

Features of Vitamin Model Affecting Psychological Empowerment : Serial Mediation Role of Job Crafting and Work Engagement

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Abstract

The current research aimed to investigate the association between the variables under the study, that is, 'the vitamin model' features of a job: job crafting, work engagement, and psychological empowerment. It also attempted to analyze the serial mediational role of the two causally linked mediators, that is, job crafting and work engagement with the job features of the vitamin model and psychological empowerment. By investigating these variables, we tried to explore how the employees redesigned the well-defined jobs to match their capabilities, which enhanced commitment to work and led to positive behavioral outcomes, such as empowerment, work meaningfulness, and improved performance. Primary data were collected from 453 knowledge workers in the information technology (IT) and information technology-enabled services (ITES) industry. Using SPSS software, the correlation method revealed significant positive correlations between the variables under study. PROCESS macro (Haynes, 2012) was applied in SPSS AMOS regression-based path coefficients and bootstrap confidence intervals at a 95% confidence level. As the bootstrap confidence intervals did not include zero, a significant mediational role of the serial mediators was observed between the relationship of features in the vitamin model and psychological empowerment [Estimate = .0761, 95% CI (.0257, .1902)]. So, it could be concluded that job crafting made the employees the mechanic of their vehicle (work), leading to work engagement, increased performance, and psychological well-being at the workplace.

Keywords : job features, psychological empowerment, job crafting, work engagement, serial mediation, structural equation model, vitamin model, work meaningfulness, job design, redesign

JEL Classification Codes : J24, J28, I31, M10

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The service industry, in recent years, has emerged as a significant employment sector in India, with a rise in foreign direct investments expanding the horizon of the hospitality industry (NASSCOM, n.d.). A job is designed by identifying the various fragments, processes, and procedures required to deliver the results. Such tasks and procedures are determined via features of the vitamin model. This can be described as the specific aspects of the job, such as expertise, knowledge, and technical know-how; mental and physical demands; and physical working conditions that can be recognized, defined, and assessed (Naudé, 2010).

The features of the vitamin model provide a blueprint of the jobs based on the skills required to perform them,

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and the enhanced levels of empowerment, work meaningfulness, and quality of work-life (Agrawal, 2019). And so, they serve as positive factors and vitamins (A, D, C, and E). These vitamins of the job determine how motivating it is. Upon motivation level, the employees decide to redesign their job to make it more meaningful and convenient to carry out tasks and procedures by matching them to their level of skills and expertise, which could directly or indirectly influence the behavioral outcome, such as psychological empowerment. This job redesign by the employee is known as job crafting. After reconfiguring the job, the employees undertake the self-made job tasks that match their comfort level, skills, and abilities (Wrzesniewski & Dutton, 2001).

Khan (1990) defined work engagement as a construct that refers to the investment of physical, cognitive, and emotional energy at work and comprises three constructs characterized by vigor, dedication, and absorption (Schaufeli & Salanova, 2011). According to Spreitzer (1995), psychological empowerment is a system of social hierarchy, with the four factors of workplace setting: meaning, competence, self-determination, and impact reflecting an active workplace orientation.

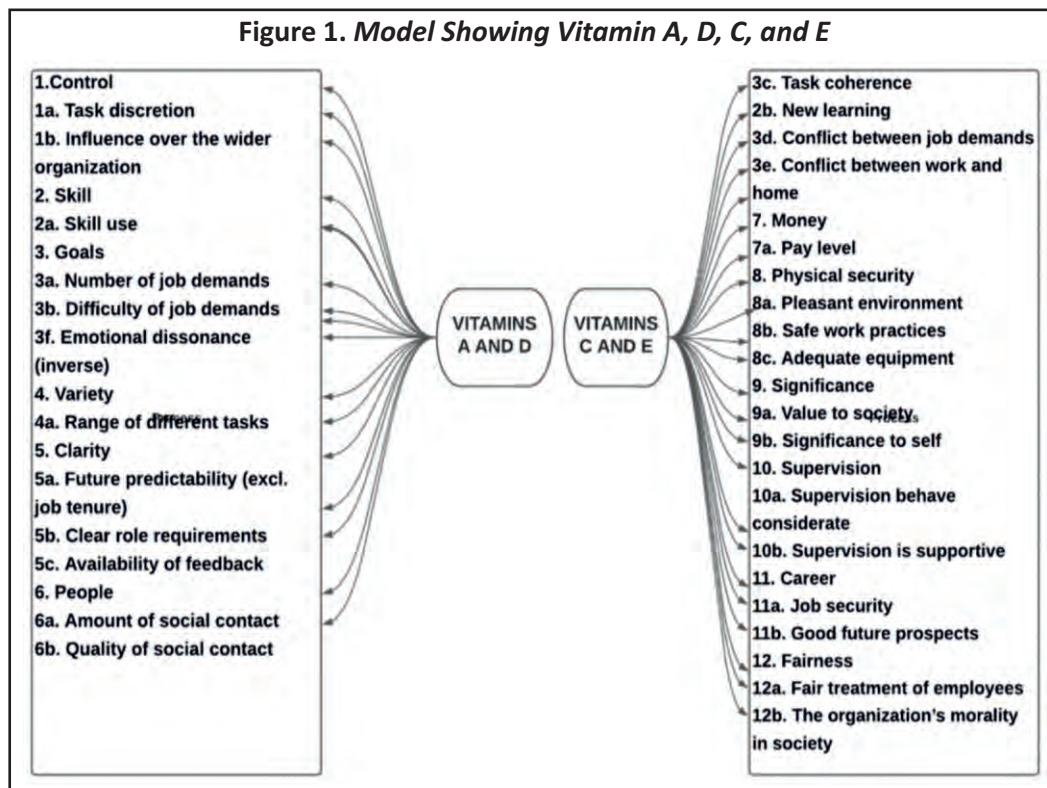
The behaviors that contribute positively are work performance and job satisfaction (Ghasemy et al., 2021). In contrast, the ones which contribute negatively are job strain (Pinzone et al., 2019), exhaustion, and turnover (Yildiz & Elibol, 2021). In this experimental study, the focus is on positive contributors (Chen et al., 2020). Positive factors refer to the behaviors that directly or indirectly support and contribute to the psychological environment in which the technical core must function.

Although only a handful of studies have been conducted on job crafting as it's still in the pioneering stage in empirical research, traditional conceptions of empowerment emphasize managerial contributions to the workforce via job features among doctors and nurses. Studies and theory have shown a positive relationship between job characteristics, job crafting, and work engagement (Kim & Lee, 2016). There are limited studies that examined job characteristics with psychological empowerment. Although a positive and significant relationship has been found between job features and performance and well-being (Charkhabi, 2018), studies examining a relationship between job features and psychological empowerment are scanty. Again, studies exploring the serial mediation role of job crafting and work engagement are few.

Therefore, the study's primary purpose is to understand the challenges concerning increased levels of psychological empowerment by knowledge workers. One such sector is the IT and ITES sector. To fill this research gap, this experimental study aims to assess the impact of job features of the vitamin model on psychological empowerment, mediated by job crafting and work engagement (a serial mediation role) among knowledge workers in Bengaluru, India.

Theoretical Background

According to Warr (1987), the vitamin model is centered on the theory that work characteristics affect employees' psychological factors, such as well-being and empowerment, in the same way, that intake of vitamins influences physical health. Vitamins are essential for the human body to function effectively, but their lack results in physical weakness, illness, and vitamin deficiency diseases. Intake of vitamins may not affect the body or result in hypervitaminosis, which has negative consequences. Peter Warr initially listed nine job characteristics that he referred to as "work vitamins" (Warr, 1999). 'Supportive supervision,' 'career outlook,' and 'equity,' that is, three more 'vitamins,' were added to the existing vitamin model (as shown in Figure 1). Grouped job features into Vitamin A and D, which have a curvilinear effect, may negatively affect the employees' well-being in the long run. Vitamin C and E have a linear effect, used as antecedents in this research, and are the same as those included in the job characteristics model (Hackman & Oldham, 1976) and the job demands-resources (JD-R Model) (Johnson & Hall, 1988).



Review of Literature

Job Features, Work Engagement, and Psychological Empowerment

Prior research has acknowledged that employees' work attitudes have a significant role to play in the HRM – employee performance chain; whereas, the mediating role of employee work engagement between job features and psychological empowerment is given less attention. We are interested in ascertaining how employee behaviour in job design may influence the relationship between HR practices and empower employees psychologically (Jnaneswar, 2019; Schaufeli & Salanova, 2011).

The components of job features examined were task variety, task identity, task significance, feedback, and autonomy (Hackman & Oldham, 1976). Constructs of psychological empowerment include meaning, competence, self-determination, and impact (Spreitzer, 1995). The results revealed that all the components of the job features of the vitamin model, except task identity, had a significant positive correlation with work engagement, and the same showed a significant positive correlation with competence and self-determination (Graceshia Adiarani, 2019; Yao et al., 2013). Job features directly relate to psychological empowerment (Shantz et al., 2013) and have an inverse relationship with psychological detachment mediated by engagement (Yungui & Yanting, 2019).

Another study investigated work engagement as a mediating variable among its antecedents and consequences (Zahed-Babelan et al., 2019), and the precursors included features of the job, such as skill variety, autonomy, and feedback. The consequent variables were significantly correlated: job satisfaction, empowerment, intention to quit, and organizational commitment (Meng & Sun, 2019). A robust mediation analysis also ensures adequate work engagement incentives that generate valued and desired work behaviors (Mishra et al., 2016). Engaged

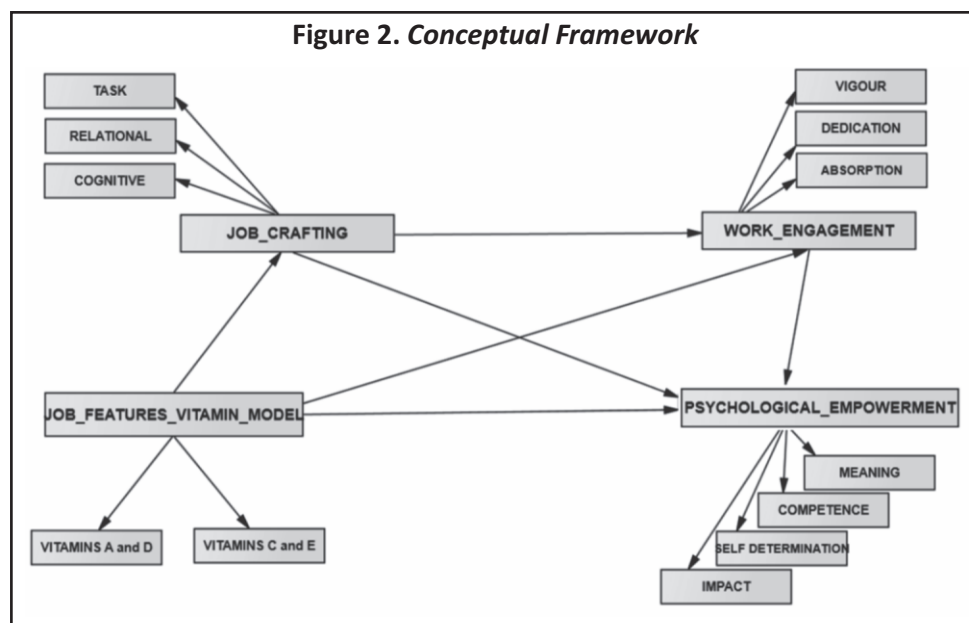
employees experience a high level of connectivity which, in turn, results in reduced turnover cognition (Afroz & Haque, 2021). In addition, individuals who invest their personal selves in their work roles are likely to attain work meaningfulness and are more likely to step outside of the formal boundaries of their job to assist or empower their co-workers psychologically. Hence, it is hypothesized that :

✍ **H1** : Work engagement will significantly mediate the relationship between job features of the vitamin model and psychological empowerment.

Job Crafting, Work Engagement, and Psychological Empowerment

A study explored the impact of job crafting on work engagement and psychological empowerment (Hulshof et al., 2020). It further investigated the mediating role of work engagement between job crafting and psychological empowerment. The results showed that job crafting was a significant predictor of work engagement, which also significantly predicted psychological empowerment. Work engagement significantly mediated the relationship between job crafting and psychological empowerment (Bakker et al., 2012). Several researchers proposed a model to investigate the outcomes of job crafting at personal, relational, and managerial levels based on the idea of meaningfulness at work (Scanlan & Hazelton, 2019). The previous study proved that both employees and managers drive high levels of meaningfulness at work (Dambrun, 2017), in which employee-driven factors are “self-efficacy” and “work engagement.” Roczniowska et al. (2020) revealed that job crafting had a positive relationship with self-efficacy, work engagement, perceived social impact and belongingness, meaning, competence, self-determination, and impact.

Another study concentrated on the meta-analysis of job crafting's relationship with individual differences, job characteristics, and work outcomes. Personality factors that positively affected job crafting included agreeableness, conscientiousness, extraversion, openness to experience, proactivity, and self-efficacy (Peral & Geldenhuys, 2020). Job characteristics, job autonomy, and workload were positively related to job crafting. Among work outcomes, positive links were found between job crafting, work engagement, and work meaningfulness; whereas, negative associations were found between job crafting and turnover intentions and job strain (Urbanaviciute et al., 2018).



Another study examined the mediating roles of job crafting and work engagement between perceived opportunities to craft and empowerment. The results showed a significant serial mediation effect on the two sequential mediators: job crafting and work engagement (Van Wingerden & Poell, 2017). A recent study investigated the impact of job crafting interventions on psychological well-being and psychological empowerment. The construct of psychological well-being included work engagement, health and reduced exhaustion, and psychological empowerment factors including meaning, competence, self-determination, and impact. The results revealed that the experimental group showed high levels of work engagement and health, low levels of exhaustion, and higher levels of psychological empowerment (Gordon et al., 2018). From the review found so far, it can be seen that job crafting as a job redesigning construct is still in its pioneering stage and needs to be explored further to investigate the potential antecedents and consequences of job crafting and psychological empowerment (Kumar & Valarmathi, 2022). The variables shown to have a link are further examined in this research to validate and contribute to the existing literature. So, considering the outcomes of the research conducted so far, this study explores the roles of job crafting and work engagement in job features and psychological empowerment.

➤ **H2 :** Job crafting will significantly mediate the relationship between job features of the vitamin model and psychological empowerment.

Methodology

Sampling and Data Collection

First-hand data were collected from employees working in information technology (IT) and information technology enabled services (ITES) in Bengaluru, India. The technique followed was the judgmental sampling technique. A total of 525 online structured questionnaires were circulated, out of which 453 responses were used for further research and analysis. The questionnaire was pilot tested (47 knowledge workers participated) and was redesigned in this empirical study. The data collection were done from October 2020 – January 2021.

Measurements

Variables such as work engagement and job crafting are measured using the Likert scale (7 points), where 6 to 0 represent “*always*,” “*very often*,” “*often*,” “*sometimes*,” “*rarely*,” “*almost never*,” and “*never*.” The psychological empowerment variable is measured using the Likert scale (7 points), in which 6 to 0 represent “*agree very much*,” “*agree moderately*,” “*agree slightly*,” “*disagree slightly*,” “*disagree moderately*,” “*disagree very much*,” and “*never*.” The job features of the vitamin model variable are measured using a 5 - point Likert scale, in which 5 represents ‘*Extremely low*,’ 4 represents ‘*low*,’ 3 represents ‘*moderate*,’ 2 represents ‘*high*,’ and 1 represents ‘*extremely high*.’

Data Analysis and Results

The collected data were coded, tabulated, and analyzed using software packages, such as SPSS and AMOS (Ramaprasad et al., 2020; Sudhindra et al., 2020).

Validity and Reliability

Individual item reliabilities and convergent validity are the procedures to evaluate and measure a model (Götz et

al., 2010; Hulland, 1999). Factor loading is essential and can't be ignored to determine the individual item's reliability. The rule of thumb says that all the items should have loadings between 0.4 and 0.7. Anything below the criteria mentioned above (0.4 and 0.7), lower than the rule of thumb, that is, the factor loading of 0.4, should not be considered for the analysis (Carmines & Zeller, 1979; Hair Jr. et al., 2014; Hulland, 1999).

In this study, all the loadings range between 0.741 to 0.983 in their respective constructs (as shown in Table 1 and Figure 3). The calculation of convergent validity could also be verified by calculating the average variance extracted and composite reliability for each construct. The validity is attained when all the items in a measurement model (as shown in Figure 2) are statistically significant (the values should be 0.5 or higher for this validity), and factor loadings less than 0.5 loadings are eliminated, as that which could cause failed convergent validity (Hair Jr. et al., 2014). Hence, it can be concluded that convergent validity (both AVE and CR) is established (Chin, 1998; Duarte & Raposo, 2010; Fornell & Larcker, 1981).

Table 1 depicts that the reliabilities obtained are significant, above the recommended estimate of .70 (Nunnally & Bernstein, 1994).

Table 1. Reliability Analysis and Results of the Measurement Model

Variable		Number of Items	Cronbach's Alpha	
1. Job Features Vitamin Model		13	.914	
2. Job Crafting		15	.859	
3. Work Engagement		9	.722	
4. Psychological Empowerment		10	.872	
N = 453				
Construct	Item	Factor Loadings	Convergent Validity	
			Average Variance Extracted (> 0.5)	Composite Reliability (> 0.7)
Job Features of the Vitamin Model (JF_VM)	JF1. Individual impact/capacity to work autonomously	0.960	0.799	0.774
	JF2. Potential for creating skill and information in work	0.921		
	JF3. Juggling between the different roles	0.926		
	JF4. Social connections	0.862		
	JF5. Clarity of roles	0.891		
	JF6. Quality of interpersonal relationships	0.846		
	JF7. Level of pay	0.865		
	JF8. Conditions of employment	0.841		
	JF9. Task or job significance	0.844		
	JF10. Work overburden	0.837		
	JF11. Higher authorities genuinely treat us	0.817		
	JF12. Potential for career growth	0.891		
Job Crafting (JC)	JC1. Introduce new ways to enhance your work	0.919	0.903	0.809
	JC2. Modify the extent or type of jobs you perform	0.849		
	JC3. Introduce new activities to suit your talents or interests better	0.959		
	JC4. Choose to undertake more work	0.968		

	JC5. Prioritize work tasks that match your talents or interests	0.973		
	JC6. Strive to get people to work well	0.971		
	JC7. Plan or participate in social activities related to work	0.924		
	JC8. Initiate special workplace events (e.g., the birthday of a co-worker)	0.946		
	JC9. Choose to supervise or train recruits	0.958		
	JC10. Connections with working persons with similar talents	0.961		
	JC11. Assess how your profession will serve your life purpose	0.957		
	JC12. Remember the importance of your effort to the organization's success	0.891		
	JC13. Remember the importance of your efforts for the wider community	0.956		
	JC14. Assess how your efforts will have a good impact on your life	0.973		
	JC15. Think about your job's significance in your overall wellness	0.957		
Work Engagement (WE)	WE1. I am full of enthusiasm for my work	0.966	0.813	0.796
	WE2. I feel strong and energetic at my workplace	0.826		
	WE3. Every morning, when I get up, I feel like going to work	0.901		
	WE4. I'm zealous about my work	0.941		
	WE5. My work inspires me	0.942		
	WE6. I feel proud to contribute to myself and my organization through my work	0.905		
	WE7. When I work intensively, I feel glad	0.793		
	WE8. I'm plunged into my tasks	0.782		
	WE9. I get distracted when I'm working	0.832		
Psychological Empowerment (PE)	PE1. I trust that I can perform my work	0.892	0.899	0.812
	PE2. I'm concerned about the tasks I do	0.862		
	PE3. I have a lot of job autonomy in performing my day-to-day tasks	0.909		
	PE4. My impact on my department's events is excellent	0.921		
	PE5. I personally have a lot of significance for my work	0.903		
	PE6. I control every aspect of what is going on in my department	0.782		
	PE7. I can determine for myself	0.906		

how to perform my work	
PE8. I have significant chances of autonomy	0.918
and flexibility in my work	
PE9. The talents required to work for me	0.909
have been learned	
PE10. The work I perform is vital to me	0.918
PE11. The amount of influence I have on	0.919
my department is incredible	
PE12. I am confident that I can accomplish	0.923
my work activity	

Table 2. Correlation Matrix

Pearson Correlation				
Variables	1. Job Features_VM	2. Job Crafting	3. Work Engagement	4. Psychological Empowerment
1. Job Features_VM	1	0.531**	0.461**	0.511**
2. Job Crafting	–	1	0.427**	0.432**
3. Work Engagement	–	–	1	0.432**
4. Psychological Empowerment	–	–	–	1

N = 453; **. Correlation is significant at the 0.01 level (2 - tailed).

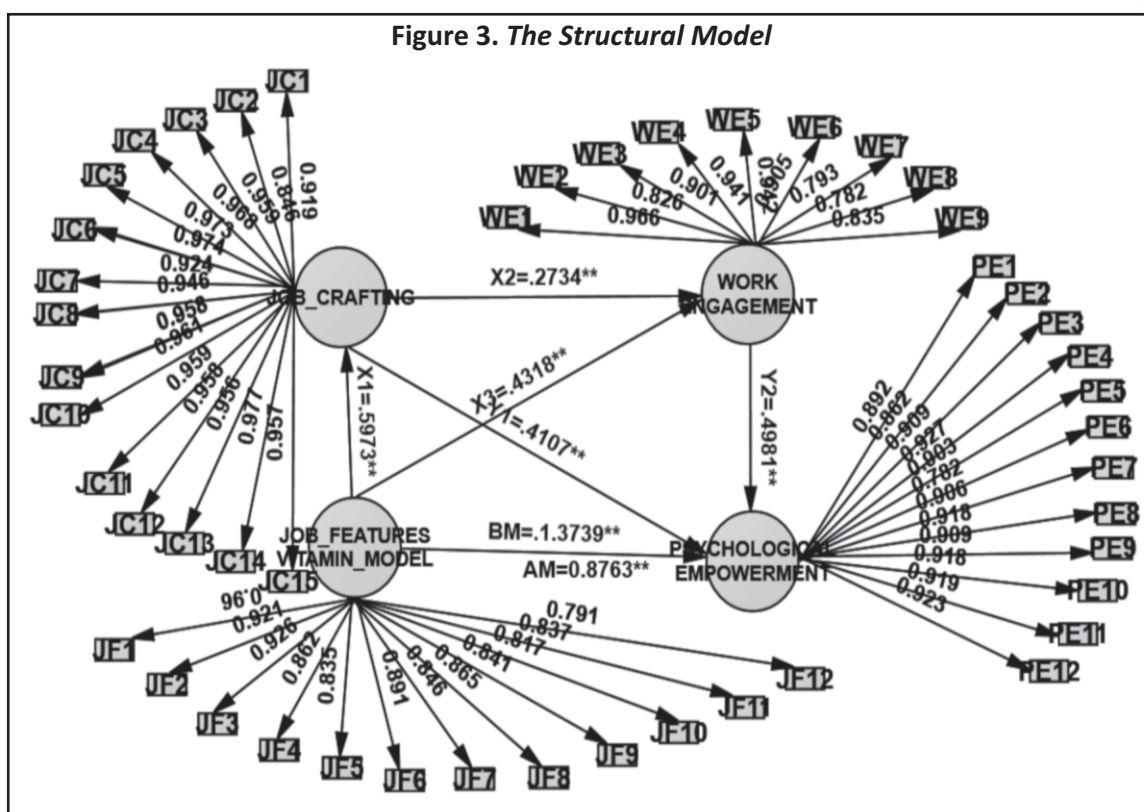


Table 2 reveals that there is a positive relationship between psychological empowerment and job features, between job crafting and job features, between psychological empowerment and work engagement, between job crafting and psychological empowerment, between work engagement and job features, as the correlation coefficients for each pair is greater than 0.5 and $p < 0.01$, which satisfies the research hypotheses H1 and H2.

Figure 3 represents the serial multiple mediation analysis. Serial mediation analysis was conducted using the process macro (Haynes, 2012) in SPSS. The mediation model used in the research is one with two serial mediators causally linked in a specific direction (as shown in Figure 1). The serial multiple mediation approach is an amalgamation of regression-based path coefficients and bootstrap confidence intervals (Galton, 1888; Pearson & Lee, 1903).

Regression-based path coefficients are used for the serial mediation role of job crafting and work engagement between job features and psychological empowerment. The path coefficients show job characteristics as a significant predictor of the mediators and outcome variables. The two mediators are seen to predict psychological empowerment significantly. The total effect (c) = 1.3739, $p < 0.01$ and indirect effect (c') = .8763, $p < 0.01$ of job features on psychological empowerment are seen to be significant at a 99% confidence level, showing a partial mediation model.

Table 3 exhibits that 34.07% of the variance in the criterion of the variable of psychological empowerment is accounted for by the variables – job features, job crafting, and work engagement.

Table 4 exhibits the indirect effect of bootstrap confidence intervals at 95% confidence levels for 5,000 bootstrap samples with job crafting and work engagement as mediators between job features and psychological empowerment. All three mediation equations are found to be significant.

Table 5 represents the measurement model, which exhibits an acceptable model fit of the data - the normed chi-square value = 2.706 (Marsh & Hocevar, 1985), normed fit index = 0.911 (Bollen, 1989), comparative fit index = 0.925 (Bentler, 1990), root mean square error of approximation = 0.062 (Browne & Cudeck, 1992), Tucker – Lewis Index = 0.960, and goodness of fit index = 0.929 (Hair Jr. et al., 2014), and all the values have achieved the criteria. Therefore, it can be concluded that it is an acceptable fit (Sudhindra et al., 2020). All the

Table 3. Model Summary of Regression Analysis

	Independent Variable	Dependent Variable	Coefficient	Sig.	R – sq.	Result
X1	Job Features	← Job Crafting	.5973	.0000	.2719	Supported
	Vitamin Model					
X2	Job Crafting	← Work Engagement	.2734	.0006	.2773	Supported
X3	Job Features	← Work Engagement	.4318	.0000	.2773	Supported
	Vitamin Model					
Y1	Job Crafting	← Psychological Empowerment	.4107	.0174	.3407	Supported
Y2	Work Engagement	← Psychological Empowerment	.4981	.0022	.3407	Supported
BM	Job Features	← Psychological Empowerment	1.3739	.0000	.2731	Supported
	Vitamin Model					
	After Mediation (AM)					
AM	Job Features	← Psychological Empowerment	.8763	.0000	.3407	Supported
	Vitamin Model					

** $p < 0.01$, * $p < 0.05$

Table 4. Summary Table of Bootstrap Confidence Intervals

Hypotheses	Indirect Estimate	Effect	
		95% LLCI	95% ULCI
Job Crafting	.2721	.0161	.4709
→ Job Features			
→ Psychological Empowerment			
Job Crafting	.1727	.0861	.3492
→ Work Engagement			
→ Psychological Empowerment			
Job Crafting	.0761	.0257	.1902
→ Job Features			
→ Work Engagement			
→ Psychological Empowerment			

Table 5. SEM Results of Goodness of Fit

Name of Category	Name of Index	Calculated Index Value	Critical Value	Comments (The required level is)
Absolute fit	Discrepancy chi-square	0.067	$P - \text{value} > 0.05$	Achieved
	Root mean square error of approximation	0.062	< 0.08	Achieved
	Goodness-of-fit	0.929	> 0.80	Achieved
Incremental fit	Normed fit index	0.911	> 0.90	Achieved
	Comparative fit index	0.925	> 0.95	Achieved
	Tucker-Lewis Index	0.960	$0 < \text{TLI} < 1$	Achieved
Parsimonious fit	$\frac{\chi^2}{df}$ (Normed Chi-Square)	2.706	$1 < \frac{\chi^2}{df} < 3$	Achieved

goodness of fit indicators are loaded on the latent variables with very high significance. Table 5 depicts that the model is a “good fit” for the given data. Overall, the measurement model confirms the items under four factors with a sample of 453 respondents.

Discussion and Conclusion

The study's main objective is to determine the impact of the job features of the vitamin model on the psychological empowerment of knowledge workers in the IT and ITES sectors. The same is serially mediated by job crafting and work engagement. All the variables have been linked based on theories, literature reviews, and empirical studies that have been conducted.

In general, the findings of the study largely cohere with previous research. In addition, this study focuses on serial mediation analysis, which few researchers have explored. The results show that the two mediators (job crafting and psychological empowerment) significantly predict psychological empowerment directly and indirectly (as shown in Table 4 and Figure 3). The total effect ($c = 1.3739, p < 0.01$) and indirect effect ($c' = .8763$,

$p < 0.01$) of job features on psychological empowerment are seen to be significant at a 99% confidence level, showing a partial mediation model of knowledge workers. It is assumed (H1 and H2) that the vitamin model features positively influence the psychological empowerment of knowledge workers. But the results of this study are unique because it is observed that 34.07% of the variance in the criterion, that is, psychological empowerment, is accounted for by job features, job crafting, and work engagement (as shown in Table 3 and Table 4). Both job crafting and work engagement could be a factor that impacts the IT and ITES employees (knowledge workers), as it is statistically significant, unlike research studies that have been previously conducted. Therefore, H1 and H2 are supported. In a nutshell, the study results reveal that job features, job crafting, and work engagement have a significant direct and indirect impact on the psychological empowerment of knowledge workers (employees working in the IT and ITES sector), which supports the previous literature on this issue.

Managerial and Theoretical Implications

Implications for Researchers

Features of the vitamin model have a statistically significant association with increased psychological empowerment. Both factors directly and indirectly, but also significantly, mediate their relationship. The employee and employer-driven job design could help managers take the initiatives accordingly. The same may positively impact both the organization and knowledge workers and might help investigators contribute to the existing knowledge.

Implications for Managers/Managerial Implications

Self-initiated/driven and employer-driven employees have a statistically significant influence/association with employees' PE at both a personal and organizational level. For human resource managers, the need of the hour is to train and empower them physically and mentally by organizing various empowerment activities. In sync with the previous studies, the current research clearly states that human resource managers should allow and motivate proactive employees to craft their jobs, drastically empowering knowledge workers who could create a win-win situation for the organization.

Implications for Positive Social Change

Employees can choose to tailor/craft their day-to-day tasks to make a meaningful contribution to society. These initiatives (self-initiated/employee-driven) could also aid businesses aspiring to be a part of CSR activities. Proactive employees will contribute and influence others and increase people's living standards in the name of corporate social responsibility.

Implications for Human Resource Development

Organizations could encourage job crafting by providing employees with opportunities and conducting webinars and awareness campaigns to craft their jobs. Organizations could explore the motivations behind the job crafting behavior of employees. According to Thriveni Kumari (2020), gender could also be examined to determine individual differences. An attempt should be made to study the negative impact of job crafting to obtain more comprehensive knowledge on job crafting, job features, work engagement, and psychological empowerment.

Limitations of the Study and Scope for Further Research

The following are the limitations of the study :

- ✦ Self-report measures have been used to obtain data prone to socially desirable responses.
- ✦ Data were collected from a limited geographical area.
- ✦ Limited literature was available on serial mediation.
- ✦ The current study is limited to information technology (IT) and information technology-enabled services (ITES) sector respondents.

Demographic variables could be hypothesized to ascertain if factors like age, gender, experience, and technological advancement moderated the relationship between job features of the vitamin model and psychological empowerment. For future studies, it is suggested that a mixed-method examination for the studied variables is used to explore the motivations and behavior of the employees in diverse organizational settings and with diverse populations (e.g., knowledge workers) using several organizationally related variables, such as profit, growth, and culture. Longitudinal and cross-sectional research would also add to the existing theory and lead to a better understanding of how results change over time.

Authors' Contribution

Gandhi Vasanth Kumar conceived the idea and developed the quantitative design to undertake the study. Dr. Valarmathi B. extracted reputed research papers to support the literature. Gandhi Vasanth Kumar did the data collection work, and the numerical computations were also done by him using SPSS and AMOS. Dr. Valarmathi B. prepared the manuscript in consultation with Mr. Kumar. The final manuscript review and editing were done by Dr. Valarmathi B.

Conflict of Interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

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