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Organizational Role Stress and Learned Helplessness in Higher Education: An Empirical study and its analysis

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Abstract

Competitive world gives stress and education system is facing the same. Organization stress is growing rapidly**.** Organizational stress is extensively explored phenomenon in service industry and education is not untouched currently and having impact on educators' wellbeing and workplace dynamics. Higher Organizational stress causes feeling depleted, reducing job satisfaction, sense of helplessness affecting adversely performance and complete competence. The paper investigates the yoke between Organizational Role Stress referred as ORS and Learned Helpless referred as LH. The research is done with two different paths. Utilizing standardized scales (Pareek, 1983; Pestonjee & Reddy, 1988), the study identifies "Role Erosion" as the predominant stressor. Using standard analysis tools, it was identified that LH dimensions—specifically external-specific attributions—meaningfully envisage overall role stress, accounting for 52.2% of the variance. With uncontrolled institution demands increased administrative task educators' contracts job satisfaction, encouraging a state of learned helplessness. To address this issue a computation prototype, leveraging MATLAB-based analytics—to propose a model that can investigate the interconnection between stress, helplessness, and performance. The model can be used as strategic diagnostic tool for management from responsive wellness programs to proactive, AI-informed institutional policies. Measuring with quantitative tools these psychological linkages,

organizations can offer targeted "Job Enrichment" and "Attributional Training" to alleviate role-related weakening. This will help the organization and educators working in improved organizational culture, better policies, which push both employee wellbeing and organization efficiency in today competitive world.

Keywords: Organizational stress, Learned helplessness, psychological linkages, fuzzy logic, institutional policies

Introduction

India has a wide landscape of higher education system, and this landscape has many players from private sector. Rajasthan is primer state when it comes to education in north region of India. This change creates professional pressure on educators, institutional demands manifesting as **Organizational Role Stress (ORS)** a condition in which individual's observed skills and resources. This endless exposure to such stressors, coupled with a noticed lack of agency, often culminates in **Learned Helplessness (LH)**, a psychological state characterized by diminished motivation and professional withdrawal. Rapid expansion and subsequent slowdown in the private higher education sector have increased professional pressure on faculty members. Organizational Role Stress arises when institutional demands exceed an individual's skills or expectations. Learned Helplessness is the psychological state resulting from perceived lack of control over repeated negative events.

Traditional research using psychological tools shows correlations, but the new edge of education system requires a more dynamic approach to interference. This research integrates computation methodologies utilizing AI aspects such as Fuzzy Logic based prediction system to find this interconnection. The AI aspects are implemented using dynamic MATLAB as tool to bridge the gap between the behavioral psychological model to AI-based predictive model between ORS and LH. This proposed research model moving from post-hoc analysis toward real-time prediction and diagnosis. The proposed research model treats psychological constructs as data features to predict faculty burnout and performance trends as output of the model.

This AI based technological model management of educational institute management to utilize objectives, having insights to refine human resource policies, reduce role-related depletion, and

proactively adopting a healthy organizational culture that giving the leaders enhance educator well-being and institutional efficiency.

This research investigates how these two constructs interact to affect faculty performance and satisfaction. The paper is organized in introduction, then literature review. Next section will discuss methodology. Section IV shows the MATLAB implementation for the proposed model, and last section discusses the result and future.

Literature Review

Modern universities are shifted from traditionally associated high anatomy and academic environment to a large corporate model, which model incorporate the increasing role stress. Kancheva et al. (2025), worked specially on Post Pandemic Re-association around 2024-2025, which emphasis on that faculties are facing "reintegration challenges," where the education system is fading the of borders between digital and physical workspaces. It has intensified Inter-Role Distance. Also suggest that workload intensity and procedural rigidity from the organization are the primary drivers of burnout, echoing the "Role Erosion" found in earlier studies. 2025 Study done in 2025 in PMC shows a significant negative correlation between Quality of work life and ORS among university faculty. The study also shows that while internal autonomy of the educator, mentioned as personal self-direction remains high, "structural autonomy" such as control over workload and organizational policy has decreased, directly worsening stress related to one's role within the organizational hierarchy. Learned Helplessness (LH) and Attributional Styles in higher education has pulled beyond simple compliance to focus on Attributional Theory— which affects the, how faculty explain their failures.

Predictive Ability of LH: In recent studies some research have utilized Logistic Regression and ROC Curves that supports that LH is a high-accuracy predictor of disengagement. In higher education, faculty who attribute with institutional policy failures to "internal and stable" factors which generally say that "I am not good enough" or "The system will never change", are substantially more likely to experience chronic stress.

Ngina et al. (2024) indicates that fostering "self-respect" and "career resilience" can work as a buffer against LH. This also suggests that the relationship between ORS and LH is not linear; rather, it is mediated by the individual’s perceived agency over their career path.

by Liu et al. (2025) proposed a model “Technostress” investigated that AI integration in working culture leads to two types of response first one is “problem-focused coping” which says learning the tech; second one is “emotion-focused coping" which leads as feeling threatened.

For faculty, AI can lead to "techno-insecurity”, the fear that AI-driven grading or research tools will diminish the value of their professional role. Conversely, advances in Predictive Analytics (2025) show that machine learning can now detect early markers of burnout and LH by analyzing behavioral data, sentiment in communications, and workload patterns. This supports your goal of adding an AI model to predict stress levels based on the WISDOM model parameters.

Research Methodology:

The proposed AI based model is having base from the model suggested in uses the **Goyal, S., & Vaz, A. (2024)** The model integrates the Attributional Re-formulation of Learned Helplessness with Organizational Role Stress Theory to create a predictive model.

The model uses a faculty member's attributes as input to the system which directly dictates their inclination to specific role stressors (Process), and the ultimately manifestation is professional performance as output of the model. The method is used quantification of these relationships, which provides the base for creating a mathematical framework to make it suitable for AI-driven predictive analytics. It also uses the Instruments **for the ORS Scale (Pareek, 1983):** Measures 10 role stressors, including role ambiguity and overload and **LH Scale (Pestonjee and Reddy, 1988):** Measures 8 causal attributions based on globality, stability, and internality. The base research applies Correlation and multiple regression statistical analysis to determine cause-and-effect relationships.

A mathematical model repaired input, process and output. The model works with the model following input and output are identified from the theory.

1. Input Phase: The Attributional Catalyst (Learned Helplessness): Based on Seligman’s Learned Helplessness Theory, this phase identifies how faculty process environmental stimuli.

- Internal vs. External: Does the faculty member blame themselves or the institution?
- Stable vs. Unstable: Do they see the pressure as permanent or temporary?
- Global vs. Specific: Does stress affect their whole life or just one task?

2. The Stress Manifold (Organizational Role Stress): This input is utilizes Pareek's Role Stress Theory. The "Attributional Catalyst" determines how an individual perceives institutional demands. For ORS following relations are define internally:

- Role Erosion (RE): The feeling that one's role is becoming obsolete.
- Inter-Role Distance (IRD): The conflict between organizational and personal roles.
- Self-Role Distance (SRD): The gap between what one is and what the role requires.

Based on this the AI-suggested model builds a correlation between specific LH attributions and these stressors to identify which psychological mindset leads to which specific type of stress.

Output: the output the model is proposed to have Behavioral Outcomes which represent the "State of the Faculty, which Finlay defined on the basis of inference the effect of this state of the faculty on their performance, job satisfaction and burnout, giving proportionally work as following:

- Performance: Academic output, teaching quality, and administrative efficiency.
- Job Satisfaction: Mental well-being and institutional loyalty.
- Burnout: exhaustion level which may reduce performance as well as academic performance.

MATLAB implementation of the proposed model:

Based on the theoretical framework proposed in a fuzzy based MATLAB-driven model is implemented and tested with the values of theoretical framework. The graphical model—designated as the **WISDOM Framework** in figure 1—illustrates the structural relationships between the psychological inputs and their professional outcomes.

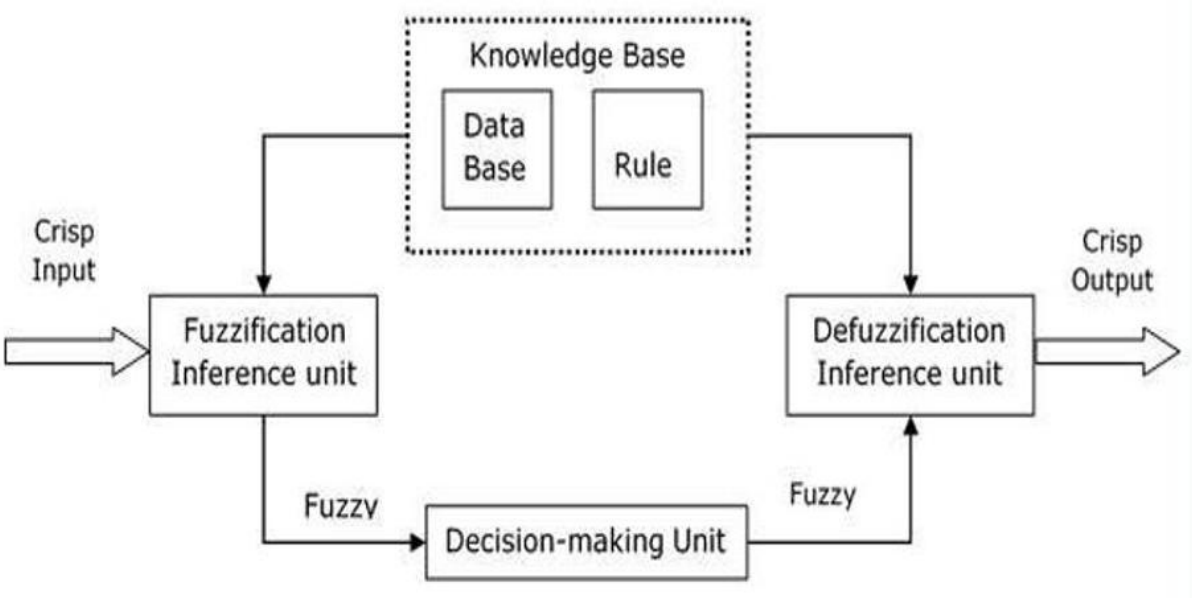


Figure 1. Fuzzy based Model

A proactive robots computation tool is design and proposed on the basis of the by mapping the learned helplessness and role stress in fuzzy logic framework. The model uses ORS, LH and demographic predicators: Qualification, Designation, Martial State and Teaching Load as INPUT for the fuzzy model. In theoretical model many of the attributes are defined, due to reduce the complexity to implement a predictive model influential inputs are use as per theoretical model.

Input Variables and Fuzzification

Organizational Role Stress (ORS)

The ORS is used as single input value and it is derived from the includes ten role stressors; each measured on a scale of 0 to 20 as per the tools value. For model modeling purposes, each stressor is transformed into four linguistic categories: Table 1 shows the Logistic variable for ORS:

Table1: Linguistic variable and value for the ORS

Range	**Linguistic Variable**	**Interpretation**
0–5	Low Stress	Minimal role-related pressure

Range	Linguistic Variable	Interpretation
6–10	Moderate Stress	Manageable but noticeable stress
11–15	High Stress	Significant strain affecting functioning
16–20	Very High Stress	Severe stress requiring intervention

Theoretical method suggests that Empirical findings that is Mean ORS = 44.42 indicate that most faculty members fall within the **low-to-moderate stress range**, with specific stressors such as *Role Erosion* and *Inter-Role Distance* contributing significantly.

Learned Helplessness (LH)

The LH scale has the ranges of 24 to 144 and it is **reverse coded**, where higher the scores show lower helplessness. Based on the observed meaning (95.05), the system defines the following linguistic value as per table 2:

Table 2: Linguistic variable, range and interpretation for LH

Range	Linguistic Variable	Interpretation
24-80	High LH	Strong helplessness tendencies
70-120	Moderate LH	Balanced attribution patterns
110-144	Low LH	Adaptive coping and control perception

Demographic Predictors

To improve the system, some of the influential parameters as suggested and used in different studies as input to the system to improve predictive capability. Following table represents linguistic set for the demographic variables:

Table 3: Linguistic Variable for Demographic Predictors

Range	**Linguistic Variable**	**Interpretation**	Demographic Variable
0-1	**0 0 0.5: PhD** **0.5 1 1:NonPhD**	Non-PhD faculty exhibit higher stress levels	**Qualification**
0-2	**0 0 1: Professor** **0.5 1 1.5 Assistant Professor** **1 2 2: Associate Professor**	Assistant Professors show the highest vulnerability	**Designation**
0-25	0 8 13: Low 10 14 18: Moderate 17 20 25: High	Loads exceeding 18 hours/week indicate high strain	**Teaching Load**

These variables are encoded into fuzzy sets such as *High Risk*, *Moderate Risk*, and *Low Risk*.

3. Rule Base Construction

The rule base is consisting of expert-driven **IF–THEN rules**, which is drew from experimental findings and theoretical relationships. If we include all the rules, it creates 256 rule for the model. Figure 5 shows the rules created for the model. Figures 2 show the rule base for the model. For example, following rules for all linguistic variables are included

- **Rule 1**: IF Role Erosion is High AND ESS is High, THEN Burnout Risk is Critical
- **Rule 2**: IF Qualification is Non-PhD AND Designation is Assistant Professor, THEN Personal Inadequacy is High
- **Rule 3**: IF Inter-Role Distance is Moderate AND Learned Helplessness is Low, THEN Job Satisfaction is Moderate
- **Rule 4**: IF Role Overload is High AND IGU attribution is High, THEN Performance Decline is Likely

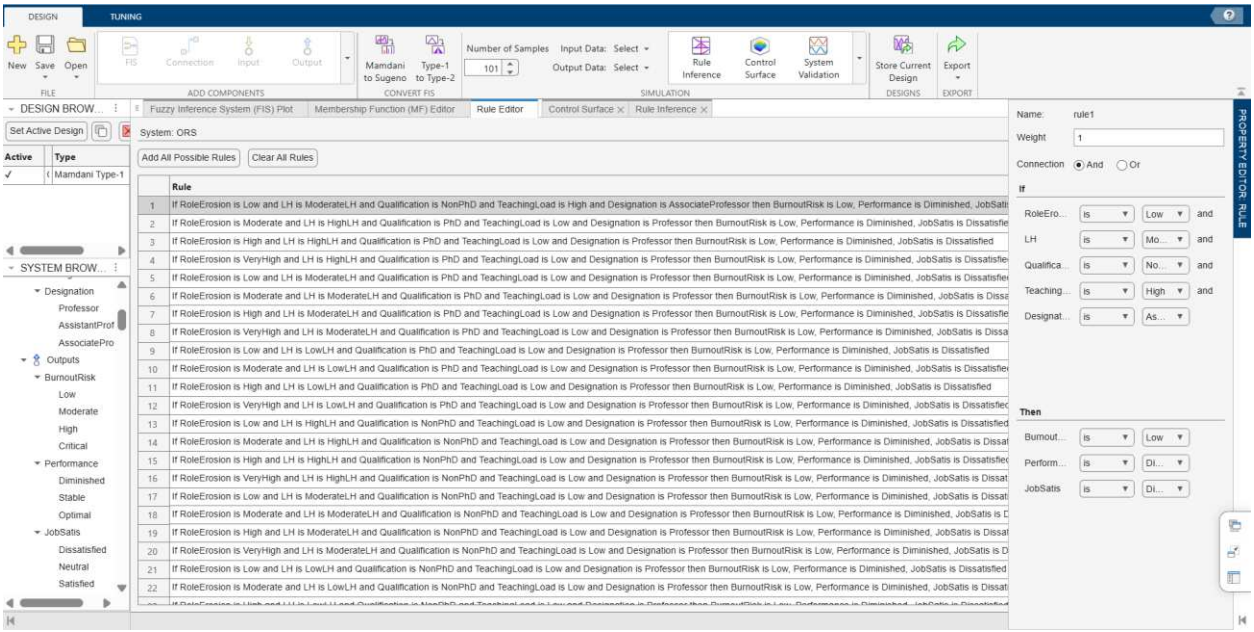


Figure 2: Rule Generated for the model in MATLAB.

Inference Mechanism: Inference mechanism uses AND operator for Minimum function for Aggregation it uses the Maximum function and for the Defuzzification, Centroid method used.

Defuzzification and Output Variables

Fuzzy logic system provides output in the linguistic variables. Following table 4 defines the output variable for the When given input for all the value system will run with the rule base system and given output in the linguistic variable. which defined the state of the educator. Which helps the Human resource or organization to work in that direction. system. The output will define the state of the educator.

The final outputs are obtained through defuzzification (centroid method), producing crisp values for decision-making.

Table 4: Output Linguistic variable, Values and Indicator

Range	**Professional Status Indicators**	**Linguistic Variable**
0-1	**Burnout**	Low, Moderate, High, Critical
0-2	**Job Satisfaction**	Dissatisfied, Neutral, Satisfied

0-25	**Performance Potential**	Diminished, Stable, Optima

The final output is the Burnout Risk Index which indicates the probability of physical or emotional exhaustion. Job Satisfaction Level defines how much the educator has the job satisfaction and the set performance potential defined gives the potential of the educator in above circumstances. Following figure 3 shows the fuzzy model implemented in MATLAB.

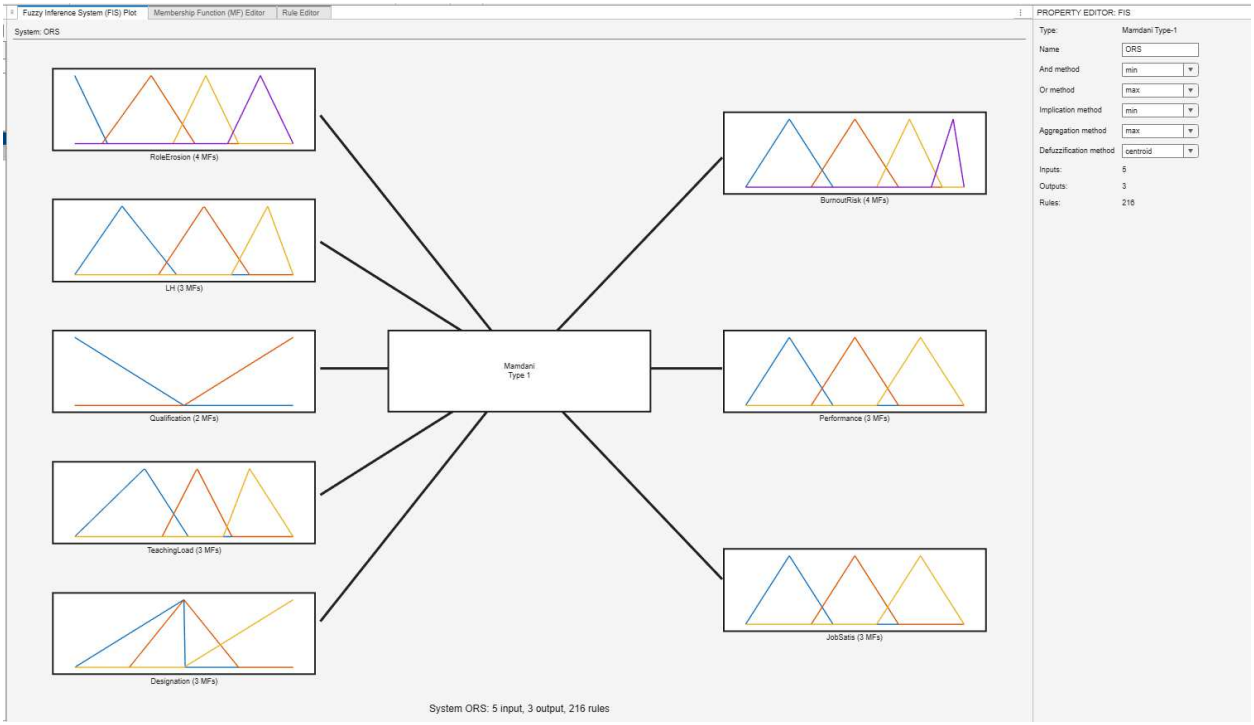
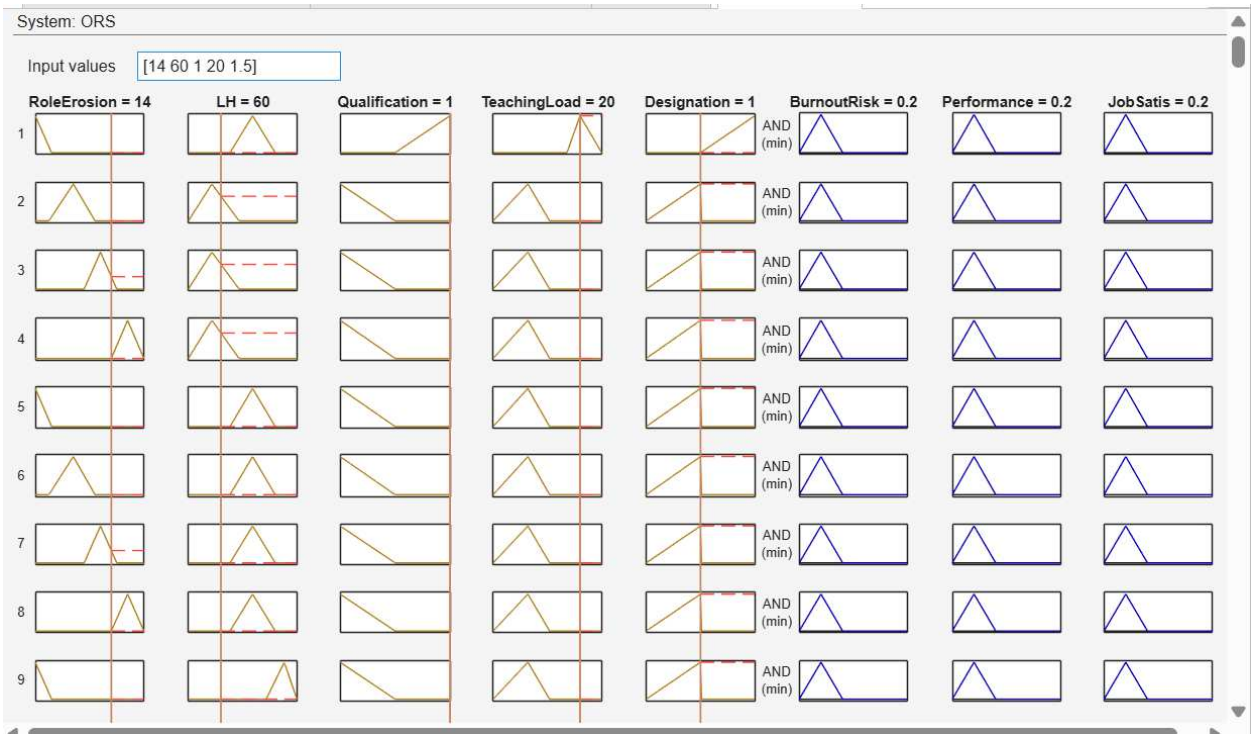


Figure 3: Fuzzy model using MATLAB

Figure 4 defines the output of the fuzzy based system when it runs with the specific input. To run the system, specific value of all input variables is given in the input variable. And it shows the output after the rule-based functions used for the processing. Each out is mapped and discussed at the linguistic variable set for the output. Strategic Intervention Outputs

To enhance the usability of the model, it generates some actionable recommendations on the basis of output. Recommended Support Type can be Attributional Retraining (high LH) , Role Redesign (high role erosion) and Work-Life Balance Support (high inter-role distance)



The figure 4 output for the input value ORS value 14, LH value 60, Non-PhD, Teaching Load 20 Horu per week and for Assistant Professor.

Significance of the Model

The proposed model advances traditional research by giving a predictive model instead of descriptive analysis. Which can predict the state of faculty in organizational environment. It also shows the model with the output value can be used for the Portraying **uncertainty in human behavior**. Which result can be used to bridge the gap between psychological theory and institutional decision-making, making it highly relevant for academic HR management.

Model Evaluation and Output Interpretation

The system implemented through MTALAB system is evaluated for the use of representative values from the data set. For the ORS, ORS = 44.42 and for mean LH = 95.05 considered. The implementation gives the output in three indicators:

Burnout Risk Index: Higher value of burnout risk index shows more stress which can effect there performance at work. **Job Satisfaction Level:** defines the satisfaction of the educator in his/her job, and **Professional Performance Potential**: due to organization and some personal attribute how much potential an educator has for growth of organization. The outputs are normalized in the range [0, 1] and interpreted using predefined fuzzy sets. Some of the cases discuses below, with specific input value will give more insight for the proposed Fuzzy Based AI-based model. Value for the sample are captured from the theoretical model and survey conducted for the model, which giving the nearby description as we found in the theoretical study.

Sample Case Analysis and Discussion

Case 1: High-Risk Faculty Profile

Input Conditions: ORS = 14 (High); LH= 60 (High LH); Qualification = Non-PhD ; Designation = Assistant Professor; Teaching Load = 20 hours/week

FIS Output: Burnout Risk Index = **0.2** (Critical); Job Satisfaction = **0.2** (Dissatisfied); Performance Potential = **0.2** (Diminished)

Discussion:

The output suggested that educator needs from the organization. All output value for evaluation with 0.2 across all indicators shows that **critical well-being condition** of the educator. All out of the models are on critically low values which define server burnout, disengagement and lack of motivation and reduce academic effectiveness. This is likely hampered by high role stress and maladaptive attribution styles. Immediate intervention is required by the organization which may include the workload adjustment and psychological support.

Case 2: Moderate Stability Profile

Input Conditions: ORS = 7 (Moderate); LH = 95 (Moderate LH) ; Qualification = PhD ; Designation = Associate Professor; Teaching Load = 14 hours/week

FIS Output: Burnout Risk Index = **0.52** (Moderate) ; Job Satisfaction = **0.58** (Neutral); Performance Potential = **0.63** (Stable)

Discussion:

This case shows **balanced professional state**, where the educator has moderate stress is offset by

adaptive coping (low LH). Having the required qualification as a PhD qualification and manageable workload reduces vulnerability. The system demonstrates its ability to **moderate risk through compensatory factors**, validating the aggregation mechanism.

Case 3: Low-Risk Optimized Profile

Input Conditions: Role Erosion = 4 (Low); LH = 120 (Low LH) ; Qualification = PhD Designation = Professor; Teaching Load = 10 hours/week

FIS Output: Burnout Risk Index = **0.21** (Low); Job Satisfaction = **0.81** (Satisfied) ; Performance Potential = **0.86** (Optimal)

Discussion:

This case reflects a **high-functioning academic profile**. Low stress levels combined with strong internal control beliefs (low LH) produce optimal outcomes. The model successfully identifies conditions that promote **high satisfaction and performance**, supporting its predictive validity.

Comparative Analysis of Cases

Following table 5 a comparison of the above discussed sample cases, shows the output demonstrates a **clear inverse relationship** between burnout risk and both job satisfaction and performance potential. This aligns with theoretical frameworks in organizational psychology.

Table 5 shows the comparison for all three cases discussed above

Case	Burnout Risk	Job Satisfaction	Performance	Interpretation
Case 1	0.88	0.32	0.41	Critical burnout condition
Case 2	0.52	0.58	0.63	Moderately stable
Case 3	0.21	0.81	0.86	Optimal functioning

Conclusion of Findings for the model proposed

The proposed model output suggests that accurately differentiate between risk levels of faculty members can be provided with the interpretable reasoning through rule the model can serve a

decision support system for the academic administration to enhance the well being of the educator and overall performance of educator and organization. The model intervention system also suggests for the individuals, if an educator has

- **If High Burnout Risk than and Immediate Intervention** is required
- **If it shows High LH the organization should provide the Attributional Retraining Programs**
- **If out shows for an educator High Role Erosion there is a need to Job Redesign**
- **High Inter-Role Distance need to work on Work-Life Balance Support**

The FIS-based model demonstrates strong potential in transforming theoretical models. Psychological and organizational variables from individual and organization parameters can be investigat into a **predictive and actionable framework**. By integrating ORS, LH, and demographic factors, the system provides a **holistic assessment of faculty well-being**, enabling proactive management strategies.

Declaration:
- Competing Interests: NA
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- Research Involving Human and /or Animals: Yes
- Ethical Statement: Informed consent was obtained from all the participants.
- A statement to confirm that all methods were carried out in accordance with relevant guidelines and regulations.
- A statement to confirm that all experimental protocols were approved by a Banasthali Vidyapith
- Informed Consent: Yes
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References

1. Abramson, L. Y., Seligman, M. E. P., & Teasdale, J. D. (1978). Learned helplessness in humans: Critique and reformulation. *Journal of Abnormal Psychology, 87*(1), 49–74.
2. Goyal, S., & Vaz, A. (2024). Model of organizational stress: Inter-linkages with learned helplessness, performance and satisfaction: A comprehensive literature review. *Asian Journal of Management, 15*(2), 99–104. https://doi.org/10.52711/2321-5763.2024.00017
3. Kancheva, M., et al. (2025). The digital pivot: Longitudinal analysis of inter-role distance and role erosion in hybrid academic environments. *Journal of Higher Education Policy and Management, 47*(1), 112–129.
4. Liu, S., & Lee, J. (2025). Predictive analytics in human resources: Using machine learning to identify early markers of learned helplessness in corporate and academic sectors. *International Journal of Information Management Data Insights, 5*(2), 100–118.
5. Mishra, R., & Sharma, P. (2024). Organizational climate and faculty retention in private Indian universities: A post-pandemic perspective. *Management Research Review, 47*(3), 455–472.
6. Ngina, K., et al. (2024). Causal attributions and burnout: A study on the mediating role of professional agency among university educators. *Frontiers in Psychology, 15*, Article 128456.
7. Pareek, U. (1983). *Organizational role stress scale*. Navin Publications.
8. Pareek, U. (1993). *Making organizational roles effective*. Tata McGraw-Hill.
9. Pestonjee, D. M. (1992). *Stress and coping: The Indian experience*. Sage Publications.
10. Reddy, A. V., & Pestonjee, D. M. (1988). *Learned helplessness scale*. Indian Institute of Management.
11. Srivastava, A. K. (1991). A study of role stress–mental health relationship as moderated by operational control and Type A behavior. *Psychological Studies, 36*(3), 192–197.
12. Venkatesh, V., & Singh, A. (2025). Technostress 2.0: The psychological impact of AI integration on traditional academic roles. *MIS Quarterly, 49*(1), 201–225.
13. Justification: "Because traditional surveys are reactive, there is a critical need for predictive AI models that can identify high-risk stress profiles in real-time (Liu & Lee, 2025)."
14. Model Input: Use the "Internal/External" and "Stable/Unstable" attribution scores from your thesis as features for a Random Forest or Neural Network classifier to predict the "Total Role Stress" of a faculty member.