

A study on Occupational Stress and Faculty Performance of Virtual Teaching with Reference to Higher Education

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Abstract

Occupational stress has become a prevalent concern in the context of virtual teaching, particularly in higher education. The shift to online instruction, accelerated by the COVID-19 pandemic, has brought about a myriad of challenges for faculty members. They are not only responsible for delivering quality education but also for adapting to new technologies, managing virtual classrooms, and addressing the diverse needs of students in an online environment. Virtual teaching can often blur the boundaries between work and personal life, leading to heightened stress levels among faculty members. The constant need to stay updated with technology, cope with technical glitches, and manage larger class sizes can be mentally exhausting. Moreover, the absence of in-person interaction can lead to feelings of isolation and detachment from students, further contributing to stress. The impact of occupational stress on faculty performance is significant. High levels of stress can lead to burnout, decreased job satisfaction, and a decline in the quality of teaching. Faculty members may find it challenging to maintain their motivation and enthusiasm, resulting in less engaging and effective virtual classes. This, in turn, can affect student learning outcomes and overall satisfaction with the educational experience. In addressing these challenges, higher education institutions must provide adequate support and resources to help faculty members manage occupational stress. Training programs on online pedagogy, access to technical support, and opportunities for peer collaboration can all contribute to improving faculty performance in virtual teaching. Moreover, fostering a culture of well-

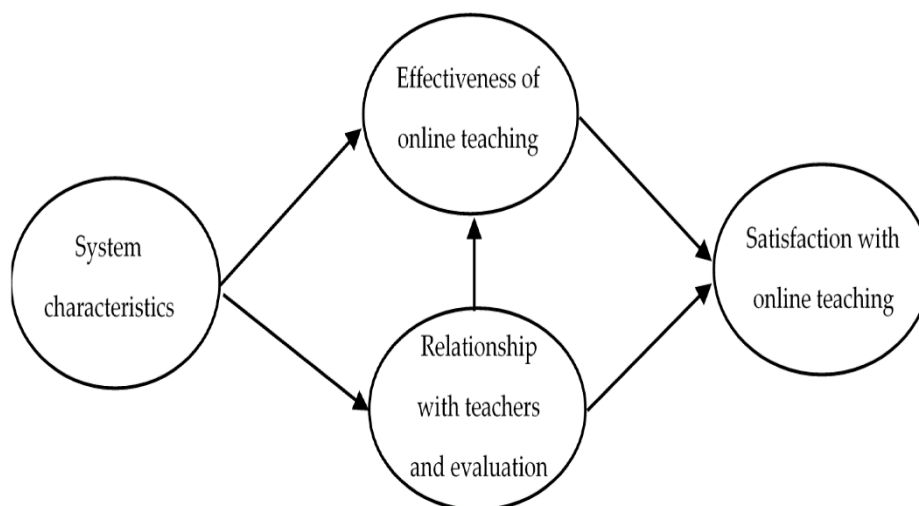
being and work-life balance is essential to ensure that faculty can continue to deliver high-quality education in the digital age.

Keywords: *Occupational Stress, Home Internet access, Faculty Performance, High-Quality Devices, Virtual Teaching and Higher Education*

Introduction

Academicians are viewed in the current context as both information custodians and promoters of their usage for societal improvement [2]. This overall advancement has had an impact on higher education. Furthermore, faculty members, particularly those in Indian colleges, are under constant pressure to handle day-to-day issues; as a result, they witness workplace conflict and its negative consequences. This suggests that teaching in universities with high standards is a stressful profession. A disorganized workspace might impede people's ability to work to their full potential by preventing them from feeling the enthusiasm of others. Their work ethic and inspiration will be lower as a result. In addition, low-quality activities made tasks less exciting for them. Additionally, higher absentee rates in colleges have affected people's ability to carry out business operations, which ultimately decreased their profits and led to poor product management and low-quality product and service production [7]. All of this is manifested in poor physical and mental health. Stress has permeated every profession in the current era, which is believed to be a world of accomplishments and contests. While managing a certain amount of stress is acceptable, managing excessive stress can become harmful and unmanageable. Although it has been stated that traditional university teaching techniques are a low-stress profession, this has changed with the rise in workloads and unbalanced student-staff ratios, competitiveness, inadequate resources, poor communication, job insecurity, pressure to secure outside funding, subpar management, a lack of evaluations, and pressure to deliver high-quality work due to intense market competition. That's not the situation anymore [11]. No matter what kind of work one does, occupational stress is the tension that comes with it, whereas psychological wellbeing is a happy, contented state of mind. A method of teaching students online that involves sending all course materials to them digitally is called virtual teaching. The new standard for student learning and instruction during the COVID-19 pandemic is virtual learning. In order to raise awareness of numerous challenges in virtual learning, students must engage in effect role-playing [9]. The majority of virtual learning opportunities are web-based, allowing for real-time contact between students and instructors as well as question-and-answer sessions similar to those in a traditional classroom.

Figure: 1



Sources: <https://www.google.com/url>

Conceptual background of the study

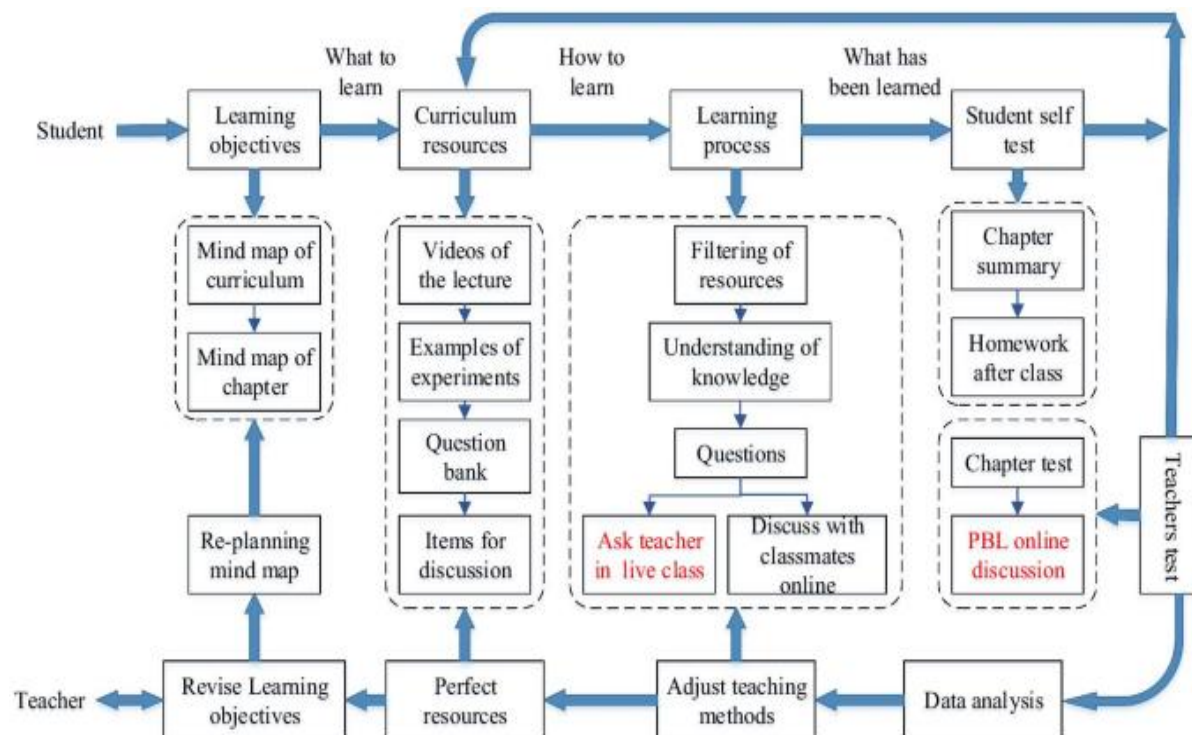
Consequently, this heightened stress level contributes to an augmented inclination to leave their current employment, a decline in job performance, reduced job satisfaction, heightened anxiety, and increased depression. There are numerous

elements that influence the amount of stress experienced by faculty members in a university setting [8]. Excessive work demands can result in heightened levels of stress, leading to both physical and mental fatigue. Certain participants indicated that an elevated enrollment of students was a source of stress for them, since they were required to fulfil the diverse needs and demands of these pupils [5]. Employees with low job satisfaction have heightened levels of stress and exhibit an increased inclination to depart from academic institutions. An excessive number of administrative matters have significantly encroached upon the allocation of teaching and research time, resulting in heightened levels of stress experienced by faculty members.

Theoretical overview of the study

A correlation exists between professional stress and work-life imbalance. Furthermore, an inefficient coping style might also contribute to the experience of work stress. Additional demographic variables, including as gender and age, have the potential to influence the stress levels experienced by faculty members. There was a statistically significant difference in the scores obtained by women compared to men. There were variations in occupational stress levels across different age groups. The study findings indicate that the primary cause of occupational stress was related to professional ranking or career advancement [3]. Furthermore, it is worth noting that the number of years spent in the teaching profession also has a significant role in influencing the stress levels experienced by faculty members at higher education institutions. The introduction of modern public management has significantly altered the dynamics among universities, the government, and the market. Therefore, the functioning of academic organisations aligns more closely with market principles, placing a greater emphasis on efficiency. Academic capitalism has exerted its influence over the institution commonly referred to as the ivory tower [5]. Moreover, the adoption of the new public management model and quantitative evaluation methodology has resulted in an augmented workload for university faculty members, thereby intensifying the psychological stress they experience. Due to the increasing prevalence and gravity of this subject, the psychological strain experienced by university teaching employees is garnering heightened scientific interest. However, there is a lack of research on this link specifically in non-Western nations.

Figure: 2



Source: <https://www.google.com>

Review Work on Occupational Stress among Faculties

Pan et al. (2006)[15] placed significant emphasis on the matters pertaining to learning, training, and development, conducting a thorough examination of virtual and augmented worlds. The authors presented several simulation examples aimed at increasing learners' motivation to comprehend the distinctions between virtual and traditional learning, as well as highlighting the accelerated learning potential within virtual settings. The authors suggested that there is a positive correlation between high levels of virtual learning activity and academic achievement, specifically reflected in good grades. Science-based subjects exhibit a greater reliance on and propensity for interrelated questions within the virtual classroom setting. Yang et al. (2018) [18] introduced a three-stage strategy utilizing facial recognition technology to identify pupils for the purpose of emotional recognition. The findings suggest that the students' expressiveness and emotions closely resemble those observed in a traditional classroom setting. The monitoring of student learning status in real-time can assist educators in adapting their teaching tactics inside a virtual learning environment, taking into account the emotional states of students. In their study, Prasad et al. (2020) [16] examined various aspects that have been found to influence employee performance and psychological well-being. The researchers employed the Ryff (1995) model as a framework for their investigation. The findings indicate that several elements, such as peer relationships, role ambiguity, organisational climate, and job satisfaction, have a significant impact on the psychological well-being of employees. Prasad et al. (2020) [16] conducted a comparative analysis to identify the factors contributing to stress and its impact on workplace performance. The researchers observed a moderate degree of stress in both sectors. Nevertheless, female professionals encountered higher levels of stress compared to their male counterparts due to the inherent role conflict arising from their simultaneous responsibilities as mothers, wives, and employees. Through the application of General Linear Model analysis, the researchers found that organisational communication, organisational climate, policies, job satisfaction, and employee psychosomatic factors exhibited significant influence on the psychological well-being of the employees. Within the domain of industrial-organizational psychology, work stress is conceptualized as a response to various stimuli encountered within a workplace setting, which subsequently results in adverse outcomes for those exposed to these stimuli. The user's text is already academic in nature. The substantial growth of higher education in China since 1999 has significantly influenced the professional responsibilities of university faculty members. Based on a survey conducted, it has been observed that the average class size in colleges and universities has increased to 83 pupils as a result of the expansion in enrolment. The profession of teaching has undergone a transformation from being a demanding occupation to becoming a significantly stressful endeavor. At now, university faculty members have difficulties pertaining to the varied needs of students and the demands for academic achievement. This frequently results in a significant amount of strain, therefore leading to elevated levels of stress and interpersonal discord. University faculty members are tasked with a multitude of activities, including engaging in scientific research, delivering instruction, and undertaking other forms of community service. The current set of tasks is imposing a more onerous load on the faculty members. University faculty members have a range of responsibilities, which including the instruction and guidance of students, as well as the preparation of scholarly articles and presentations for educational lectures and research conferences. In addition to their academic responsibilities, faculty members are also expected to fulfil nonacademic obligations, encompassing familial, social, and community engagements. Due to the multitude of roles and responsibilities assigned to university faculty members, coupled with the demanding nature and elevated expectations associated with their positions, a considerable proportion of these individuals encounter notable levels of stress.

Importance of the study

The current investigation has the potential to enhance the existing body of knowledge pertaining to job satisfaction among university educators, as it focuses on the widespread challenges inside the university environment. It is characterized by significant societal transformations and heightened competitiveness within the academic sphere, the cultivation of teaching self-efficacy emerges as a pivotal factor in assessing the overall welfare and job contentment of university educators. The study on the faculty performance of virtual teaching holds significant importance in the context of modern education, especially in higher education. Several key reasons underscore the relevance and importance of such research:

1. **Pandemic-Induced Shift:** The COVID-19 pandemic accelerated the adoption of virtual teaching worldwide. Understanding faculty performance in this context is crucial because many educators had to quickly adapt to new teaching methods and technologies. Research in this area can provide insights into the challenges they faced and the strategies they employed to maintain educational quality.

2. **Quality of Education:** The performance of faculty members directly impacts the quality of education students receive. Effective virtual teaching is essential to ensure that students continue to receive a high standard of education even when in-person instruction is not possible. Research can identify best practices and areas for improvement to enhance the learning experience.
3. **Student Outcomes:** Faculty performance in virtual teaching can influence student outcomes, including learning outcomes, retention rates, and overall satisfaction. Understanding the factors that contribute to effective virtual instruction can help institutions improve these outcomes and ensure student success.
4. **Professional Development:** Research in this area can inform the development of training and professional development programs for faculty. As virtual teaching becomes a more integral part of education, faculty members need support and resources to excel in this mode of instruction.
5. **Mental Health and Well-being:** Virtual teaching can be stressful for faculty members due to factors like increased workload, technological challenges, and isolation. Studying faculty performance in virtual teaching can shed light on the mental health and well-being of educators, leading to interventions that promote a healthier work-life balance.
6. **Pedagogical Innovation:** Virtual teaching offers opportunities for pedagogical innovation. Understanding faculty performance can reveal innovative teaching methods and approaches that can be applied in both virtual and in-person settings, potentially improving education as a whole.
7. **Long-Term Education Trends:** Even beyond the pandemic, virtual teaching is likely to remain a significant part of education. Research on faculty performance in virtual teaching can help institutions prepare for long-term trends in education and adapt their strategies accordingly.

Research methods and measurement

The research design is the blueprint that guides the entire process of conducting a research study, from the formulation of research questions to data collection and analysis [12]. A well-thought-out research design serves as the roadmap for the study's methodology. It outlines the structure and approach to be used in gathering and interpreting data. Research designs can vary widely depending on the research goals and questions, but they generally fall into three main categories: experimental, observational, and descriptive [7]. In an experimental research design, researchers manipulate one or more variables to observe their effects on other variables. This design is particularly useful for establishing cause-and-effect relationships. It often involves random assignment of subjects to different groups and the application of interventions or treatments. Observational research designs, on the other hand, involve the systematic observation and recording of behavior or phenomena without any manipulation of variables [13]. This type of design is often used in studies where it is not feasible or ethical to manipulate variables, such as in social sciences and naturalistic settings. Descriptive research designs focus on providing a detailed account or description of a particular phenomenon, group, or situation. They do not involve manipulation or observation but rely on data collection methods like surveys, interviews, content analysis, or archival research to gather information. The present study is descriptive in nature. Sample survey is carried out by using factor analysis. In the present study, a sample size of 300 respondents has been taken and primary data has been collected through structured questionnaire (Google Form). In summary, the research design is a foundational element of any research study, providing the structure and methodology for conducting research and answering specific research questions. It is a critical aspect of research planning and execution that significantly influences the validity and reliability of study findings.

Analysis, Results and findings

Kaiser-Meyer-Olkin (KMO) and Bartlett's Test are two commonly used statistical tools in the field of factor analysis, especially when determining the appropriateness of conducting factor analysis on a dataset. Bartlett's Test of Sphericity, on the other hand, evaluates whether the correlation matrix of the variables is significantly different from an identity matrix, which would imply that there is sufficient correlation among variables to justify factor analysis. In simpler terms, it tests whether the variables are interrelated enough to proceed with factor analysis. A significant result (typically with a p-value below a chosen significance level, such as 0.05) in Bartlett's Test. KMO assesses the sampling adequacy, while Bartlett's Test assesses whether the correlation structure among variables is appropriate for factor analysis. If both KMO is high and

Bartlett's Test is significant, it is generally considered appropriate to proceed with factor analysis, as the data is likely to exhibit the necessary characteristics for this statistical technique.

Table 1
KMO and Bartlett's Test

KMO and Bartlett's Test		
KMO		0.911
Bartlett's Test of Sphericity	Approx. Chi-Square	2076.185
	df	66
	Sig.	.000

The above table shows that the result from the (KMO test) is significant (0.911). The result of the Bartlett's Test of Sphericity is also significant as the calculated Chi-Square for the (df – 66) is more than the expected value. The significance is found at 1% level (p-0.000). Hence, the reliability of the data is found and carried forwards to apply factor analysis.

Table 2
Communalities

Problems	Initial	Extraction
Data Privacy and Security	1.000	.633
Environment Mastery	1.000	.654
High-Quality Devices	1.000	.723
Home Internet access	1.000	.587
Positive Growth	1.000	.682
Positive Relations	1.000	.798
Quality Digital Content and Resources	1.000	.835
Remote working	1.000	.662
Role Conflict	1.000	.745
Self-Acceptance	1.000	.819
Student Group	1.000	.727
Work load	1.000	.676
Extraction Method: PCA		

The Principal Component Analysis reveals that the extraction values for all the statements relating to the factors are more than 0.600. It varies from 0.633 to 0.835. Hence, finally, all the 12 statement are taken for the analyze.

Table 3
Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.251	52.094	52.094	6.251	52.094	52.094	4.360	36.335	36.335
2	1.119	9.326	61.421	1.119	9.326	61.421	2.198	18.318	54.653
3	0.972	8.100	69.521	0.972	8.100	69.521	1.784	14.868	69.521
4	0.777	6.477	75.998						
5	0.605	5.038	81.036						
6	0.505	4.208	85.244						
7	0.446	3.716	88.960						
8	0.335	2.788	91.748						
9	0.309	2.579	94.327						
10	0.248	2.068	96.395						
11	0.232	1.931	98.325						
12	0.201	1.675	100.000						
Extraction Method: Principal Component Analysis.									

The 12 statements are extracted into 3 components which is explained 69.52% of total variance (>50%). The 3 components have the eigenvalue more than 1 and other components' values are less than 1. Cumulatively the total variance extracted from the model is 69.52 %. The problems from the 3 components are identified by using the Varimax with Kaiser Normalization.

Table 4
Rotated Component Matrix

Problems	Component	1	2	3
Work load	Occupational Stress	.848		
Student Group		.831		
Remote working		.796		
Role Conflict		.727		
Positive Growth	Psychological factors		.688	

Positive Relations			.632	
Self-Acceptance, Home Internet			.672	
Environment Mastery			.870	
Quality Digital Content and Resources				.818
Home Internet access				.507
High-Quality Devices				.634
Data Privacy and Security				.638
Extraction Method: PCA				

The above table from the rotated component matrix shows that 12 statements of problems have been grouped into 3 components based on their uniqueness. A rotated component matrix is a critical output in the field of factor analysis, which is a statistical technique used for data reduction and dimensionality reduction. In factor analysis, the goal is to identify underlying latent factors that explain the patterns of correlations or co-variances among a set of observed variables. The rotated component matrix is a representation of these latent factors after applying a rotation technique to make them more interpretable [7]. The rotation of the component matrix aims to simplify the factor structure and enhance the interpretability of the results. This is particularly important because the initial factor solution, known as the unrotated component matrix, might have complex and difficult-to-interpret patterns of loadings. Rotating the component matrix typically involves mathematical operations that preserve the underlying relationships between variables but change their arrangement. Each method has its own set of assumptions and criteria for achieving a more interpretable factor structure. Variables with high loadings on a particular factor are considered to be more strongly associated with that factor. Researchers can use this information to interpret the meaning of the latent factors and make inferences about the underlying constructs that influence the observed data [4]. In summary, a rotated component matrix is a crucial tool in factor analysis that helps researchers simplify and interpret the relationships between observed variables and latent factors, making it easier to understand and explain complex data patterns.

Occupational stress can have a profound and multifaceted impact on faculty performance in the realm of virtual teaching. The shift to online instruction, while offering flexibility and accessibility, has brought forth a host of stressors for educators. The constant adaptation to new technologies, the management of virtual classrooms, and the demands of addressing the diverse needs of students in an online environment can lead to heightened stress levels among faculty members. One of the most evident consequences of occupational stress is burnout, resulting in a diminished sense of motivation and enthusiasm for teaching. Burnout can manifest as reduced engagement in virtual classes, compromised course preparation, and an overall decline in teaching quality. Moreover, high stress levels often lead to decreased job satisfaction, causing educators to become disengaged and less fulfilled in their roles. The cognitive effects of stress also play a pivotal role, impairing decision-making and problem-solving abilities. Faculty members under substantial stress may struggle to make effective instructional choices or address the unique challenges posed by virtual teaching. Furthermore, occupational stress can have adverse physical and mental health repercussions, including anxiety, depression, and physical ailments, all of which can further impede a faculty member's capacity to perform at their best in the virtual teaching environment. In essence, addressing occupational stress is paramount for sustaining and enhancing faculty performance in virtual teaching. Strategies for stress management, professional development, and institutional support are vital to ensure that educators can continue to deliver high-quality education while maintaining their well-being in this evolving educational landscape.

Psychological factors exert a profound influence on the performance of faculty engaged in virtual teaching. The transition to online instruction has introduced a complex array of psychological challenges for educators, which can significantly affect their effectiveness in this mode of teaching. First and foremost, self-efficacy plays a critical role. Faculty members' belief in their ability to effectively teach in a virtual environment can shape their performance. Those who possess high self-efficacy are more likely to embrace technology, experiment with innovative teaching methods, and adapt to changing circumstances, ultimately enhancing their performance. Motivation is another key psychological factor. Faculty members who are intrinsically motivated by a genuine passion for teaching are more likely to invest the time and effort needed to excel in virtual instruction. In contrast, those who experience low motivation may

struggle to engage students effectively and deliver high-quality content. Psychological well-being is also pivotal. The stress, isolation, and uncertainty associated with virtual teaching can impact educators' mental health. High levels of stress, anxiety, or burnout can compromise their ability to focus, make decisions, and connect with students, all of which are essential for effective teaching. Lastly, adaptability is crucial. The ability to adapt to technological changes, unexpected challenges, and student needs in the virtual teaching environment requires a high degree of psychological flexibility. Faculty members who are open to learning, resilient in the face of setbacks, and willing to experiment with new approaches tend to perform better in the virtual classroom.

Implications for the study

Despite the aforementioned limitations, the findings of this study hold practical significance for educators in universities and colleges, instructional designers, educational administrators, as well as policymakers and stakeholders in the realm of higher education [1]. The concept of college teaching self-efficacy holds significant potential as a beneficial asset for educators, potentially exerting an influence on their adoption of effective stress-coping mechanisms and cultivation of a positive professional outlook. In conclusion, the study of faculty performance in virtual teaching is vital for improving the quality of education, enhancing student outcomes, and supporting educators in an increasingly digital learning environment [5]. It provides valuable insights for educators, institutions, policymakers, and researchers seeking to navigate the challenges and opportunities of virtual education. The psychological factors of self-efficacy, motivation, well-being, and adaptability significantly shape the performance of faculty engaged in virtual teaching [12]. Institutions and educators alike must recognize the importance of supporting faculty members in these areas to ensure the continued delivery of high-quality education in virtual environments.

Discussion

The study provided valuable insights for educational programmers who aim to consider teacher psychological characteristics. By including these variables into programme design, educators can develop and implement effective tactics that actively engage instructors in teaching activities. This, in turn, can contribute to the enhancement of teachers' self-efficacy views. Through active participation in various teaching practices and undergoing training, educators can enhance their pedagogical competence, leading to an improvement in their self-efficacy beliefs [12]. This is primarily attributed to the fact that mastery experience serves as a fundamental source of self-efficacy. Furthermore, it is imperative for education programmers to offer teachers the chance to observe the instructional methods employed by award-winning educators. This is because teachers can benefit from ongoing communication with skilled colleagues, which can enrich their teaching experience and ultimately bolster their self-efficacy beliefs [6]. The proficiency of other teachers in successfully carrying out teaching tasks, educators can enhance their own teaching abilities. Similarly, educational administrators might derive advantages from this research by fostering a nurturing and collaborative atmosphere for faculty members at higher education institutions. School administrators have the potential to assist educators in managing overwhelming expectations and fostering a more conducive academic institution [3]. In a collaborative setting, it is advisable for educators to actively solicit input from their principal or peers, since this practice contributes to the enhancement of job satisfaction and the establishment of psychological safety among novice teachers. These practices contribute to the teaching experiences of rookie instructors and enhance their teaching self-efficacy in situations where it is not feasible for them to extend their years of teaching.

Conclusion

The outcomes of this study provide an opportunity for policy and decision-makers in the realm of higher education to leverage the findings in order to restructure and modify certain personnel practices [11]. This strategic approach aims to mitigate the levels of job stress experienced by instructors while concurrently enhancing their overall job satisfaction. Policymakers have the potential to redefine and decrease the standards of teaching evaluation and job advancement for university educators through the reduction of the substantial emphasis placed on publication quantity and research funding [15]. However, there has been limited research conducted on the association between these variables within the realm of higher education. This research addressed a knowledge gap by demonstrating that the promotion of self-efficacy in teaching can mitigate the adverse impact of job stress among faculty members, thereby enhancing their job satisfaction[17].

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