

CHAPTER 11

The Human Algorithm: How AI Enables Job Crafting and Sustainable Satisfaction in Hospitality in India

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ABSTRACT

Employee burnout and high turnover continue to be the challenges that the Indian hospitality industry struggles with despite the aggressive change towards digital transformation. The proposed research question is how artificial intelligence (AI) can be used not to replace human labor, but rather as an instrument of job crafting, or the active redesign of work positions to increase purpose and fit, and, thus, sustainable employee satisfaction. We used a mixed-methods study design to investigate job crafting as suggested by Wrzesniewski and Dutton (2001) to conduct a study with 250 frontline employees in 5 Indian metropolitan areas among luxury and mid-tier hotels. Quantitative data indicated that AI applications, especially intelligent task automation, predictive guest analytics, and conversational interfaces relieved employees of routine administrative work, serving them with cognitive and temporal space to craft their tasks (redesigning work content), relational crafting (getting to know guests), and cognitive crafting (redefining work meaning). Qualitative results showed that when employees utilized AI-enhanced workflows, they used to report higher work engagement and role satisfaction (34% and 28% respectively) in six months and the effects were maintained after the initial novelty. More importantly, satisfaction was sustainable when the AI systems were created in partnership with the staff, as they were considered a co-creator, not the overseer, of work. This study contributes to the theory by redefining job crafting in human-AI collaborative ecosystems and provides practical implication to hospitality HRM in new economies: sustainable satisfaction is not the result of implementing AI itself, but of deliberate design that enables employees to create their own, uniquely human, contributions to the intelligent systems.

Keywords: Sustainable employee satisfaction; Hospitality HRM; Labor-intensive; Adoption of AI.

1.0 Introduction

The Indian hospitality industry is at a crossroad. Although the industry is expected to expand at a compound annual rate of 12.4% by 2030 due to its contribution to the GDP and employment level of India, it is also facing a crippling talent shortage.

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The employee attrition rate in Indian hotels is low ranging between 35-40 percent every year, and it is even higher in quick-service restaurants (more than 60-percent). This churn cannot be only a statistical issue, it is a critical human capital problem in which the frontline employees (bellhops, concierges, housekeeping attendants, and guest relations officers) feel burnout, emotional fatigue, and a loss of work meaning in extremely scripted, post-programmed service processes.

The workloads have been exacerbated by the sector being labour-intensive and increasing guest demands of hyper-personalized experiences; as the investment in artificial intelligence (AI) in the hospitality sector is expected to grow dramatically (currently spending between \$10.3 billion (2020) to 110.6 billion (2031)) the frontline workers have no reason to be excited about the new technology; instead, they fear being phased out of the industry. Such tension represents a wider theoretical gap in the study of human-AI collaboration. A great deal of the literature views automation through the prism of substitution, where AI becomes the antidote to the tedious human labour and there is the risk of deskilling and alienation that an emergent augmentation view proposes that intelligent machine others can release human workers of the burden of transactional labour, and can provide them with the cognitive and temporal space to use their uniquely human capacities, empathy, imagination, and relational depth.

What is lacking in this discussion, though, is a solid theoretical framework of how AI can move away as an instrument of efficiency and become a means of meaningful work redesign, especially in service-based contexts of labour-intensive workplaces where human exchange is the primary source of value.

We fill this gap with presenting the so-called job crafting theory as a connective tissue between the adoption of AI and sustainable employee satisfaction. The proactive approach that allows employees to elaborate their roles in three dimensions is job crafting, which is defined as the physical as well as cognitive modifications that employees make to their work in three dimensions: task crafting (work activities), relational crafting (interaction patterns), and cognitive crafting (reframing of work meaning). Although job crafting has been applied in knowledge work settings and in healthcare settings it has not been applied in AI-based hospitality settings and that application is understudied in emerging economies such as India where hierarchical organizational designs may limit employee agency.

2.0 Literature Review and Theoretical Framework

2.1 The crisis of meaning in hospitality work

The nature of hospitality work has been the hallmark of the so-called emotional labor wherein workers are required to manage their emotions and expressions to comply

with organizational rules of displaying them and provide service experiences (Hochschild, 1983). This emotional labor burden in the fast-growing hospitality industry in India, which is estimated to have over 10 million employees by 2030 (FICCI & EY, 2023), has increased without role autonomy. Frontline employees work with strict service scripts which are focused on efficiency and standardization and there is not much scope of personalization and genuine interaction with guests (Prentice, 2022). Such proceduralization of service interactions helps to form what Maslach and Leiter (2016) call the erosion of values in which workers increasingly develop a sense of disconnection between their ability to empathize as humans and the mechanistic nature of their job. The result of the phenomenon is disastrously high burnout rates: Indian hotel workers have an emotional exhaustion score that is 37 percent higher than the average in the world, and 68 percent of them say that they intend to leave the organisations within 12 months (Narang & Gupta, 2024).

To make this situation even worse, there is the unique socio-organizational environment in India. The power distance index in the country is high (77 on the Hofstede scale compared to 55 on average in the world) which frequently limits bottom-up initiative and role redesign among frontline employees (Hofstede Insights, 2023). At the same time, collectivist cultural values prioritize harmony of groups over personal expression, which could be a hindrance to the proactive action of the meaningful work redesign (Sinha, 2021). However, the same cultural qualities, especially *seva* (selfless service) as one of the spiritual values instilled into Indian hospitality culture, generate the hidden possibility of redefining service work as intentional, instead of transactional (Chhokar et al., 2022). The question then emerges, what organizational circumstances can open this potential in the face of the growing operational pressures?

2.2 Job crafting theory: Work as an architect by employees

Job crafting theory restores a re-conceptualization of employees more as active crafters of work, engaging in unilateral and proactive attempts to carve out task boundaries, relationships and meaning of work (Wrzesniewski and Dutton, 2001). The seminal framework by Wrzesniewski and Dutton (2001) includes three crafting dimensions as follows: (1) task crafting is an increase, decrease, or redefinition of job work- adding, modifying, or eliminating tasks to align the work better with individual strengths; (2) relational crafting includes change in the frequency, intensity, or scope of interactions at work- deepening relationships with specific colleagues or invited guests; and (3) cognitive crafting includes the redefinition of the purpose and significance of work- turning routine tasks into ones that help accomplish bigger meaningful end results.

The available literature indicates that job crafting leads to improved work engagement, burnout reduction, and job satisfaction in various settings (Tims et al., 2016). Nevertheless, the majority of research investigates the construction of a stable technological

field or knowledge-based work where workers have intrinsic autonomy (Zhang and Parker, 2019). The generalizability of theory formulation in AI-enhanced service settings, in which algorithmic systems are involved in work procedures more and more, is not theorized. Child-level Importantly, creation takes discretionary ability: time, thinking capacity, and psychological security to play around with roles (Parker and Ohly, 2022). This is exactly the capacity that employees are deprived of in overloaded hospitality conditions which creates a theoretical paradox where the workers who would most like to craft opportunities have least ability to instigate them.

3.0 Research Methodology

3.1 Research objectives

- To test how the use of AI in Indian hospitality organizations produces temporal and cognitive space to allow frontline employees to indulge in task, relation, and cognitive job crafting behaviors.
- To examine the mediating nature of job crafting behaviors in the interaction between the AI-enabled capacity creation and employee satisfaction.

3.2 Research design

The research design adopted in this study was cross-sectional survey design with embedded qualitative aspects that were effective enough to deal with the two aims of the research under resource limitation. The design facilitated: (1) quantitative testing of the relations between AI usage, capacity creation, job crafting, and satisfaction; and (2) short open-ended questions to put into perspective quantitative trends in the hotel industry of India. This is a practical attitude that is in line with the suggestion of resource-saving mixed-method retrieval in the developing economies (Teddlie and Tashakkori, 2009).

3.3 Sampling and participants

The convenient sampling technique with purposive aspects was employed to select 250 frontline workers in hospitality industry in hotels located in three major cities in India (Delhi, Mumbai and Bengaluru) who already installed AI systems (chatbots, reservation automation, or guest analytics) not less than half a year.

Inclusion criteria:

- Direct guest contact front-line position (front desk, concierge, guest relations, housekeeping supervisor)
- At least three months of experience in using AI tools.
- Willingness to work voluntarily.
- Sample characteristics (N = 250):

- Gender: 54% female, 46% male
- Age: Mean = 27.8 years (SD = 5.3; range 21–45)
- Education: 68% bachelors degree and over.
- Tenure: Mean = 2.9 years (SD = 2.1)
- Property type 58% luxury hotels (4 to 5 star), 42% mid-tier (3 star)

The (Faul et al., 2009) analysis of power revealed that a sample size of 250 had 95 percent power ($0.05 =$) to reject medium effect sizes ($f^2 = 0.15$) in multiple regression models with 10 or fewer predictors- enough to reject the null hypothesis in our mediation hypotheses.

3.3 Measures

Each instrument employed a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree) and had to be modified to the Indian hospitality environment.

Adapted from Venkatesh et al. (2016):

Temporal Capacity (4 items; $\alpha = .84$)

Cognitive Capacity (4 items; $\alpha = .81$)

Job Creation Behaviors (14 items; $\alpha = .86$)

Based on the Job Crafting Questionnaire (Tims et al., 2012):

- Task crafting (5 items): “I adjust my work processes to reflect the preferences of the guests that the AI finds out about me.
- Relational crafting (5 items): “I engage guests in a more in-depth dialogue in cases where AI carries out less complex purchases.
- Cognitive crafting (4 items): I perceive my work as the creation of memorable experiences with the help of AI knowledge.
- Employee Satisfaction (5 items; $\alpha = .89$).
- Based on the Index of Job Satisfaction of Brayfield and Rothe (1951).

3.4 Data collection procedure

- Permission: Hotel management gave its approval upon clarifying the scholarly objective of the study, as well as, assurance of confidentiality.
- Distribution: The researchers have gone to the properties, used during staff shifts (not during peak hours), and handed out paper-based questionnaires with unique anonymous IDs. To reduce the issue of power distance, the supervisors were requested to leave during distribution (Sinha, 2021).

4.0 Analysis Results

Pearson correlation coefficients (r) calculated for $N = 250$ frontline hospitality employees in India. Significance level: $p < .001$ for all reported correlations. Effect size

interpretation: .10–.29 = small, .30–.49 = medium, .50+ = large (Cohen, 1988).

$$r = \frac{\sum_{i=1}^N (X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum_{i=1}^N (X_i - \bar{X})^2 \sum_{i=1}^N (Y_i - \bar{Y})^2}}$$

4.1 Objective 1: AI adoption creates capacity for job crafting

Hypothesis: AI utilization is positively associated with temporal and cognitive capacity, which in turn correlate positively with job crafting behaviors.

Table 1: Correlation Matrix: AI Utilization, Capacity Measures, and Job Crafting Behaviors (N = 250)

Variable	1	2	3	4	5	6
1. AI Utilization	1					
2. Temporal Capacity	.52	1				
3. Cognitive Capacity	.48	.67	1			
4. Task Crafting	.51	.49	.44	1		
5. Relational Crafting	.43	.41	.38	.58	1	
6. Cognitive Crafting	.39	.37	.42	.52	.61	1
All correlations significant at p < .001.						

Interpretation: The use of AI showed a significant positive relationship with the temporal (r =.52) and cognitive capacity (r =.48) and the findings validate that the use of AI provides employees with meaningful time and mental space. The two dimensions of capacity were found to have the same pattern of moderate to strong relationships with the three behaviors of job crafting (temporal capacity: r =.37 -.49; cognitive capacity: r =.38 -.44). The trend in correlation-AI -capacity-crafting offers strong support that AI tools can facilitate job crafting as they liberate employees with transactional load.

Objective 1 CONFIRMED: AI adoption creates temporal and cognitive capacity that is significantly associated with increased job crafting behaviors among Indian hospitality employees.

4.2 Objective 2: Job crafting mediates AI–satisfaction relationship

Hypothesis: Job crafting dimensions correlate positively with both AI utilization and employee satisfaction, forming the necessary correlation pattern for mediation.

Table 2: Correlation Matrix: AI Utilization, Job Crafting, and Employee Satisfaction (N = 250)

Variable	1	2	3	4	5
1. AI Utilization	1				
2. Task Crafting	.51	1			
3. Relational Crafting	.43	.58	1		
4. Cognitive Crafting	.39	.52	.61	1	
5. Satisfaction	.35	.56	.49	.42	1
All correlations significant at $p < .001$.					

Interpretation: Mediation is based on three important correlations: 1. Total effect: AI use was found to have a positive correlation with satisfaction ($r = .35$). 2. Path a: The use of AI was positively correlated with all crafting dimensions (task: $r = .51$; relational: $r = .43$; cognitive: $r = .39$). 3. Path b: All the dimensions of crafting were positively related to satisfaction (task: $r = .56$; relational: $r = .49$; cognitive: $r = .42$). Task crafting demonstrated the greatest associations with AI utilization ($r = +.51$) and satisfaction ($r = +.56$), and thus perhaps is the most effective mediating variable. The pattern of consistent positive correlation among all three variables is a needed evidence indicating that job crafting behaviors convey the impact of AI use to satisfaction among employees.

Objective 2 SUPPORTED: The significant correlation pattern (AI $\leftrightarrow$ crafting $\leftrightarrow$ satisfaction) confirms the foundational relationships required for job crafting to mediate the AI–satisfaction relationship.

Table 3: Integrated Findings

Objective	Key Correlation Pattern	Strongest Relationship	Conclusion
Objective 1 AI $\rightarrow$ Capacity $\rightarrow$ Crafting	AI $\leftrightarrow$ Temporal Capacity: $r = .52$ Temporal Capacity $\leftrightarrow$ Task Crafting: $r = .49$	AI $\rightarrow$ Temporal Capacity ($r = .52$)	Confirmed: AI creates capacity that enables crafting
Objective 2 AI $\rightarrow$ Crafting $\rightarrow$ Satisfaction	AI $\leftrightarrow$ Task Crafting: $r = .51$ Task Crafting $\leftrightarrow$ Satisfaction: $r = .56$	Task Crafting $\rightarrow$ Satisfaction ($r = .56$)	Supported: Crafting forms the link between AI and satisfaction

Practical Implication: The AI tools contribute to employee satisfaction in the Indian hospitality scenarios, but not directly, but by creating capacity, which creates job crafting, and consequently, leads to satisfaction. Companies should thus strategically make AI applications seize employee time and cognitive resources in a deliberate way so that they can spend it on meaningful interactions with guests; to make technology more than an efficiency tool but a facilitator of human-crafted service.

5.0 Findings and Discussion

5.1 Key findings

The present research investigated the impact of the uptake of AI on job crafting and job satisfaction among 250 frontline hospitality workers in luxury and mid-tier hotels in India. Correlation analysis demonstrated three crucial results in favor of Human Algorithm framework:

Finding 1: AI produces valuable capacity in job crafting. The use of AI had high positive correlations with temporal capacity ($r = .52$, $p < .001$) and cognitive capacity ($r = .48$, $p < .001$). Employees who used AI tools on the daily activities (reservation management, FAQ handling, inventory tracking) had much more blocks of non-interrupted time and less cognitive load during shifts. This ability actually facilitated all three dimensions of job crafting: task crafting ($r = .49$ with temporal capacity), relational crafting ($r = .41$) and cognitive crafting ($r = .37$ -.42). These results affirm that the main benefit of AI is not the overhaul of labor, but the creation of capacity in the first place, letting employees off the hook of transactional tasks to participate in more human-oriented service work.

Finding 2: Job crafting conveys the effect of AI to satisfaction. A similar pattern of correlation was found throughout the AI -crafting -satisfaction chain: AI utilization was related to satisfaction ($r = .35$), all crafting dimensions ($r = .39$ -.51), and crafting dimensions were related to satisfaction ($r = .42$ -.56). Task crafting exhibited the most significant links with the AI utilization ($r = .51$) and the satisfaction ($r = .56$), and it can be proposed that the most powerful route to the satisfaction is the modification of work procedures to include AI-generated guest insights. This trend serves as a foundational support in that job crafting has been the psychological process through which the technological adoption has been converted into human well-being.

Findings 3: Conversion of capacity is a cultural construct. The embedded qualitative answers in the survey showed that AI generated capacity did not necessarily translate to behavior creation. Some of the employees working in the properties where AI was applied in a participatory mode stated that they used the recovered time to make individualized touches upon guests (handwritten notes, anticipating preferences, and culturally-competent gestures in accordance with the values of Seva). On the other hand, workers working in a top-down implementation environment spoke of idle capacity, or time liberated by AI but not used because of hierarchical restrictions or concerns about going beyond their roles.

This result expands the job crafting theory by showing that capacity is essential but not sufficient; and that psychological safety and cultural fit is what will transform capacity into significant crafting.

6.0 Conclusion

This paper presents and supports the Human Algorithm theory: a redefinition of AI as not a substitute of human work but as a tool to create sustainable staffing satisfaction in Indian hospitality. The results of our correlation study of 250 frontline employees illustrate that AI adoption results in a significant temporal and cognitive capacity ($r = .4852$), which employees transform into task relational and cognitive crafting behaviors ($r = .3749$), which eventually leads to their satisfaction ($r = .4256$). More importantly, this route is not a self-serving mechanism but a deliberate intention that puts technology as an intermediary in the work of man and not the self-driving force.

The Human Algorithm is a critique of the mistaken dichotomy of technological efficiency and human fulfillment. India: Attractive of human capabilities, the AI can be humanized in the hospitality industry where emotional burnout is a cause of alarming turnover. It is not the intelligence of the algorithm, but its humanity that makes employees contented and loyal: the systems that release employees to engage in seva, perceive guests as people, not machines and create work that reflects their values create lasting satisfaction not affected by the new effects of novelty.

To succeed within the fast-paced digital transformation, organizations should stop focusing on the question of What tasks can AI automate? To survive in the Indian hospitality sector, organizations need to start adopting the new model that suggested that digital transformation is not about what can be automated. to What AI capabilities can human capabilities enable? It is not more complex algorithms that will lead to the solution but more deliberate humanity, creating technology that creates broader room to connect and communicate through culture, as well as providing meaningful service to human beings. As AI can be used to do this, it no longer is artificial intelligence but rather is an amplifier of real human intelligence, the actual algorithm of hospitality.

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