

The AI Metaverse Revolution

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The AI Metaverse Revolution: Transforming Multi-Business Scenarios (Volume 2)

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Contents

| | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| About the Editors | vii |
| About the Contributors | ix |
| Chapter 1 Exploring the Role of Generative Artificial Intelligence Among Employees in the Hospitality Sector: Insights from an Extension of the Job Demands–Resources Theory <i>Muhammad Ashoer, Haroon Iqbal Maseeh, Xin-Jean Lim, Ainur Rofiq and Achmad Zulkarnain Zaenal</i> | 1 |
| Chapter 2 Navigating the Metaverse: Unveiling the Digital Frontier of Connectivity and Interaction <i>Ruchika Vermani and Neha Arora</i> | 17 |
| Chapter 3 The Metaverse Chronicles: Success Stories in Virtual Retail <i>Sreevatsa Bellary and Ananya Hadadi Raghavendra</i> | 33 |
| Chapter 4 Tourist Behaviours, Expectations, and Experiences Toward Events and Festivals: Amalgamation of Metaverse Technological Innovation and Artificial Intelligence <i>Nazirullah, Farhat Ullah, Asif Mahmood, Mohamad Sobri Bin Hamid, Hazim Ryad Momani, Saaherah Basil Alkilany and Sabeeha Rahman</i> | 45 |
| Chapter 5 Exploring the Role of Artificial Intelligence in Transformation of Metaverse: Issues and Challenges <i>Bala Saraswathi Athuri and Pooja Uppalapati</i> | 63 |
| Chapter 6 Unveiling AI-based Metaverse Potential in Green Supply Chain Management Achieve Sustainable Results: Moderating Effect of Dynamic Capabilities in Cybersecurity Intelligence <i>Pham Quang Huy and Vu Kien Phuc</i> | 79 |

| | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Chapter 7 Navigating the Ethical Landscape of Artificial Intelligence Adoption: Exploring Principles, Challenges, and Implications <i>Deepa Saxena</i> | 93 |
| Chapter 8 Unlocking Metaverse in Education: Future Research Trends Using Bibliometrics <i>Rita Devi, Rachna Bhopal and Nazma</i> | 103 |
| Chapter 9 Social Engagement Strategies in the Metaverse: Fostering Customer Loyalty in Tourism and Hospitality <i>Rupam Konar, Md. Tariqul Islam, Lazey Doma Bhutia and Stéphanie Milian</i> | 119 |
| Chapter 10 The Potential of Artificial Intelligence in Enabling SDGs <i>Syed Haider Ali Shah, Eman Zameer Rahman, Majid Murad and Muhammad Jaffer</i> | 131 |
| Chapter 11 Metaverse Integration: Paving the Path from Industry 4.0 to Industry 5.0 <i>Mohit Kumar Ojha and Priyanka Gujrati</i> | 141 |
| Chapter 12 Eco-Friendly Employee Training on the Metaverse: Promoting Environmental Awareness and Sustainability Skills <i>Nisha Devi, Arun Aggarwal and Ishani Sharma</i> | 161 |
| Chapter 13 Virtual Festivals and Events: Redefining Creative Tourism in the Metaverse <i>Ishani Sharma, Arun Aggarwal and Nisha Devi</i> | 177 |
| Chapter 14 Exploring SERVQUAL Dimensions and Their Influence on Tourist Satisfaction in Virtual Tourist Experiences: A Proposed Framework <i>Aishath Shany Habeeb, Kandappan Balasubramanian and Rokhshad Tavakoli</i> | 189 |
| Chapter 15 The AI Metaverse Revolution: For Transforming Sustainable Multi-Business Scenario <i>Monika Chandel and Manpreet Arora</i> | 201 |
| Index | 217 |

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Chapter 1

Exploring the Role of Generative Artificial Intelligence Among Employees in the Hospitality Sector: Insights from an Extension of the Job Demands–Resources Theory

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Abstract

Understanding the role of artificial intelligence (AI) in sustaining employees' work behavior in the hospitality sector is increasingly crucial as these technologies become more integrated into daily workplace activities. Drawing from the extended job demands–resources (JD–R) theory, this study investigates the relationship between JD–R constructs and their sequential effects on burnout, work engagement, well-being, and performance among hotel employees in the context of the hospitality sector. This research also assesses generative AI (i.e., ChatGPT) as a moderating factor, as strongly recommended by previous influential studies to provide significance. Through purposive sampling and electronic questionnaires data collection, a total of 285 eligible hotel employees in several big cities in Indonesia were selected as respondents. Results from Partial Least Squares-Structural Equation Modeling (PLS-SEM) showed that job demands had a significant impact on

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burnout and well-being. Furthermore, job resources had a notable impact on work engagement, yet did not affect well-being. Work engagement and burnout significantly affected employee well-being, subsequently influencing the performance of hotel employees in Indonesia. Moreover, the moderating effect of generative AI in strengthening and reducing the relationship was also confirmed. The research findings have implications for the development of strategies in the rapidly evolving landscape of AI-driven workplaces in hospitality and tourism settings.

Keywords: Job demands–resources theory; burnout; work engagement; well-being; performance; hotel employees; generative artificial intelligence; ChatGPT; hospitality sector

1. Introduction

The tourism and hospitality sector remains a crucial driver of employment in Indonesia. United Nations World Tourism Organization (UNWTO) reported that approximately 2.56 million thousand individuals were employed in hotels and related businesses across the country in 2022 (Nurhayati-Wolff, 2024). Additionally, these sectors play a pivotal role in contributing to economic growth and recovery post-COVID-19, with a positive trend observed in hotel investment and infrastructure development. With market projections indicating exponential growth, it is anticipated that hotel companies will need to recruit millions of additional skillful workers each year across all levels of management to thrive in this dynamic competition (Costa, 2023).

While competent employees play a significant role in hotel performance, much of their work is carried out under stressful and physically or emotionally demanding conditions (Park et al., 2019). For example, hotel managers are continually pressured to achieve occupancy rate targets and integrate technological innovations into their management practices (Park et al., 2019). Similarly, front-line employees frequently face challenging interactions with customers, acting as ambassadors for the organization while striving to meet the expectations of both customers and management (Babakus et al., 2008). Likewise, frontline service employees are frequently exposed to highly stressful situations, such as maintaining a positive attitude when dealing with demanding or disrespectful customers (Lei et al., 2021). These conditions can lead to job burnout and decreased employee well-being and performance, ultimately affecting the overall success of the business. Therefore, managers must focus on cultivating and retaining high-performing frontline employees who are fully engaged in their roles, thereby ensuring the delivery of quality service. Businesses, including those in the hotel sector, are increasingly prioritizing employee engagement due to its significant influence on both employee well-being and overall performance (Bakker et al., 2004; Bakker & Demerouti, 2017; Van Veldhoven et al., 2002).

Meanwhile, the emergence of generative AI, such as ChatGPT, has brought about transformative changes in human resource management (HRM) within

the tourism and hospitality industry (Budhwar et al., 2023). ChatGPT represents a transformative shift in how employees from the bottom to the upper level of management utilize technology to excel in their roles (Dwivedi et al., 2024). Through its use, hotel staff can effectively manage routine tasks like confirming reservations and addressing customer questions, allowing them to dedicate more time to attending to complex guest needs and cultivating deeper relations with stakeholders (Dwivedi et al., 2024; Koc et al., 2023). Moreover, recent research indicates that newly developed AI applications, like ChatGPT, have the potential to significantly impact behavioral aspects of work, such as employee engagement (Cheng et al., 2022) and well-being (Guest et al., 2022).

This study draws on JD–R theory to predict the outcomes of job demands and job resources among hotel employees. Job demands are defined as “physical, psychological, social, or organizational aspects of the job that require sustained physical and/or psychological effort and are therefore associated with certain physiological and/or psychological costs” (Demerouti et al., 2001). Moreover, in the JD–R model of work engagement, job resources can be referred as “physical, psychological, social, or organizational aspects of the job that are: (a) functional in achieving work goals; (b) reduce job demands and the associated physiological and psychological costs; or (c) stimulate personal growth, learning, and development” (Bakker, 2011; Bakker & Demerouti, 2017). While job demands may not be inherently negative, they can become hindrance demands if they require significant effort without adequate recovery time for the employee (Bakker et al., 2004). Hence, the resources are essential not only for managing job demands but also for their intrinsic value. Unlike other theoretical frameworks in occupational health psychology research, such as the demand-control support model and job crafting models, the JD–R model does not exclusively focus on either job demands or resources. Instead, it suggests that any facet of the job environment, whether demand or resource, can impact employee well-being. This adaptability makes the JD–R model highly versatile and applicable across a broad spectrum of work settings. For instance, within the hospitality industry, employees often confront challenges related to job demands such as time constraints, heavy workloads, and physically demanding tasks, which are strongly linked to heightened burnout and diminished well-being. Conversely, workplaces may offer various job resources such as social support, autonomy, and feedback, which can foster employee development and facilitate goal attainment (Crawford et al., 2010).

Despite numerous previous research have evaluated the JD–R model across a wide range of settings, including education (Breevaart & Bakker, 2018; Evers et al., 2015), information technology (Carlson et al., 2017; Zaza et al., 2022), safety behavior and health (Adil & Baig, 2018; Nguyen-Phuoc et al., 2024), and public service (Bakker, 2015), there is still a lack of adequate corroboration for this model’s predictive accuracy within the realm of hotel employees in emerging countries background. Hence, a theoretical gap is recognized, prompting the need for a pertinent expansion of the JD–R model to bolster its predictive power and generalization. Some experts argued that adding a mechanism of exogenous or moderating variable can enhance the predictive ability of the model (Schaufeli, 2017; Schaufeli & Bakker, 2004), and is considered essential for enriching HRM

literature (Budhwar et al., 2023). Therefore, a moderating construct namely generative AI was added to the JD–R model to address experts' recommendations (Budhwar et al., 2023). Several prior studies have also applied AI as a moderating variable in human resource backgrounds like tourism industry (Nguyen & Malik, 2022) and banking (Wijayati et al., 2022). The purpose of this study is to examine the influence between job demands and job resources toward burnout, work engagement, well-being, and performance among hotel employees in the context of the hospitality sector. This research also aims to test how the usage of generative AI (i.e., ChatGPT) plays a moderating role in this model.

2. Methodology

2.1. Research Method

This study adopts a positivist approach and employs a quantitative method to construct the research design. Within this framework, the research objectives are clearly delineated. The primary aim of the study is to investigate the influence of JD–R model on burnout, work engagement, and employee well-being, while also exploring the moderating impact of generative AI. Given these research objectives, causal research emerges as the most appropriate methodological approach (Edmonds & Kennedy, 2019).

2.2. Sampling and Data Collection

This research focuses on the perception of hotel employees across all levels of management within the hospitality sector in various major cities in Indonesia. The purposive sampling technique was utilized to select prospective respondents (Edmonds & Kennedy, 2019). This method ensures that the selected sample embodies specific characteristics identified by the researcher, such as employees with experience in utilizing generative AI (like ChatGPT or others) in their work. Primary data were collected through an electronic questionnaire (Google Forms) because of its cost-effectiveness, quick results, easy administration, and wide geographical reach (Evans & Matur, 2018). To mitigate response bias, the survey link was deliberately and directly shared via WhatsApp Group and email, with assistance from hotel employee representatives and/or members of the hotel association in the respective regions. This focused distribution method ensures that the survey reaches individuals actively engaged in the hospitality sector, thereby increasing the likelihood of gathering valuable insights without distorting the responses (Lee et al., 2017). Data collection spanned three months, from January to March 2024. Out of 387 responses received, 285 eligible respondents met the specified criteria for further analysis. With a response rate of 73.6%, this aligns with recommended standards in hospitality and tourism research (Ali et al., 2021).

2.3. Measurement and Data Analysis

The questionnaire was designed into two parts. The first part collects participant demographic data such as gender, age (generation), education level, working

experience, marital status, income per month, level of management, and hotel star ratings. The second part details all lists of measurement scales that reflect exogenous and endogenous variables used in this study. The study includes six constructs namely, job demands, job resources, burnout, engagement, employee’s well-being, and performance. With no sub-scales, the self-administered questionnaire comprised a total of 31 items that were measured on a five-point Likert-type scale (1 = strongly disagree to 5 = strongly agree). Job demands and job resources were both measured by six items adapted from previous studies (Bakker et al., 2004; Chiang & Chen, 2024; Nguyen-Phuoc et al., 2024; Radic et al., 2020; Van Veldhoven et al., 2002). Burnout was measured by six items of Maslach Burnout Inventory-General Survey Questionnaire adapted from Maslach and Jackson (1986). The Utrecht Work Engagement Scale (Schaufeli et al., 2002) consists of six items used to measure employee’s experiences of engagement. Employee well-being was measured by seven items adapted from Pradhan and Hati (2019), Radic et al. (2020), and Schaufeli and Taris (2014). Performance was measured by six items adapted from Bakker et al. (2004) and Nguyen-Phuoc et al. (2024).

The proposed conceptual framework (Fig. 1.1) and the collected primary data were empirically analyzed using PLS-SEM facilitated by SmartPLS software (Hair et al., 2019). PLS-SEM is strongly recommended by experts to provide significant contributions to knowledge in HRM (Legate et al., 2021). The assessment of PLS-SEM consists mainly of two stages: the outer (measurement) model and the inner (structural) model.

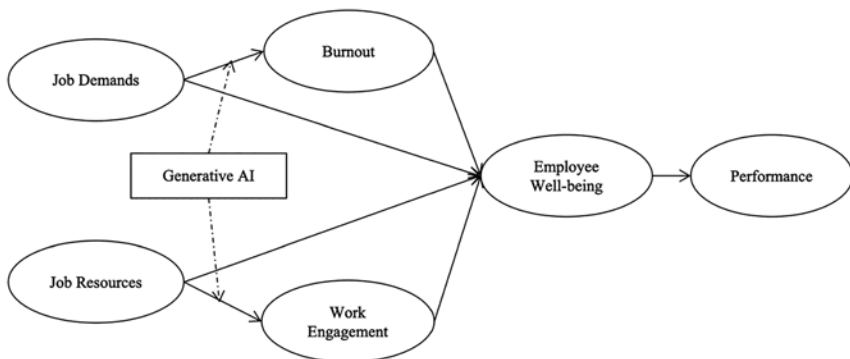


Fig. 1.1. Conceptual Framework.

3. Results and Discussions

3.1. Respondents

Table 1.1 provides an overview of the demographic sample of 285 hotel employees in Indonesia. Among them, 158 were female and 127 were male. The largest proportion of respondents, accounting for 66.3%, belonged to Generation Y, while 71.6%

Table 1.1. Background of Respondents ($N=285$).

| Categories | Demographic | Frequency | Percentage |
|----------------------------------------------|--------------------------------------------------|-----------|------------|
| Gender | Male | 127 | 44.6 |
| | Female | 158 | 55.4 |
| Age (Generation) | 17–26 years old (Gen Z) | 62 | 21.8 |
| | 27–42 years old (Gen Y/ Millennial) | 189 | 66.3 |
| | > 43 years old (Boomer) | 34 | 11.9 |
| Education level | High School or Diploma (Vocational School) | 44 | 15.4 |
| | Bachelors | 204 | 71.6 |
| | Postgraduate degree (Masters and/or Doctoral) | 31 | 10.9 |
| | Others | 6 | 2.1 |
| Working experience in hospitality sectors | 1–3 years | 50 | 17.5 |
| | 3–5 years | 137 | 48.1 |
| | > 5 years | 98 | 34.4 |
| Income per month (in IDR Indonesia) | ≤ 5 million | 62 | 21.8 |
| | 5–10 million | 189 | 66.3 |
| | More than 10 million | 34 | 11.9 |
| Levels of management | Lower management | 84 | 29.5 |
| | Middle management | 182 | 63.9 |
| | Top management | 19 | 6.7 |
| Hotel star ratings | 4-Star rating | 158 | 75.2 |
| | 5-Star rating | 127 | 60.5 |

held a bachelor's degree and 48.1% had 3–5 years of experience in the hospitality sector. Their average monthly income ranged from 5 to 10 million. Regarding the level of management, 63.9% held middle management roles, 29.5% were in lower management, and 6.7% occupied top management positions. Lastly, 75.2% of the participants were employed in 4-star hotels, whereas 60.5% worked in 5-star hotels.

3.2. Outer Model Assessment

This study follows the four practical steps outlined by [Hair et al. \(2019\)](#) for reporting the results of the outer model in PLS-SEM estimation. Firstly, the study evaluates the reliability indicator by analyzing the loading factor values. The results indicate that all factor loadings exceed the threshold of 0.708, suggesting that

the constructs can explain 50% of the variance in the indicators. The second step involves evaluating the reliability of internal consistency using measures such as composite reliability (CR) and Cronbach's alpha (CA). The analysis confirms that all latent variables have CR and CA values above the minimum acceptable threshold of 0.7. Next, convergent validity is assessed using the average variance extracted (AVE) for each construct, all of which surpass the 0.5 threshold, meeting the criterion. The fourth step focuses on evaluating discriminant validity through two restrictive methods: the Fornell–Larcker criterion and the Heterotrait–Monotrait (HTMT) criterion ratio for structural distinction (Henseler et al., 2015). The HTMT assesses discriminant validity in PLS-SEM-based variance, using a predefined threshold value of 0.85 in this study. All calculations indicate values below this threshold, confirming discriminant validity. The results of the measurement model assessment are presented in Tables 1.2 and 1.3.

3.3. Inner Model Assessment

Examining the structural model involves evaluating the correlation between predictors, the significance of the hypothesized relationship, the coefficient of determination (R^2), and effect size (f^2). Initially, it is essential to assess the variance inflation factor (VIF) values to avoid collinearity and common method bias within the model. Findings reveal that all predictor variables have VIF values below the critical threshold of 3.3 (ranging from 1.003 to 2.205), indicating no collinearity problems and general method bias in this research (Kock, 2017).

The R^2 values represent the explained variance in the endogenous variables (Hair et al., 2019). According to established guidelines, R^2 values of 0.75, 0.50, and 0.25 indicate substantial, moderate, and weak explanatory power, respectively. The results reveal that the R^2 values for the endogenous variables are as follows: burnout (0.497) and work engagement (0.480) are classified as moderate, while well-being (0.602) and performance (0.573) are categorized as high. This study also calculates and reports the effect size (f^2) to show how much it contributes to R^2 as a function of the moderator. Following Cohen's (1988) criteria for exogenous variables – where 0.02, 0.15, and 0.35 correspond to small, medium, and large effects – it is found that most exogenous variables exhibit small to medium effects. Detailed results of the structural model are presented in Table 1.4.

Next, the significance of direct relationships is evaluated by bootstrapping subsamples and conducting 5,000 iterations of multiplication. All structural relationships are significant if the bootstrap critical t -values are greater than ± 1.96 (two-tailed test) or if $p < 0.05$. Firstly, job demands significantly affect burnout ($b = 0.305$, $p < 0.000$), while they have no significant impact on employee well-being ($b = -0.202$, $p > 0.062$). These results are consistent with previous research (Bakker et al., 2004; Maslach & Leiter, 2008; Radic et al., 2020). This is reasonable because employees frequently face demanding and stressful situations inherent in their work, such as fulfilling diverse guest needs and expectations or excessive daily workload. Additionally, the pressure to meet performance targets, such as maintaining high occupancy rates or achieving guest satisfaction, creates

Table 1.2. Evaluation of the Outer Model.

| | Constructs and Measurement Scales | Loadings | CA | CR | AVE |
|----|----------------------------------------------------------------------------------------------------------------|-----------------|-----------|-----------|------------|
| JD | JD1: My work is emotionally demanding | 0.750 | 0.830 | 0.829 | 0.577 |
| | JD2: I am required to consistently demonstrate a positive attitude at work, even if I am feeling otherwise | 0.741 | | | |
| | JD3: There is too much workload that I have to handle every month/day | 0.806 | | | |
| | JD4: I have to complete tasks quickly | 0.735 | | | |
| | JD5: I cannot keep up with the changes or developments in my work | 0.723 | | | |
| | JD6: My work has a negative impact on my family life | 0.764 | | | |
| JR | JR1: My job allows me to make a lot of decisions at work | 0.887 | 0.912 | 0.914 | 0.724 |
| | JR2: I feel that my skills are needed by this company | 0.901 | | | |
| | JR3: My boss always provides assistance when I face problems at work | 0.869 | | | |
| | JR4: My coworkers are reliable when I encounter difficulties in my work | 0.893 | | | |
| | JR5: The company has sufficient funds to provide technology support to enhance my work and improve the service | 0.904 | | | |
| | JR6: I have the necessary technology support to serve my customers better | 0.903 | | | |
| BO | BO1: I feel emotionally tired about the work I do | 0.833 | 0.884 | 0.882 | 0.651 |
| | BO2: The demands of the job I have to do are very exhausting | 0.824 | | | |
| | BO3: I feel less caring toward others since I took this job | 0.770 | | | |
| | BO4: I do not really care about what happens to some customers | 0.769 | | | |
| | BO5: I am becoming less enthusiastic about my work | 0.805 | | | |
| | BO6: I am questioning whether my job contributes to the company or not | 0.786 | | | |