

An Investigation of the Impact of Interior Design on Job Performance: A Study on Hospitality Employees in Vietnam

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Abstract—This paper is aimed exploring various factors of the surrounding environment and their impact upon hospitality job performance in Vietnam. This study incorporates a quantitative methodological approach and includes a survey of 269 questionnaires for its data analysis. The results were examined by descriptive statistics, reliability analysis, validity analysis, and regression analysis. The research uncovers a remarkable finding: Spatial Arrangement significantly influences hospitality employees' job performance. Other factors such as Furniture, Music, Temperature, Lighting, Presence of Plants and Flowers, Color and Air Quality were proved to have only moderate influence on Job Performance. The research scope stays focused on Vietnamese hospitality workers in Ho Chi Minh and Da Nang City. The research contributes to the field of hospitality management by highlighting the significance of interior design on job performance.

Index Terms—Interior design, job performance, hospitality industry, performance management.

I. INTRODUCTION

In the hospitality industry, the workplace areas of employees and service areas of guests are shared spaces. The attitude of hospitality workers significantly influences the service that they provide to their customers. Therefore, the factors that affect the staffs' work performance are crucial to human resources management in the hospitality industry. In a case study from France where the hospitality industry contributed 8.4% of GDP [1], 38.2% of the waiters reported having to raise their voices to communicate with customers [2]. One often cited instance example that illustrates the difficulties that waiters experienced involves having to constantly ask customers to repeat what they had said. Distracting background noise and extremely loud music was often to blame. The owner of hotels or restaurants could simply lower the volume of the music to fix this problem. However, in the environment of the hospitality industry, the use of music is an indispensable practice that makes customers feel relaxed and comfortable. Another environmental factor that hospitality businesses use is interior design to create "WOW" experiences for guests.

Manuscript received February 19, 2017; revised March 10, 2017.

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But, what about the experiences of employees who work day-by-day in hospitality workplace? It is worth understanding how to make the interior design of the work environment more efficient so that employees can deliver the best service to their guests. Music and interior design are just two components that belong to environmental factors that impact customer experience. In this paper, the tested factors are Furniture, Music, Temperature, Spatial Arrangement, Light, Air Quality, Presence of Plants and Flowers, and Color. By approaching the study with a quantitative research method, we hope to investigate the critical impacts of those components on hospitality employees' performance to answer these questions:

- 1) What are the factors of interior design that influence hospitality employees' job performance?
- 2) Which is the most influential aspect of interior design that influences hospitality employees' job performance?
- 3) How much does each of the interior design factors influence hospitality employees' job performance?
- 4) How can a hospitality business improve interior design to optimize job performance?

This research is an endeavor for promoting good workplace interior design in Vietnam, which can be applied to stimulate employee performance. The results will be beneficial to managers or hospitality business owners in facilities management, human resources management, as well as interior design strategic management.

II. LITERATURE REVIEW

A. Job Performance (JPER)

There are different definitions of job performance. In human resources management, the term of 'job performance' can be understood as the quality of tasks which have been done by employees. According to [3], job performance is defined as "the degree of accomplishment of the tasks that make up an individuals' job". Similarly, job performance is considered as a "property of behavior" and referred to as organizations' "total expected value" [4]. In other words, the performance of employees will align with the organization's goal. Employees' performance reflects the possibility to achieve the goals of that organization. Performance can be measured toward two sets of behaviors. While the first approach is based on a behavioral set of different employees in the same working conditions; the second approach focuses on a behavioral set that involves one employee at different time frames [4]. The most important finding from [4] is that employee performance leads to positive or negative consequences on an organization's goal. In brief, job performance is behavioral,

episodic, multi-dimensional and evaluative [5]. Normally, the performance of workers depicts the quality of goods and services that a hospitality business provides. The previous findings prove that there is a relationship between service workers' performance and customer satisfaction. According to Schneider et al. (1997, as cited by Shahani-Denning, 2000/2001) [6] in order to optimize their competitive advantage, the human resources of a service business, or hospitality enterprise, should base their practices toward particular market segments. For instance, response rates could be considered as a key performance indicator of a service provider. Time lost due to waiting is a negative customer outcome. The customer who demands for fast food service obviously needs a faster response rate from the staff than those patrons desiring a romantic dinner at a fine-dining restaurant. A quick response to customers' demand helps increase their satisfaction, which indicates that a good performance by employees have a profound effect on both customer retention and hospitality businesses' quality.

A. Interior Design

Interior design "is about taking holistic view of the way that individuals use and enjoy the spaces that they inhabit. It is about finding and creating a cohesive answer to a set of problems and dressing the solution to unify and strengthen our experience of the space" [7]. Researchers pinpoint that interior design includes Decorative Scheme, Acoustics, Furniture, Color and Light [7]. Previously, Brill et al. also indicated that Furniture, Noise, Flexibility, Comfort, Communication, Lighting, Temperature and Air Quality are factors of the working environment that affect work performance.² Among the four mentioned factors: Furniture, Noise, Lighting and Temperature were considered as interior design of working environment in the finding of El-Zeiny [8]. El-Zeiny also examined three more factors which are Privacy, Spatial Arrangement and Color. Outdoor View and the Presence of Plants and Flowers were included to interior design factors based on the findings of Roger S. Ulrich [9]. To that extent, the study of El-Zeiny has the most tested variables in this field. This paper draws primarily on the work of El-Zeiny.

B. Relationship between Interior Design and Employees' Job Performance

Leaman observed that "People who are unhappy with the temperature, air quality, lighting and noise conditions in their offices are more likely to say that this affects their productivity at work."³ Complimenting Leaman's findings, Hughes has conducted a survey from 2,000 employees with different professional levels at different businesses.⁴ He found that nine out of ten respondents believe that a good workspace has a significant influence on the attitude of the employees, which would increase their productivity [10]. Furthermore, in 1999 the American Society of Interior Design completed several studies which concluded that the factors of the physical working environment, or interior design, impacts employee comfort at the workplace, fosters their accessibility to others and equipment, creates privacy

and motivates workplace flexibility [11]. Accordingly, physical factor of the workplace is one of the top three factors that affects the workers' decision to accept or leave a job. Those precious findings indicate that interior design plays a key role on employee work performance.

1) Furniture (FUNI)

According to Leblebici (2012), furniture is the most influential physical factor of work performance [12]. Oswald (2012) pointed out the importance of furniture in work performance by finding that "presence of a good office with quality furniture can help to motivate workers to perform well," through the completion of questionnaires and interviews [13]. Similarly, El-Zeiny (2012) clarifies that furniture is the leading interior design factor which influences both male and female performance. Conversely, the study of Jang (2006), which is specifically focused on the influence of the atmosphere at hotel lobbies, eliminates the importance of furniture (or furnishings) by stating that furniture often depends on the initial style of architecture [14]. It brings the idea that the style of the interior is less important to people's perception because the space is built first and the furniture is furnished flexibly.

2) Music (MUSIC)

According to the US Workplace Survey by Gensler (2013), 77% of surveyed employees "prefer quiet when they need focus." Additionally, 69% of employees show their dissatisfaction with noise at their workplace [15]. Noise, obviously, provokes a negative impact on employee performance. Music, on the other hand, is different from noise in terms of its "mathematical form." Particularly, "music is ordered sound. Noise is disordered sound" [16]. Padmasiri and Dhamika (2014) assert that music causes a decrease in work performance [17]. Otherwise, Lesiuk (2005) finds that the "Quality-of-work" of employees plummets to the lowest point during the no-music-week of experimental duration [18]. This finding indicates that music is advantageous to work performance of employees.⁵

3) Lighting (LIGHT)

El-Zeiny (2012) asserts that Lighting is ranked third among the nine factors of interior design in the degree of work performance influence. In addition, "good lighting design and adequate daylight have been linked to 15 per cent reduction in absenteeism and increases of between 3 per cent and 20 per cent in productivity," discovered by the Commission for Architecture and the Built Environment [19].

4) Temperature (TEMP)

Temperature is ranked second in influencing work performance among the nine factors model presented by El-Zeiny (2012). Research that was supported by Finland and the United States since 2006 pinpoints that work performance of office employees would reach its peak when the temperature is around 22°C and performance decrease if the temperature is above 23 – 24°C [20]. Likewise, Seppänen et al. (2003) have found that performance would decrease by "2% per °C increase of the temperature in the

² This finding was cited by El-Zeiny in 2012 [8].

³ This finding was cited by Haynes 2008 [10].

⁴ This finding was cited by Amjad and Hameed in 2009 [27].

⁵ This information was cited by Lesiuk, 2005 [18].

range of 25 – 32°C” [21].

5) *Spatial arrangement (SA)*

Spatial arrangement, or layout, is considered as an important element of interior design, which significantly influences work performance. A proper interior layout creates convenience for both employees and customers in the hospitality business. Poor layout can cause difficulty for employees such as unexpected repetitive actions or occupational accidents. The arrangement of equipment and facilities in the hospitality business must be reasonable and efficient to work flow. El-Zeiny (2012) states that spatial arrangement is given a rank of fifth among nine factors of interior design that affect work performance. Furthermore, El-Zeiny highlights that spatial arrangement is among the top three most influential on work performance of X-generation employees. To an extent, Brennan proves that employees' job performance would decline if the employees move to an open office or less private workspace [22]. As has been described before, workspace in hospitality business is often open and shared with guests interacting with the environment, which means that hospitality workspace is less private for employees. Privacy was an influential factor of El-Zeiny's model. However, in this study, privacy will be included as a factor of Spatial Arrangement to avoid multicollinearity in the data analysis process, since the way people arrange the workspace will affect their privacy to different degrees.

6) *Color (COLO)*

Color is not just listed as a Decorative Scheme Simon's book (2009), but also stressed as an enormous and powerful interior design factor that impacts people's experience inside the building [7]. Additionally, Simon notes that color is a "great indicator of mood." Mood apparently motivates employees performing their tasks well or not. A notable finding surprisingly points out that employees engaged in work within a red color-schemed workspace are less distracted and have better performance than those who work at white color-schemed workspace [23]. Chandrasekar (2011) implies that dim light and dreary colors cause a depressed atmosphere upon employee motivation, which leads to a decrease in work performance. Chandrasekar suggests that the color of paint should be soothing and bright to stimulate employee performance [24].

7) *Presence of Plants and Flowers (PLANT)*

The influence of natural settings on work performance attracts very few studies. Based on the finding of Ulrich (2002) which puts forward a relationship between the presence of plants and flowers, and productivity. El-Zeiny (2012) adds two more factors of interior design on employee work performance: outdoor view and plants and flowers. Surprisingly, El-Zeiny (2012) finds that plants and flowers, in general, have a significant influence on work performance.

8) *Air quality (AIR)*

According to Bakó-Biró (2007, as cited in Clements-Croome, 2008) [25], human performance in the workplace can be improved significantly by indoor air quality. In

particular, Clements-Croome concluded that "doubling the outdoor air supply rate can reduce illness and the occurrence of "sick building syndrome" by roughly 10% and increase office work by roughly 1.5%" and "every 10% reduction in the percentage dissatisfied with air quality can increase the performance of office work by roughly 1%." It is certain to expect that air quality will have an influence on hospitality workers' job performance. Regarding to the above factors, the research hypothesizes that:

H1: There is a positive impact of "Furniture" on "Job Performance"

H2: There is a positive impact of "Temperature" on "Job Performance"

H3: There is a positive impact of "Music" on "Job Performance"

H4: There is a positive impact of "Spatial Arrangement" on "Job Performance"

H5: There is a positive impact of "Lighting" on "Job Performance"

H6: There is a positive impact of "Color" on "Job Performance"

H7: There is a positive impact of "Air quality" on "Job Performance"

H8: There is a positive impact of "Presence of Plants and Flowers" on "Job Performance"

III. METHODOLOGY

A. *Questionnaires Design and Data Collection*

To reach the research objectives, a quantitative approach was applied. 320 questionnaires were distributed in the form of e-questionnaires and paper questionnaires to employees of 4 and 5-star hotels, mostly in Ho Chi Minh City. E-questionnaires reached workers from InterContinental Asiana Saigon Hotel, Sheraton Saigon Hotel, Hotel Sofitel Saigon Plaza, Park Hyatt Saigon Hotel, Le Meridien Saigon, the Alcove Library Hotel and several other medium-class hotels and restaurants. Paper questionnaires were distributed by a research candidate at the workplace of the respondents under the supervision of the research candidate and a manager or supervisor of the workplace. The other questionnaires were conducted mainly in LOTTE Legend Hotel Saigon, Renaissance Riverside Hotel Saigon, Tan Son Nhat Hotel, PARKROYAL Saigon, Sandy Beach Resort (Da Nang City) and several medium-class hotels and restaurants. The questionnaires were designed to follow the Five Point Likert Scale. In which, the collected responses were represented by 1 (definitely disagree), 2 (disagree), 3 (neutral), 4 (agree) and 5 (definitely agree). There were 269 qualified responses per 320 distributed questionnaires were used for analysis. The data analysis process consists of (1) descriptive analysis, (2) reliability analysis, (3) validity analysis, and (4) regression analysis.

B. *Factor Analysis and Reliability.*

By applying Principle Component Analysis and Varimax rotation, 32 observed items were used for exploratory factor analysis (EFA) in order to explain the model's structure and

convergence. After analyzing EFA, there were several items of each variable that have been removed due to its low value of loading factor.

TABLE I: SUMMARY OF THE DEPENDENT VARIABLE WITH RELIABILITY COEFFICIENT

Given name	Number of Item	Cronbach's Alpha
Job Performance (JPER)	6*	0.839

*All items have factor loadings $\geq .5$
 KMO index = .873; Sig. of Bartlett's test = .000
 Total variance explained = 55.692%

Source: Calculated by author.

TABLE II: SUMMARY OF THE INDEPENDENT VARIABLE WITH RELIABILITY COEFFICIENT

Given name	Number of Item	Cronbach's Alpha
Spatial Arrangement (SA)	5*	0.784
Presence of Plants and Flowers (PLANT)	3*	0.870
Color (COLO)	3*	0.839
Temperature (TEMP)	3*	0.743
Air Quality (AIR)	3*	0.785
Furniture (FUNI)	3*	0.628
Light (LIGHT)	3*	0.714
Music (MUSIC)	3*	0.663

*All items have factor loadings $\geq .5$
 KMO index = .790; Sig. of Bartlett's test = .000
 Total variance explained = 68.492%

Source: Calculated by author.

The KMO index is equal to $0.873 > 0.5$ and the significance level of Bartlett's test = $0.000 < 0.05$. Thus, the measured items for Job Performance are applicable for the exploratory factor analysis. The Eigenvalue of the extracted components is $3.342 > 1$; and the total variance explained equals to 55.692% which is satisfies the requirement of being greater than 50%. These statistics illustrate that the extracted components can explain 55.692% of the data variability. Cronbach's Alpha is equal to $0.839 \geq 0.6$ and there is no corrected item-total correlation that is smaller than 0.3. Thus, the observed items of Job Performance are well-related and reliable to measurement scale.

The KMO index is equal to $0.790 > 0.5$ and the significance level of Bartlett's test = $0.000 < 0.05$. Thus, the measured data is appropriate for exploratory factor analysis. There were 8 extracted components which correspond respectively to the concepts of Spatial Arrangement, Presence of Plants and Flowers, Color, Temperature, Air Quality, Furniture, Lighting, and Music. These items have high-value of factor loadings which are greater than 0.5. There is no item that is considered as being multicollinearity. This means that the set of data has a high correlation between each observed item and the corresponding extracted component. Cronbach's Alpha ranged from 0.628 to 0.870 suggesting good reliability of the measurement scale. The Eigenvalue of all extracted components is $2.704 > 1$; and the total variance explained equals 68.492%, which

satisfies the requirement of being greater than 50%. This statistical analysis supports that the extracted components can explain 68.492% of the data variability.

IV. RESEARCH FINDINGS

A. Sample Description

There were 269 hospitality employees who took part in this study. 64% of the pool of respondents are male, while 36% are female. 66% of respondents are from 18 to 25 years old, the second highest range is between the age group from 26 to 35, which attributes to 27%, and the third was age group 36 to 55, which amounts to 7% of the respondents.

B. Pearson Correlation Analysis

Table IV shows that all factors of interior design have a positive relationship with Job Performance in different levels. The two most significant relations are the relationships between SA and PLANT ($r = .575, p = .000$) and JPER and SA ($r = .505, p = .000$). The Pearson figures also show that there are moderate correlations between JPER and PLANT ($r = .467, p = .000$); JPER and AIR ($r = .383, p = .000$); JPER and FUNI ($r = .337, p = .000$); JPER and LIGHT ($r = .365, p = .000$). On the other hand, there is weak relationship between JPER and MUSIC ($p = .08 > 0.05$) and JPER and COLOR ($p = .2 > 0.05$).

Table V shows that the values of standardized coefficients β are almost greater than 0 with t-values greater than 1.96, and the significance values are less than 0.05, except for COLOR ($p = .47$), MUSIC ($p = .149$) and LIGHTING ($p = .116$).

TABLE III: SUMMARY PROFILE OF PARTICIPANTS

Items	Description	Frequency	Percentages
Gender	Male	96	64%
	Female	173	36%
	Total	269	100%
Education	High school	16	6%
	Vocational training	21	8%
	College (3years)	185	69%
	University (4years)	46	17%
	Postgrad	1	--
	Total	269	100%
Age	18 – 25 yrs.	178	66%
	26 – 35 yrs.	72	27%
	36 – 45 yrs.	16	6%
	46 – 60 yrs.	3	1%
	> 60 yrs.	0	--
	Total	260	100%
Workplace ranking	5 stars	135	50%
	4 stars	80	30%
	3 stars	32	12%
	< 3 stars	22	8%
	Total	269	100%
Field of work	Front of the house.	196	73%
	Back of the house.	23	8%
	Others	50	19%
	Total	269	100%
Job position	First-line manager	27	10%
	Middle-line manager	19	7%
	Staff	223	83%
	Total	269	100%
Year of experience	<1 year	113	42%
	1 – 4 years	94	35%
	4 – 7 years	35	13%
	7 – 10 years	17	6%
	>10 years	10	4%
	Total	260	100%

TABLE IV: PEARSON CORRELATION OF INDEPENDENT VARIABLES

	1	2	3	4	5	6	7	8	9
1.JPER	1								
2.SA	.505*	1							
3.PLANT	.467*	.575*	1						
4.COLOR	.052	.085	.054	1					
5.TEMP	.233*	.056	.105	.226*	1				
6.AIR	.383*	.441*	.439*	.097	.121	1			
7.FUNI	.337*	.396*	.341*	.117	.109	.276	1		
8.LIGHT	.365*	.375*	.368*	.124	.268	.363*	.303*	1	
9.MUSIC	.086	.104	.103	.268*	.358	.175*	.232*	.181*	1
Mean	4.082	3.949	4.105	2.986	3.116	3.933	3.587	3.809	2.894
Std. Deviation	.525	.529	.653	.976	.919	.692	.693	.635	.877

*. Correlation is significant at the 0.01 level.
Source: Calculated by author.

C. Regression Analysis

TABLE V: COEFFICIENT BETWEEN JOB PERFORMANCE AND INTERIOR DESIGN

Variables	Unstandardized Coefficient	Standardized Coefficient	Sig.
Cons.	1.349	--	.000
SA	.273	.275	.000
PLANT	.143	.178	.005
COLOR	-.020	-.037	.470
TEMP	.106	.186	.001
AIR	.087	.115	.050
FUNI	.085	.112	.047
LIGHT	.075	.091	.116
MUSIC	-.048	-.080	.149

Dependent Variable: JPER
ANOVA: F = 19.183, Sig. = .000
Model summary: Adjusted R² = .352
Source: Calculated by author.

These numbers indicate that an increase or decrease in COLOR, MUSIC and LIGHT do not relate to the change of other variables. On the other hand, every 1 standard deviation increases in each of SA, PLANT, TEMP, AIR and FUNI will increase JPER by .273, .143, .106, .087, .085 unit respectively. The degree of influence of interior design on Job Performance could be inferred as the following multiple regression equation:

$$JPER = 0.275SA + 0.178PLANT + 0.186TEMP + 0.115AIR + 0.112FUNI. \tag{1}$$

In which, with a standardized coefficient of 0.275, SA is the most influential factor on Job Performance, followed by temperature with a standardized coefficient of 0.186.

As F (8, 260) = 19.183 and p-value < 0.05, the regression equation is statistically significant at a confidence level of 95%. It is indicated that the formulated regression equation is expected to accurately predict the level of Job Performance. The value of adjusted R² = 0.352 indicates that 35% of the variation in Job Performance can be explained by those independent variables; while the remaining 65% of

the variation in the dependent variable can be clarified by other factors (such as exterior design).

V. DISCUSSION AND RECOMMENDATION

Regarding the aforementioned objective questions, the answers are presented as follow:

First, the factors of interior design that affect hospitality employees' job performance are Furniture, Temperature, Spatial Arrangement, Air Quality and Presence of Plants and Flowers. This outcome is quite different from the significant findings of El-Zeiny who included Lighting and Color into the set of influencers. Although Music is indispensable within the workplace of hospitality employees and reported as having a negative impact on job performance [1], it does not relate to the performance of Vietnamese hospitality workers. Second, based on the standardized coefficient, the most influential factor is Spatial Arrangement. This is a noticeable result from this study because El-Zeiny ranked this factor as only 5th in importance among his nine influencing factors [8]. In addition to the term convenient arrangement, as indicated before, the Spatial Arrangement factor in this study also includes the concept of privacy in the workplace. As the most significant aspect of spatial arrangement, this paper indicates that privacy for employees is the top crucial factor in the workplace that hospitality owners should pay attention to. In this case, this paper supports the findings of Brennan et al. in 2002, who proved that employee work performance would be less efficient if they move to an open office or less private workspace [22]. The outcome also opposes the finding of Sundstrom et al. in 1980 who presented that less privacy has a limited influence on job performance [26]. Third, following Spatial Arrangement, the factor of Temperature is the second-most influencing factor on Job Performance, with Standardized Coefficients of 0.186. This outcome is similar to the finding of El-Zeiny [8]. According to the Government Portal of Vietnam, Vietnam is located entirely between the Tropic of Cancer and the Equator which is characterized by high temperatures and humidity throughout the year. The average temperature

in Vietnam fluctuates between 21°C and 27°C and increases from the South to the North. In the summer, the national average temperature is around 25°C in which the temperature in Hanoi and Ho Chi Minh City are 23°C and 26°C, respectively. Based on references [20] and the results of this study, it is noteworthy for hospitality industry business owners in Vietnam to drive their attention to the investment of air-conditioners in order to easily adjust to a “proper” temperatures at the workplace. Furthermore, the Presence of Plants and Flowers, Air Quality and Furniture are considered as having moderate influence on Job Performance with Standardized Coefficients of 0.178, 0.115 and 0.112, respectively. These results completely support the findings of [8] and [9]. Particularly, the significance of Furniture in this case opposes the findings of Jang in 2006 [14]. While Jang mostly focused on the experience of employees in hotel lobbies, we suggest that there might be a difference in the importance of furniture among employees in three main functions: front of the house, back of the house, and office. Finally, based on the research results, we give some following recommendations that hospitality owners, facilities manager or human resources manager may find useful.

1) *Improving the spatial arrangement and quality of furniture or equipment*

Creating efficient private spaces for employees to ensure that employees have a qualified area to meet their personal needs.

Investing in durable equipment which is easy to clean and easy to move.

2) *Improving the air quality*

Spreading the workplace with natural fragrances (such as lemon, lemongrass, cinnamon, flowers) induces a pleasant feeling for customers.

Do not let the ventilation system of the workplace get clogged.

3) *Increasing the presence of plants and flowers*

Use plants and flowers for decoration.

The workplace should be designed with multiple green views so that employees can always feel comfortable, which will help them reduce stress.

Build a separate dining area for employees that is covered by a garden or many trees.

VI. CONCLUSION.

As expected, the research accomplished the goal of finding the impacts of interior design on job performance of hospitality workers in Vietnam. By incorporating quantitative methods and using factor analysis, reliability analysis, validity analysis and regression analysis, the study reinforced the significance of spatial arrangement, temperature, the presence of plants and flowers, air quality and furniture in the relation with job performance. Due to time constraints and unfavorable geographical conditions, this study presents limited sample size, which is not considered large and mainly concentrated in well-known cities such as Ho Chi Minh and Da Nang. Future researchers may base their studies upon the results obtained from this research, and discover larger and more various samples.

Finally, the interior design factors which are examined in this study are not the sole factors that affect work performance. Other influencing sources include exterior design such as the parking lot, outside view; psychological factors such as communication, motivation, and leadership. Although, I only focus on the impact of interior design upon the workforce, this study incorporates insights from existing scholarship in the field of hospitality management and provides a customized approach for employee performance and customer satisfaction in Vietnam.

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