71 (high) However, majority of the study (n = 114) employees with 4-14 years of service, there was almost no difference in the level of job satisfaction. Despite the fact that it appeared that the job satisfaction of employees working as forensic scientists was lower 3.16 (average) than other types of employees 3.41 (high).

This research study showed a strong positive relationship between job training and employee job satisfaction by testing the hypothesis of this study (H1: There is a significant positive relationship between job training and job satisfaction among employees of Mongolian National Institute of Forensic Science).

## **Chapter 5. Discussion and Conclusion**

The purpose of this study was to answer research question: Does job training affects employees' job satisfaction in the NIFS of Mongolia? In order to answer this research question, survey data obtained from JTS and JSS were used to evaluate the hypotheses. Self-administered surveys were used to collect data for this study, which used a quantitative approach. At the NIFS of Mongolia, a sample of 173 civil servants, drawn at random from a population of 250, served as the source of the data. SAS software was used to import the acquired data and analyze it. After evaluating the hypotheses at a significance level of 0.05, this study made several significant discoveries.

## **5.1 Relationship between job training and job satisfaction**

This research study discovered that job training has a significant effect on job satisfaction by testing the hypothesis of this study (**H1**: There is a significant positive relationship between job training and job satisfaction among employees of Mongolian central National Institute of Forensic Science). Even after controlling other factors that affect job satisfaction, such as supervision, opportunities and rewards, benefits, and coworkers it showed a strong positive relationship between job training and job satisfaction. Every time the training satisfaction rises by 1 point, the job satisfaction rises by 0.458 points. Compared to the size of the regression coefficient, the magnitude of the effect of job training on job satisfaction is larger than that of other factors at <.0001 level.

According to Tharinia Dukes (2013), the main takeaway from the interviews for the researcher was that forensic scientists genuinely like their employment and could not envision themselves doing anything else. Each participant discussed the significance of their role in the forensic science process and how what they do affects the lives of the victims they assist. Overall, each forensic scientist feels that there is no other employment that they would choose, and that if they could do it all over again, they would still choose to be a forensic scientist. Furthermore, participants' general sentiments were that the joy of knowing that their talents and expertise are positively contributing to the community and society surpasses any negative aspects of their professions that daily duties, unrealistic expectations, or media perceptions might bring (Ashraf, Esmail, Dukes & Robinson, 2013).

Most studies have found a positive link between job satisfaction and job training (Hoekstra, 2013; Khan, 2017; Noe, 1986; Schmidt, 2004; Truitt, 2011; Zumrah, 2013). The researchers investigated the relationship between employee job satisfaction and job training as main dependent and independent variables. The results of the above-mentioned studies conducted in this field were confirmed by this study conducted among the central employees of the Mongolian National Institute of Forensic Science in all statistical conditions.

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# 5.2 Relationship between control variables and job satisfaction

Age.

In this study, it was discovered that age had no significant impact on job satisfaction at 0.05 level. According to this study, elder workers between the ages of 50 and 59 had the highest levels of job satisfaction. Despite the differences in findings, the link between job satisfaction and age can be explained as follows. For example, Morello notes that age is the best measure of employee job satisfaction, with the head of a University of Chicago poll finding that people over 50 are the most satisfied with their jobs. People over the age of 50 have often found that they excel in their field, and that their history of doing good work in that field has led to promotions and respect from their superiors. As a result, people aged 50 and over have more independence at work and earn higher wages than vounger workers.<sup>(5)</sup>However, age and work satisfaction have a weakly positive association, according to several research (Capwell, Mausner, Herzberg & Peterson, 1957; Saleh & Otis, 1964; Huh & Smith, 1965; Glenn, Taylor & Weaver, 1977; Hunt & Saul, 1975). Nevertheless, theories of job satisfaction have not considered age as a factor.

#### Gender.

In this study, gender was not statistically significant at 0.05 level. The majority of research in this field show no discernible variations in job

<sup>&</sup>lt;sup>(5)</sup>Gallup-Healthways Well-Being Index, 2011

satisfaction between the gender (Dolliver & Kristensen, 2003; Eskildsen & Westlund, 2004; Mottaz, 1986). For instance, Witt and Nye (1992) discovered that there was no concrete information about the levels of satisfaction among men and women. Manning (2002) also found commonalities in the work satisfaction of male and female managers. Additionally, it was shown that gender had no influence on job satisfaction (Dole & Schroeder, 2001).

#### Education.

Omey (2003) discovered a positive connecting job satisfaction and educational level. Keasey, Short, Storey, Wynarczyk and Watson (1996) demonstrate that education has a bad association with work satisfaction. Other investigations have discovered a negative link between the two variables, including Brown and McIntosh (1998), Clark and Oswald (1996), Gazioglu and Tansel (2006), Hartog and Oosterbek (1998) and Verhofstadt, Buysse, Devoldre, and De Corte (2007). However, the findings of this study represented that employees with associate's degree have higher level of job satisfaction with mean score 4.040 (high) among other education levels of employees. Nevertheless, education was found not to be statistically significant at the confidence level of 0.05.

#### Tenure.

A number of past research hypothesized that job satisfaction tended to rise in tandem with employee service time (Clark, Oswald, & Warr, 1996; Oshagbemi, 2000). In this study, employees with less than 1 year tenure have higher satisfaction level with mean score 3.925 (high), next 1-3 years tenure employees with mean score 3.617 (high) and more than 15 years have 3.711 (high). However, in this study majority of respondents (n=114) have 4-14 years tenure with average level of satisfaction. Other than in this study, tenure was found not to be statistically significant at the level of 0.05. *Job status*.

Job status fount not to be statistically significant at the level of 0.05. In this study, employees in other fields reported higher level of satisfaction with mean score 3.409 (high) than forensic scientists with 3.164 (average). According to Judge and Hurst (2008), each person's level of satisfaction with a work's qualities is different and can have an effect on job satisfaction.

#### **Opportunities and rewards.**

Based on Locke 1997, pay and promotion opportunities are grouped together as opportunities and rewards. Many previous studies have considered this variable as a general predictor of job satisfaction, and Musmiller et al. (2020), Muti (2020), Putri et al. (2018), and Bahnassy et al. (2018) found that pay and promotion opportunities had a direct effect on job satisfaction in the study of these researchers. However, based on the results of this study, statistically, opportunities and rewards do not have a direct effect on job satisfaction at 0.05 level.

#### Coworkers.

Studies on the topic have shown that an employee's job satisfaction increases with the strength of their interactions with coworkers (Baron & Warton, 1991). That suggests that one of the most important aspects of a workplace is its coworkers (Schneider, 1987). If someone can communicate well with their coworkers while spending a large amount of time at work, they will eventually be satisfied with their job (Erdoan, 1996). Corroborating the answers of the above studies, this study showed that coworkers have a direct effect on job satisfaction at <.0001 level. It was confirmed that when satisfaction with coworkers increases by 1, overall job satisfaction increases by 0.33 points.

#### Benefits.

According to Williams (1995), there is a link between benefits and work satisfaction. People who felt that their present level of benefit coverage was superior to that of others were happier. However, this study has shown that the benefit has no direct effect on job satisfaction at 0.05 level.

#### Supervision.

According to Putter (2013), the help might come in the form of practical or emotional support. Additional supervisor assistance includes providing feedback (Klink, 2001). This is because feedback is frequently seen as a part of supervisor support, in which the manager identifies the areas in which their employees need to improve, encourages them to enroll in a training program, and helps them use the skills they have learned to complete their work in a way that supports their job satisfaction. However, this study has shown that the supervisor has no direct effect on job satisfaction at 0.1 level.

## **5.3.** Contribution of the study

There is no research on the relationship between job training and job satisfaction in the field of forensics in Mongolia, and employees of NIFS in Mongolia have high levels of stress. Therefore, finding the factors that increase their job satisfaction is important to improve their work performance and the quality of service to citizens. Therefore, it can be explained as follows.

The research's contribution to expanding theory allows for a better understanding of the relationship between job satisfaction and job training, which provides an approach to Herzberg's two-factor theory and human capital theory. In this study, Herzberg's two-factor theory developed by Herzberg (1959) was used to examine the job training motivational factor that influences job satisfaction, because of "the need for self-development and self-actualization". Based on the results of this study, job training of employees may contribute to increasing their job satisfaction. Based on Herzberg's two-factor theory, the results of this study shed light on the impact of on-the-job and off-the-job training on their job satisfaction and provided sufficient evidence of a positive relationship between these two variables. In addition to human capital theory, investing in training is a form of investing in people. Only through training can employees be helped to make the most of their knowledge, skills and talents in the workplace. In other words, in this study it has been proven that job satisfaction can be improved by job training employees (Becker & Schultz 1961).

This study confirmed that the job training of the National Institute of Forensic Science of Mongolia has a direct impact on employee satisfaction, so it is necessary to review the training system of the organization and completely reform it. As a result of the research, when employee training satisfaction increases by 1, employee satisfaction increases by 0.458 points.

The National Institute of Forensic Science organization is a subordinate organization of the Ministry of Justice and Home Affairs and must implement the training content approved by the Ministry. Therefore, looking at the big picture, it is very necessary to review the training content approved by the Ministry of Justice and Home Affairs and develop a training system that will increase the satisfaction of all employees belonging to the Ministry.

### **5.4 Limitations**

Although this study is a valuable contribution to theoretical and practical implementation, several weaknesses must be highlighted.

The first limitation of this study was that it was a self-administered survey to collect respondents' perceptions of job training and job satisfaction. Self-administered questionnaires may not represent organizational factors and data may be biased.

Secondly, both the independent and dependent variables in this study came from the same data source, the effects of one variable on another may be biased (Bullock & Favero, 2015; Jakobsen & Jensen, 2015).

Thirdly, in this study there is no indication of a time association between exposure and result. The exposure and outcome are concurrently assessed, which is the main drawback of the cross-sectional research design. In other words, without longitudinal data, it was impossible to establish true cause-and-effect relationships.

Finally, this quantitative research method included a structured questionnaire with close-ended questions. This may have led to the limited results stated in the research proposal. Therefore, the results may not be generalizable. Also, because the respondents only had the opportunity to give answers based on the choices made by the researcher, the possibility of alternative answers may have been limited.

## **5.5 Recommendation for further research**

This study was a quantitative, descriptive, cross-sectional survey research conducted in the Mongolian forensic civil service population. This study used the job training questionnaire developed by Mugenda and Mugenda (2003). A questionnaire called job satisfaction survey (Rothe, 1951) was applied to measure employees' job satisfaction. The data collection method was self-administered survey to collect on the perception of employees' job satisfaction and job training. In this vein, there could be many further research options for the future researchers and students. Further research can be conducted by using qualitative approach.

Future research could examine the relationship between job training and job satisfaction with organizational culture as a mediating

variable. A pilot study can be used to compare one department or group with one specific training to another group that did not receive the training. Also, a comparative study can be done on the example of different ministries of Mongolia and other similar countries in the Asian region for analysis.

Finally, the local training system and the training system of the central organization were different, this study was conducted only among the employees of the center. Therefore, in the future, it is recommended to conduct this research among local employees.

## **5.6** Conclusion

This study aims to investigate the relationship between job training and employee job satisfaction at the National Institute of Forensic Science of Mongolia. This study hypothesizes based on the research question generated on the basis of past literature. This study was a cross-sectional, quantitative research study. 173 civil servants working in the National Institute of Forensic Science of Mongolia were selected by simple random sampling from a population of 250. Public employees' perceptions of job training and job satisfaction were collected in this study using the Job Training Questionnaire developed by Mugenda and Mugenda (2003) and the Job Satisfaction Survey (Rothe, 1951). Research data were analyzed using SAS software, descriptive analysis, ANOVA, VIF test, factor analysis, reliability analysis, correlation and regression analysis were performed using statistical procedures. According to the research, hypothesis H1 is confirmed: there is a significant positive relationship between job training and job satisfaction of central employees of the Mongolian National Institute of Forensic Science. Therefore, the results of this research provided empirical evidence to support the functions and activities of the state human resources management of the National Institute of Forensic Science in Mongolia.

The use of Herzberg's two-factor theory and human capital theory is useful for public service training and education to strengthen employee job satisfaction in the practice of human resource management. It is believed that the main result of this study will contribute to the functions and activities of public human resources management in the National Institute of Forensic Science of Mongolia.

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#### **APPENDIX A: Demographic survey**

1. What is your age?

2. What is your gender?

- o Male
- Female
- 3. What is the highest degree you have obtained?
  - High school diploma
  - Associate's degree
  - Bachelor's degree
  - o Master's degree
  - o Ph. D.
- 4. How long have you been in your current job?
  - Less than 1 year
  - o 1-3 years
  - o 4-6 years
  - o 7-10 years
  - o 11-14 years
  - More than 15 years
- 5. What is your current employment status?
  - Forensic scientist
  - o Other

# APPENDIX B: Overall Job Satisfaction Survey (OJSS; Brayfield-Rothe., 1951)

- 1. I feel fairly well satisfied with my present job
  - o Strongly Disagree
  - o Disagree
  - Neither agree nor disagree
  - o Agree
  - Strongly Agree
- 2. I am satisfied with my job for the time being
  - Strongly Disagree
  - o Disagree
  - Neither agree nor disagree
  - o Agree
  - Strongly Agree
- 3. Most days I am enthusiastic about my work
  - Strongly Disagree
  - o Disagree
  - Neither agree nor disagree
  - o Agree
  - Strongly Agree
- 4. I like my job better than the average worker does
  - Strongly Disagree
  - o Disagree
  - Neither agree nor disagree
  - o Agree
  - Strongly Agree
- 5. I find real enjoyment in my work
  - Strongly Disagree
  - o Disagree
  - Neither agree nor disagree
  - o Agree
  - Strongly Agree

### APPENDIX C: Job training survey (JTS: Apofia Kyampeire., 2019)

- 1. I receive job coaching to help me achieve my objectives and create my future
  - o Strongly Disagree
  - o Disagree
  - Neither agree nor disagree
  - o Agree
  - Strongly Agree
- 2. Job rotation allows me to become accustomed to executing a wide range of activities, which results in high levels of flexibility
  - Strongly Disagree
  - o Disagree
  - Neither agree nor disagree
  - o Agree
  - Strongly Agree
- 3. I receive work mentoring, which assists me in developing and acquiring skills and information that will assist me in doing my duties
  - Strongly Disagree
  - o Disagree
  - Neither agree nor disagree
  - o Agree
  - Strongly Agree
- 4. Job mentorship enables me to put out my best effort at work every day
  - Strongly Disagree
  - o Disagree
  - Neither agree nor disagree
  - o Agree
  - Strongly Agree
- 5. I got expertise from the conferences I attend, which allows me to accomplish my task on time
  - Strongly Disagree
  - Disagree

- Neither agree nor disagree
- o Agree
- Strongly Agree
- 6. I am offered professional courses that allow me to get new information skills that I can utilize to perform my tasks
  - Strongly Disagree
  - o Disagree
  - Neither agree nor disagree
  - o Agree
  - Strongly Agree
- 7. I am given seminars that allow me to meet with personnel from various

firms, which allows me to get more expertise

- Strongly Disagree
- o Disagree
- Neither agree nor disagree
- o Agree
- Strongly Agree
- 8. I am given lessons that improve and raise my level of job freedom
  - Strongly Disagree
  - o Disagree
  - Neither agree nor disagree
  - o Agree
  - Strongly Agree

#### APPENDIX D: Job Satisfaction Survey (JSS: Paul E. Spector, 1985)

- 1. I feel unappreciated by the organization when I think about what they pay me
  - o Strongly Disagree
  - o Disagree
  - Neither agree nor disagree
  - o Agree
  - Strongly Agree
- 2. I feel satisfied with my chances for salary increases
  - Strongly Disagree
  - o Disagree
  - Neither agree nor disagree
  - o Agree
  - Strongly Agree
- 3. I enjoy my coworkers
  - Strongly Disagree
  - o Disagree
  - Neither agree nor disagree
  - o Agree
  - Strongly Agree
- 4. I like the people I work with
  - Strongly Disagree
  - o Disagree
  - Neither agree nor disagree
  - o Agree
  - Strongly Agree
- 5. There is too much bickering and fighting at work
  - Strongly Disagree
  - o Disagree
  - Neither agree nor disagree
  - o Agree
  - Strongly Agree

- 6. I am not satisfied with the benefits I receive
  - Strongly Disagree
  - o Disagree
  - Neither agree nor disagree
  - o Agree
  - Strongly Agree
- 7. The benefits we receive are as good as most other organizations offer
  - Strongly Disagree
  - o Disagree
  - Neither agree nor disagree
  - o Agree
  - Strongly Agree
- 8. The benefit package we have is equitable
  - Strongly Disagree
  - o Disagree
  - Neither agree nor disagree
  - o Agree
  - Strongly Agree
- 9. There are benefits we do not have which we should have
  - Strongly Disagree
  - o Disagree
  - Neither agree nor disagree
  - o Agree
  - Strongly Agree
- 10. My boss is quite capable of completing his or her job
  - o Strongly Disagree
  - o Disagree
  - Neither agree nor disagree
  - o Agree
  - Strongly Agree
- 11. My boss is unconcerned with the sentiments of his staff
  - Strongly Disagree
  - o Disagree

- Neither agree nor disagree
- o Agree
- Strongly Agree
- 12. I enjoy working with my boss
  - o Strongly Disagree
  - o Disagree
  - Neither agree nor disagree
  - o Agree
  - Strongly Agree
- 13. My boss is unjust to me
  - Strongly Disagree
  - o Disagree
  - Neither agree nor disagree
  - o Agree
  - Strongly Agree
- 14. My employment offers far too few opportunities for promotion
  - Strongly Disagree
  - o Disagree
  - Neither agree nor disagree
  - o Agree
  - Strongly Agree
- 15. Those who perform well on the job have a good chance of advancement
  - Strongly Disagree
  - o Disagree
  - Neither agree nor disagree
  - o Agree
  - Strongly Agree
- 16. People advance as quickly here as they do anywhere
  - Strongly Disagree
  - o Disagree
  - Neither agree nor disagree
  - o Agree
  - Strongly Agree

- 17. I am pleased with my possibilities for promotion
  - Strongly Disagree
  - Disagree
  - Neither agree nor disagree
  - o Agree
  - Strongly Agree

## 국문초록

## 몽골 국립과학수사연구원의 교육이 직원 직무만족도에 미치는 영향

Naranbayar Altantogos 서울대학교 행정대학원 글로벌행정전공

몽골 공무원법은 1995 년 6 월 1 일에 발효되었다. 이 법에 따르면 공무원은 공공정책 수행의 대표자로서 그들의 교육과 훈련수준이 시민들에게 양질의 공공서비스를 제공하는데 가장 중요한 열쇠가 된다. 그러므로, 공무원은 최고의 인적 자원을 갖기 위해 노력한다. 형사사법제도는 법의학에 크게 의존하고 있다. 이전의 많은 학자들은 교육이 전 세계 직원들의 직무 만족에 긍정적인 영향을 미친다는 것을 발견했다. 그러나 몽골의 법의학단체에서는 직무교육과 직원의 직무만족과의 연관성에 대한 연구가 전무한 실정이다. 본 연구는 몽골 국립과학수사연구원(NIFS)에서 제공하는 교육이 직원의 직무만족에 어떤 영향을 미치는지를 살펴보았다.

이 연구는 단면적이고 정량적인 조사 연구였다. 이 연구는 250 명의 중앙 공무원 인구 중에서 무작위로 선정하여 몽골 중앙 NIF 직원 173 명의 표본을 조사했다. 업데이트된 업무훈련 설문지(Mugenda & Mugenda, 2003)와 직무만족도 조사(Brayfield-Rothe, 1951)를 이용한 단일 설문조사를 통해 직무훈련과 직무만족에 대한 직원들의 관점을 수렴하였다. 자료는 SAS 소프트웨어에서 기술분석, 요인분석, VIF 테스트, ANOVA, 상관분석, 회귀분석 등의 통계적 과정을 이용하여 분석하였다.

본 연구의 주요 결론은 직무교육이 몽골 국립과학수사연구소 직원들의 직무만족도에 유의미한 영향을 미친다는 것이다. 회귀분석 결과 직무훈련은 감독, 기회와 보상, 복리후생, 동료 등 직무만족에 영향을 미치는 다른 요인들을 통제한 후에도 직무만족에 유의미한 영향을 미치는 것으로 나타났다.

연구결과가 시사하는 정책적 함의는 몽골 국립과학수사연구원의 교육계획을 전면 개편하고, 고도의 전문적인 교육내용을 접목하여 직원들의 직무만족도를 높이는 것이다. 이렇게 하면 높은 수준의 만족도가 달성되고 시민들에게 제공되는 서비스가 개선되며 정부 메커니즘이 확고한 기반이 될 것이다.

추가 연구에는 몽골 국립과학수사연구원의 현지 기관에 대한 자세한 연구가 포함될 것이다. 그들의 교육 시스템과 직원의 직무 만족도에 어떤 영향을 미치는지 알아내는 것이 핵심 목표이다. 그것은 지역 직원들의 만족도 향상에 기여할 것이다.

**키워드:** 몽골 국립과학수사연구원 직업훈련, 직업만족도 **학번:** 2021-27282