



A Study On Job Characteristic Model (JCM) Towards Job Satisfaction Among Metrology Employees in Klang Valley, Malaysia.

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ABSTRACT

This study examines the relationship between the five core dimensions of the Job Characteristics Model (JCM)—skill variety, task identity, task significance, autonomy, and feedback—and job satisfaction among employees of metrology companies in the Klang Valley, Malaysia. A quantitative cross-sectional design was used. The Job Diagnostic Survey (JDS) developed by Hackman and Oldham (1975) was administered online through Google Forms distributed via Facebook groups, LinkedIn, and direct e-mail. A total of 310 usable responses were analysed using descriptive statistics and Pearson correlation in SPSS. The results show positive correlations between all five job-characteristic dimensions and job satisfaction. Skill variety recorded the strongest association with job satisfaction ($r = .53$), followed by autonomy and task identity ($r = .37$ each), feedback ($r = .33$), and task significance ($r = .14$). These findings indicate that job-design characteristics are associated with employee job satisfaction in the metrology context.

Keywords: Job Diagnostic Survey, Job Characteristics Model, Job Satisfaction

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1.0 INTRODUCTION

The Job Characteristics Model (JCM) has emerged as a pivotal framework for understanding the dynamics of job satisfaction across various industries. This model posits that specific job characteristics, such as skill variety, task identity, task significance, autonomy, and feedback, play a crucial role in influencing an employee's intrinsic motivation and overall job satisfaction. In the context of metrology companies in Klang Valley, Malaysia, the application of the JCM can provide valuable insights into how these job characteristics affect employee satisfaction and performance.

Research shows that several factors affect turnover intentions, such as job satisfaction, organisational commitment, and compensation. For example, Ahmad's research highlights the relationship between job features, organisational commitment, and the intention to leave, indicating that a favourable assessment of job content fosters greater commitment and reduces turnover intentions (Ahmad, 2018). This is consistent with findings from Alias et al., who stress that job stress and employee engagement are key predictors of turnover intention among manufacturers in Malaysia, suggesting that a nurturing work environment can help reduce turnover risk (Alias et al., 2018).

In the metrology industry, where precision and expertise are paramount, fostering a positive organisational culture and providing adequate support can significantly impact employee retention. Zahari et al. note that employee engagement mediates the relationship between compensation and turnover intention, reinforcing the idea that engaged employees are less likely to consider leaving their organisations (Zahari et al., 2020). Additionally, the work of Kadir et al. highlights that job dissatisfaction and stress are prevalent factors contributing to turnover intentions among employees in Klang Valley, Malaysia, suggesting that organisations must proactively address these issues to retain talent (Kadir et al., 2022).

Research shows that job satisfaction is closely related to a variety of motivational elements and workplace settings. For example, Basalamah and As'Ad emphasise the role of work motivation and the work environment in boosting job satisfaction, noting that satisfied employees tend to exhibit higher morale and performance (Basalamah & As'ad, 2021). In a similar vein, Arokiasamy points out the importance of favourable working conditions and strong relationships with coworkers in promoting job satisfaction, especially in service-oriented industries (Arokiasamy, 2019). These insights highlight the need to explore the specific job attributes that lead to employee satisfaction in metrology companies.

In conclusion, examining the Job Characteristics Model in the context of employee satisfaction in metrology firms situated in the Klang Valley is both pertinent and timely. By understanding how specific job features affect employee satisfaction, organisations can develop targeted strategies to boost motivation, reduce turnover, and ultimately enhance overall performance. The objective of this study is to investigate the relationship between the Job Characteristics Model (JCM) and job satisfaction among employees at metrology companies in the Klang Valley, Malaysia.

2.0 LITERATURE REVIEW

2.1 Job Characteristics Model (JCM)

The Job Characteristics Model (JCM), developed by Hackman and Oldham, proposes that five core job dimensions—skill variety, task identity, task significance, autonomy, and feedback—shape critical psychological states and are associated with work outcomes such as motivation and job satisfaction (Hackman & Oldham, 1975). Research across different work settings generally supports positive relationships between these job characteristics and job satisfaction.

Multiple studies underscore the significance of feedback as a key determinant of employee satisfaction and engagement. Feedback serves not only as a tool for performance evaluation but also enhances an employee's sense of autonomy, which can significantly influence their overall job satisfaction (Kanwal & Khurram, 2022; Komagata et al., 2020). The lack of effective feedback mechanisms is frequently cited as a gap in many organisations, negatively affecting job satisfaction (McGuire et al., 2021).

Task significance refers to the degree to which a job has a substantial impact on the lives or work of others, which can strengthen an employee's sense of purpose and fulfilment. Kannan et al. (2021) found that task significance was one of the core job characteristics associated with job satisfaction among employees in the anti-money-laundering department of a Malaysian bank. This is consistent with the JCM, which positions task significance, together with the other core job dimensions, as an important component of motivational job design.

Research indicates that task identity is related to job satisfaction across different work settings. Traymbak et al. (2017) found that task identity was associated with job satisfaction among female employees in the IT workforce. Kannan et al. (2021) similarly reported a positive relationship between task identity and job satisfaction among employees in a Malaysian bank's anti-money-laundering department. Zhang et al. (2018) further linked work-related identity and job satisfaction to employees' turnover intentions.

Research also supports a positive relationship between skill variety and job satisfaction. Berg and Feij (2003) found that skill variety, together with autonomy and feedback, contributed to job satisfaction. Fernández-Salinero et al. (2020) similarly highlighted the importance of opportunities to use one's skills in strengthening job satisfaction. These findings suggest that job designs that allow employees to apply a broader range of skills can support more favourable work attitudes.

Job autonomy is another central dimension of the JCM. Rodríguez et al. (2017) found that perceived autonomy was an important determinant of job satisfaction in lean work environments. Sawang et al. (2020) also reported an association between changes in job autonomy and job satisfaction among business owner-managers, while Tran et al. (2020) emphasised the role of autonomy within supportive workplaces. Dong et al. (2021) further showed that job autonomy can moderate the relationship between working hours and job satisfaction. Together, these studies reinforce the relevance of autonomy in job design.

In summary, the evidence strongly supports the assertion that the Job Characteristics Model is positively correlated with job satisfaction. Organisations should prioritise fostering good job design and management practices to enhance employee satisfaction and overall organisational performance.

2.2 Job Design And Job Satisfaction

The relationship between job design and job satisfaction is well established in organisational behaviour. Effective job design aligns tasks, responsibilities, and discretion with employee needs and the requirements of the job. Consistent with the JCM, previous studies have linked skill use, autonomy, feedback, and meaningful task structures with higher job satisfaction (Berg & Feij, 2003; Fernández-Salinero et al., 2020; Kanwal & Khurram, 2022; Rodríguez et al., 2017). These findings suggest that organisations can improve employee experiences by designing roles that provide variety, autonomy, clear task ownership, and useful performance feedback.

3.0 METHODOLOGY

This study involved employees from metrology companies in the Klang Valley. The sampling frame identified 155 accredited calibration companies, of which 14 were based in Kuala Lumpur and 88 in Selangor, representing approximately 66% of the listed companies considered. An online questionnaire based on the Job Diagnostic Survey (Hackman & Oldham, 1975) was used to measure skill variety, task identity, task significance, autonomy, feedback, and job satisfaction. Demographic characteristics collected included gender, age, education level, salary range, and work experience.

Based on the sampling frame used in the study, the estimated employee population in the selected Klang Valley companies was 1,488. According to Krejcie and Morgan (1970), a population of approximately 1,500 requires a sample of about 306 respondents at a 95% confidence level. A total of 310 completed questionnaires were obtained over three months. The questionnaire was distributed online through Facebook groups, LinkedIn, and direct e-mail.

SPSS was used for statistical analysis. Descriptive statistics were used to summarise respondents' demographic characteristics and the distributions of the study variables. Pearson correlation analysis was then used to assess the associations between the five job-characteristic dimensions and job satisfaction.

4.0 FINDINGS AND DISCUSSION

Among the 310 respondents, 156 (50.3%) were male, and 154 (49.7%) were female. In terms of age, 108 respondents (34.8%) were aged 20–30 years, 134 (43.2%) were aged 31–40 years, 52 were aged 41–50 years, and 16 were aged 51–60 years.

By educational background, 121 respondents (39.0%) held a bachelor's degree, 33.0% held a diploma, and 22.6% held at least a certificate qualification. Fourteen respondents (4.5%) held a master's degree, while no respondent reported holding a PhD.

In terms of salary, 51.0% of respondents earned RM1,500–RM3,500 per month and 35.0% earned RM3,501–RM5,500. A further 6.5% earned RM5,501–RM7,500, 4.2% earned RM7,501–RM9,500, and 2.6% (8 respondents) earned more than RM9,501. Regarding work experience, 33.9% had 6–10 years, 26.8% had 1–5 years, 19.4% had 11–15 years, 15.8% had more than 16 years, and 4.2% had less than 1 year.

Pearson correlation analysis was used to examine the relationships between the five job-characteristic dimensions and job satisfaction. As shown in Table 1, all five correlations with job satisfaction were positive, ranging from $r = .14$ to $r = .53$. Skill variety showed the strongest association with job satisfaction ($r = .53$). Autonomy and task identity each recorded $r = .37$, feedback recorded $r = .33$, and task significance recorded the weakest positive association ($r = .14$). Because Table 1 does not report p-values or confidence intervals, the results are interpreted here in terms of direction and magnitude rather than statistical significance.

Table 1
Correlations for Job Characteristics and Job Satisfaction

Variable	N	M	SD	1	2	3	4	5	6
1. Feedback	310	2.81	0.30	1					
2. Autonomy	310	3.21	0.34	.04	1				
3. Task Significance	310	2.90	0.47	-.09	.32	1			
4. Task Identity	310	2.90	0.44	-.06	.30	.77	1		
5. Skill Variety	310	3.02	0.36	.13	.35	.57	.66	1	
6. Job Satisfaction	310	3.03	0.33	.33	.37	.14	.37	.53	1

Skill variety showed the strongest positive association with job satisfaction ($r = .53$), which is consistent with research linking opportunities to use a broader range of skills with more favourable job attitudes (Berg & Feij, 2003; Fernández-Salinero et al., 2020). Feedback ($r = .33$), autonomy ($r = .37$), and task identity ($r = .37$) also showed positive associations with job satisfaction, while task significance showed a comparatively weak positive association ($r = .14$). These correlations indicate that the dimensions move together to different degrees, but they do not establish causal effects between the job characteristics or job satisfaction.

5.0 CONCLUSION

The findings indicate that the five Job Characteristics Model dimensions were positively associated with job satisfaction among the 310 metrology employees surveyed in the Klang Valley. Skill variety showed the strongest relationship with job satisfaction ($r = .53$), followed by autonomy and task identity ($r = .37$ each), feedback ($r = .33$), and task significance ($r = .14$). These results suggest that job design remains relevant to employee satisfaction in the metrology context, particularly where employees can apply a range of skills, exercise reasonable autonomy, understand their role in completing work, and receive useful feedback.

Because the study used a cross-sectional survey and Pearson correlation, the findings should be interpreted as associations rather than causal effects. Future research could use multivariate models and report statistical significance and confidence intervals to assess the independent contribution of each JCM dimension to job satisfaction.

6.0 ACKNOWLEDGEMENT

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7.0 CONFLICT OF INTEREST

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in the paper.

8.0 AUTHOR CONTRIBUTION STATEMENT

Mohamad Yusuf Bin Mislam contributed to the conceptualisation, research design, data collection, analysis, and writing of the original draft. Desmond Leong Chen Hui contributed to the validation, critical review, and editing of the manuscript. Both authors have read and approved the final version of the manuscript.

9.0 ETHICS STATEMENT

This study involved human participants through an online questionnaire administered to employees of metrology companies in the Klang Valley. The manuscript does not report a verifiable institutional ethics approval reference; therefore, no approval number is stated. The authors reported that participant privacy and confidentiality were maintained and that the data were used solely for academic purposes.

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