

Application of the Job Demands-Resources Model to Understand the Mechanism of Job Rotation as a Predictor of Innovative Work Behavior

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Abstract

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Based on the Job Demands-Resources model (Bakker & Demerouti, 2007), we conducted an empirical study on how job rotation mechanisms in the form of Employee-Initiated Job Rotation (IRO), Management-Decision-Based Job Rotation (MRO), and No Job Rotation (TRP) impact work attitudes in the form of work engagement, job tension, job satisfaction, organizational commitment, and innovative work behavior. Data collection was conducted through an online survey distributed via Microsoft Form to employees at the Ministry of Finance. There were 1,151 questionnaires analyzed using Structural Equation Modeling (SEM) to test the research hypotheses. The results of this study indicate that job engagement, job satisfaction, and organizational commitment sequentially positively mediate the influence of IRO and MRO on innovative work behavior. At the same time, job tension, job satisfaction, and organizational commitment sequentially negatively mediate the influence of TRP on innovative work behavior.

INTRODUCTION

Strategy is a coordinated set of actions to outperform competitors and achieve superior profitability (Thompson et al., 2022). In government, strategy refers to coordinated actions by leaders to achieve organizational goals effectively and efficiently, while benefiting society. Key functional strategies, such as human resource (HR) strategies, are crucial in bridging organizational strategy with day-to-day operations. HR must understand the organization's vision, mission, and goals, and then articulate the HR needs to achieve those goals. Appropriate HR management practices can improve an organization's technological performance and innovation (Demirkaya et al., 2011).

Innovative work behavior or Innovative Work Behavior Innovative work practices are crucial for the sustainability of government organizations, especially in the face of rapid technological developments (Khan et al., 2023). Governments that adopt innovative approaches can produce adaptive and progressive regulations. High-involvement work practices, which include policies to improve workforce quality through the sharing of power, knowledge, information, and rewards, significantly influence innovative work behavior (Li et al., 2022). Job designs such as job rotation allow employees to learn and engage in various task areas (Xu and Wei, 2023).

Job rotation is recognized as a talent development practice that can provide significant benefits to employees. Several studies highlight that job rotation can enhance skill development and improve employee job satisfaction (Dawal et al., 2009; Santos et al., 2017; Jackson et al., 2023). However, some literature also draws attention to the negative impacts of job rotation, suggesting that excessive job rotation can lead to role confusion and decreased employee performance (Fægri et al., 2010; Hakenes and Katolnik, 2017; Santos et al., 2017; Foroutan et al., 2021).

Implementing job rotation is expected to encourage innovative work behavior by increasing work engagement, job satisfaction, and organizational commitment (Dawal et al., 2009; Ho et al., 2009; Santos et al., 2017). These factors are expected to foster creativity and innovation, resulting in the development of new products, services, and processes that improve the efficiency and effectiveness of supervision and service delivery. Measuring the impact of job rotation on human resources is crucial, particularly in enhancing innovative work behavior through work engagement, job tension, job satisfaction, and organizational commitment. This study can assess the influence of job rotation on organizational dynamics. The job demands-resources model (Job Demands-Resources model) emphasizes that job demands and resources can influence employee well-being and performance (Bakker and Demerouti, 2007).

This research fills some gaps in previous studies. First, the job rotation mechanism at the Ministry of Finance varies across echelon I units. Some units routinely rotate jobs and others rarely do so. Initial interviews revealed differing perceptions of the implementation of this rotation. Furthermore, the programInternal Job Vacancy(IJV) provides employees with autonomy to choose positions based on their interests and talents. Some units also map employee interests and talents to consider job rotation. Empirical research is needed to measure the effect of job rotation on innovative work behavior through employee motivation in the JDR model.

Second, theory of conservation of resources/conservation of resources(COR) by Hobfoll and Shirom (2001) states that existing resources can generate additional resources. Autonomy, as a valuable job resource, has a positive impact on individual behavior. Research by Theurer et al. (2018) shows that all dimensions of autonomy influence employees' innovative work behavior. Theurer et al. (2022) also emphasize the importance of considering the complexity and multidimensionality of autonomy in future studies.

Third, there are inconsistencies in the literature regarding the impact of job rotation on work engagement, job strain, job satisfaction, and organizational commitment. This study aims to address this gap by analyzing the influence of various job rotation mechanisms on innovative work behavior.

METHODS

This study uses a quantitative approach, emphasizing statistical data analysis to evaluate the quantity, frequency, and magnitude of the observed phenomena. The data used in this study are primary data obtained through a survey of a sample of Ministry of Finance employees. The unit of analysis is the individual level, and the data are descriptive.cross-sectional. Sampling was carried out in an non-probability, which means that not every member of the population has an equal chance of being selected as a sample.convenience sampling used to select research samples, where samples are selected based on ease of access or availability. Researchers take samples from the most easily accessible part of the population (Schindler and Cooper, 2019).

Research hypothesis testing is carried out using an approach Structural Equation Modeling (SEM) based Partial Least Square (PLS). This takes into account the SEM selection criteria presented by Hair et al. (2011) and the exploratory nature of the research with the aim of predicting how job rotation mechanisms in the form of RPI, RPM, and TRP impact work attitudes in the form of work engagement, job tension, job satisfaction, and organizational commitment and innovative work behavior.

RESULTS AND DISCUSSION

Bakker and Demerouti (2023) emphasized that job resources enhance work engagement, especially when job demands are high. This suggests that providing employees with adequate resources, such as through job rotation that offers diverse experiences and challenges, can enhance their work engagement. On the other hand, without job rotation, employees may become trapped in a monotonous routine and repeatedly perform the same tasks (Ortega, 2001). A lack of variety in the tasks they perform can lead to frustration and boredom, which in turn can increase levels of stress and job tension, ultimately lowering job satisfaction.

In this study, the job rotation mechanism is divided into 3 (three), namely:

1. Job Rotation Based on Employee Initiative (RPI), where there is employee involvement in the job rotation implementation process, such as mapping interests and talents as employee input which will later be used as parameters by management in applying job rotation.
2. Job Rotation Based on Management Decision (RPM), which is a job rotation mechanism where its implementation is determined by the leadership or management.
3. No Job Rotation (TRP), which is a situation where there is almost no job rotation mechanism.

Job rotation can be a resource if employees feel they are given the opportunity to develop new skills, increase flexibility, and broaden their experience (Alkaabi et al., 2023). Job rotation and job rotation are expected to increase work engagement. In addition to the opportunity to develop new skills, employees involved in job rotation tend to feel supported by the organization in their career development efforts (De Lange et al., 2010). On the other hand, employees who experience job stagnation, or who experience no

changes in duties or responsibilities for an extended period, tend to experience higher levels of job strain (Schneider et al., 2017).

Higher levels of work engagement will help create greater job satisfaction (Saks, 2006). Meanwhile, job strain is a negative affective state that drains resources and is therefore negatively related to job satisfaction (Zivnuska et al., 2002).

Nasution et al. (2019) explored the mediating role of job satisfaction in the relationship between compensation and organizational commitment, showing that increasing job satisfaction can lead to increased commitment among employees. Wahyuni et al. (2021) conducted research on the mediating role of organizational learning in the relationship between organizational commitment and innovative behavior, finding that organizational commitment positively influences innovative behavior. Bysted (2013) in his research showed that job satisfaction plays a crucial role in creating a work environment that supports innovation. A work environment that facilitates innovation ultimately contributes significantly to organizational success. Based on this theoretical foundation, 14 hypotheses are proposed, namely:

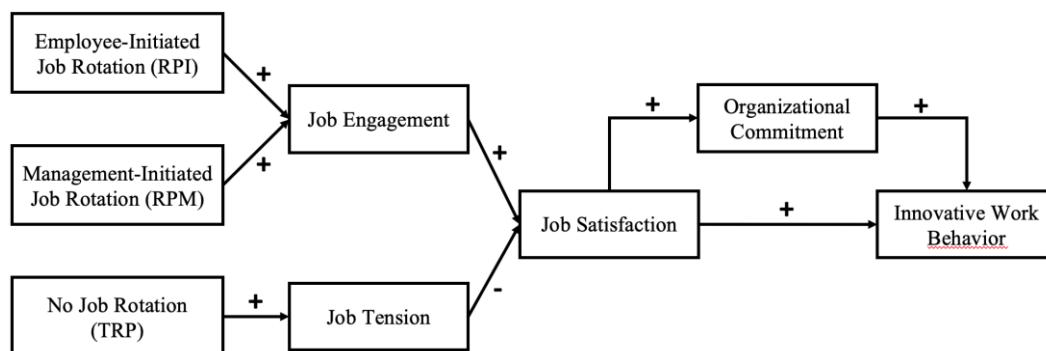
Table 1 Research Hypothesis

No.	Code	Hypothesis
1	H1a	RPI has a positive effect on work engagement.
2	H1b	RPM has a positive effect on work engagement.
3	H2	TRP has a positive effect on job stress.
4	H3a	Work engagement has a positive effect on job satisfaction.
5	H3b	Job stress has a negative effect on job satisfaction.
6	H4	Job satisfaction has a positive effect on organizational commitment.
7	H5	Job satisfaction has a positive influence on innovative work behavior.
8	H6	Organizational commitment has a positive influence on innovative work behavior.

9	H7a	Work engagement and job satisfaction sequentially mediate the positive influence of RPI on innovative work behavior.
10	H7b	Work engagement, job satisfaction and organizational commitment sequentially mediate the positive influence of RPI on innovative work behavior.
11	H7c	Work engagement and job satisfaction sequentially mediate the positive influence of RPM on innovative work behavior.
12	H7d	Work engagement, job satisfaction and organizational commitment sequentially mediate the positive influence of RPM on innovative work behavior.
13	H8a	Job tension and job satisfaction sequentially mediate the negative influence of TRP on innovative work behavior.
14	H8b	Job tension, job satisfaction and organizational commitment mediate sequentially the negative influence of TRP on innovative work behavior.

The main focus of this study is to understand the complex relationships between various factors that influence innovative work behavior in the workplace. This research model identifies eight variables that play a significant role in organizational dynamics. Innovative work behavior, as the dependent variable, represents the ultimate goal to be achieved, while three types of job rotation—RPI, RPM, and TRP—are considered independent variables influencing this behavior.

Figure 1. Research Model



DISCUSSION

From the questionnaire distribution, 1,151 respondents participated out of a total of 77,722 employees (data as of May 1, 2024). Of these 1,151 respondents, 67 did not meet the specified criteria. Therefore, the final number of respondents available for analysis in this study was 1,084. Before conducting

the hypothesis testing, both direct and indirect effects, validity and reliability tests were conducted on the instruments, variables, and research model.

Based on the results of the direct effect hypothesis testing as listed in Table 2, all direct effect hypotheses in this study were supported. This indicates that job rotation (RPI and RPM) has a direct positive effect on work engagement. Conversely, TRP has a direct positive effect on job tension.

Table 2 Testing the Direct Effect Hypothesis

	Hypothesis	Path Coefficient	<i>P-</i> values	95% Confidence Interval		<i>F</i>
				Lower Limit	Upper Limit	
H1a	Job Rotation Based on Employee Initiative -> Job Engagement	0,191	0,000	0,124	0,260	0,042
H1b	Job Rotation Based on Management Decision -> Job Engagement	0,323	0,000	0,261	0,384	0,121
H2	No Job Rotation -> Job Tension	0,302	0,000	0,240	0,363	0,101
H3a	Job Engagement -> Job Satisfaction	0,630	0,000	0,568	0,687	0,669
H3b	Job Stress -> Job Satisfaction	-0,151	0,000	-0,206	-0,100	0,038
H4	Job Satisfaction -> Organizational Commitment	0,547	0,000	0,492	0,600	0,426
H5	Job Satisfaction -> Innovative work behavior	0,196	0,000	0,121	0,276	0,032
H6	Organizational Commitment -> Innovative work behavior	0,246	0,000	0,173	0,317	0,050

Source: Data processed by SmartPLS 4

The support for all indirect effect hypotheses as listed in Table 3 indicates that job rotation (RPI and RPM) has a positive indirect effect on innovative work behavior. Conversely, TRP has a negative indirect effect on innovative work behavior. Therefore, policymakers at the Ministry of Finance need to design and implement a structured job rotation program to increase employee engagement, which will ultimately impact innovative work behavior.

Table 3 Testing the Indirect Effect Hypothesis

	Hypothesis	Path Coefficient	<i>p- values</i>	95% Confidence Interval	
				Lower Limit	Upper Limit
H7a	Job Rotation Based on Employee Initiative -> Job Engagement -> Job Satisfaction -> Innovative Work Behavior	0,024	0,000	0,013	0,037
H7b	Job Rotation Based on Employee Initiative -> Job Engagement -> Job Satisfaction -> Organizational Commitment -> Innovative Work Behavior	0,016	0,000	0,009	0,026
H7c	Job Rotation Based on Management Decision -> Job Engagement -> Job Satisfaction -> Innovative work behavior	0,040	0,000	0,022	0,061
H7d	Job Rotation Based on Management Decision -> Job Engagement -> Job Satisfaction -> Organizational Commitment -> Innovative Work Behavior	0,027	0,000	0,018	0,039
H8a	No Job Rotation -> Job Tension -> Job Satisfaction -> Innovative Work Behavior	-0,009	0,001	-0,015	-0,005

H8b	No Job Rotation -> Job Tension -> Job Satisfaction -> Organizational Commitment -> Innovative Work Behavior	-0,006	0,000	-0,010	-0,003
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Source: Data processed by SmartPLS 4

Hair et al. (2019) explain that PLS is a form of SEM analysis aimed at prediction. Therefore, it is necessary to develop a model validation measure that can indicate the predictive power of the proposed model. *PLS predict* used as a form of validation to test the predictive power of PLS. Based on the results of processing 20 observations of the value *Mean Absolute Error* (MAE), 9 measurement items of the PLS model produced a lower MAE than the LM model (linear regression). This indicates that the proposed PLS model has low predictive power.

In structural models, Sarstedt et al. (2019) suggest that researchers consider the potential effects of linearity, endogeneity, and unobserved heterogeneity. Considering the results of previous studies, which found inconsistencies in the effects of job rotation, both the positive impact of job rotation from De Lange et al. (2010) and the negative impact of job rotation from Foroutan et al. (2021), a linearity test was conducted to determine whether the analysis results had been interpreted correctly. The results of the linearity test revealed nonlinear effects, namely:

1. RPM on work engagement;
2. TRP against work stress;
3. Job stress on job satisfaction;
4. Job satisfaction towards organizational commitment; and
5. Organizational commitment to innovative work behavior.

Based on the results of the heterogeneity test using FIMIX-PLS, there are indications of segmentation in the observational data. This segmentation resulted in two large groups: a group with a low level of job satisfaction consisting of 693 samples (59.4%) and a group with a high level of job satisfaction consisting of 481 samples (40.6%). After segmentation, hypothesis testing was conducted again and found that the path coefficient of the influence of job rotation on work engagement in the group with high job satisfaction was higher than the group with low job satisfaction. Conversely, the path coefficient of the influence of TRP on work tension in the group with low job satisfaction was higher than the group with high job satisfaction. In addition, the results of the hypothesis test based on FIMIX-PLS segmentation showed consistent results, namely that job rotation, both RPI and RPM, were shown to increase work engagement, while TRP was shown to increase work tension.

CONCLUSION

This study yields several important conclusions regarding the impact of job rotation on various aspects of employee performance and behavior. First, it was found that Employee-Initiated Job Rotation (EIP) and Management-Decided Job Rotation (MRP) have a positive influence on employee engagement. This indicates that both employee-initiated and management-decided job rotations can increase employee engagement in their work. Conversely, employees who do not experience job rotation (TRP) tend to experience increased job strain, which negatively impacts their well-being.

Furthermore, work engagement has been shown to have a positive effect on job satisfaction, while job strain has a negative effect. This indicates that a supportive and stress-reducing work environment can improve employee job satisfaction. Job satisfaction itself has a positive impact on organizational commitment and innovative work behavior, underscoring the importance of ensuring employee satisfaction with their jobs to enhance commitment and innovation within the organization.

This study also highlights the mediating role of job engagement, job satisfaction, and organizational commitment in the relationship between job rotation and innovative work behavior. Job engagement, job satisfaction, and organizational commitment positively mediate the sequential effect of RPI and RPM on innovative work behavior. On the other hand, job strain, job satisfaction, and organizational commitment negatively mediate the effect of TRP on innovative work behavior.

This study highlights the importance of job rotation in creating a work environment that supports innovation. Appropriate job rotation can sequentially increase work engagement, job satisfaction, and organizational commitment, ultimately driving innovative work behavior. Conversely, a lack of job rotation can increase job strain, decrease job satisfaction and organizational commitment, and hinder innovation. This sequential mediation effect suggests that interventions that improve one aspect can have positive or negative impacts that extend through a chain of mediating factors, which is crucial to consider in the design of organizational policies and practices.

The results of this study provide a number of important practical implications for the Ministry of Finance in formulating job rotation mechanism policies, including:

1. The support for all hypotheses in this study indicates that job rotation (RPI and RPM) has a direct positive effect on work engagement and an indirect positive effect on innovative work behavior. Conversely, TRP has a direct positive effect on work tension and an indirect negative effect on innovative work behavior. Therefore, policymakers at the Ministry of Finance need to design and implement a structured job rotation program to improve employee work engagement, which will ultimately impact innovative work behavior.
2. The segmentation in the observational data indicates differences in the influence of variables on each group. Therefore, policymakers at the Ministry of Finance need to adopt a job rotation mechanism with an approach tailored to each group.

The results of this study also provide a number of important academic implications, including:

1. The findings of this study are expected to enrich and strengthen the existing literature, particularly regarding the influence of job rotation mechanisms on work engagement and work tension as well as the role of work engagement, work tension, job satisfaction and organizational commitment as mediators of the sequential influence of job rotation mechanisms on innovative work behavior.
2. This research is expected to be a reference for further research that will examine the existence of non-linear relationships and segmentation in the influence of job rotation mechanisms on work engagement and tension, which will ultimately influence innovative work behavior.

This research still has several limitations that need to be considered for further research, including:

1. The research was conducted by generalizing respondents at the Ministry of Finance so that it did not consider other factors outside the research variables, such as gender, age group, unit structure and other factors that might influence the relationship between variables.
2. The distribution of questionnaires in this study was carried out online where respondents filled out the questionnaire themselves (*self-administered*) according to each person's understanding. This has the potential to cause response bias that may occur due to a lack of attention or understanding of the questions asked in the questionnaire.
3. Data collection in this study was carried out *cross sectional*, namely by distributing questionnaires at a specific point in time. This limits the ability to draw conclusions about causal relationships between variables (Wang and Cheng, 2020).

The suggestions from this research include:

1. For the Ministry of Finance
 - 1) Considering that the research results show that job rotation based on both employee initiative (RPI) and management decision (RPM) has a positive influence on work engagement, it is recommended that policy makers at the Ministry of Finance expand the implementation of regular job rotation in all echelon I units. This will help improve employee work engagement across all units.
 - 2) Because the RPM has a higher influence on work engagement than the RPI, it is recommended that policymakers at the Ministry of Finance be more proactive in planning and managing job rotation, ensuring that every employee has the opportunity to move between roles and responsibilities fairly and equitably. Management-managed rotation can ensure that it is strategically implemented and aligned with the organization's needs.
 - 3) Initial interviews indicated that some senior employees were reluctant to participate in job rotation. Therefore, policymakers at the Ministry of Finance are advised to consider employee age

and experience when designing job rotation programs. A more flexible program, perhaps offering specific training or adaptation options for senior employees, could help reduce resistance and ensure they remain engaged and productive.

4) Although RPI has a lower impact on work engagement than RPM, providing employees with a certain amount of autonomy remains important. Employees who feel they have control over their careers tend to be more motivated. Therefore, policymakers at the Ministry of Finance need to consider employee preferences in the rotation process to strike a balance between organizational needs and employee desires.

2. For Further Research

- 1) To address the research limitations related to generalizability of respondents within the Ministry of Finance, future research could include moderating variables such as age, gender, organizational structure, education level, and length of service. These additional variables are expected to aid in understanding causal relationships, particularly the influence of job rotation mechanisms on other, more complex variables.
- 2) To overcome the limitations of filling out the questionnaire *online self-administered*, Apart from processing data quantitatively, it is necessary to continue with qualitative research such as interviews or *focus group discussion* (FGD) with several representative respondents. This qualitative research aims to uncover other important information not revealed through the questionnaire and is useful for drawing more comprehensive conclusions regarding the phenomenon being studied.
- 3) To overcome the limitations of collecting questionnaire data *online cross sectional*, Further research can be conducted longitudinally by testing research variables over time so that the causal relationship between variables can be determined.

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