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A Study of Job Demands Resources as Antecedents of Educators Engagement in Universities

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ABSTRACT

The performance of educational institutions is closely linked to the quality of lecturers' work, which is largely influenced by their professionalism and work attitudes, particularly job engagement. High levels of job engagement encourage lecturers to contribute actively and demonstrate sustained dedication in their roles. Drawing on empirical evidence, this study examines the effects of Job Demands (JD) and Job Resources (JR) on lecturers' Job Engagement (JE), while also exploring the moderating role of personal characteristics. **This study adopts** a quantitative approach using regression analysis and a univariate General Linear Model (GLM) to test both direct and interaction effects. **The findings, based on data collected** from 41 lecturers at a private university in Bandung, indicate that job demands negatively affect job engagement, whereas job resources have a positive effect. Furthermore, personal characteristics such as tenure, side job ownership, and cognitive style dimensions (information seeking and worldview) significantly influence the relationship between JD, JR, and JE. **These results** suggest that the dynamics of the Job Demands–Resources (JD-R) model are not universal but vary according to career stage and individual cognitive preferences. Practically, **the study highlights the importance** of adopting adaptive and individualised management strategies in balancing job demands and enhancing job resources to sustain lecturers' engagement and academic performance in higher education contexts.

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1. INTRODUCTION

Education is a fundamental pillar in determining the success of a nation, as national progress is closely linked to the effectiveness of educational institutions in delivering high-quality learning processes [1, 2]. Universities, as formal institutions at the higher education level, play a crucial role in producing graduates equipped with the attitudes, skills, and knowledge required for diverse career paths and industries. The success of university alumni is strongly influenced by the performance and collaboration of all stakeholders, particularly lecturers who serve as mentors, facilitators, and motivators. Their professional responsibility to deliver optimal performance is shaped by both internal and external factors, with work engagement emerging as a key determinant of their effectiveness [3, 4].

In recent years, the transformation of higher education, especially after the pandemic, has significantly

altered the nature of academic work. The rapid integration of digital technologies such as learning management systems, online collaboration tools, and academic information systems has reshaped how lecturers perform their teaching, research, and community service responsibilities [5–7]. From the perspective of the Job Demands–Resources (JD-R) model, this transformation introduces a dual effect: increasing job demands through technological adaptation and intensified workloads, while simultaneously providing job resources such as flexibility, efficiency, and broader collaboration opportunities. Understanding this dynamic interplay is essential to explaining how lecturers' work engagement is formed in the digital era [8, 9].

A comprehensive framework for examining how job demands and resources affect employee engagement and well-being is provided by the JD-R model [10]. If job demands like workload, time constraints, and role conflict are not well managed, they can lead to fatigue. Job resources serve as motivators, helping people accomplish work goals and promote personal development. Examples of these resources include organizational support, autonomy, feedback, and development chances. According to this paradigm, job resources boost motivation, while workplace demands are the main cause of fatigue. Both aspects are important in defining lecturers' work engagement [11].

This theoretical framework serves as the basis for the study's investigation of how job demands and resources effect lecturers' work engagement, accounting for the influence of individual characteristics such as age, tenure, and employment status [12, 13]. Changes in these characteristics may affect how lecturers view, respond to, and utilize the resources that are accessible.

Therefore, this research formulates three main hypotheses:

- Job demands negatively affect work engagement.
- Job resources positively influence work engagement.
- Personal characteristics moderate the relationship between job demands, job resources, and work engagement.

Through this approach, the study contributes to the development of the JD-R model and supports adaptive, evidence-based HR policies. It also aligns with the Sustainable Development Goals (SDGs), particularly SDG 4 and SDG 8, by highlighting the role of lecturers' job engagement in improving educational quality, staff well-being, and sustainable workforce productivity.

Presentation of the research model. This is through Figure 1 below.

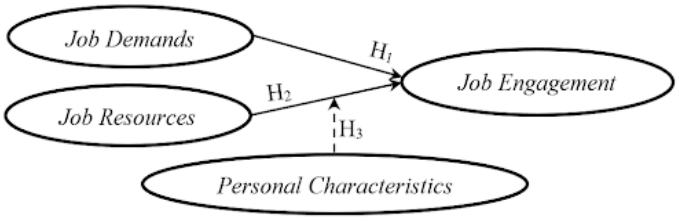

Figure 1. Research model

The conceptual model employed in the study is depicted in the above picture, which highlights the connections between JD, JR, JE, and Personal Characteristics. It implies that Job Resources and Job Demands have a direct impact on Job Engagement (H1 and H2) [14, 15]. Furthermore, the link between job demands and job resources on job engagement (H3) [16] may be moderated by personal characteristics like work experience and cognitive style. In a university setting, this model emphasizes the significance of both individual characteristics and work environment elements (demands and resources) in determining job engagement among educators [17, 18].

2. RESEARCH METHODOLOGY

This study employs a quantitative, causal explanatory approach to examine job engagement as influenced by job demands and job resources, with personal characteristics as an additional factor. Using simple random sampling, 41 respondents were selected, meeting the minimum sample size requirement for multiple

regression analysis. Data were collected through literature review and digital questionnaires, with all variables measured using established instruments demonstrating high reliability (Cronbach's alpha ranging from 0.771 to 0.942) [19].

Hypothesis testing was conducted using linear regression to examine the first and second hypotheses, while a univariate General Linear Model (GLM) was applied to test the third hypothesis, particularly the interaction between variables. The analysis process was supported by SPSS to ensure systematic and accurate data processing, and the results include respondent profiles, instrument testing, and hypothesis testing within the JD-R model framework [20, 21].

3. RESULTS AND DISCUSSION

The research team attempted to reach target respondents, who were dedicated lecturers at a private university in Bandung. Consequently, data were collected from 41 respondents, representing all six faculties within the institution.

Furthermore, the data collection process considered respondents' diverse characteristics to ensure representativeness. Thus, the analysis provides deeper insights into lecturers' dynamics [22, 23]. A summary of respondent profiles is shown in Table 1 [24, 25], illustrating variations in age, tenure, education, and academic roles, which offer important context for interpreting patterns, identifying trends, and strengthening the robustness and credibility of the study's empirical findings, particularly in explaining differences across individual and professional background dimensions.

Table 1. Recapitulation of Research Respondent Profiles

Profile	**Absolute Number (of People)**	**Relative Amount (%)**
Gender		
Women	12	29.3
Male	29	70.7
Age		
31-40 years	10	24.4
>40-50 years	24	58.5
>50-60 years	5	12.2
>60 years	2	4.9
Status		
Bachelor	9	21.9
Married	30	73.2
Widowed	2	4.9
Number of children		
None	15	36.6
1 child	13	31.7
2 children	5	12.2
>2 people	8	19.5
Highest Education		
S2 (Master)	30	73.2
S3 (Doctor)	11	26.8
Functional Position		
Member Assistant	13	31.7
Lecturer	23	56.1
Associate Professor	5	12.2
Faculty		
Medicine	4	9.8
Intelligent Technology and Engineering	1	2.4
Humanities and Creative Industries	2	4.9
Psychology	1	2.4
Digital Law and Business	30	73.2
Dentistry	3	7

Most lecturers are male, 40–50, married, hold a master's degree, have 20+ years of experience, prefer

Profile	Absolute Number (of People)	Relative Amount (%)
Working Years		
≤ 5	1	2.4
>5-10	7	17.1
>10-15	5	12.2
>15-20	7	17.1
>20	21	51.2
Ownership of a Side Job/Business		
No	26	63.4
Yes	15	36.6
Professional Idealism as a Lecturer		
Doubtful	7	17.1
Have	34	82.9
Commitment to the Teaching Profession		
Doubtful	5	12.2
Have	36	87.8
Personality		
Angry	5	12.2
Blood	10	24.4
Phlegmatic	14	34.1
Melancholy	12	29.3
Energy Sources		
Introvert	28	68.3
Extrovert	13	31.7
Information search		
Sensing	31	75.6
Intuiting	10	24.4
Decision making		
Thinking	31	75.6
Feeling	10	24.4
How to see the world		
Judging	20	48.8
Perceiving	21	51.2
PBM system preferences		
Offline	22	53.7
Online	2	4.9
Hybrid	17	41.4

offline teaching, and tend to be introverted with phlegmatic or melancholic traits [26]. The following presents the test results related to the eligibility of this research instrument, as shown in Table 2 below [27].

Table 2. Results of Validity and Reliability Testing

Variable (items)	Corrected Correlation item and Total	Cronbach's alpha
Job demands (3 items)	0.713-0,835	0.878
Job resources (12 items)	0.481-0,852	0.923
Job engagement		
Dedication (5 items)	0.791-0,866	0.936
Concentration (4 items)	0.747-0,834	0.912
Vigor (4 items)	0.723-0,857	0.897

Through Pearson correlation testing between each item and the total items, all the main variables of this research, which include a total of 28 items, the indicators, were tested to have good validity, with a minimum correlation value of 0.481 and a significance value of 0.000. All the main variables in this study were tested to have good reliability, with a Cronbach's coefficient of fit [28–30]. The minimum value is 0.878 [31]. The following is a summary of the data testing results (classical assumption test) from this research in Table 3.

Table 3. Classical Assumption Test Results

Test	**Statistic Value**	**Interpretation**
Kolmogorov-Smirnov Test	0.813	Data is normally distributed
Tolerance	0.579	No multicollinearity
VIF	1.728	No multicollinearity
Significance of Residuals	0.118; 0.483	No heteroscedasticity

Using the Kolmogorov–Smirnov Test (p-value) technique, it can be stated that this research data meets the assumption of normality with a significance value of 0.813 (far exceeding 0.05) [32]. The tolerance value is 0.579 (far exceeding 0.1), and the VIF value is 1.728 (far below 10), indicating that this research data is free from the assumption of multicollinearity. The significance values of the absolute regression residuals are 0.118 and 0.483 (all exceeding 0.05), so it can be accepted that this research data is free from the assumption of heteroscedasticity [33].

The results of testing the first and second hypotheses of this research, which were carried out through regression analysis, are presented below. The detailed results are summarised in Table 4.

Table 4. Results Regression Analysis

Testing	**Mark coefficient**	**Mark significance**
Job demands → Job engagement	-0.182	0.034
Job resources → Job engagement	0.309	0.032

Based on the table above, this research data has proven that the first and second hypotheses are both proven to be true (as seen from the respective significance values of 0.034 and 0.032, all below 0.05) with a negative direction (for job demands) and a positive direction (for job resources) [34]. Thus, job engagement of the lecturers (at a related campus) is negatively affected by job demand and is positively affected by job resources. The magnitude of the impact of JD-R on job engagement is worth 17.8%, with the impact of external factors worth 82.8% [35, 36].

The results of testing the third hypothesis of this research, which was carried out through analysis of univariate GLM, are presented below. The detailed statistical outcomes are summarised in Table 5.

Table 5. Results Univariate GLM Analysis

Personal characteristics	JD→JE	JR→JE	Significant subcategories (estimates)
Gender	0.087	0.127	
Age	0.770	0.487	
Marital status	0.456	0.694	
Number of children	0.482	0.428	
Education	0.508	0.633	
Functional position	0.310	0.235	
Faculty	0.365	0.435	
Working hours	0.008	0.016	>20 years (JD)→IS): b = -0.354; p = 0.008
Side business/job	0.009	0.035	No (JD)→IS): b = -0.260;p = 0.024
Professional idealism	0.651	0.646	
Professional commitment	0.688	0.510	
DISC Personality	0.296	0.458	
MBTI Attributes (Energy Source)	0.291	0.562	
MBTI Attributes (Information Seeking)	0.001	0.009	Intuiting (JD→JE): b = 0.278; p = 0.033 sensing (JR→JE): b = 0.412; p = 0.013
MBTI Attributes (Decision Making)	0.067	0.102	
MBTI Attributes (Worldview)	0.043	0.151	
PBM system preferences	0.072	0.061	

The results of the univariate GLM analysis indicate that most personal characteristics (gender, age, marital status, number of children, education, functional position, faculty, professional commitment, DISC and MBTI personality, and learning preferences) do not moderate the relationship between JD, JR, and JE [37, 38]. This suggests that the influence of JD and JR on engagement is relatively consistent across individuals. How-

ever, several variables show significant effects, including tenure, side job ownership, and certain personality dimensions (sensing, intuiting and judging–perceiving) [39]. Lecturers with more than 20 years of experience show a stronger negative effect of JD on engagement, while individuals with an intuitive type tend to perceive JD positively as a challenge. In addition, lecturers without side jobs are more vulnerable to the negative impact of JD [40, 41].

The lecturer profile is dominated by experienced individuals with high professional commitment and idealism, which can be categorised as personal resources within the JD-R framework [42, 43]. This condition strengthens the motivational pathway rather than the strain pathway, indicating that increasing JR is more effective than merely reducing JD. Personality tendencies toward introvert, sensing, and thinking suggest that structural support, such as clear policies and consistent systems, plays a crucial role in enhancing engagement [44, 45].

Descriptively, lecturers perceive JD as relatively high (related to workload and rapid changes), while JR is relatively low (related to communication, fairness, and management systems). Therefore, institutions should implement better job design, flexible work systems, and improved communication and governance to support engagement [46, 47].

Overall, this study confirms that JD negatively affects engagement while JR has a positive effect, consistent with the JD-R model. However, these relationships are more influenced by work experience and cognitive style than by demographic factors [48, 49]. This study extends the JD-R framework by demonstrating that the perception of job demands as either a burden or a challenge depends on individual characteristics. Practically, organisations should adopt adaptive strategies in managing JD and JR to enhance employee engagement and long-term performance [50, 51].

4. MANAGERIAL IMPLICATIONS

Based on the findings of this study, several important managerial implications can be drawn for higher education institutions, particularly in managing lecturers' performance and engagement.

First, universities need to balance job demands and job resources more effectively. Since job demands harm job engagement, management should carefully monitor workload distribution, administrative burdens, and time pressures. Implementing flexible work arrangements, reducing unnecessary bureaucracy, and optimising task allocation can help minimise excessive strain on lecturers.

Second, institutions should strengthen job resources as a primary strategy to enhance engagement. The study shows that job resources such as organisational support, autonomy, constructive feedback, and professional development opportunities play a significant positive role. Therefore, universities should invest in supportive leadership, transparent communication systems, fair policies, and continuous training programs to foster motivation and productivity.

Third, management should adopt a personalised or adaptive HR approach. The results indicate that personal characteristics such as tenure, side job ownership, and cognitive style moderate the relationship between job demands, job resources, and engagement. For example, senior lecturers (with longer tenure) are more sensitive to job demands, while individuals with certain cognitive styles may perceive demands differently. This implies that a "one-size-fits-all" policy is ineffective; instead, institutions should tailor workload, support systems, and career development programs based on individual profiles.

Fourth, universities should reframe job demands as challenges rather than burdens. By providing adequate support and a positive work environment, management can help lecturers perceive high demands as opportunities for growth and achievement, rather than sources of stress. This can be achieved through mentoring systems, collaborative culture, and recognition programs.

Fifth, improving organisational systems and governance is essential. The study highlights that lecturers perceive job resources as relatively low, especially in terms of communication, fairness, and management systems. Therefore, institutions should enhance governance quality by ensuring clarity in policies, consistency in decision-making, and fairness in performance evaluation.

Finally, institutions should focus on long-term engagement sustainability by integrating job design with career development. Applying principles such as person–job fit and differentiated workload based on career stages can help maintain engagement over time, especially for experienced lecturers who are more vulnerable to increasing demands.

5. CONCLUSION

This study confirms that JD and JR are key determinants of lecturers' job engagement. Higher job demands tend to reduce engagement, while the availability of job resources consistently enhances it. These findings align with the JD-R framework, which explains that excessive demands may trigger a strain process when not balanced with sufficient resources, whereas resources act as drivers of motivation. Therefore, maintaining a balance between managing demands and strengthening resources is essential for sustaining lecturer engagement in higher education. This study contributes to the JD-R model and supports adaptive HR strategies in higher education. It also aligns with the Sustainable Development Goals (SDGs), particularly SDG 4 and SDG 8, by emphasising the role of lecturers' engagement in enhancing educational quality, well-being, and sustainable workforce productivity. Universities should adopt adaptive and contextual strategies, such as differentiating workload based on career phase and applying person-job fit principles, to optimise the positive impact of JD and JR, particularly for lecturers with long tenure who are more sensitive to increasing demands.

Despite these contributions, this study has several limitations. The use of a cross-sectional design restricts the interpretation of relationships to associative rather than causal. Additionally, the application of linear regression and General Linear Model (GLM) techniques limits the ability to capture more complex structural relationships, such as mediation or reciprocal effects. The reliance on self-report instruments may also introduce perception bias and common method bias. Furthermore, the study context is limited to lecturers within a specific institution, which may affect the generalizability of the findings to other educational settings or sectors.

Future research is encouraged to adopt longitudinal or time-lagged designs to better capture the dynamic and causal relationships between JD, JR, personal characteristics, and engagement over time. More advanced analytical approaches, such as Structural Equation Modelling (SEM) or Partial Least Squares (PLS-SEM), could provide deeper insights into the structural mechanisms underlying the JD-R model. Additionally, incorporating multi source data, such as supervisor evaluations, peer assessments, or objective performance metrics, can improve the validity of findings. Expanding research contexts and integrating additional psychological variables, such as psychological capital, coping strategies, and the meaning of work, would further enrich the understanding of how individuals process job demands and resources in shaping engagement.

6. DECLARATIONS

6.1. About Authors

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6.2. Author Contributions

Conceptualisation: RS and KK; Methodology: AA; Software: AA and RS; Validation: RS and KK; Formal Analysis: KK and AA; Investigation: AA; Resources: RS; Data Curation: AA; Writing Original Draft Preparation: KK and RS; Writing Review and Editing: AA and KK; Visualisation: AA. All authors, RS, KK, and AA, have read and agreed to the published version of the manuscript.

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