

Policy for motivation of university lecturers: A survey in Vietnam

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Abstract: This paper studies lecturers job satisfaction at public universities in Vietnam to compare the differences in job satisfaction of lecturers at public universities. The method used to achieve the research purpose is the quantitative method. The research team surveyed 820 teachers from 8 public universities in the end, 800 survey questionnaires were included in the analysis. Research results show that salary, the job itself, development opportunities, recognition, relationships at work, environment, and working conditions have an impact on teacher job satisfaction. However, the level of impact of each factor on the satisfaction of the teachers from public universities is different from that of teachers from non-public universities. The empirical results in this paper indicate that there is a clear difference in job satisfaction between teachers from public universities and non-public universities. We found that salary, the job itself, development opportunities, recognition, relationships at work, environment, and working conditions have an impact on the job satisfaction of teachers at non-public universities. The job satisfaction of a team of teachers also plays an important role in the success of universities, it determines the quality of higher education, promoting innovation in universities

Keywords: Universities; Lecturers; Job satisfaction; Vietnam.

1. Introduction

Employee job satisfaction plays an important role in the sustainable development of organizations. Spector (1997) proposes that employees' behavior depends on the degree to which they are satisfied with their jobs; employee satisfaction will create positive behaviors, and conversely, employee dissatisfaction will lead to negative behaviors. In addition, satisfaction can be seen as a good sign related to organizational innovation, suggesting innovations to increase organizational performance (Spector, 1997). Job satisfaction also impacts life satisfaction and can directly affect the social health, physical, and mental state of an individual (Filiz, 2014). The job satisfaction of teaching staff also plays an important role in the success of higher education institutions (Gessesse & Premanandam, 2023); it determines the quality of higher education institutions (Machado et al, 2011), making teachers attached to the institution (Ahsan et al, 2009), are more loyal to their organizations and work more efficiently and creatively (Mehrad, 2020; Tio, 2014), less likely to look for new jobs in new environments (Kaur, 2019). Conversely, dissatisfied teachers will leave the organization, look for new jobs, and reduce loyalty and educational quality (Pienaar & Bester, 2008; Webber & Rogers, 2018). On a larger scale, the quality of the teaching staff's work will determine the quality of a country's high-quality human resources because university training is technical and professional training at a high level. (Bentley et al., 2013) assume that higher education institutions can create competitive advantages for countries and contribute to the development of a global knowledge economy if they attract the best and brightest people because teaching staff are the most important treasures of higher education institutions (Gessesse & Premanandam, 2023). The work of teaching staff, however, is undergoing many changes, significantly impacting their very own job satisfaction. Universities are expected to be more professional in teaching, more effective in research, and more entrepreneurial than before (Bentley et al., 2013). In teaching, teachers are not only the transmitters of basic knowledge, but more importantly, they must help learners be able to apply knowledge to practical work, i.e. training skills for learners. The continuous development of social knowledge, science, and technology makes learning necessary at every stage in every person's life toward the goal of lifelong learning - learning to know, learning to work, learning to live together, and learning to assert oneself (Al, 1996). That is to say, learners must have the spirit of self-study and self-research (not only when sitting on a chair at the university) and the teacher only plays the role of a thinker, introducing knowledge and supporting learners (Lea & Callaghan, 2008). However, as a leader and supporters for learners, teachers also need to regularly update new knowledge synthesized from many scientific disciplines as well as practical problems that arise in life. This creates considerable pressure on teachers. In scientific research, teachers are the pioneering force in creating new knowledge, leading innovation, and providing resources for the development of the knowledge economy. The scientific research results of lecturers and researchers at universities carried out under corporate sponsorship are the source of innovation and creativity (See Loi, 2018). From an economic perspective, teaching staff contribute significantly to the achievement of goals and operational efficiency of higher education institutions (Machado et al, 2011). The economic aspect also shows that the "learner-centered" and "learner-as-customer" viewpoints seem to replace the previous tradition of "respecting teachers, respecting morality", creating major changes in the role of the teachers as well as their work. They are required to supplement traditional teaching and research functions with those relevant to community and entrepreneurial pursuits, such as earning their own income (Henkel 2001). Lecturers also have to teach in a highly complex environment and there are many factors in the social context that are affecting the lecturer's work (Lea & Callaghan, 2008). In many countries, the teaching profession is increasingly insecure, more responsible, more differentiated, more internationalized, and less likely to be organized along disciplinary lines. Hagedorn (2000) observes that university teachers often work in a high-pressure environment in many aspects, without clear boundaries and filled with stress. In most OECD countries, the teaching profession is aging, while there is evidence that the most intellectually talented of the younger generation do not view teaching as attractive as they once did (Harman, 2023). Therefore, making lecturers satisfied with their work is very important. Public and non-public higher education institutions are similar in that they both provide the highest source of knowledge and skills (Khalil et al., 2020) and are models for innovation and creativity (Sakiru et al., 2017), playing an important role in the socio-economic development of any country. The governance models of public and non-public higher education institutions differ leading to differences in teacher satisfaction (Ngatuni, P., & Matoka, 2020). Research by Gormley (2003) indicates that organizational characteristics seem less likely to impact teacher satisfaction whereas Webber & Rogers (2015) find there are some differences between types of institutions in the level of satisfaction of a lecturer. Gessesse & Premanandam (2023) prove that, at public higher education institutions, job security is a factor that creates satisfaction while at non-public educational institutions, the teaching staff is satisfied with pay and supervision. Kennerly (1989) found that teachers at private liberal arts colleges in the United States were more satisfied when their deans demonstrated strong leadership and behavior. In an even broader comparison, Bentley et al., (2013) reported that, with some exceptions such as in Brazil where private institutions account for a high proportion, teachers are relatively consistent in their satisfaction levels among institution types although there are significant organizational dichotomies in some countries (e.g. Finland and Portugal). Research by Gessesse & Premanandam (2023) shows differences in satisfaction of university lecturers conducted in Addis Ababa, Ethiopia, and the authors call for further research in different contexts setting as a scientific basis for proposing revisions to current policies. Furthermore, research on teacher satisfaction is especially important in light of ongoing changes in higher education (Webber & Rogers, 2015). While the job satisfaction of teachers in many countries around the world has been studied, research on the job satisfaction of teachers in Vietnam is still quite limited. Searching on Google Scholar and the Vietnam Science and Technology Document Database managed by the National Agency for Science and Technology Information, there are no papers researching the job satisfaction of the team of lecturers. This is the main motivation for us to conduct this research. Inheriting the research results of previous authors, this study continues to examine the job satisfaction of lecturers at public and non-public higher education institutions in Vietnam. The research question posed here is whether there is a difference in academic job satisfaction between public universities and non-public universities. The research context is Vietnam, a country where the number of studies on academic job satisfaction is quite limited¹. Reviewing the literature, presenting research methods, and research results, and discussing the paper contribute scientific value and practical value in conducting research on the job satisfaction of the team of teachers, and the difference in job satisfaction of teachers from public universities and non-public universities.

2. Literature Review

Job satisfaction: Research on job satisfaction attracts the attention of many researchers, with more focus on private organizations, while in public organizations such as higher education institutions, the number of studies is still quite small (Castellacci & Viñas-Bardolet, 2021). In the initial stage, job satisfaction was approached from the perspective of meeting needs, meaning that a job that meets needs will create satisfaction. Later on, job satisfaction was considered a type of emotion in the workplace (Spector, 1997). It is described as an emotional response to work, an individual's assessment of whether the job is good or bad and whether they are satisfied or dissatisfied with the job (Weiss, 2002; Spector, 1997, Gessesse & Premanandam, 2023).

Along with an increase in the number of studies on job satisfaction, satisfaction measurement scales are increasingly developing. Cross (1973) suggests that there are 6 factors that create job satisfaction including the enterprise itself, salary, motivation, the job itself, supervision, and co-workers while Hackman & Oldham (1975) suggest that job security, salary, social relationships, supervision, and the possibility of growth create overall satisfaction. Smith et al. (1969) built an index model to describe jobs and assess job satisfaction through 5 factors: Salary; Promotion; Colleague; Supervision and Nature of Work. Although it is said that using too long a set of questions makes it difficult for surveys to collect data as well as to assess all the different levels of employee satisfaction or there is no overall assessment question about employee satisfaction (Spector, 1985), the job descriptive index model of Smith et al. (1969) is still used in many studies (see Roznowski, 1989; Nagy,

¹ Searching on Google Scholar and the Vietnamese science and technology document database managed by the National Agency for Science and Technology Information, there are no papers researching the job satisfaction of the team of teachers.

2002; Ironson et al., 1989; Kinicki et al., 2002; Kass et al., 2001). Also related to job satisfaction, Herzberg observes that there are two groups of factors influencing job satisfaction; groups of factors that create satisfaction and groups of factors that can hinder satisfaction, are the source of job dissatisfaction (Herzberg and Snyderman, 1993). Factors that create satisfaction are motivating factors, generated from internal conditions of the job such as the job itself, responsibilities, development opportunities, challenges of the job, achievement, and recognition. Factors that hinder job satisfaction are often satellite factors such as salary and bonuses; environment and working conditions; relationships at work; management style; job stability; corporate policies, etc. Herzberg's two-factor theory has been tested in many studies (DeShields et al., 2005; Toropova et al., 2021; Bassett-Jones & Lloyd, 2005; Hutchinson et al., 2013). Another approach related to the factors of job satisfaction is provided by Rue & Byars (2003) with 8 different factors affecting job satisfaction including leadership's concern for employees, job design, remuneration, working conditions, social relationships, awareness of development opportunities, awareness of other opportunities, salary level of ambition and need for achievement. Rue & Byars (2003) also assume that employee satisfaction will positively impact the organization, creating long-term employee commitment and attachment to the organization; conversely, dissatisfaction will lead to reduced revenue, workplace absenteeism, labor accidents, strikes, and complaints. There is a large consensus among researchers in the belief that pay, relationships with co-workers and supervisors, and job security have been viewed as important components of satisfaction (Cross, 1973; Hackman & Oldham, 1975; Spector, 2022) has summarized the tools found in job satisfaction scales including assessment, communication, co-workers, benefits, work conditions, nature of work, the organization itself, organizational policies, salary, personal development, advancement opportunities, recognition, protection, and supervision. He also proposed a job satisfaction scale that includes salary, motivation, supervision, benefits, rewards, operating procedures, co-workers, work nature, and communication.

Teacher job satisfaction : For academic staff and lecturers at higher education institutions, their job satisfaction plays an important role in the development of universities. Many academics research the job satisfaction of lecturers such as Lacy et al (2004), Ssesanga & Garrett (2005), and Gessesse & Premanandam (2023). Some studies use the two-factor theory of Herzberg et al (1993) to examine the impact of factors on teacher job satisfaction, thereby, the scientific value of the theory is affirmed by Lacy et al (2004), Ssesanga & Garrett (2005) and Gessesse & Premanandam (2023). Lacy et al (2004) concluded that “no model of job satisfaction has yet emerged that challenges Herzberg's two-factor theory” (p. 321) but the research results of Ssesanga & Garrett (2005) do not seem to support Herzberg's theory that any factor can cause satisfaction or dissatisfaction of academic staff. In another effort, some academics developed Herzberg's two-factor theory to make it more suitable for university lecturers. Hagedorn (2000) developed Herzberg's two-factor theory to explore teacher job satisfaction. She divided the factors that create satisfaction into two groups: activating factors and mediating factors; a trigger is a significant life event that may or may not be work-related that affects a person's frame of reference such as a promotion, moving/changing agency, or starting a family, etc.; a mediator is described as a variable or situation that influences the relationship between other variables or situations creating an interaction effect or, in other words, providing a context that creates satisfaction. The 6 suggested triggers include changes in life stages, changes in personal or family circumstances; changes in rank or tenure, transfer to a new unit, changes in perception of justice, and changes in mood or emotional state. Three proposed mediating factors are motivating and maintaining factors (according to Herzberg), demographics, and environment. Bentley et al. (2013) used Hagedorn's conceptual framework to compare differences in job satisfaction among academic circles in 12 different countries around the world, OLS linear regression results show that Hagedorn's framework is more applicable in the US, UK, Australia, and to a lesser extent in Brazil, Canada, and Germany. Rebello (2013) in research on satisfaction by Argentine academics has clearly shown that the items affecting job satisfaction are material conditions; service provision; teaching issues; scientific research issues; the level of personal influence on work in the organization; and supporting institutions and policies. Research results by Rebello (2013) also clearly indicate that material conditions, service provision, teaching and research issues as well as institutional support are considered unsatisfactory – that is, not creating teacher satisfaction in Argentina. Research by Gessesse & Premanandam (2023) demonstrates the impact of salary, supervision, policies, and practices at the organization, interpersonal relationships, job security, promotion, and the job itself on job satisfaction. The research results indicate that teaching staff at higher education institutions in Addis Ababa are not satisfied with their jobs, except the jobs themselves; teaching staff are satisfied with salaries and supervision at private universities; and satisfied with job security in public institutions. Some studies also point out factors that negatively impact teacher job satisfaction such as work overload (Monnapula-Mapesela, 2002), role conflict (Miller, 2003), lack of autonomy, support for teaching and research (Nelson and Burke, 2000), racial and gender discrimination (Barkhuizen et al., 2004), poor communication (Ball, 2004), and management style (Barkhuizen et al., 2004). In general, studies have found differences in academic job satisfaction, depending on the individual and the context in which the individual lives and works (Lacy & Sheehan, 1997).

3. Research methodology

Designing research methods: To explore the difference in job satisfaction between university lecturers at public universities and non-public universities in Vietnam, quantitative research methods are used. In the first step, the authors researched factors affecting the teacher's job satisfaction by analyzing influencing factors. Testing scale reliability using Cronbach Alpha, EFA, and multiple linear regression analysis with Pearson correlation coefficient are the main techniques used. Multiple regression analysis was designed and used twice with two groups of lecturers, those from public universities and those from non-public universities. The purpose is to compare the differences in the results of measuring the effects of independent variables with the variation of the dependent variable in each different group of subjects. In the next step, the authors compare the differences in job satisfaction of teachers between non-public universities and public universities in Vietnam through a one-way ANOVA analysis technique. Technical operations are performed with the help of SPSS 25 software.

The scale: To fit the research context of universities in Vietnam, the author uses independent variables to determine general job satisfaction including: income according to Cross (1973), Hackman & Oldham (1975), Smith et al. (1969), Spector (2022); the job itself (Cross, 1973, Smith et al., 1969, Khaleque & Rahman, 1987, Scarpello & Campbell, 1983); development opportunities (Hagedorn, 2000, Herzberg et al., 1993); recognition (Khaleque & Rahman, 1987, Macdonald & MacIntyre, 1997, Yuzuk, 1961); interpersonal relationships (Cross, 1973, Khaleque & Rahman, 1987, Scarpello & Campbell, 1983); environment and working conditions (Yuzuk, 1961, Khaleque & Rahman, 1987, Scarpello & Campbell, 1983). The scales are specifically as follows:

Table 1. The scale of the independent variable

Symbol	Scale	Original Scale
INC	Income (salary, bonus, other income earned from teaching and scientific research)	
INC1	Salary matches job requirements	Smith et al. (1969), Spector (1985)
INC2	I have many other incomes besides my salary	Spector (2022)
INC3	My income is fair compared to other professions	Smith et al. (1969), Spector (1985)
INC4	My income meets my personal needs	Smith et al. (1969)
INC5	The income I receive matches my expectations	Smith et al. (1969)
WPJ	The job itself	
WPJ1	This job is clearly described	Spector (1985)
WPJ2	All my knowledge and skills are used at work	Smith et al. (1969)
WPJ3	I feel interested in doing this job	Smith et al. (1969), Spector (1985)
WPJ4	This job helps me have many relationships	Cross (1973)
WPJ5	I'm proud to do this job	Spector (1985)
OFF	Development opportunities	
OFF1	I get promoted if I do a good job	Spector (1985)
OFF2	Promotion opportunities here are as good as anywhere else	Spector (1985)
OFF3	I have many opportunities to improve my own abilities	Smith et al. (1969)
OFF4	I have many opportunities to develop my career while doing this job	Spector (1985)
REC	Recognition	
REC1	My achievements are recognized by the university for personnel evaluation	Macdonald & MacIntyre (1997)
REC2	University leaders highly appreciate my abilities	Macdonald & MacIntyre (1997)
REC3	I am respected by students and colleagues	Macdonald & MacIntyre (1997)
REC4	My work is respected by society	Yuzuk (1961)
REC5	I receive recognition when I do a good job	Yuzuk (1961)
RAW	Relationships at work	
RAW1	I get along well with my supervisor	Smith et al. (1969)
RAW2	University leaders are fair to me	Spector (1985)
RAW3	I like people at work	Spector (1985)
RAW4	Students always trust and love me	Macdonald & MacIntyre (1997)
RAW5	I have many good relationships at work	Yuzuk (1961)

Environment and working conditions		
EWC1	I am provided with sufficient resources for teaching and scientific research (lecture halls, mechanisms, policies, libraries, learning materials)	Scarpello & Campbell (1983), Khaleque & Rahman (1987)
EWC2	The equipment and tools used for learning and scientific research are of good quality	Scarpello & Campbell (1983), Khaleque & Rahman (1987)
EWC3	The university's support services ensure quality	Scarpello & Campbell (1983), Khaleque & Rahman (1987)
EWC4	My working environment is quite good	Scarpello & Campbell (1983), Khaleque & Rahman (1987)
Job satisfaction		
JOS1	I have always loved this job	Fields (2002), Taylor & Tashakkori (1995)
JOS2	I feel valued doing this job	Gessesse & Premanandam (2023), Taylor & Tashakkori (1995)
JOS3	This job brings me a lot of joy and happiness	Gessesse & Premanandam (2023), Taylor & Tashakkori (1995)
JOS4	If I could choose again, I would continue to choose this job	Rebello (2013), Bentley et al. (2015)
JOS5	This is a good time for any young person starting a career in his or her field	Rebello, (2013), Bentley et al. (2015)
JOS6	I am satisfied with my current job	Rebello, (2013), Bentley et al. (2015)

(Source: Compiled by the authors)

The independent variable in the study is the level of job satisfaction. The scale of independent variables was selectively inherited from previous studies with adjustments to suit the style and context in Vietnam. As for the dependent variable scale, the author uses 6 questions inherited from the scales of Fields (2002), Taylor & Tashakkori (1995), Gessesse & Premanandam, (2023), Rebello (2013), Bentley et al. (2015), specifically in table 2:

Table 2. The scale of Job Satisfaction

JOS	Job satisfaction	Scale
1	I have always loved this job	Fields (2002), Taylor & Tashakkori (1995)
2	I feel valued doing this job	Gessesse & Premanandam (2023), Taylor & Tashakkori (1995)
3	This job brings me a lot of joy and happiness	Gessesse & Premanandam (2023), Taylor & Tashakkori (1995)
4	If I could choose again, I would continue to choose this job	Rebello (2013), Bentley et al. (2015)
5	This is a good time for any young person starting a career in my field	Rebello (2013), Bentley et al. (2015)
6	I am satisfied with my current job	Rebello (2013), Bentley et al. (2015)

(Source: Compiled by the authors)

Data : According to data published by the Ministry of Education and Training of Vietnam, in the academic year 2021 - 2022, Vietnam had 78,190 full-time lecturers teaching at universities; of which, the number of lecturers at public universities was 58,011, and non-public universities was 20,179. Applying the sampling formula of Yamane (1967) with an expected error of 5%, the research sample size is 383. The authors surveyed 820 teachers at universities, including 410 at public and 410 at non-public universities. Since the study is intended to compare the job satisfaction of teachers at public universities and non-public universities, the number of teachers surveyed at each group of universities was equal. Using the convenient random sampling method, 8 public universities and 8 non-public universities were selected to conduct the survey, the number of surveys at each university was determined based on the size of the teaching staff of that university (table 3). The results of 406 questionnaires in public universities and 394 questionnaires in non-public universities were used for analysis. All questionnaires were surveyed directly with the help of colleagues working directly at the selected university. The survey structure was adjusted to try to reasonably distribute among groups of lecturers with the criteria of age, gender, highest professional level achieved, teaching seniority, and major of the teachers.

Table 3. Proportion of Research Sample

Public Universities				Non-Public Universities			
University symbol	Overall (Ni)	Survey sample ni=Ni*410/4476	Use for analysis	University symbol	Overall (Ni)	Survey sample ni=Ni*410/3658	Use for analysis
T1	432	40	39	T9	402	45	44
T2	890	82	82	T10	368	41	40
T3	673	62	61	T11	290	34	32
T4	476	43	43	T12	510	57	55
T5	398	36	35	T13	897	100	95
T6	478	44	43	T14	420	47	46
T7	502	46	46	T15	394	44	42
T8	627	57	57	T16	377	42	40
Total	4476	410	406	Total	3658	410	394

(Source: Compiled by the authors)

The sample is determined according to the formula: $ni=Ni*(400/N)$, ni is the number of teachers selected for the survey; Ni is the number of teachers of each university; N is the total number of teachers by university group.

4. Research results

Testing the scale using Cronbach's Alpha: The results of testing scale reliability using Cronbach's Alpha show that the independent variables and dependent variables all have Cronbach's Alpha coefficients greater than 0.7; the INC income variable has the largest Cronbach's Alpha reaching 0.912 and the EWC environment and working conditions has the smallest Cronbach's Alpha reaching 0.842. All variables have Cronbach's Alpha greater than 0.7, indicating that the scales ensure unidimensionality and reliability, and can continue to be used in research (Hair et al.,2010).

Table 4. Cronbach's Alpha Coefficient

No.	Symbol	Factors	Cronbach's Alpha
1	INC	Income	0.912
2	WPJ	The job itself	0.884
3	OPF	Development opportunities	0.877
4	REC	Recognition	0.903
5	RAW	Relationships at work	0.886
6	EWC	Environment and working conditions	0.842
7	JOS	Job satisfaction	0.906

(Source: Compiled by the authors)

In addition, the results of Cronbach's Alpha analysis also show that the observed variables all have Corrected Total Correlation coefficients greater than 0.3. This indicates that the scales are all good and can be used to measure factors affecting the job satisfaction of teachers at public universities and non-public universities in Vietnam. The observed variables all have quite large Corrected Item - Total Correlation coefficients suggest that the observed variables have a strong positive correlation with the remaining variables in the scale, the observed variables are good (Cristobal et al., 2007). Further, there is no case where the Corrected Item - Total Correlation variable correlation coefficient is greater than the group's Cronbach's Alpha coefficient, so all variables are retained for inclusion in exploratory factor analysis.

EVA: After testing the Cronbach's Alpha reliability of the scale components, EFA continues to be carried out to analyze exploratory factors. The EFA is performed with the Principal axis factoring method and Promax rotation. Separating the two groups of independent variables and dependent variables enables the research team to check the suitability of the variables. The results are as follows:

+ With independent variable

The KMO coefficient achieved when performing EFA with an independent variable is 0.846, ranging from 0.5 to 1 ($0.5 < KMO < 1$), allowing us to conclude that the independent variables are eligible for exploratory factor analysis. The results of EFA with independent variables are acceptable with the collected research data set. The significance level of the Bartlett test reaches $0.000 < 0.05$, proving that the observed variables in the factor are correlated with each other, and the results of the factor analysis are consistent with 95% confidence. The Eigenvalues of the 6 factors affecting the job satisfaction of the teaching staff reached $2.018 > 1$, so all 6 factors are retained in the analytical model. The total variance extracted from the 6 factors reached 72.198%, satisfying the condition $> 50%$ and indicating that the 6 factors in the model explain 72.198% of the variation in the data.

Table 5. Total Variance Explained with Independent Variable

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.262	22.363	22.363	6.262	22.363	22.363	3.842	13.723	13.723
2	3.821	13.646	36.009	3.821	13.646	36.009	3.666	13.091	26.814
3	3.270	11.677	47.686	3.270	11.677	47.686	3.504	12.516	39.330
4	2.577	9.202	56.888	2.577	9.202	56.888	3.434	12.263	51.593
5	2.269	8.104	64.992	2.269	8.104	64.992	2.985	10.661	62.254
6	2.018	7.206	72.198	2.018	7.206	72.198	2.784	9.944	72.198
7	.984	3.515	75.713						
8	.576	2.056	77.769						
9	.553	1.976	79.745						
10	.478	1.708	81.454						
11	.472	1.687	83.141						
12	.432	1.544	84.685						
13	.412	1.473	86.158						
14	.389	1.391	87.549						
15	.367	1.312	88.860						
16	.345	1.231	90.091						
17	.314	1.123	91.214						
18	.294	1.049	92.262						
19	.283	1.010	93.272						
20	.266	.949	94.221						
21	.251	.895	95.116						
22	.235	.840	95.956						
23	.212	.758	96.714						
24	.209	.746	97.460						
25	.200	.715	98.175						
26	.190	.678	98.853						
27	.162	.578	99.431						
28	.159	.569	100.000						

Extraction Method: Principal Component Analysis.

(Source: Compiled by the authors)

The rotated matrix image in EFA shows that 28 observed variables converge into 6 factors: INC - income, WPJ – the job itself, OFP - development opportunities, REC - recognition, RAW relationships at work, EWC – environment, and working conditions, respectively. All observed variables have factor loadings of more than 0.5 and no variable loads on multiple factors. Thus, EFA shows that there are 6 representative factors extracted and the 6 factors as well as the observed variables of each factor are consistent with the proposed research model.

Table 6. Rotation Matrix

	Component					
	1	2	3	4	5	6
INC5	.882					
INC4	.878					
INC1	.862					
INC3	.857					
INC2	.734					
REC5		.851				
REC1		.840				
REC4		.840				
REC2		.827				
REC3		.801				
RAW3			.875			
RAW1			.853			
RAW2			.827			
RAW4			.813			
RAW5			.754			
WPJ4				.871		
WPJ2				.823		
WPJ5				.794		
WPJ1				.785		
WPJ3				.766		
OFF2					.867	
OFF1					.835	
OFF4					.832	
OFF3					.810	
EWC2						.837
EWC1						.823
EWC3						.808
EWC4						.757

Extraction Method: Varimax with Kaiser Normalization
a. Rotation converged in 6 iterations

(Source: Compiled by the authors)

+ With dependent variable: The KMO coefficient reached 0.858, ranging from 0.5 to 1 ($0.5 < KMO < 1$), eligible for exploratory factor analysis. Therefore, the results of EFA with the dependent variable are confirmed to be acceptable with the collected research data set. The significance level of the Bartlett test reaches $0.000 < 0.05$, demonstrating that the observed variables in the factor are correlated with each other, and the results of the factor analysis are consistent with 95%

confidence. The Eigenvalues of the dependent variable satisfaction of university teachers reached $4,139 > 1 \Rightarrow$ All observed variables are retained in the analytical model. The total variance extracted for the independent variable reached 68.977%, satisfying the condition $> 50\%$, and the dependent variable in the model explained 68.977% of the variation in the data. The image of the unrotated matrix in the EFA shows that the observed variables of the dependent variable all have factor loading coefficients of more than 0.5 and are only assigned to 1 factor. Thus, EFA shows that the observed variable components of the dependent variable ensure unidirectionality and are consistent with the proposed research model. Testing the correlation between variables results in a sig coefficient, the Pearson correlation test between the independent variables (INC, WPJ, OFP, REC, RAW, and EWC) with the dependent variable (JOC) is very small (sig < 0.05) shows that the correlation coefficient is statistically significant or in other words there is a linear relationship between the independent variable and the dependent variable. The sig coefficient to test the correlation between independent variables is greater than 0.05. Some pairs of independent variables have a sig coefficient < 0.05 , but the absolute value of the Pearson correlation coefficient is < 0.7 , so there is no case of multicollinearity occurring (Dormann et al., 2013).

Analyzing regression and correlation :From the analysis results showing the reliability of the scale and research model, regression analysis techniques continue to be used to test the impact of each factor on the job satisfaction of the teaching staff. Multiple regression analysis with linear regression function was carried out using the single-pass inclusion method. We conducted regression analysis with two groups of teachers from public universities and non-public universities. The results show that the adjusted R^2 coefficient representing the level of explanation of the model reached 0.641 for the group of teachers at public universities and 0.645 for the group of teachers at non-public universities, respectively. Thus, for the group of teachers at public universities, the independent variables included in the regression analysis explain 64.1% of the variation in the dependent variable JOS, 35.9% of the variation in the dependent variable belonging to JOS is determined by factors outside the model; with the group of teachers at non-public universities, there is not too big difference in the results with the rates being 64.5% and 35.5% respectively. In addition, the Durbin - Watson test gives a coefficient of 1.6015 for public universities and 1.592 for non-public universities, ranging between 1.5 and 2.5, so the results do not violate the assumption of first-order serial autocorrelation. Regarding the suitability of the research model, in the variance analysis table, the F value is statistically significant with sig=0.000 < 0.05 in both university groups. Thus, the proposed linear regression model is suitable for the actual data collected and the included variables are statistically significant at the 5% significance level. Also, the regression coefficients for the 6 independent variables INC, WPJ, OFP, REC, RAW, and EWC in both public and private university groups all have VIF values of < 2 ; coefficient sig < 0.05 , thus it can be concluded that there is no multicollinearity phenomenon between independent variables in the research model. The regression coefficients of all variables bear positive signs, demonstrating that the independent variables INC, WPJ, OFP, REC, RAW, and EWC positively impact the dependent variable JOS.

Table 7. Regression Coefficients

Institution		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
Public	(Constant)	-.559	.246		-2.270	.024		
	INC	.084	.035	.107	2.403	.017	.929	1.076
	WPJ	.248	.054	.240	4.636	.000	.685	1.460
	OFP	.140	.039	.171	3.596	.000	.809	1.236
	REC	.012	.036	.016	.343	.732	.868	1.152
	RAW	.515	.046	.492	11.148	.000	.938	1.066
	EWC	.222	.042	.265	5.287	.000	.731	1.367
Private	(Constant)	-2.042	.327		-6.237	.000		
	INC	.333	.055	.278	6.082	.000	.897	1.115
	WPJ	.216	.040	.247	5.426	.000	.900	1.111
	OFP	.248	.048	.250	5.205	.000	.809	1.236
	REC	.346	.056	.294	6.120	.000	.811	1.233
	RAW	.124	.055	.102	2.255	.025	.921	1.085
	EWC	.271	.049	.248	5.554	.000	.939	1.066

a. Dependent Variable: JOB

(Source: Compiled by the authors)

Comparing the differences:The research results also show that, for the group of teachers at non-public universities, the t-test sig coefficient for all 6 independent variables is less than 0.05, thus all hypotheses are acceptable, 6 factors income, the job itself, development opportunities, recognition, relationships at work, environment and working conditions all impact teacher job satisfaction. However, at public universities, the t-test sig coefficient with the independent variable REC-recognition is 0.732 indicating that this variable is not significant in the regression model, or in other words, this variable has no impact on the dependent variable JOS. The remainders including INC, WPJ, OFP, RAW, and EWC all have t-tests sig less than 0.05, thus these variables are all statistically significant and impact the dependent variable JOS. Regarding the regression coefficient, for both groups of public universities and non-public universities, the regression coefficients of the independent variables all bear positive signs, indicating that the independent variables have a positive impact on the dependent variable. There is a difference in the standardized beta coefficient of the dependent variables at public universities and private universities as this coefficient tends to be more polarized at public universities and less polarized at non-public universities. Specifically, at public universities, the largest standardized beta coefficient reaches 0.492 while the smallest value reaches 0.16; the largest and smallest coefficients of non-public universities are 0.294 and 0.102. A comparison of regression coefficients of factors affecting job satisfaction of public universities and non-public universities is presented in Table 5 below:

Table 8. Standardized Regression Coefficients

Symbol	Factors Variable	Standardized regression coefficients	
		Public universities	Non-public universities
INC	Salary	.107	.278
WPJ	Job itself	.240	.247
OFP	Development opportunities	.171	.250
REC	Recognition	.016	.294
RAW	Relationships at work	.492	.102
EWC	Environment and working conditions	.265	.248

(Source: Compiled by the authors)

At public universities, relationships at work are considered to have the greatest impact on teacher satisfaction (the regression coefficient is 0.492) while at non-public universities, the level of impact of these factors is quite small (the set regression coefficient is 0.102. Conversely, the factors of recognition and development opportunities have a quite strong impact on the job satisfaction of teachers at non-public universities with regression coefficients of 0.294 and 0.25, respectively, but are insignificant or very small compared to public universities with quite low regression coefficients of 0.16 and 0.171. The level of impact of the job itself and the environment and working conditions in both university groups have almost the same impact on the work motivation of teachers. The Independent Sample T-test testing technique continues to be used to compare the job satisfaction of two groups of teachers. The F-test Sig coefficient gives a value of $0.004 < 0.005$, indicating that there is a difference in job satisfaction of two teacher groups from public universities and non-public universities. Similarly, the Sig T-test reaches a value of $0.001 < 0.005$, meaning that there is an average difference in teacher satisfaction from different university groups. The average value of job satisfaction of the teacher group from public universities reached 3.8465 while the value of the teacher group from non-public universities reached 3.533. Both teacher groups fairly agree that they are satisfied with their jobs, though their levels of satisfaction differ. The Independent Sample T-Test results are completely consistent with the results of the regression and correlation analysis above, indicating interesting findings about teacher job satisfaction in public universities and non-public universities.

**Table 9. Independent Sample T-Test Results
Independent Sample Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
JOB	Equal variances assumed	8.347	.004	3.440	398	.001	.31347	.09111	.13435	.49260
	Equal variances not assumed			3.437	394.236	.001	.31347	.09121	.13416	.49279

(Source: Compiled by the authors)

6. Discussing research results

With the F-value in the regression analysis equal to $0.000 < 0.001$ in both groups of public universities and non-public universities, it suggests that the overall regression model is of great significance. The research model explains over 60% of the job satisfaction level for teachers at public universities and non-public universities in Vietnam. The independent variables are of great significance in the overall model and consistent with practical research data. These include income, the job itself, development opportunities, relationships at work, environment, and working conditions with P coefficients all less than 0.05. As for the variable REC - recognition, the P value reached 0.732 in the public university group, indicating that achievement recognition has almost no impact on the satisfaction of teachers from public universities even though this factor is significant to teachers from non-public universities. There is a difference in our research results from the need hierarchy theory of Maslow (1954) who assumes that self-esteem needs are expressed in the organization's recognition of achievements for individuals if they have not been satisfied will motivate people to make efforts to meet their needs. Similarly, being recognized/acknowledged is one of the motivating factors that increase employee motivation according to Herzberg and Snyderman (1993); has an impact on job satisfaction according to Hagedorn (2000), and Bentley et al. (2015). However, this result is consistent with research findings at public universities when it explains that salary is the factor that has the lowest impact on teacher job satisfaction. When there is no recognition of employee achievements, the salary, income, or benefits the employee receives will not be commensurate with his or her contributions. The research results are also conformable to reality in Vietnam when commending, rewarding, and recognition activities have not been given due attention and are still formal; rewarding and recognition are not timely and widely promoted; employee contributions are not valued (Nguyen, 2019).

This study assesses the level of job satisfaction of university teachers. Using the scale reliability test technique with Cronbach's Alpha, the research results show that the scales are all reliable and measure the variables in the model well. According to research results, for the public university group, income, job itself, development opportunities, relationships at work, environment, and working conditions have an impact on teacher job satisfaction, though the significance level of impact of these factors differs. Environment and working conditions are the strongest influencing factors with a multiple regression coefficient of 0.492. The next factors are environment and working conditions with a multiple regression coefficient of 0.265; the job itself with a set regression coefficient of 0.24; development opportunities with a multiple regression coefficient reaching 0.171; and salary and income with a coefficient 0.107. For groups of teachers at non-public universities, recognition is the factor that has the strongest impact on job satisfaction. Although the research results are consistent with the hierarchy of needs theory of Maslow (1954), the two-factor theory of Herzberg and Snyderman (1993) or actual research results, the experience of Hagedorn (2000), Bentley et al. (2015), the different results between public universities and non-public universities raise the need for more in-depth research on the causes leading to this difference. Also with the group of teachers from non-public universities, the level of impact of factors such as income, the job itself, development opportunities, environment, and working conditions on satisfaction is quite similar when the multiple regression coefficients do not significantly differ (Table 7).

Job satisfaction is considered an emotional response to work, which can be like or dislike of the job (Weiss, 2002). Research by Cross (1973), Hackman & Oldham (1975), Smith et al. (1969), and Spector (2022) demonstrates that salary or income has a positive impact on job satisfaction. According to the two-factor theory of Herzberg and Snyderman (1993), salary is a factor that can sustain employee motivation. The results of this study clearly show that salary has a positive impact on teacher job satisfaction, i.e., the higher the salary and income, the greater the satisfaction. However, the impact of salary on the job satisfaction of teachers from non-public universities (standardized beta coefficient 0.278) is greater than that of non-public universities (standardized beta coefficient 0.107). Currently, salary payment of public universities is carried out in accordance with the provisions of the Law on Public Employees 2010 (Law No. 58/2010/QH12) and the Law on Public Employees amended in 2019 (Law No. 52/2019/QH14) and a number of other relevant sub-law documents. Accordingly, the salaries of public employees in general and of public university teachers in particular are determined by the base salary multiplied by the salary coefficient. This salary level is much lower than the salary of workers with equivalent qualifications in the non-state sector. In some financially autonomous universities, the salary and income of employees are allocated based on the university's performance, thus the salary of teachers is higher², yet still much lower compared to that in the private sector.

Contrary to salary, the relationships at work factor have a stronger impact on teacher satisfaction at public universities while it has a lesser impact at non-public universities. The impact coefficient of the relationships at work factor on teacher satisfaction at public universities is 0.492 - the strongest impact among the impact factors. This research result is similar to that of the research by Bentley et al. (2015), though it is only true for the group of teachers from public universities. The impact coefficient of relationships at work on teacher satisfaction at non-public universities is very low - 0.102, indicating limitations in building relationships at work at non-public universities compared to public universities. Research by Hagedorn (2000) uses relationships at work as part of the working environment, acting as a mediating factor affecting satisfaction, which is significant to the group of teachers having 20 years of work or more or less than 5 years; research by Herzberg (1976) indicates that relationships at work can be a source of dissatisfaction; research on industrial relations and organizational theory indicates that social relations and working relationships as well as satisfying working conditions are beneficial to the organization to increase satisfaction levels related to work (Carnevale, 1995). Therefore, building good relationships between teachers at non-public universities is of great significance in creating satisfaction and long-term attachment of teachers.

The results of research by Cross (1973), Smith et al. (1969), Khaleque & Rahman (1987), and Scarpello & Campbell (1983) show that job itself has a positive impact on job satisfaction. The results of research by Yuzuk (1961), Khaleque & Rahman (1987), and Scarpello & Campbell (1983) also demonstrate that environment and working conditions positively affect satisfaction. The research results of the paper have substantiated that both the job itself and the environment and working conditions have a positive influence on the job satisfaction of teaching staff. Furthermore, there is not a too big difference in the influence of these two factors on the job satisfaction of teachers at public universities and non-public universities. This shows that the form of ownership does not play an important role in work, environment, and working conditions. Though in reality, at non-public universities, the conditions and facilities of the universities seem to be much better than those at public universities, this does not greatly affect the satisfaction of the public universities. Universities in general that want to create job satisfaction among teachers can influence these two factors. Making work more copious, more interesting, and more valuable in combination with creating a good working environment and conditions for teachers can create teacher satisfaction and this satisfaction can lead to the commitment, performance, and long-term attachment of the teachers to the university. Pepe et al. (2017), Cabezas et al. (2017), and Kaur (2019) argue that working conditions impact employee satisfaction in the public sector, and Gessesse & Premanandam (2023) employees are dissatisfied with their jobs beyond the job itself. Thus, the results of this research are similar to the results of research by Kaur (2019), and Gessesse & Premanandam (2023).

Development opportunities are a concern for most adult workers. Herzberg (1976) says that development opportunities are the source of employee satisfaction. Jawahar (2012) suggests that growth opportunities provided by work are significantly related to employee satisfaction, promoting employee loyalty. Research by Kalleberg & Rognes (2000), and Kuvaas & Dysvik (2009) also produces the result that investing in employee development represents a high-commitment strategy, affecting employee commitment and motivation while giving the organization a competitive advantage. Therefore, creating employee development opportunities is of great significance in creating employee satisfaction. The results of this study serve as a complement to the conclusions of Herzberg (1976) and provide further evidence of the relationship between development opportunities and satisfaction of university teachers, including non-public universities and public universities. Institutions that want to have teachers' long-term commitment can have an impact by creating opportunities for teachers' development such as training opportunities, promotion opportunities, or professional development of teachers.

In addition to the results of regression analysis, the F-test results for Sig value $0.004 < 0.005$, and T-test results for Sig value $0.001 < 0.005$ once again confirm the difference in job satisfaction level of employees. Two groups of teachers come from public universities and non-public universities. Similarly, the average value of job satisfaction of the group of teachers from public universities reached 3.8465 while this value of the group of teachers from non-public universities reached 3.533. The research results allow us to conclude that the difference in governance models of public and non-public higher education institutions can lead to differences in teacher satisfaction. This result contrasts with the findings of Gormley (2003) as he stated that organizational characteristics appear to be less likely to impact teacher satisfaction. However, Webber & Rogers (2018), Gessesse & Premanandam (2023), Kennerly (1989), and Bentley et al. (2013) all found some differences between types of organizations in terms of teacher satisfaction. The findings in this study once again confirm that difference.

Conclusions

The empirical results in this paper indicate that there is a clear difference in job satisfaction between teachers from public universities and non-public universities. We found that salary, the job itself, development opportunities, recognition, relationships at work, environment, and working conditions have an impact on the job satisfaction of teachers at non-public universities. These factors also affect the satisfaction of teachers at public universities except the factor of recognition.

Our research results also point out that the satisfaction level of public university teachers is higher than the satisfaction level of non-public university teachers, which is represented in the average value of satisfaction. In addition, the factor's level of impact in the model on teacher job satisfaction is different between teachers at non-public universities and at public universities. While salary has a great impact on the job satisfaction of teachers at non-public universities, its impact on the satisfaction of teachers at public universities is less. An unexpected finding of this study is that the environment and working conditions at public universities have a strong impact on teacher satisfaction, while for the group of teachers at non-public universities, the level of impact is weaker. We opine that this is surprising because, in reality, working conditions at non-public universities are often higher, both in terms of facilities and teaching equipment. In another aspect, recognizing the contributions of teachers at non-public universities has the strongest impact on teacher satisfaction, yet it is not significant to teachers at public universities.

Finally, from experimental results on the difference in satisfaction of teachers at public universities and non-public universities, we have substantiated that the university governance model has an impact on teacher job satisfaction. We think that there needs to be more in-depth research in the future to clearly explain the impact of the university governance model on teacher job satisfaction. Form of ownership, management style, university governance policy mechanism, etc. can be factors that create differences in teacher job satisfaction.

On the whole, the paper contributes to this field of research by providing empirical evidence on the relationship between salary, the job itself, development opportunities, recognition, relationships at work, environment and working conditions, and job satisfaction of teachers at universities as well as the differences in job satisfaction of teachers in the groups of public universities and non-public universities. This paper lays the foundation for research in Vietnam on teacher job satisfaction and complements international research on satisfaction in the academic world. However, the research was conducted in the context of Vietnamese universities with a sample size that is considered appropriate for the scale of Vietnamese universities. Scaling up research and presenting cross-national evidence on this topic is particularly important. In addition, this study focuses on the differences in job satisfaction of teachers from universities with different ownership backgrounds without mentioning differences in gender, age, qualifications, seniority, etc., and the impact of these factors on teacher satisfaction. Further studies in the future can expand the research to include more of these intervention factors.

The paper also provides some important policy implications. Teacher job satisfaction is of significance not only for universities but also for the development of high-quality human resources in a country. The training quality of a university depends greatly on the teaching staff and job satisfaction will encourage teachers to improve the quality of teaching, the quality of scientific research, and their creativity thanks to that new scientific ideas can be developed and spread to society. Improving jobs, salaries, income, environment, and working conditions or recognizing the contributions of teachers serves as a premise to create outstanding changes in training quality, creative innovation, and contributions of universities to the quality of national human resources and the general development of society. Policymakers and university leaders should think more deeply about this issue, especially in developing countries where science is not yet strongly developed like Vietnam today.

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