

Exploring the Link Between Transformational Leadership and Employee Job Satisfaction and The Mediation Effect of Employee Work Motivation among Higher Education Teachers

Yang Bai, Siti Sabihah Ghazali

Faculty of Educational Studies, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia

Corresponding Author Email: sitisabihah@upm.edu.my

To Link this Article: <http://dx.doi.org/10.6007/IJARBSS/v14-i5/21660>

DOI:10.6007/IJARBSS/v14-i5/21660

Published Date: 16 May 2024

Abstract

This study aims to explore the relationship between transformational leadership and employee job satisfaction and examine the mediating role of employee work motivation in this relationship, with higher education teachers as the research object. Through surveys and analyses of teachers in a series of higher education institutions, a positive association between transformational leadership and employee job satisfaction was found. Further mediation analysis revealed the mediating role of employee work motivation in this relationship, indicating that employee work motivation explains the relationship between transformational leadership and employee job satisfaction to a certain extent. These results not only contribute to our understanding of the relationship between employee happiness and leadership behavior in higher education, but they also serve as a helpful guide for developing initiatives aimed at enhancing both leadership development and the learning environment.

Keywords: Transformational Leadership, Higher Education Teachers, Employee Job Satisfaction, Work Motivation, Mediation Effect

Introduction

In higher education, fostering a healthy learning environment and promoting the well-being of professors and staff requires competent leadership. Employee satisfaction and the success of firms are increasingly dependent on transformational leadership. It is typified by intellectual stimulation, idealistic influence, personalized consideration, and inspirational motivation (Carreiro & Oliveira, 2019). Enhancing employee job satisfaction is essential for assessing the well-being of a business and can have a significant impact on higher education faculty retention, engagement, and productivity (Tepayakul & Rinthaisong, 2018). Furthermore, the mediating function that job motivation plays in the relationship between

transformational leadership and job satisfaction allows for a more nuanced understanding of the mechanisms behind effective leadership practices. Despite the significance of these ideas, empirical research on the connections between transformational leadership, employee engagement, and job satisfaction in higher education is largely lacking. This study aims to fill this gap by investigating the complex relationships between these attributes among higher education teachers. Using multilevel linear regression analysis, correlation, and mediation, this study aims to elucidate the direct and indirect effects of transformational leadership on employee work satisfaction as mediated by job motivation. The purpose of this research is to contribute empirical evidence to the growing body of knowledge about the effects of transformational leadership on employee outcomes in higher education settings. The study's findings have applications for policymakers and organizational leaders who are creating plans to enhance leadership efficacy and advance worker welfare. In the end, this study seeks to improve student learning and support higher education institutions' organizational success by expanding knowledge of the complex interaction among leadership, employee job satisfaction, and work motivation.

Literature Review

Concept Characteristics of Transformational Leadership

Motivating followers to pursue greater objectives and ideals beyond their own self-interests is the aim of transformational leadership. Positive leadership approaches such as transformational leadership place an emphasis on motivating staff members' innate drive and capacity to accomplish corporate objectives and changes. Transformational leaders possess the following characteristics:

Vision Setting: Transformational leaders are able to articulate and communicate an inspiring vision that stimulates employees' pursuit and expectations for the future (Nabi et al., 2023).

Motivation and Inspiration: They can ignite employees' internal motivation, making them feel excited and engaged, and encourage them to strive for higher performance and personal growth (Bhardwaj et al., 2023).

Individual Consideration: Transformational leaders focus on individual employee needs and development, providing support and guidance to help employees realize their potential (Nabi et al., 2023).

Change Facilitation: They possess the ability to drive change and innovation, encouraging employees to try new ideas and approaches, and promoting organizational development and progress (Bhardwaj et al., 2023).

Concept and Measurement of Employee Job Satisfaction in Higher Education

Employee work satisfaction in higher education is related to the level of commitment, zeal, and feeling of educational purpose that instructors possess towards their profession. It reflects the degree of teachers' attention to student learning and development, as well as their commitment and dedication to teaching (Guoyan et al., 2023). The measurement of employee job satisfaction typically involves the following dimensions:

Affective Engagement: The emotional experiences teachers have in their teaching work, including care for students, positive attitudes, and job satisfaction (Kordrostami & Seitz, 2022).

Behavioral Engagement: The positive behaviors exhibited by teachers in the teaching process, such as investing time and effort, actively participating in teaching activities, etc (Liu et al, 2020).

Professional Commitment: The loyalty and commitment of teachers to the educational profession and the institution, including identification with the teaching mission and concern for student learning outcomes (Carls, 2020).

To measure employee job satisfaction in higher education, researchers often use methods such as questionnaire surveys and employ relevant scales to assess teachers' performance and attitudes in terms of affective, behavioral, and professional commitment aspects. Job satisfaction in colleges and universities can be defined as an attitude and emotional experience of teachers or employees' satisfaction with various aspects of their work based on their job evaluation criteria (Purwanto, 2020). For college teachers, job satisfaction may involve their satisfaction with their teaching, scientific research, service, and other work, as well as their feelings about working conditions, career development opportunities, school culture and other aspects.

Relationship between Transformational Leadership and Employee Job Satisfaction

Previous studies have shown that transformational leadership demonstrates charm and vision in higher education and stimulates teachers' enthusiasm and innovation through intellectual stimulation and personalized care, thus promoting academic development. Teachers' work engagement reflects their love and focus on their work, and when they are valued and supported by their leaders, they are more likely to devote themselves to their work (Dopson et al., 2019). The level of job satisfaction among employees is a direct reflection of teachers' contentment with their work environment and has a direct impact on the caliber of scientific research and instruction. Transformational leadership, work engagement among teachers, and job satisfaction among employees are closely related and collectively contribute to the advancement of higher education.

RESEARCH OBJECTIVES AND HYPOTHESES DEVELOPMENT

Research Objectives and Research Questions

This study aims to explore the relationship between transformational leadership and job satisfaction of teachers in colleges and universities and examine the mediating role of work motivation, as well as the joint moderating effect of the mediating effect of transformational leadership and work motivation on teacher job satisfaction. The research questions are as follows:

- Q1. Is there a significant positive relationship between transformational leadership and job satisfaction of college teachers?
- Q2. Does the work motivation of college teachers play a mediating role between transformational leadership and job satisfaction?
- Q3. Does the mediating effect of transformational leadership and work motivation jointly regulate the job satisfaction of college teachers?

By studying these issues, we explore the impact mechanism of transformational leadership on the job satisfaction of college teachers, verify the mediating role of work motivation, and

the joint moderating effect of transformational leadership and work motivation, and provide theoretical support and practical guidance for improving teachers' job satisfaction.

Hypotheses and Research Framework

The study puts up the following theories considering the previously mentioned literature review. Based on the research objectives and questions, we propose the following hypotheses and construct a research framework to guide the empirical analysis of this study:

H1: There is a significant positive link between transformational leadership and employee job satisfaction in universities.

H2: The work motivation of higher education teachers plays a mediating role between transformational leadership and job satisfaction.

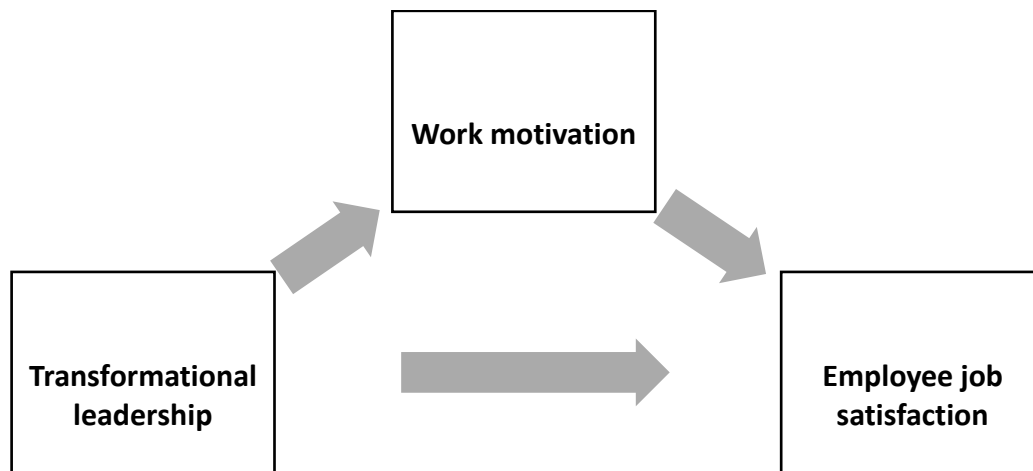
H3: The employee job satisfaction of higher education teachers is jointly moderated by the mediating effects of transformational leadership and work motivation.

Employee job satisfaction is seen to be directly impacted by transformational leadership, as faculty members who view their leaders as charismatic and visionary are likely to feel more fulfilled in their roles (Kouni et al., 2018). Previous studies have shown a favorable correlation between transformational leadership and employee job satisfaction in a variety of organizational contexts and industries, which lends weight to this idea. Additionally, this study takes into account the mediation impact of work motivation on the part of employees. It does this by utilizing expectancy theory and self-determination theory to explain how the degrees of intrinsic and extrinsic motivation of employees mediate the relationship between job satisfaction and leadership behaviors.

According to the self-determination hypothesis, transformational leaders who provide autonomy, competence, and relatedness can foster intrinsic motivation in their workforce, which will raise job satisfaction (Kanat-Maymon et al., 2020). According to expectation theory, workers are more driven to accomplish organizational goals and, as a result, are more satisfied with their jobs when they see a clear connection between their efforts, performance, and results. This study aims to clarify the underlying processes via which transformational leadership affects employee job satisfaction among higher education teachers by investigating the mediation effect of employee work motivation. Using extensive SPSS data analysis, the study seeks to produce empirical The data adds to our theoretical understanding of leadership and work satisfaction in higher education and validates the linkages that have been postulated.

Figure 1

Mediation model



As shown in Figure 1, the above content is the introduction section of this study. By exploring the mediating role of employee work motivation, this study aims to elucidate the potential mechanism by which transformational leadership affects job satisfaction among faculty teachers in higher education.

Model of the Relationship between Transformational Leadership and Employee Job Satisfaction

According to Kouni et al. (2018), there is a hypothesis that suggests transformational leadership has a direct effect on employee job satisfaction. This is because faculty members who view their leaders as charismatic and visionary are more likely to be satisfied with their work. Previous studies have shown a favorable correlation between transformational leadership and employee job satisfaction in a variety of organizational contexts and industries, which lends weight to this idea. Furthermore, this study incorporates the mediation effect of employee work motivation, drawing on self-determination theory and expectancy theory to explain how employees' intrinsic and extrinsic motivation levels mediate the relationship between leadership behaviors and job satisfaction (Kanat-Maymon et al., 2020). According to self-determination theory, transformational leaders who provide autonomy, competence, and relatedness are more likely to foster intrinsic motivation among employees, leading to enhanced job satisfaction. Expectancy theory posits that employees who perceive a clear link between their efforts, performance, and outcomes are more motivated to achieve organizational goals, thereby increasing their job satisfaction. This study aims to clarify the underlying processes via which transformational leadership affects employee job satisfaction among higher education teachers by investigating the mediation effect of employee work motivation. The study intends to provide empirical evidence in support of the proposed links by thorough data analysis using SPSS, and it advances our theoretical understanding of leadership and work satisfaction in the higher education sector.

METHODOLOGY

Research Design and Sample Selection

This study used a quantitative research methodology to examine the relationship between faculty work engagement and transformational leadership in higher education. In terms of sample selection, this study selected Chengdu, Sichuan Province as the target city for this study. It is not only rich in educational resources and has a moderate geographical location, but also a highly regarded city in China, so Chengdu is the location for this study. Stratified

random sampling is the strategy used in this study to guarantee sample variety and representativeness. This study carefully selected six key universities in Chengdu as the focus of this study. Subsequently, a total of 183 higher education teachers were randomly selected as the research sample. The respondents understood and voluntarily participated in this study anonymously.

Table 1

The description of the sample characteristics

Variable	Category	n	(%)
Gender	Male	79	43.2
	Female	104	56.8
Age	Under 30 years old	64	35.0
	30 to 40 years old	60	32.8
	40 to 50 years old	36	19.7
	Over 50 years old	23	12.6
Work Experience	Within 5 years	45	24.6
	5years to 10 years	68	37.2
	10 years to 2o years	38	20.8
	Over 20 years	32	17.5

There were 183 valid questionnaires in this study. Table 1 indicates that 104 female and 79 male university lecturers answered the survey. Of them, sixty were between the ages of thirty and forty, thirty-four were between the ages of forty and fifty, and twenty-three were above the age of fifty. There were 45 individuals with less than five years' job experience, 68 with five to ten years' experience, 38 with ten to twenty years' experience, and 32 with more than twenty years' experience.

Questionnaire Design, Pilot Testing and Data Collection Tools

An existing set of questionnaires was changed in this study in order to measure the constructs in the conceptual model. The three constructs are: employee work motivation (4 items), employee job satisfaction (5 things), and transformational leadership (6 items). Existing measures of multi-item constructs that have been verified in the literature were employed whenever feasible. The attribute was evaluated on a 5-point Likert scale, with 1 denoting "strongly disagree" and 5 representing "strongly agree." Three survey tools were employed: job satisfaction, employee work motivation, and transformational leadership. The Multifactor Leadership Questionnaire (MLQ) form created by Bass and Avolio served as the model for the transformational leadership tool. Work motivation was adapted from psychologist Gary's Work Motivation Scale(WMS), which has been widely used to study and assess an individual's work motivation level (Gary et al., 2020). Job satisfaction is adapted from Davis and Newstrom's Minnesota Satisfaction Questionnaire(MSQ). It is used to assess an individual's overall job satisfaction and help organizations understand employees' work attitudes and emotional states (Iskamto, 2021). After the questionnaire was designed, two experts were invited to evaluate it. Individual questions were modified and a small-scale pilot test was conducted. After the test, a formal questionnaire was distributed through Questionnaire Star. Questionnaire Star is an online survey platform where users can create, share collect data and analyze questionnaires. Its scientific nature is reflected in its rigorous design and the support of reliable data collection and analysis tools (Rojas-Muñoz et al.,2020). We made sure that

participants were anonymous and willingly participated in our data collection process. We also protected the privacy of the participants by allowing them to answer the questions anonymously.

Data Analysis Tools and Reliability and Validity Tests

This study used SPSS (Statistical Package for the Social Sciences), which is a commonly used data analysis tool. First, SPSS can perform various types of statistical analysis, including descriptive statistics, inferential statistics, factor analysis, regression analysis, etc. Secondly, SPSS has an intuitive graphical interface, which makes data input, operation and result interpretation relatively easy, and even users with no programming experience can quickly get started. SPSS is widely used in social sciences, education, market research and other fields, and is one of the preferred data analysis tools for many research and commercial institutions (Rahman & Muktadir, 2021). Table 2 shows that Cronbach's alpha was utilized in this study's reliability analysis to assess the questionnaire's internal consistency. As can be seen in Tables 3 and 4, factor analysis was utilized in this study to confirm the validity of the questionnaire.

Table 2

Reliability Analysis

Reliability Statistics	
Cronbach's alpha	N of Items
.895	15

Table 2 demonstrates how the reliability analysis of this study used Cronbach's alpha to evaluate the internal consistency of the questionnaire. Factor analysis was used in this study to verify the validity of the questionnaire, as shown in Tables 3 and 4.

Table 3

Construct validity analysis use KMO and Bartlett's Test

KMO and Bartlett's Test	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	
0.846	
Bartlett's Test of Approx. Chi-Square	1390.321
Sphericity df	78
Sig.	0

In order to ascertain whether the data is appropriate for factor analysis, the Kaiser-Meyer-Olkin (KMO) method is typically utilized to confirm suitability. Generally speaking, factor analysis is reasonable if the KMO value is higher than 0.5. The data is excellent for factor analysis if the KMO value is more than 0.7 since there is a strong connection between the variables. This study's KMO value of 0.846 indicates that the construct validity is strong.

Table 4

Content validity analysis use Total Variance Explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.963	38.174	38.174	4.645	35.729	35.729
2	2.467	18.98	57.154	2.713	20.873	56.602
3	1.871	14.394	71.547	1.943	14.946	71.547
4	0.51	3.926	75.474			
5	0.494	3.803	79.276			
6	0.483	3.716	82.992			
7	0.457	3.518	86.51			
8	0.393	3.026	89.536			
9	0.378	2.91	92.447			
10	0.334	2.567	95.013			
11	0.306	2.357	97.37			
12	0.268	2.061	99.431			
13	0.074	0.569	100			

In order to evaluate whether the content of the measurement tool or test covers the concept or field to be measured. This study used Total Variance Explained, see Table 4. From the table, we can see that this measurement includes a total of 3 dimensions. Generally speaking, if the total variance explanation value exceeds 70%, it can prove that the content validity is good (Tobón & Luna-Nemecio, 2021). The total variance explanation value of this study is 71.547%, so the next step of research can be carried out.

Data Analysis Methods

This study will first perform some analysis to examine the association between transformational leadership and employee job satisfaction in higher education teachers. In order to determine the mediating function that transformational leadership plays in the relationship between work satisfaction and transformational leadership, an analysis of the two departments' collaboration's direction and intensity was conducted. Lastly, an analysis of multiple linear regression will be performed. Analysis of the relationship between transformational leadership and work happiness revealed that instructors' job satisfaction in higher education was jointly mediated by both factors.

Results and Discussion

Correlation Analysis Results and Discussion

Correlation analysis helps reveal the relationship between variables, provides quantitative data support, and helps researchers understand the interaction and influence between variables (Makowski et al., 2020). This study can learn more about the connection between transformational leadership, employee job satisfaction, and work motivation by using correlation analysis. We polled higher education instructors for this study, categorized them into three primary categories, and looked at the relationships between the categories. Table

5 displays correlation values for transformational leadership and employee job satisfaction (0.796), work motivation (0.822), and work motivation (0.791) as well as correlation values between transformational leadership and employee job satisfaction.

Table 5

Correlation Analysis Results

Correlations			
	TL	ESJ	WM
TL	1		
ESJ	.796**	1	
WM	.822**	.791**	1

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

TL= Transformational leadership; ESJ= Employee Job Satisfaction; WM=Work Motivation

Table 5 indicates that transformational leadership and employee job satisfaction are significantly positively correlated. This suggests that employee work satisfaction rises in tandem with leaders who demonstrate higher degrees of transformational leadership. This could be as a result of transformational leaders' capacity to inspire staff members, set clear objectives and visions, and assist them in succeeding at work. Therefore, the transformational behavior of leaders can directly affect employees' emotions and attitudes, thereby improving their job satisfaction. Additionally, this study discovered a strong positive association between job motivation and transformational leadership. This means that transformational leaders can motivate employees to work and make them more motivated to work. Transformational leaders usually have inspiring and inspiring qualities that can motivate employees' intrinsic motivation so that they work not just to complete tasks, but out of intrinsic interest and motivation. Based on the analysis conducted, the study has determined that a noteworthy positive association exists between work motivation and employee job satisfaction. This indicates that when employees are satisfied with their jobs, they tend to have higher work motivation. Satisfied employees may feel more valuable and more motivated to work, further improving their level of work motivation.

Mediation Effect Analysis

This study added M as a mediating variable to the structural equation model in order to investigate the internal mechanism of the notable beneficial impact of X on Y. Model 4 in the SPSS macro program Process was utilized to assess the mediation effect, and Igartua and Hayes' Bootstrap approach was employed to confirm and examine M's mediating function between X and Y (Igartua & Hayes, 2021). The symbols X, Y, and M stand for transformational leadership, employee job happiness, and higher education teachers' work motivation, respectively.

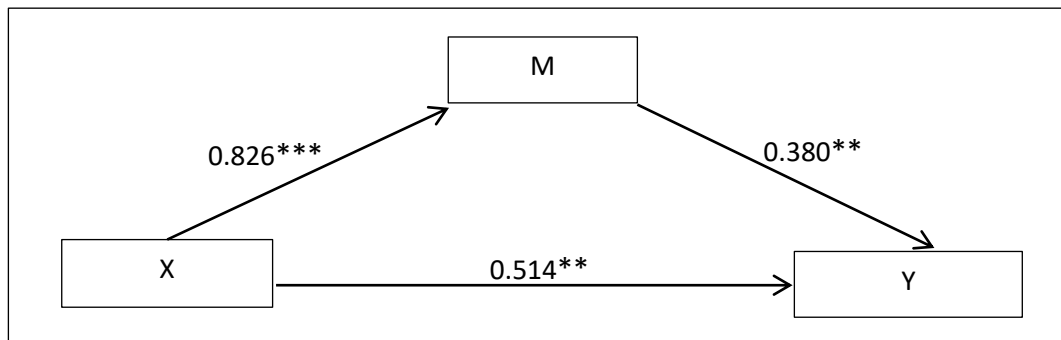


Figure 2

The path coefficient of M between the three variables of X and Y

Note:***p<0.001,**p<0.01,*p<0.05

According to the results, the path coefficient of X to M is 0.826, indicating that X has a significant positive impact on the work motivation of higher education teachers; the path coefficient of X to Y is 0.514, indicating that transformational leadership has a significant positive impact on employee job satisfaction; and the path coefficient of M to Y is 0.380, indicating that the work motivation of higher education teachers plays a significant mediating role between X and Y, and these have an impact on the influence of X on Y.

Table 6

Decomposition table of total effect, direct effect and mediating effect

	Effect	se	LLCI	ULCI	EFFECT SIZE
Total effect	0.840	0.044	0.754	0.927	
Direct effect	0.528	0.067	0.395	0.661	62.74%
Mediating Effect	0.313	0.061	0.201	0.413	37.26%

Table 6 shows that X has an influence on Y through the variable M in addition to having a direct effect on Y since the upper and lower bootstrap 95% confidence intervals of the mediation effect of X on Y and M do not contain 0. 62.74% and 37.26%, respectively, of the overall effect (0.840), are accounted for by the direct effect (0.528) and mediating effect (0.313). Table 6 indicates that H2 in this investigation is supportable. Since the mediating effect of X on Y does not contain 0 in the confidence interval, it shows that X not only has a direct impact on Y, but also has an impact through the mediating variable M. Therefore, this shows that the work motivation of higher education teachers plays a mediating role between transformational leadership and job satisfaction, supporting the existence of H2.

Multiple Linear Regression Analysis

Table 7

Multiple linear regression model results

	B	se	β	t	p	VIF
(Constant)	0.2580	0.0980		2.6270	0.0090	
X	0.5280	0.0670	0.5140	7.8280	0.0000	2.7920
M	0.3790	0.0650	0.3800	5.7900	0.0000	2.7920
R ²	0.7220					
F	233.7130					
P	0.0000					
Durbin-Watson	1.940					

In Table 7, we can see the F value and its corresponding p value. The F value is significant (i.e., the p value is less than the set significance level, $p < 0.05$), indicating that the regression model is significant as a whole, that is, the explanation of X and M to Y is statistically significant. In the summary of the multiple linear regression model, the R square value is 0.722, indicating that the model can explain 72.2% of the variation in job satisfaction of higher education teachers. This shows that the mediating role of X and M plays an important role in explaining Y. Therefore, the joint moderating effect of transformational leadership and work motivation mentioned in H3 has been verified to a certain extent in the model. As shown in Table 7, the p values of X and M are very small ($p < 0.05$), indicating that their coefficients are statistically significant. The Durbin-Watson value is used to test whether there is autocorrelation in the residual terms in the multiple linear regression model, that is, whether there is correlation between the residuals. Generally, within the range of 1.5 to 2, it is considered that the autocorrelation of the model is not strong. In this study, this value is 1.940, indicating that the model is meaningful. VIF (variance inflation factor) is used to detect multicollinearity between independent variables. The larger the VIF value, the stronger the correlation between the independent variables, which may lead to instability in model estimation. In a multiple linear regression model, a VIF value less than 10 is usually considered to be within an acceptable range, so a value of 2.792 indicates that the multicollinearity between transformational leadership and work motivation is not too serious. The multiple linear regression model's significant F-value, low p-value, and interpretability, as indicated by the R-squared value, all lend credence to H3's proposal that transformational leadership and work motivation jointly moderate higher education teachers' job satisfaction. Job satisfaction among teachers in higher education is significantly impacted by the mediating roles of transformational leadership and work motivation.

Conclusion

This study set out to explore the intricate interaction that exists in the setting of higher education between transformational leadership, employee work satisfaction, and job motivation. Using multilevel linear regression, mediation analysis, and correlation analysis, we thoroughly examined and tested three main hypotheses. Numerous discoveries from this study significantly advanced the academic conversation. First, our data confirmed a strong positive association between employee job satisfaction in colleges and universities and transformational leadership, supporting H1. This demonstrates how crucial transformational leadership is to helping faculty in higher education feel satisfied in their jobs. Furthermore,

the validation of H2 revealed how job motivation functions as a mediator between job satisfaction and transformational leadership, clarifying the process by which transformational leaders influence employee outcomes. Additionally, the study's test of hypothesis H3 demonstrated that employee work satisfaction was jointly controlled by the mediating roles of job motivation and transformational leadership. This underscores the intricate interplay among these factors and underscores the necessity of possessing a thorough comprehension of leadership dynamics within organizational contexts. By illuminating the complex relationship between transformational leadership, employee work satisfaction, and job motivation in the context of higher education, our study provided a substantial contribution to the body of current knowledge. The results offer practical guidance to policymakers and organizational leaders in creating policies that will enhance leadership efficacy and advance worker welfare in learning environments. The focus of this study is on a particular group of higher education professors, which limits its generalizability even if it offers significant contributions. Subsequent investigations may delve into other variables that impact the relationships under scrutiny and utilize longitudinal techniques to identify causal relationships over an extended period. To sum up, this research expands our knowledge of the complex relationships that exist in the context of higher education between transformational leadership, employee work satisfaction, and job motivation. It is suggested that we continue working to create an atmosphere that supports organizational success and employee well-being as we tackle the complexity of organizational leadership. In the end, this will improve the educational experience for all pertinent stakeholders.

Research Contribution

By clarifying the relationship between transformational leadership, employee job satisfaction, and work motivation in higher education, this study makes a theoretical contribution. Contextually, it informs leadership development strategies and organizational policies to enhance effectiveness in academic settings. These ideas and suggestions are intended to improve the pertinence of higher education organizational work, but further research is needed to expand the scope of application, and points out the need to continue to explore innovations and longitudinal research. Overall, this study has enhanced the understanding of transformational employees within higher education and strives to help organizations achieve their educational goals.

Statement of Declaration of Interest

Regarding the research, writing, and/or publication of this article, the author(s) have stated that they have no potential conflicts of interest.

References

- Bass, B. M., & Avolio, B. J. (1993). Transformational leadership and organizational culture. *Public administration quarterly*, 112-121.
- Bhardwaj, B., Chand, M., Kalia, N., & Sharma, D. (2023). Engaged organizational culture as a precursor to job performance: An evidence from the hospitality industry of Himachal Pradesh. In *Article in International Journal of Hospitality and Tourism Systems*. <https://www.researchgate.net/publication/374508997>
- Carreiro, H., & Oliveira, T. (2019). Impact of transformational leadership on the diffusion of innovation in firms: Application to mobile cloud computing. *Computers in Industry*, 107, 104-113.

- Cuenca-Zaldivar, J. N., Monroy Acevedo, Á., Fernández-Carnero, J., Sánchez-Romero, E. A., Villafañe, J. H., & Barragán Carballar, C. (2022). Effects of a multicomponent exercise program on improving frailty in post-COVID-19 older adults after intensive care units: a single-group retrospective cohort study. *Biology*, 11(7), 1084.
- Dopson, S., Ferlie, E., McGivern, G., Fischer, M. D., Mitra, M., Ledger, J., & Behrens, S. (2019). Leadership development in Higher Education: A literature review and implications for programme redesign. *Higher Education Quarterly*, 73(2), 218-234.
- Gary, K., Ertas, B., & Delgado, A. (2020, September). A general-purpose test facility for evaluating gas lubricated thrust bearings. In *Turbo Expo: Power for Land, Sea, and Air* (Vol. 84218, p. V10AT25A027). American Society of Mechanical Engineers.
- Guoyan, S., Khaskheli, A., Raza, S. A., Khan, K. A., & Hakim, F. (2023). Teachers' self-efficacy, mental well-being and continuance commitment of using learning management system during COVID-19 pandemic: A comparative study of Pakistan and Malaysia. *Interactive Learning Environments*, 31(7), 4652-4674.
- Igartua, J. J., & Hayes, A. F. (2021). Mediation, moderation, and conditional process analysis: Concepts, computations, and some common confusions. *The Spanish journal of psychology*, 24, e49.
- Iskamto, D. (2021). Stress and its impact on employee performance. *International Journal of Social and Management Studies*, 2(3), 142-148.
- Kouni, Z., Koutsoukos, M., & Panta, D. (2018). Transformational leadership and job satisfaction: The case of secondary education teachers in Greece. *Journal of Education and Training Studies*, 6(10), 158-168.
- Kordrostami, M., & Seitz, V. (2022). Faculty online competence and student affective engagement in online learning. *Marketing Education Review*, 32(3), 240-254.
- Kanat-Maymon, Y., Elimelech, M., & Roth, G. (2020). Work motivations as antecedents and outcomes of leadership: Integrating self-determination theory and the full range leadership theory. *European Management Journal*, 38(4), 555-564.
- Liu, R., Wang, L., Lei, J., Wang, Q., & Ren, Y. (2020). Effects of an immersive virtual reality-based classroom on students' learning performance in science lessons. *British Journal of Educational Technology*, 51(6), 2034-2049.
- Makowski, D., Ben-Shachar, M. S., Patil, I., & Lüdtke, D. (2020). Methods and algorithms for correlation analysis in R. *Journal of Open Source Software*, 5(51), 2306.
- Medina-Carls, K. (2020). What motivates teachers to stay faithful to the teaching profession. *International Multidisciplinary Research Journal*, 10, 22-34.
- Nabi, M. N., Liu, Z., & Hasan, N. (2023). Examining the nexus between transformational leadership and follower's radical creativity: the role of creative process engagement and leader creativity expectation. *International Journal of Emerging Markets*, 18(10), 4383-4407.
- Purwanto, A. (2020). The effect of transformational leadership dimensions on job satisfaction and organizational commitment: case studies in private university Lecturers. *Solid State Technology*.
- Rahman, A., & Muktadir, M. G. (2021). SPSS: An imperative quantitative data analysis tool for social science research. *International Journal of Research and Innovation in Social Science*, 5(10), 300-302.
- Rojas-Muñoz, E., Cabrera, M. E., Lin, C., Sánchez-Tamayo, N., Andersen, D., Popescu, V., ... & Wachs, J. P. (2020). Telementoring in leg fasciotomies via mixed-reality: clinical evaluation of the STAR platform. *Military Medicine*, 185(Supplement_1), 513-520.

- Tepayakul, R., & Rinthaisong, I. (2018). Job satisfaction and employee engagement among human resources staff of thai private higher education institutions. *International Journal of Behavioral Science*, 13(2).
- Tobón, S., & Luna-Nemecio, J. (2021). Complex thinking and sustainable social development: Validity and reliability of the complex-21 scale. *Sustainability*, 13(12), 6591.