



# Effects Of Organizational Characteristics, Burnout, Faculty Identity, And Job Embeddedness On Job Satisfaction Of University Professors

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## ARTICLE INFO

## ABSTRACT

This study aimed to examine the effects of perceived burnout, faculty identity, job embeddedness, and environmental and organizational factors on professors' job satisfaction. The study examined the overall trends of burnout, faculty identity, job embeddedness, and job satisfaction, as perceived by professors, and the correlations among these variables. The study then analyzed the effects on job satisfaction of professors' characteristics and backgrounds and of burnout, faculty identity, and job embeddedness, as their psychological factors. A total of 27 universities were selected for sampling, considering the region and university size, and the survey results of 236 respondents out of 247 were used as analysis data. The results showed that although professors in university organizations had slightly higher levels of burnout, they generally held positive perceptions of their faculty identity, job embeddedness, and job satisfaction. Faculty identity, job embeddedness, and job satisfaction showed positive correlations, whereas burnout showed a negative correlation. Moreover, the appointment type and, as psychological factors, faculty identity, embeddedness, and exhaustion component of burnout were important factors affecting the job satisfaction of professors.

**Keywords:** university professors, burnout, faculty identity, job embeddedness, job satisfaction, generalizedlinear modeling

## 1. Introduction

In the current era of the Fourth Industrial Revolution, South Korean universities are facing significant challenges owing to changes in the university environment, including a decline in the school-age population and financial difficulties caused by the freezing of university tuition. University professors are also experiencing more difficulties and role-conflict dilemmas as the status of professors is diminishing. In education, research, and service, which entail roles and responsibilities that have traditionally been taken for granted, professors are given new and challenging tasks (Lee, 2023). In the past, the social perception of the profession of university professors was that it was less stressful than other professions and that it had high job security as well as substantial wages relative to the number of hours worked. However, the burden on university professors to manage and participate in various financial support programs or outcomes related to university assessments for the competitiveness and survival of universities is increasing. Moreover, universities are increasingly employing non-tenure-track faculty members over tenure-track faculty members. This is because the wage level of full-time faculty members on the non-tenure track is only about 65% to 80% of that of the tenure-track faculty.

In this context, the satisfaction of university professors with their jobs and the factors that are important in determining their satisfaction merit investigation. Research on professors answering these questions has been scarce in comparison to their importance (Lee, 2023; Jang, 2021; Rhoades, 2007). As such, research on university professors should be conducted ceaselessly and the focus should be on the aspect of job satisfaction. The job satisfaction of university professors needs to be studied in a variety of ways as their roles

vary according to the university environment and characteristics (Choi & Choi, 2021). Therefore, in studying the job satisfaction of professors, the personal characteristics or psychological factors of professors, along with environmental and

organizational characteristics, should be considered. Research should also endeavor to find ways to increase the job satisfaction of professors.

Professors' job satisfaction is positively or negatively affected by a variety of factors. Personal characteristics include the characteristics of the university (e.g., type of establishment, region, university size) and individual characteristics (e.g., sex, position, major, employment period). Psychological factors include burnout, one of the symptoms of maladjustment felt due to conflicts caused by undertaking various roles. Burnout refers to a psychologically disengaged, cynical, and rigid response to one's job, such as feelings of fatigue, frustration, distance from the job, stress, mental depletion, exhaustion, helplessness, despair, and cynicism (Hagedorn, 2000; Baldwin, 1970; Finkelstein, 1984; Ibema & Smulders & Bongers, 2010). Professor burnout is a state of physical and relational exhaustion and feelings of doubt and anxiety about one's abilities and passions owing to the diminished status of the profession despite being a professional job and the increased demands of the role. Burnout in university professors can act as a negative psychological factor, given that they may experience a decrease in job performance and job satisfaction as professionals.

Faculty identity can be considered a psychological factor that has a positive effect on job satisfaction. Higher levels of faculty identity, which allow professors to be passionate and committed to their role at their university, can lead to higher levels of job satisfaction (Hagedorn, 2000; Rosser, 2004; Jang, 2002; Park & Wee 2020). Faculty identity refers to finding value and meaning in one's life as a professor, which is felt while fulfilling one's role as a professor. Professors need to make efforts proactively to maintain and manage their identity. Its correlation with job satisfaction needs to be studied.

Regarding the job satisfaction of university professors in South Korea, Embeddedness is also seen as an important factor. Embeddedness encompasses factors such as the psychological, cognitive, and environmental influences that cause individuals to stay in an organization (Lee, 2021; Remesh & Gelfand, 2010; Shinde-Pawar et al., 2023). High embeddedness may have a significant impact on the job satisfaction of university professors.

As shown in the above discussion, the successful role performance required of professors amid changes in the university environment is closely related to their job satisfaction (Jiang & Lepak & Hu & Baer, 2012; Kraimer & Shaffer & Harrison & Ren, 2012). Therefore, we aimed to elucidate the impact of positive faculty identity and embeddedness on the enhancement of job satisfaction and reduction of burnout, considering other environmental, organizational, and personal backgrounds of professors related to their job satisfaction. Specifically, the researchers examined how the job satisfaction of university professors varied according to their characteristics and the psychological factors of burnout, faculty identity, and job embeddedness, not at the level of individual universities but at the environmental and organizational level of universities. The results are expected to hold significance in terms of exploring implications for increasing job satisfaction among professors. The specific research questions are as follows. What are the overall trends in professors' perceived burnout, faculty identity, embeddedness, and job satisfaction? What are the relations among the subcomponents of burnout, faculty identity, embeddedness, and job satisfaction? What are the effects of professors' personal characteristics, burnout, faculty identity, and embeddedness on job satisfaction at the environmental and organizational levels?

## 2. Theoretical Background

### 2.1 Burnout

Burnout is a state of lethargy and fatigue caused by the exhaustion of emotional and mental resources and loss of energy, resulting in tiredness and loss of attention and interest in one's work. If prolonged, burnout is accompanied by intense feelings of frustration, hopelessness, and loss (Shin, 2003; Maslach & Jackson & Lieter, 1996). University professors experience burnout when they feel that the work given to them is meaningless, are skeptical of their abilities, and if they feel marginalized and isolated.

Burnout is a holistic phenomenon with three sub-level components: exhaustion, cynicism, and professional efficacy. When burnt out, one experiences emotional exhaustion or fatigue in situations that require emotional regulation. To cope with these feelings, one may become cynical of other persons in interactions and experience a negative sense of professional efficacy about their work and own accomplishments. Maslach and Jackson (Maslach, 1996) developed the Maslach Burnout Inventory-General Survey (MBI-GS) for these common forms of occupational burnout. Burnout is distinct from job stress and can be viewed as a reaction to prolonged job stress.

### 2.2 Faculty Identity

Attention to faculty identity has important implications for understanding and recognizing what professors do in university education and how they perceive their social status. Faculty identity can be approached comprehensively

and from many aspects, and it is a term that emphasizes the professional role category of professors, centered on education, research, and service. When professors have a faculty identity through their understanding of their role as a professor, they will not only be engaged and committed to university education but also introspect and make improvement efforts regarding their professional position.

Therefore, faculty identity is important; it is a set of values and meanings that allow professors to combine their experiences and competencies to dedicate themselves to education and research. Concepts related to faculty identity include self-identification with the professional occupation called professor, understanding of the role, self-image, self-introspection, and vision for the future (Lee, 2022). Professional identity is described as a state of mind in which an individual categorizes oneself as a member of a profession and develops over time (Woo, 2013). Professional identity is not static but a dynamic process of reinterpreting experiences. Therefore, faculty identity is influenced by the values and beliefs of oneself and the culture and situation of the organization (Billot, 2010).

### **2.3 Embeddedness**

Embeddedness is the psychological, cognitive, and environmental influences that cause individuals to stay in an organization (Lee, 2021). In other words, embeddedness helps us analyze what makes people stay in an organization (Remesh & Gelfand, 2010). Embeddedness assumes that there are many social, psychological, and economic networks that connect organizational members and their families to the external environment, such as friends, family, and physical housing in their current workplace and community (Mitchell & Holtom & Lee & Sablinski & Erez, 2001).

The concept of embeddedness encompasses both internal and external factors, with embeddedness related to the internal and external factors of the organization categorized as organization and community embeddedness, respectively (Jiang & Lepak & Hu & Baer, 2012). Professors' embeddedness affects their roles, behaviors, and decisions in the settings of the organization they belong to and their social relationships. This embeddedness consists of three main concepts: first, the link to the organization; second, the fit with the job or the organization's surrounding environment; and third, material and psychological sacrifice, which represents the losses incurred when leaving the current organization (Lee, 2021). Specifically, link refers to the network of members within the organization or the network of people in the area where one lives to commute to work. Fit refers to the perception that the job or area is a good fit, or that one feels comfortable in the organization or area. Finally, sacrifice is the perception of the economic and psychological losses that would be incurred if one were to leave the current organization (Kraimer & Shaffer & Harrison & Ren, 2012). Mitchell et al. (2001) developed a 40-item instrument to measure job embeddedness based on the concepts and theoretical mechanisms of the three dimensions of job commitment (link, fit, and sacrifice). However, these items are very long and sometimes suffered from low validity and reliability. To compensate for this, Crossley et al. (2007) redefined job embeddedness by combining link, fit, and sacrifice into a single factor and developed a comprehensive measure that can measure all three factors in one (Lee, 2021). While the three sub-factors of links, fit, and sacrifice-mix to determine the magnitude of relatedness, it can be meaningful to understand how each factor influences job satisfaction.

### **2.4 Job Satisfaction**

Faculty job satisfaction is the degree to which professors are satisfied with their jobs or duties. It can be positive or negative, depending on the professors' attitude toward their roles, and is closely related to motivation. Demographic factors, such as sex and race, and personal characteristics, including characteristics of the job role (e.g., major, position, and tenure), have been the most commonly addressed aspects of faculty job satisfaction. Management and communication systems within the university and psychological factors have also received attention as factors affecting faculty job satisfaction.

In general, university professors are able to conduct research in their field of expertise, teach students, and perform a variety of other academic activities. The public perceives the job of a university professor positively, and it's an enviable profession. However, it remains to be seen whether professors are also satisfied with their role as a university professor. It is important for professors to be recognized by their institutions and peers for their role performance. This is related to being adequately compensated, resourced, and paid for their role. Also important to job satisfaction is a sense of belonging to one's institution and colleagues. This can lead to a sense of connection to the university and its members and can be a driving force behind active communication.

Recently, organizational factors such as faculty activities related to teaching and research, management and communication systems within universities, or cultural and environmental characteristics have received increasing attention as influential factors in faculty job satisfaction. It seems to be influenced by university reforms that emphasize both research productivity and quality education, and changes in university management systems to efficiently implement them (Choi & Choi, 2021).

### **2.5. Relationships among research variables**

Professors utilize their academic knowledge and skills to support their students' education and research, while at the same time continuing to advance their own research and generate new knowledge. By performing these tasks, professors will increase the meaning and purpose of their work, which will increase their job

satisfaction. In addition, if professors are able to gain social respect and recognition for their work, it will have a positive impact on their self-identity, embeddedness, and job satisfaction.

Professors have a self-identity as professionals with academic freedom while fulfilling their societal role of creating knowledge and talent through research and teaching. This self-identity has a strong influence on how professors think about their jobs and how they fulfill their roles. However, professors can face challenges from a variety of factors, including university management systems, student demands and expectations, and research funding. These challenges can lead to a decrease in professorial identity. Therefore, professors should strive to maintain their self-identity by having a clear understanding and purpose for their job.

Mitchell et al. (2001) also defined job embeddedness as a general attachment to social entities within and outside the organization. In other words, embeddedness is a cognitive factor that individuals perceive as connected to the organization along with the emotions and attitudes they feel. This suggests that organizational commitment is an important factor in the study of faculty job satisfaction. Professors who are attached to their university may feel responsible for achieving educational goals, which ultimately leads to higher job satisfaction. Therefore, it is necessary to conduct related studies on job satisfaction of professors in Korea as one of the important factors (Lee, 2021).

As such, it is necessary to take an approach that considers various variables related to faculty identity. It is necessary to study the effects of faculty identity on job satisfaction, and it is also necessary to examine the effects of embeddedness on job satisfaction. Therefore, this study aims to verify that teacher identity and embeddedness can contribute to job satisfaction, because there are not many studies that have tested embeddedness on the relationship between teacher identity and job satisfaction.

Previous studies on job satisfaction of professors have shown that it is related to organizational structure and employee behavior. In the future, research on job satisfaction will continue to expand the scope of job satisfaction by continuously exploring related variables and comparing the results with previous studies. In this sense, this study aims to address the job satisfaction of professors by linking faculty identity with embeddedness. This study aims to empirically verify not only the impact of faculty identity on job satisfaction, but also the extent to which it is influenced by faculty embeddedness. This study is related to the previous studies in that it expands the relevant variables to increase job satisfaction to include faculty identity and embeddedness.

### 3 Research Method

#### 3.1 Demographics of the Target Sample

For the study, the researchers targeted professors from 27 universities, with consideration for the region and size of the universities: eight universities in the Seoul metropolitan area, six universities in Chungcheong and Gangwon Provinces, seven universities in Gyeongsang Province, and six universities in Honam and Jeju regions. We surveyed five to 15 professors per university. Of the 247 professors who responded to the survey, the total number of respondents analyzed was 236 after those with improper responses were excluded. The demographics of the sample are shown in Table 1.

Table 1. Demographics of the survey respondents (N = 236)

Category	Component	Frequency	%
University	Public	59	25.0
	Private	177	75.0
Employment Period (years)	<5	37	15.7
	≥5 to <10	54	22.9
	≥10 to <15	51	21.6
	≥15 to <20	47	19.9
	≥20	47	19.9
Rank	Professor	117	49.6
	Associate professor	63	26.7
	Assistant professor	56	23.7
Sex	Female	161	68.2
	Male	75	31.8
Previous Working Experience	Yes	89	37.7
	No	147	62.3
Region	Seoul metropolitan area	79	33.5
	Chungcheong and Gangwon	67	28.4
	Gyeongsang	38	16.1
	Honam and Jeju	52	22.0
Discipline	Humanities and Social Sciences	110	46.6
	Science and Engineering	45	19.1
	Education	61	25.8

	Medicine and Pharmacy	8	3.40
	Arts and Sports	12	5.10
Appointment Type	Tenure track	212	89.8
	Non-tenure track	24	10.2
University Size (based on the number of students)	<5,000	64	27.1
	≥5,000 to <10,000	58	24.6
	≥10,000 to <15,000	62	26.3
	≥15,000	52	22.0

### 3.2 Measurement Tools

#### 3.2.1 Burnout Measurement Tool

The researchers measured burnout using a translated version of the MBI-GS (Shin, 2003). The MBI-GS was derived from the original Maslach Burnout Inventory (MBI) developed by Maslach, Jackson, and Leiter (1996); GS stands for General Survey and refers to a questionnaire on general occupational burnout. The MBI-GS consists of 16 items (Maslach & Jackson & Leiter, 1996). The MBI-GS is intended to measure general occupational burnout and consists of five items on exhaustion, four items on cynicism, and six items on professional efficacy. The survey tool is a five-point Likert scale from 1 to 5. The internal consistency (Cronbach's  $\alpha$ ) of the measurement tool used in this study ranged from 0.830 to 0.932 for each sub-level component, and the overall internal consistency of the scale was 0.801, indicating adequate reliability.

#### 3.2.2 Faculty Identity Measurement Tool

The researchers used a faculty identity measurement tool developed by Lee (2022) as the instrument for measuring faculty identity (Lee, 2022). The measurement tool included five questions on "Professor as an individual," five questions on "Professor as an educator," five questions on "Professor as a researcher," five questions on "Professor as a member of the university," and five questions on "Professor as a member of society." Finally, the diagnostic scale of faculty identity consisted of five factors and 25 questions. The survey tool is a five-point Likert scale from 1 to 5. The internal consistency (Cronbach's  $\alpha$ ) of the measurement tool used in this study ranged from 0.757 to 0.912 for each sub-level component, and the overall internal consistency (Cronbach's  $\alpha$ ) of the scale was 0.921. Therefore, the reliability of the scale was considered adequate.

#### 3.2.3 Job Embeddedness Measurement Tool

To measure job embeddedness, the job embeddedness measurement tool developed by Crossley et al. was translated and used (Crossley & Bennett & Jex & Burnfield, 2007). For a job embeddedness measure tool, Mitchell et al. (1996) composed 40 items in three dimensions of link, fit, and sacrifice. For ease of use, Crossley et al. (2007) redefined job embeddedness by integrating link, fit, and sacrifice into one factor and developed a global scale that can measure all three factors as one (Lee, 2022; Mitchell & Holtom & Lee & Sablinski & Erez, 2001; Crossley & Bennett & Jex & Burnfield, 2007). The job embeddedness measurement tool consists of seven items rated on a five-point Likert scale from 1 to 5. The internal consistency (Cronbach's  $\alpha$ ) for the measurement tool used in this study was 0.852.

#### 3.2.4 Job Satisfaction Measurement Tool

For measuring job satisfaction, the researchers used the job satisfaction reported by professors at their respective universities (Choi & Kim & Choi & Kim & Yu & Lee & Han & Kim, 2016). Specifically, it consisted of nine items: "satisfaction with teaching" and "opportunity for academic exploration" in terms of satisfaction with education and research, "teaching load," "autonomy and independence," "promotion process," "quality of students," "research room and laboratory space," "salary," and "administrative support system" in terms of conditions and support systems. Each question was answered on a five-point Likert scale from 1 to 5. The internal consistency (Cronbach's  $\alpha$ ) of all items for the measurement tool used in this study was 0.853.

#### 3.2.5 Validity of Measurement Tools

The researchers conducted a confirmatory factor analysis to verify the validity of the measurement tool. The results of the analysis showed  $\chi^2 = 2729$  (df = 1439,  $p < .001$ ), a comparative fit index value of 0.84, a Tucker–Lewis index value of 0.828, and a root mean square error of approximation value of 0.058. The factor loadings of all measurement items exceeded 0.4 and were statistically significant ( $p < 0.001$ ). Table 2 gives details on the aforementioned measurement tools.

Table 2. Items and reliability of measurement tools

Measurement tool	Sub-variables	No. of items	Reliability	Question example
Burnout	Exhaustion	5	0.932	I am completely exhausted from performing my job.
	Cynicism	4	0.892	I am passive in performing my job.
	Reduced Professional Efficacy	6	0.830	I think that I am good at my job.
	Total	15	0.801	
Faculty Identity	Professor as an individual	5	0.862	As a professor, I try to behave professionally.
	Professor as an educator	5	0.809	I care about and guide students' careers.
	Professor as a researcher	5	0.912	I am a researcher studying my field of study.
	Professor as a member of the university	5	0.757	I offer a variety of opinions for the betterment of the school.
	Professor as a member of society	5	0.840	As a professor, I try to solve social problems.
	Total	25	0.921	
Embeddedness	Comprehensive item	7	0.852	I feel a connection to this organization.
Job Satisfaction	Satisfaction in education and research	2	0.734	Teaching students gives me satisfaction.
	Conditions and support systems	7	0.869	I am satisfied with my current salary.
	Total	9	0.853	

### 3.3. Data Processing

First, the researchers calculated the descriptive statistics mean (M) and standard deviation (SD) to determine the overall trends of burnout, faculty identity, job embeddedness, and satisfaction with the job and environment. Second, the researchers calculated correlations to determine the relations between professors' burnout, faculty identity, job embeddedness, and job satisfaction. Third, the researchers used generalized linear modeling to analyze the effects of university characteristics (organizational and individual), burnout, faculty identity, and job embeddedness on job satisfaction. To process the statistical analysis, JAMOVI 2.3 was used.

## 4. Results

### 4.1 Descriptive Statistics of Key Variables

Table 3 shows the descriptive statistics of the key variables.

Table 3. Descriptive statistics of variables

Variable name		Number of cases	Mean	Standard deviation
Job Satisfaction		236	3.48	0.65
Identity	Individual	236	4.40	0.54
	Education	236	4.35	0.46
	Research	236	4.24	0.65
	University	236	3.99	0.58
	Society	236	4.18	0.55
Embeddedness		236	3.76	0.70
Burnout	Exhaustion	236	2.85	0.97
	Cynicism	236	2.26	0.84
	Efficacy	236	3.98	0.52

### 4.2. Correlation Analysis Results of Key Variables

Table 4 shows the correlation analysis results of the main variables. The absolute values of the correlation coefficient  $s$  were between 0.2 and 0.5, with Burnout-Exhaustion and Burnout-Cynicism being negatively correlated with the other variables.

Table 4. Correlation analysis results of the main variables

Category	Satisfaction	Identity Individual	Identity Education	Identity Research	Identity University	Identity Society	Embeddedness	Burnout Exhaustion	Burnout Cynicism	Burnout Efficacy
Satisfaction	—									
	—									
Identity Individual	0.504	—								
	<.001	—								
Identity Education	0.253	0.528	—							
	<.001	<.001	—							
Identity Research	0.336	0.576	0.493	—						
	<.001	<.001	<.001	—						
Identity University	0.208	0.36	0.399	0.262	—					
	0.001	<.001	<.001	<.001	—					
Identity Society	0.3	0.513	0.491	0.572	0.48	—				
	<.001	<.001	<.001	<.001	<.001	—				
Embeddedness	0.473	0.462	0.338	0.24	0.462	0.326	—			
	<.001	<.001	<.001	<.001	<.001	<.001	—			
Burnout Exhaustion	-0.393	-0.372	-0.162	-0.226	0.017	-0.225	-0.162	—		
	<.001	<.001	0.012	<.001	0.797	<.001	0.013	—		
Burnout Cynicism	-0.456	-0.502	-0.358	-0.396	-0.161	-0.366	-0.381	0.615	—	
	<.001	<.001	<.001	<.001	0.014	<.001	<.001	<.001	—	
Burnout Efficacy	0.27	0.347	0.324	0.361	0.381	0.329	0.317	-0.225	-0.373	—
	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	—

#### 4.3 Research Model Analysis Results

This study aimed to analyze the influence of various environmental characteristics of professors, the five components of faculty identity, embeddedness, and the three components of burnout on the job satisfaction of professors in South Korea. The influences on the job satisfaction of professors were analyzed by applying generalized linear modeling, which can simultaneously analyze qualitative and quantitative variables. The qualitative variables were university characteristics (i.e., university establishment type, region of university location, and university size) as well as the employment period at the university, sex, previous experience of working at the university, academic discipline, and appointment type. The quantitative variables were faculty identity, embeddedness, and burnout.

The analysis revealed that the explanatory power of the analysis model, R-squared, was 0.46; the model fit was adequate ( $F = 6.10$ ,  $P < 0.001$ ); and the assumption of normality was met (Shapiro–Wilk = 0.99,  $p = 0.32$ ; Kolmogorov–Smirnov = 0.03,  $p = 0.96$ ). The influence of each independent variable on professors' job satisfaction is shown in Table 5. According to the analysis, the variables that had a statistically significant effect on professors' job satisfaction were as follows: first, Appointment type; second, Faculty Identity as an Individual; third, Embeddedness; and fourth, the Exhaustion factor of Burnout. In terms of appointment type, Tenure Track had a positive effect on professors' job satisfaction. The Individual component of Faculty Identity and the factor of Embeddedness also had positive effects on professors' job satisfaction. Meanwhile, the Exhaustion component of Burnout had a negative effect on professors' job satisfaction.

Table 5. Analysis of influencing factors for professors' job satisfaction

Variable name		Estimate	SE	$\beta$	p
(Intercept)		3.42	0.08	0.00	<.001
University Establishment Type	Private–Public	-0.14	0.10	-0.22	0.161
Employed Period in University(years)	≥5 to <10–<5	-0.05	0.13	-0.07	0.73
	≥10 to <15–<5	-0.18	0.15	-0.28	0.213
	≥15 to <20–<5	-0.18	0.17	-0.28	0.285
	≥20–<5	-0.07	0.18	-0.11	0.679
Rank	Associate Professor–Professor	-0.04	0.11	-0.06	0.744
	Assistant Professor–Professor	-0.06	0.15	-0.09	0.69
Sex	Male–Female	-0.08	0.08	-0.12	0.339
Previous Experience of Working	Yes–No	0.03	0.08	0.04	0.719
Region of University Location	Chungcheong & Gangwon–Seoul	0.08	0.10	0.12	0.414

	Gyeongsang–Seoul	0.09	0.11	0.14	0.431
	Honam & Jeju–Seoul	0.20	0.11	0.30	0.081
Discipline	Science & Engineering– Humanities& Social Sciences	-0.07	0.10	-0.10	0.51
	Education–Humanities & Social Sciences	0.08	0.09	0.12	0.377
	Medicine & Pharmacy– Humanities& Social Sciences	0.28	0.22	0.43	0.201
	Arts & Sports–Humanities & SocialSciences	0.02	0.17	0.04	0.893
Appointment Type	Non-tenure Track–Tenure Track	-0.33	0.14	-0.51	0.018
University Size (based on number of students, in thousands)	≥5 to <10–<5	0.07	0.12	0.11	0.534
	≥10 to <15–<5	0.17	0.11	0.26	0.128
	≥15–<5	0.13	0.13	0.21	0.283
Faculty Identity	Individual	0.24	0.09	0.20	0.012
	Education	-0.13	0.10	-0.09	0.193
	Research	0.08	0.08	0.08	0.302
	University	-0.01	0.08	-0.01	0.922
	Society	-0.01	0.09	-0.01	0.872
Embeddedness		0.27	0.06	0.29	<.001
Burnout	Exhaustion	-0.10	0.05	-0.14	0.05
	Cynicism	-0.09	0.06	-0.12	0.134
	Efficacy	0.04	0.08	0.03	0.591

## 5. Discussion and Conclusion

This study aimed to determine the effects of professors' perceived burnout, faculty identity, and job embeddedness on job satisfaction, and to explore ways to increase professors' job satisfaction. To this end, this study examined the overall trends of burnout, faculty identity, job embeddedness, and job satisfaction and the correlations between variables, and then analyzed the effects of professors' personal characteristics and backgrounds and their psychological factors, such as burnout, faculty identity, and job embeddedness, on job satisfaction. Research has confirmed that professors' job satisfaction is influenced by the environment and conditions, such as employment type, employment period, awareness, and external reputation of the university, as well as by various factors, such as professors' perception of themselves, identity, efficacy, and attitude toward the university. This study comprehensively considered environmental and organizational characteristics and professors' perceived identities as suggested in related previous studies. As such, when setting the independent variables of the analysis model, the researchers included the personal background factors of environmental and organizational characteristics, as well as psychological factors, such as burnout, identity, and embeddedness. The researchers also applied generalized linear modeling to analyze the influence of environmental, organizational, and individual psychological variables on job satisfaction using nominal and ordinal scales.

The analysis revealed the following conclusions. First, the perceived burnout of professors in university organizations was slightly above the median. Therefore, continued attention is needed to reduce burnout. Faculty identity, job embeddedness, and job satisfaction were generally perceived positively, with their means being above the median. In particular, professors' perceived faculty identities showed the highest results, especially "Professor as an individual." However, job satisfaction was lower compared with faculty identity and job embeddedness. Perceived burnout among professors was high, but not severe. The causes of burnout thus need to be identified.

Second, the correlations between professors' perceived burnout, faculty identity, embeddedness, and job satisfaction were analyzed and it was found that only the exhaustion and cynicism components of burnout showed negative correlations, whereas all others showed positive correlations. The highest correlation of job satisfaction was with the "Professor as an individual" sub-variable of identity.

Third, generalized linear modeling was applied to examine the effects of professors' environmental and organizational characteristics and psychological factors (i.e., burnout, faculty identity, and embeddedness) on job satisfaction. It was found that the factors affecting professors' job satisfaction included appointment type, identity as an individual, embodiment, and exhaustion.

The analysis results of the generalized linear modeling are presented in detail as follows. First, the organizational characteristics of the professor's university (i.e., establishment type, region, and size) did not have a significant effect on professors' job satisfaction. The job satisfaction of university professors was more affected by personal psychological factors. Considering that these university characteristics are difficult to improve physically in the short term, the fact that environmental and organizational factors are not significant factors has implications for improving the quality of higher education in the medium and long

term, and for policy decision-making within universities and governments related to professors.

Second, the appointment type, rank, employment period, and previous working experience affected job satisfaction in terms of the environmental context of the specific university. Between the two appointment types, the non-tenure track had a negative impact on the job satisfaction of professors. Professors with non-tenure track appointments accounted for 10.2% of the total respondents. The mean satisfaction was 3.53 and 3.06 out of 5 for the tenure and non-tenure track, respectively. The mean values of the satisfaction measures for the non-tenure track ranged from 2.7 to 3.3, whereas the mean values for the tenure track ranged from 3.5 to 3.7, showing a significant difference. For improvement of professors' job satisfaction in the future, the authorities need to make a policy decision on non-tenure track appointments. The details and conditions of tenure- and non-tenure-track appointments are factors that can lead to differences in job security and perceptions of faculty identity. Furthermore, the deterioration of the higher education environment, such as the declining school-age population and substantial tuition freeze, has additional negative impacts on faculty job satisfaction and may act more strongly on non-tenure track professors. Considering that a decline in faculty job satisfaction can lead to insufficient educational outcomes and decreased quality, the authorities should consider policies and establish strategies to avoid and reduce the expansion of non-tenure-track appointments in the medium to long term.

Third, the influence of faculty identity on job satisfaction was analyzed, and it was found that "Faculty identity as an individual" had a significant effect. "Faculty identity as an individual" consisted of "gaining social recognition as a professional," "striving for professional behavior," "value of being a professor," "rewards of being a professor," and "intention to continue being a professor in the future." Therefore, the authorities should conduct an in-depth analysis and review of the identity components to examine the positive effects of the "Faculty identity as an individual," which is perceived by considering all these components comprehensively, rather than the identity perceived in the specific context (i.e., specific roles, functions, and identity as a member of the group).

Fourth, "embeddedness" had a statistically significant positive effect on professors' job satisfaction. The stronger the university professors perceive a sense of belonging and connection to their organization, the more satisfied they are with their jobs. In the context of organizations and environments characterized by universities, school authorities should examine the requirements or factors that can make professors strongly perceive embeddedness and review various personnel and support policies based on them.

Fifth, the level and extent of professors' perceived burnout had a statistically significant impact on their job satisfaction, with the "exhaustion" subcomponent of burnout having a negative impact. The stronger the perception of exhaustion, the lower the job satisfaction. Therefore, school authorities should conduct an in-depth analysis of the timing and context of perceiving exhaustion for university professors and the institutional context, such as specific situations, regulations, and rules, in which this exhaustion occurs and is perceived. This requires qualitative research, including in-depth participatory observations of individual universities and individual professors. The outcomes may subsequently inform further research, such as developing measurement tools and conducting surveys to explore relevant variables or factors.

Based on the above discussion and conclusions, the following policy recommendations are suggested to improve professors' job satisfaction. First, efforts should be made to curb non-tenure track appointments at the university level. To this end, the government and local governments can consider ways to discourage the appointment of non-tenure-track professors at individual universities and link the performance of existing non-tenure-track professors to financial support and evaluation. These inducement measures may have short-term effects. Nonetheless, the expansion of tenure-track appointments is linked to the stable expansion of university finances and is crucial to improving the financial situation of universities. Meanwhile, there is a need to reduce the current tenure track system. Considering the rigidity of the academic structure of universities and the inefficiency of the tenure system, school authorities need to improve the current tenure track appointment system, such as by actively reviewing the appropriate faculty personnel system that meets the needs of the times rather than uniformly abolishing the non-tenure track or expanding the tenure track systems.

Furthermore, recognizing the importance of faculty identity and embeddedness in enhancing job satisfaction, efforts should be made to increase them. The higher the overall identity that professors perceive of themselves, the higher their job satisfaction. To improve such identity perception, researchers should elucidate how to obtain social recognition, how to identify the extent and level of such recognition, what constitutes professional behavior, what the positive values of being a professor are, how they are perceived, and what the influencing factors related to the continued performance of professorship are in the future. To this end, more qualitative studies, such as case studies on psychological factors should be considered. Further research on the burnout, identity, and embeddedness of professors should be conducted to improve professors' job satisfaction.

In this study, the measurement results obtained from a survey conducted was analyzed only once at a single point in time. To extend this research in the future, extending the model could be first considered to include additional demographic variables or other highly relevant variables suggested by previous studies. Doing so would enhance the explanatory power of the model and help refine approaches for improvement. Second, future research may need to apply a multilayer model or a mixed model for nominal and qualitative variables that are group variables; such an approach can more precisely analyze the influencing factors of groups, such

as universities, and influencing factors of individual persons. Third, future research should expand the analysis of cross-sectional data by designing longitudinal research models that utilize the results of multi-year surveys. Fourth, future research should identify trends in satisfaction changes and influencing factors for these changes, and reflect them in relevant decision-making. Fifth, based on the results of analyzing the factors affecting satisfaction, such as the current research model, future research can formulate an approach for exploring specific improvement measures and implications for the factors affecting job satisfaction.

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