



Identifying the job competencies of Generation Z hotel employee in an intelligent environment in China

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ABSTRACT

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This study aims to identify and enhance the job competencies of Generation Z hotel employees in China, focusing specifically on how intelligent environments influence their job roles. Employing a mixed-methods approach, the research integrates focus group interviews with five groups to explore how job roles evolve in response to intelligent environments and uses questionnaires with 167 participants to develop a competency framework. The investigation addresses various dimensions of the intelligent hotel environment, including work support, internal communications, customer experience, and staff-customer interactions. Results show that the sense of responsibility towards customer interactions escalates to another level after hotels adopt an intelligent environment. Furthermore, this study establishes a job competency framework with 3 dimensions and 33 evaluation factors for Generation Z hotel employees, validated through Exploratory Factor Analysis and Confirmatory Factor Analysis. The framework of job competencies assists hotels in refining job competency assessment standards, developing robust performance appraisal systems, planning effective career development pathways, and designing targeted training programs. We expect these enhancements to significantly enhance the operational excellence and competitive advantage of hotels in China.

Contribution/Originality: This study constructs job competency frameworks for Generation Z, contributing to the theoretical foundation for exploring their work behaviors. It offers comprehensive indicators for hotel managers and hotel management colleges to enhance talent development plans by prioritizing essential competencies for Generation Z hotel employees.

1. INTRODUCTION

The hotel industry grapples with significant employee turnover, raising concerns about sustaining competent positions. According to the analysis of Human Resources data in China in 2023, the average employee turnover rate in the Chinese hotel industry was 18.5%, primarily occurring in the front office, food and beverage, and housekeeping departments. Employees aged 21-25, known as Generation Z employees, are the core contributors to this turnover, accounting for over 60% of the total turnover rate (Wu, 2023). An unreasonable employee turnover rate leads to talent attrition in hotels, negatively impacting the quality of hotel services (Martinez, Barnhill, Otto, & Mosso, 2019; Zhou & Li, 2021). The resulting impact on service quality and employee competence highlights the urgent need for a thorough exploration and analysis of the job competencies required by Generation Z employees in hotels in China.

Generation Z is the dominant demographic for hospitality services. With technological and internet advancements, capturing their attention and tapping into their passions has become easier. International scholars divide the population by age segment, defining those born after 1995 as Generation Z (Bassiouni & Hackley, 2014).

In contrast to preceding generations, Generation Z exhibits greater confidence, a team-oriented disposition, higher career expectations, a desire for achievement, and an expectation of recognition (Wang, 2014). As a result, Generation Z's defining characteristics as native inhabitants of the mobile era highlight their inclination and need for intelligent technological integration and utilization in their professional endeavors.

In 2017, the Chinese State Council released the New Generation Artificial Intelligence (AI) Development Plan, incorporating AI development into the national strategic agenda and underscoring industries' need to nurture and retain skilled talents to advance AI technology. Prominent hotel groups like Hilton, Starwood, and Hainan Airline Group have deployed robots to aid front desk services and room item delivery (Kong, 2018). Alibaba, a dominant Internet operator, established the inaugural "Ali Future Hotel" in 2018, leveraging its "Tmall Genie" to create intelligent rooms equipped with robots, voice control systems, and 3D facial recognition technology (Gu, 2018). Moreover, hotels have embraced AI technology to enhance customer satisfaction and experience, employing robotic consultants and chefs for front-line services (Frick, 2015). Integrating advanced technologies aims to cultivate an intelligent environment within hotel premises.

The potential for artificial intelligence (AI) to displace human workers has emerged as a pervasive concern across industries. The intelligent environment impacts hotel employees' staffing structure and technical requirements (Frick, 2015). However, prior research has primarily focused on intelligent environments' role in employees' working conditions, neglecting the impact on job competency requirements. Li and Huang (2018) posited that AI aids managers in offloading simple, repetitive tasks, further arguing that an intelligent environment weakens employees' knowledge capabilities while encouraging greater emotional investment in work. This perspective diverges from Zhao (2007) assertion that critical competencies lie in behavioral characteristics and knowledge capabilities. Although Li (2020) proposed talent requirements for intelligent hotels, there is a lack of theoretical support elucidating the impact of the intelligent environment on employees' job responsibilities.

Competencies are the qualities or skills that align with job requirements and reflect the employee's professional performance. Employee competencies are defined as the fields of knowledge, skills, abilities, and qualities that employees exhibit (McClelland, 1973). Although scholars developed the framework of job competencies for hospitality graduates and managerial-level positions (Marneros, Papageorgiou, & Efstathiades, 2020; Shariff & Abd Razak, 2022; Xiang, 2011) there is a gap in the literature regarding the job competencies of Generation Z employees in the hotel industry, particularly within an intelligent environment, from the perspective of hotel operational needs. Therefore, the first research question for this study is: How does the intelligent environment in hotels influence Generation Z employees' job duties and required competencies in China? The first goal is to investigate how the intelligent environment influences the job roles and necessary competencies of Generation Z employees. Furthermore, the study identifies the elements of a competency framework for Generation Z employees operating in intelligent environments in hotels. The second objective is to develop the job competency framework for Generation Z employees within an intelligent setting.

From a theoretical perspective, the competency framework based on intelligent environments will provide valuable insights for hotel management theories and talent development strategies. It will also offer a foundation for further exploration of Generation Z employees' job satisfaction and performance. From a practical standpoint, the competency framework for Generation Z employees will aid hotel managers in understanding key competencies, providing a structured approach for evaluating the performance of the Generation Z workforce in China. This framework will contribute to more effective employee assessment, development, and retention strategies in hotels.

2. LITERATURE REVIEW

2.1. Job Competency

Job competency serves as a critical metric for assessing job performance. McClelland (1973) from Harvard University introduced the concept of a job competency model, focusing on how employees' attributes and situational elements influence their work. Fletcher (1992) defined competency as the capability and inclination to use knowledge and abilities effectively to perform job tasks. Peng and Yan (2010) further proposed that the competency model is a composite of the essential qualities needed to perform a specific work role in China. Ning and Tian (2006) emphasized that in human resource management, competency refers to the discernible and quantifiable knowledge, skills, abilities, personality traits, and motivation employees exhibit to meet job demands. This comprehensive view of job competency, including job knowledge, skills, abilities, and personal qualities, serves as the defining framework for this study.

The job competency model in hotels has progressively become more significant. Shariff and Abd Razak (2022) have constructed a competency framework for hospitality graduates, involving four main clusters: workplace, personal effectiveness, management, and academic. Marneros et al. (2020) propose a model of five competency dimensions: leadership, financial analysis, human resource management, human relations, and operational knowledge. In China, Yuan (2011) integrates many elements of the competency model for hotel employees, including performance achievement, problem-solving skills, individual socialization, charisma, and work judgment and control. Xiang (2011) developed a competency model for hotel managers, covering three key dimensions: self-management capability, task execution proficiency, and team management aptitude. Wang and Si (2012) introduced a framework that categorizes the essential competencies for corporate human resources into five aspects: knowledge, ability, self-concept, personality, and motivation. In contrast, Liu (2013) develops a competency model

for hotel Human Resources Managers based on the roles of functional experts, employee supporters, strategic partners, and change agents.

In recent years, research on hotel job competency in China has been limited, with a primary focus on developing competency models for students in educational institutions. For instance, Xia (2016) developed a comprehensive model of professional competence for hotel management students, comprising factors like career assessment index, professional ability, professional qualities, professional social skills, and interpersonal ability. Tang, Liu, and Liu (2018) create competency indicators based on personal qualities, professionalism, knowledge and abilities, and organizational communication skills. Liu (2019) introduced the concept of occupational literacy as a collection of professional knowledge, occupational ability, innovation, and entrepreneurial ability, all of which contribute to job competency quality. Nevertheless, when considering hotel talent evaluation and growth, the impact of the intelligent environment and the unique traits of Generation Z employees necessitate specific competency criteria that hotel managers deserve to have for their employees. Consequently, due to its designation as a labor-intensive service industry, many hotels in China have adopted AI technology to enhance employee work responsibilities. The job competency model for hotels has yet to be examined in light of the significant advancements in intelligent technology.

2.2. Generation Z

Due to the passage of time and socioeconomic advancements, the new generation has become the predominant force in today's work environment. The post-1995 population has progressively integrated into society and actively engaged in labor, particularly in the hotel industry, leading to changes in the labor force composition. International scholars have categorized the population into three groups: Baby Boomers (1946-1964), Generation X (1965-1979), and Generation Y (1980 onwards) (Cennamo & Gardner, 2008; Paxon, 2009; Simangunsong, 2018). Nevertheless, numerous academics categorize the demographic group born after 1995 as Generation Z (Bassiouni & Hackley, 2014; Turner, 2015). Mainland Chinese researchers' definition of the new generation diverges from the international definition. Within the corporate economic system context, the term new generation employees originally referred to those born between 1980 and 2000. Individuals from the "post-80s" and "post-90s" generations predominantly comprise this group in China (Shen, 2019).

Scholars analyze the traits of Generation Z in relation to Generation Y. They depict Generation Z as ambitious and desiring a successful career, more modest in expressing their opinions, and more confident than Generation Y (Tulgan, 2013). Additionally, Wang, Xiao, and Chen (2015) portray Generation Z as realistic, pragmatic, and inclined to confront future challenges. Generation Z employees exhibit distinct features compared to previous generations, and their job expectations present a more formidable task for hotel Human Resources (HR) management. Generation Z employees prioritize flexibility, work-life balance, freedom, innovation, and career advancement, preferring hotels to create a motivating workplace that caters to these needs (Cresnar & Jevsenak, 2019).

Human resources management in hotels has observed the influence of the work values of Generation Z employees. The four characteristics of transformational leadership, which include idealized influences, inspirational motivation, intellectual stimulation, and individualized consideration, substantially impact Generation Z employees' inclination to leave their jobs and engage in innovative behavior (Gabriel, De Alwi, Jayang, & Wai, 2022). Factors such as Generation Z's maturity, the organization's size, prospects for advancement, and the amount of compensation influence work satisfaction among hotel employees (Daud, 2016). Employees' work values in hotels are positively correlated with work engagement and job satisfaction (Wang, Zhang, & Xu, 2017). Applying the Theory of Planned Behaviour model, scholars have discovered that Generation Z employees in hotels have a positive perception of their overall job attitude (Goh & Lee, 2018). Furthermore, hotels can potentially improve the perception of Generation Z employees by enhancing their training, enhancing assessment methods, and cultivating a strong corporate culture (Li, Mai, & Zhao, 2019). Rampen, Pangemanan, and Mandagi (2023) investigate the variables that influence the performance of Generation Z employees, including job satisfaction, work motivation, leadership, and organizational culture. Kirchmayer and Fratričová (2020) have identified factors that contribute to the motivators of Generation Z in the workplace, including finding enjoyment in their work, having great relationships with co-workers, and attaining personal goals.

Unfortunately, prior studies have predominantly examined the factors influencing Generation Z's work values and expectations, focusing on their needs rather than the needs of organizations. Researchers like Goh and Lee (2018), Li et al. (2019), Kirchmayer and Fratričová (2020) and Rampen et al. (2023) have explored these themes, but their work remains disconnected from the performance evaluation standards crucial for talent in hotel operations. With the advancement of intelligent environments, there is a growing interest in defining the traits and values of Generation Z employees, particularly within the context of cultivating a new Chinese specialization. Therefore, this study seeks to understand Generation Z's professional aptitude in entry-level hotel service roles, emphasizing their performance and competency requirements.

Overall, a review of both domestic and international research reveals that most studies are theoretical, focusing primarily on the impact of intelligent environments on talent structure and development, with an emphasis on service accuracy and efficiency (Kong, 2018; Li & Huang, 2018; Sun, 2019). However, the varying positioning of hotel brands and disparities in service quality standards necessitate further investigation into the specific

competencies required by Generation Z employees, as well as the hotel's requirements for talent assessment and development within an intelligent environment.

This study aims to clarify the changes in job responsibilities due to the implementation of intelligent environments in hotels, thereby helping hotels gain a comprehensive understanding of their personnel structures.

Moreover, previous studies have primarily examined factors influencing Generation Z's work values and expectations by assessing their needs (Goh & Lee, 2018; Kirchmayer & Fratričová, 2020; Rampen et al., 2023). However, there is a limitation in exploring the job competencies specific to hotel operations and evaluating performance, particularly concerning the hotel's intelligent environment and Generation Z's unique characteristics. As a result, hotels should revise their role assessment standards in response to the changing work responsibilities in an intelligent environment.

Job competency can be assessed based on three dimensions: job expertise, professional skills/competencies, and comprehensive qualities. Job expertise refers to the specific knowledge required in a particular career field. Professional skills/competencies involve effectively utilizing and applying specialized techniques. Comprehensive qualities include a range of attributes, attitudes, and behavioral habits that contribute to overall performance (Yang, Chen, & Wang, 2015).

Therefore, this study examines the required competencies of Generation Z employees and determines a framework for job competency within an intelligent environment. The aim is to assist hotels in revising their employee training, cultivation, and development plans to reduce employee turnover.

3. RESEARCH METHODOLOGY

This study utilizes a mixed research approach to gather the determinants of job competency among Generation Z employees. We adopt the qualitative research method of focus group interviews to gather data on the changes in job responsibilities and competencies influenced by the intelligent environment. The questionnaire method, in conjunction with the Statistical Package for the Social Sciences (SPSS) for exploratory factor analysis and Analysis of Moment Structures (AMOS) for confirmation factor analysis, analyzes the job competency of Generation Z employees concurrently.

3.1. Focus Group Interview

Focus group interviews enable individuals to express their thoughts or opinions on a specific issue, thereby facilitating a group discussion. The interaction among group members stimulates thinking and generates more content related to the topic (Hong, 2019). As a result, adopting this strategy allows for a comprehensive exploration of prospective concerns and a rapid comprehension of views and attitudes toward these issues from a representative sample (Shi, Zhong, & Shi, 2003).

In earlier research on hotel human resources management and practices, the research paradigm of objective assessment through job competency indicators wasn't enough. It didn't look into competencies based on the needs of the hotel operation and the use of an intelligent environment. Therefore, it is necessary to gather job competency indicators through hotel managers' evaluation criteria to assess their employees' daily performance within an intelligent environment context. We can subsequently analyze and summarize these indicators to identify the essential requirements for competent job performance.

We selected managers working in five-star hotels as the sample. We conducted five on-site focus group interviews, each group comprising 5–9 participants from a selected hotel, as detailed in Table 1: Statistical Analysis of Focus Group.

We collected 37 samples in total, representing 70% of the operational department managers and 30% of the backroom managers. The hotel managers primarily select the interview samples to evaluate and assess their employees' performance in hotel management. This approach allows for a more direct reflection of the required competencies for the employees' positions and the standards of their job evaluation. Each interview session lasted approximately 1–1.5 hours. We select five groups from high-star hotels, representing both domestic and international hotels.

The focus group interview themes were explicitly developed to concentrate on two primary themes: the intelligent environment's impact and the required job competency for Generation Z employees. The former aimed to investigate AI's utilization in hotel operations and management and its effects on employees' job duties. Furthermore, the latter focused on the precise criteria necessary for employees to effectively perform their duties, including their expertise, abilities, and qualities, serving as a foundation to identify the job competencies. The interviews were recorded in their entirety and subsequently transcribed verbatim for organization and analysis to identify standard information.

Table 1. Statistical analysis of focus group.

| Group | Samples | Properties | Position | Reason |
|---------|---------|---------------------|---|--|
| Hotel 1 | 7 | International hotel | Operational department (5 pax): Banquet manager, guest relations manager, restaurant manager, Western Sous chef, Chinese chef | The representative of international luxury hotel brand |
| | | | Back of house (2 pax): Recruitment manager, chief accountant, | |
| Hotel 2 | 5 | International hotel | Operational department (4 pax): All-day-dining restaurant manager, Japanese restaurant manager, recreation manager, bar manager | Complex resorts in international hotel brand |
| | | | Back of house (1 pax): Human resources manager, | |
| Hotel 3 | 7 | Domestic hotel | Operational department (6 pax): F&B manager, recreation manager, front office manager, restaurant manager, guest relations manager, assistant executive housekeeper | The representative of domestic luxury hotel brand |
| | | | Back of house (1 pax): Assistant director of human resources, | |
| Hotel 4 | 9 | Domestic hotel | Operational department (7 pax): Recreation manager, executive housekeeper, spa manager, front office manager, executive chef, F&B director, director of engineering | The most popular - internet celebrity hotel |
| | | | Back of house (2 pax): HR director, information technology manager, | |
| Hotel 5 | 8 | Local hotel | Operational department (4 pax): Assistant executive housekeeper, restaurant manager, executive sous chef, chief engineer | Local complex hotels, and the earliest use of AI. |
| | | | Back of house (4 pax): Reservation manager, HR manager, training manager, dormitory manager, | |

After collecting data on the impact of intelligent environments on hotel operations and management, this study summarized the application scenarios of these environments and the positive and negative impacts they generate. Intelligent equipment includes smart bracelets, automatic coffee machines, advanced identification systems, and more. Subsequently, based on the requirements for the expertise, abilities, and qualities necessary for employees to execute their job responsibilities, this study utilized NVivo software to extract and analyze word frequencies from 5 groups of interview records. We consolidated 33 potential job competency indicators affecting Generation Z employees through manual coding and node creation. These indicators include problem-solving ability, communication skills, resistance to pressure, flexibility, psychological qualities, professional ethics, correct values, job product knowledge, safety knowledge, and others.

3.2. Questionnaire

Questionnaires are extensively utilized in research conducted in Asian countries due to the greater availability of resources to support research in the tourism and hospitality industries (Hong, 2019). The questionnaire aids this study in analyzing and identifying Generation Z's job competencies, allowing hotel managers to assess each indicator of job competency. This study establishes a job competency framework based on changes in job responsibilities and competency requirements prompted by the intelligent environment in hotels, with the aim of creating a competency framework suitable for Generation Z employees. As previous scholars have defined, job competency includes dimensions such as knowledge, skills, and qualities (Ning & Tian, 2006). Building on this foundation, scholars have developed competency frameworks for various groups (Marneros et al., 2020; Shariff & Abd Razak, 2022). However, this research focuses on the characteristics of Generation Z employees and the adoption of the hotel intelligent environment, exploring job assessment standards from the perspective of hotel operators to construct a more fitting job competency framework for Generation Z employees.

The questionnaire in this study consists of two parts: demographic information and job competency ratings. The demographic information includes 12 questions aimed at describing the sample. Job competency ratings encompass 33 specific questions derived from 33 indicators of job competency identified through focus group interviews. Using a seven-point Likert scale (1 = strongly disagree, 7 = strongly agree), participants rate the significance of each job competency indicator. We effectively analyze and combine these assessment scores to form the final exploratory conclusions.

3.2.1. Pilot Study

The questionnaire construction entails converting the 33 indicators assessing job competency into descriptive language. We standardize each indicator by incorporating industry-specific terms to ensure it aligns with the hotel's performance assessment criteria. For instance, the "safe knowledge" indicator refers to Generation Z employees proficient in safety protocols, well-versed in emergency procedures, and adept at utilizing firefighting equipment. Similarly, "guest service" abilities encompass maintaining service standards, understanding customer needs, proactively delivering services, and fostering positive guest relationships. The primary aim was to assess indicator ratings using a conventional approach, ensuring clear comprehension of industry language and mitigating bias resulting from a lack of understanding in the sample's ratings.

Following the creation of the questionnaire, four HR directors from the hotels made corrections, proposed simplified question formulations and terminology descriptions, and provided feedback on the feasibility of the questions. We also invited 50 managers and above from 5 Star hotels to test the questionnaire for its overall structure, wording, and other aspects. After the pilot study is completed, the reliability analysis of the questionnaire is carried out by SPSS software, and the reliability of Cronbach's alpha reached 0.938, which has a high reliability.

3.2.2. Final Study

By collecting data from hotel managers, this study aims to identify job competencies for Generation Z employees. The research participants were hotel managers, responsible for the work management and performance evaluation of Generation Z employees, thereby rendering them qualified to make discerning judgments about their requisite job abilities. This study adopted a purposive sampling approach, with the questionnaire administered to a target sample of 170 hotel assistant managers and individuals holding higher positions. This target group represented 17% to 22% of the total hotel employee population.

To enhance efficiency in data collection, this study utilized WeChat and the online questionnaire platform wenjuan.com to conduct an online survey. A total of 167 valid responses were collected, representing 98% of the distributed questionnaires. To ensure the accuracy and quality of the data, the reliability of Cronbach's Alpha was assessed using SPSS, resulting in a coefficient of 0.985. This value surpasses the threshold of 0.9, indicating an exceptionally high level of reliability.

An analysis was conducted on 167 questionnaires to examine demographic characteristics, including age, years of experience in the hotel industry, level of education, and the proportion of Generation Z employees in the department. The results are presented in Table 2: Statistical Analysis of Sample:

Table 2. Statistical analysis of sample.

| Items | Sample category with percentage | | | |
|----------------------------------|---------------------------------|------------|-------------|----------------|
| | Under 25 | 26-35 | 35-45 | Above 46 |
| Ages | 25% | 65% | 30% | 30% |
| Working years | Under 5 years | 6-10 years | 11-15 years | Above 16 years |
| | 7% | 40% | 32% | 21% |
| Education | Diploma | Bachelor | Master | Others |
| | 42% | 34% | 4% | 20% |
| Departmental no. of generation Z | Under 10% | 10%-30% | 30%-50% | Above 50% |
| | 24% | 35% | 25% | 16% |

4. RESEARCH FINDING

4.1. The Impact of Intelligent Environment on the Job Responsibilities

We conducted focus group interviews to summarize the effects of an intelligent environment on four aspects of employee job duties: work support, internal employee communication, customer experience, and connections between customers and employees. In hotels, the intelligent environment primarily supports employee work functions. It covers intelligent management of voice systems, intelligent recognition of customer identities, and intelligent device utilization. Departments such as the front office, catering, and guest rooms extensively deploy these applications. Examples of such intelligent equipment include intelligent bracelets, automatic coffee machines, advanced identification systems, high-tech ovens, and automatic cleaning devices. An intelligent environment enhances the hotel employees' efficiency by automating menial and repetitive tasks, freeing up time to proactively address customer needs and anticipate their requirements.

Furthermore, an intelligent environment facilitates internal employee communication through intelligent information feedback, communication, and office systems, including customer information feedback, intelligent training, intelligent attendance, and other related aspects. Previously, internal communication relied on methods like meetings, shift logs, on-the-job training, and paper-based memos, which limited information transfer and hindered efficiency. Intelligent technologies address these limitations by preserving communication data and reducing disputes. Moreover, intelligent devices such as self-service check-in and intelligent service requests enhance customer convenience and bolster the interaction between customers and employees.

After examining the impacts of the aforementioned aspects, this study concluded that adopting a hotel intelligent environment has both positive and negative impacts on employee job responsibilities. On the positive side, the hotel's intelligent environment enhances work efficiency, delivers accurate services, optimizes work details, maintains product and service quality, and fosters an emotional connection with customers. However, there are four negative aspects concerning the hotel's intelligent environment and its impact on employees' work. For example, intelligence operations rely on manual operation information as a backup. While AI can replace specific duties, it still requires confirmation and follow-up. Moreover, AI lacks the ability to recognize guest needs and provide personalized and humanized service. Additionally, customers continue to rely on employees' humanized service, necessitating their presence for personalized service.

4.2. The Required Job Competency within an Intelligent Environment

This study concluded that hotels increasingly prioritize the employee's capacity to handle tasks professionally and drive quality improvement, shifting focus from mere professional knowledge. Intelligent technologies or devices handle basic duties, allowing employees to prioritize building emotional connections with customers. Consequently, the intelligent environment relieves employees from mundane and repetitive tasks, serving as an essential tool for enhancing their work productivity. This allows them to allocate more time towards establishing deeper emotional connections with customers. Additionally, it imposes more rigorous demands on employees' social roles and required skills.

A total of 33 potential indicators were derived from the group focus interviews, representing the employees' potential competency in hotels. Evaluating employee job performance primarily emphasizes occupational social competencies. Occupational social competence covers the fundamental abilities required in addition to professional knowledge or skills for an assigned position (Yang et al., 2015). These abilities include effective interaction, collaboration, adaptability in living and working with others, problem-solving, and innovation skills.

Overall, the intelligent environment in hotels supports employee's job duties by relieving them of mundane and repetitive activities and enabling them to allocate more time towards establishing emotional rapport and engaging with clients. However, effective emotional connection and interaction necessitate not only specific expertise and operational abilities but also a higher standard of professional social competence and overall quality.

4.3. Validation Analysis of Job Competencies

This study utilized the Exploratory Factor Analysis approach to identify job competencies. Focus group interviews retrieved the 33 potential indicators and organized them into categories. Additionally, the job competency framework conducts a Confirmation Factor Analysis to determine its validity in supporting the framework of employee job competency.

4.3.1. Using Exploratory Factor Analysis to Develop a Framework of Job Competency

Exploratory Factor Analysis was conducted using SPSS software, with the principal axis factoring approach used to extract the latent factors and confirm the appropriateness between variables and dimensions by analyzing factor rotation (Zhang & Luo, 2016). Drawing from 33 key indicators of Generation Z's job competency obtained from focus group interviews and the definitions of the job competency framework encompassing professional knowledge, professional skills/competencies, and comprehensive quality, the study extracted and categorized three dimensions to develop a job competency framework via Exploratory Factor Analysis. The exploratory factor analysis made use of 167 effective study samples. Kaiser-Meyer-Olkin (KMO) sampling adequacy was measured at 0.966, and Bartlett's test of sphericity yielded a significant result of 0.000 (P<0.01), indicating the presence of latent factors and appropriateness for factor analysis in Table 3.

Table 3. KMO and Bartlett's test.

| | | |
|---|--------------------|----------|
| Kaiser-Meyer-Olkin measure of sampling adequacy | | 0.966 |
| Bartlett's test of sphericity | Approx. chi-square | 6921.479 |
| | Df | 595 |
| | Sig. | 0.000 |

In this study, we extract items with eigenvalues greater than 1 and a cumulative coefficient of variation percentage of at least 60%. The overall variance explained by component analysis indicates that three items have a cumulative percentage variation of 75.321% and eigenvalues higher than 1. We applied Varimax rotation to analyze all 33 indicators, revealing factor loading values exceeding 0.4 for each indicator. Consequently, as illustrated in Table 4, the 33 indicators result in the three dimensions of professional skills/competence, comprehensive quality, and professional knowledge. The Cronbach's coefficients of the three-dimensional variables reached more than 0.9 through the Cronbach consistency analysis of reliability, indicating that the quality of the questionnaire is entirely acceptable and that the research data are highly reliable.

Table 4, the factor loading analysis, identifies three dimensions. We identified the first dimension as professional skills/competencies, which has an eigenvalue of 10.530, explaining 34.973% of the variance. The reliability reached 0.976, indicating a higher level of reliability. This dimension comprises 16 indicators assessing execution, problem-solving, learning, communication, and other workplace-related abilities, primarily focusing on

social competence. The second dimension is comprehensive quality, with an eigenvalue of 8.081 explaining 24.488% of the variance and a dimensional reliability of 0.963, demonstrating even better reliability. This dimension included 10 indicators, mainly focusing on assessing employees' internal quality and personality. The third dimension is professional knowledge, with an eigenvalue of 6.245 explaining 18.925% of the variance and a dimensional reliability of 0.929, which is also higher. These three dimensions significantly contribute to creating the job competency framework, showcasing higher reliability and stability of the indicator variables.

Table 4. Factor loading analysis.

| Dimensions and elements | Factor loading | Eigenvalue | Variation (%) | Cronbach's alpha |
|-------------------------------|----------------|------------|---------------|------------------|
| Skills & ability | | | | |
| Execution | 0.606 | 10.530 | 31.908 | 0.976 |
| Problem solving | 0.698 | | | |
| Learning | 0.680 | | | |
| Communication | 0.679 | | | |
| Resistance to pressure | 0.630 | | | |
| Self-control | 0.616 | | | |
| Independence | 0.773 | | | |
| Adaptability | 0.632 | | | |
| Interpersonal | 0.673 | | | |
| Feedback | 0.625 | | | |
| Strain capacity | 0.730 | | | |
| Expression | 0.730 | | | |
| Flexibility | 0.738 | | | |
| Understanding | 0.733 | | | |
| Position attitude | 0.635 | | | |
| Psychological quality | 0.615 | | | |
| Comprehensive quality | | | | |
| Sense of responsibility | 0.592 | 8.081 | 24.488 | 0.963 |
| Practice and operation | 0.574 | | | |
| Professional ethics | 0.758 | | | |
| Correct values | 0.754 | | | |
| Concept of time | 0.568 | | | |
| Teamwork | 0.698 | | | |
| Service consciousness | 0.649 | | | |
| Patience | 0.600 | | | |
| Loyalty | 0.737 | | | |
| Dedication | 0.695 | | | |
| Professional knowledge | | | | |
| Safety knowledge | 0.798 | 6.245 | 18.925 | 0.929 |
| Job product knowledge | 0.799 | | | |
| Working standard | 0.737 | | | |
| Policy and regulations | 0.624 | | | |
| Etiquette knowledge | 0.648 | | | |
| Culture knowledge | 0.558 | | | |
| Service knowledge | 0.562 | | | |

4.3.2. Validating Job Competency Using Confirmation Factor Analysis

Confirmation Factor Analysis was conducted using AMOS 24.0 software to assess the reliability and validity of the model. This analysis aims to test the goodness-of-fit of the job competence model established by Exploratory Factor Analysis, ensuring convergence and discriminant validity as measured by the scale (Zhang & Luo, 2016). According to the confirmation factor analysis index (shown in Table 5), chi-square to freedom ratio (Chi-square/df) needs to be less than 3. Root Mean Square Error of Approximation (RMSEA) should be less than 0.05 for perfect fit and 0.05–0.08 for acceptable fit. A Comparative Fit Index (CFI) higher than 0.9 indicates a relatively good model fit. Combined reliability (CR) should not be less than 0.8, and average variance extracted (AVE) should be greater than 0.5 for convergent validity (Fornell & Larcker, 1981; Hair, Black, Babin, & Anderson, 2009; Wen, Hou, & Marsh, 2004).

Table 5. The goodness-of-fit of the competence model.

| Name of index | Recommended value | Result |
|---|-------------------|--------|
| Chi-square to freedom ratio | Chi-square/df <3 | 1.961 |
| Root mean square error of approximation | RMSEA < 0.08 | 0.074 |
| Comparative fit index | CFI > 0.9 | 0.929 |
| Tucker-Lewis index | TLI > 0.90 | 0.921 |

Initially, the model's RMSEA exceeded the 0.08 standard. We adjusted the variable relationships with higher influence coefficients of the indicators within the dimensions of the identified job competency model (shown in Table 5) using the AMOS correction index data. Eventually, the Chi-square = 1027.017, degrees of freedom = 536, Chi-square/DF = 1.916, CFI = 0.929, Tucker-Lewis index (TLI) = 0.921, and RMSEA = 0.074 were the model fit goodness-of-fit indices for this study. Table 6, Confirmation Factor Analysis data, illustrates that the overall model achieved an acceptable level of fit, meeting the criteria for confirmation factor analysis metrics. The study demonstrates strong reliability and validity, confirming and validating the established job competency model. All factor loading coefficients for the indicators in Table 6 exceed 0.05, indicating robust associations. Additionally, the CR of the three dimensions surpasses 0.9, the AVE value exceeds 0.6, and the p-value of .000 is statistically significant ($p < .05$), further affirming the model's validity. The mean value in the table is distributed between 4.3-5.2, with a coefficient of variation of the combined mean and standard deviation analysis between 0.23-0.3, indicating a particular bias in the survey respondents' expectations regarding the performance assessment of the Generation Z employees.

Table 6. Confirmation factor analysis.

| (n=167, with effective sample) | | | | | |
|--|----------------|---------|-------|-------|---------|
| Factors/Items | Factor loading | T-value | Mean | SD | P-value |
| Skills & ability (CR= 0.977, AVE = 0.713) | | | | | |
| Execution | 0.840 | N/A | 4.521 | 1.202 | *** |
| Problem solving | 0.837 | 13.864 | 4.647 | 1.232 | *** |
| Learning | 0.863 | 14.605 | 4.808 | 1.172 | *** |
| Communication | 0.808 | 13.094 | 4.856 | 1.137 | *** |
| Resistance to pressure | 0.858 | 14.462 | 4.389 | 1.171 | *** |
| Self-control | 0.852 | 14.286 | 4.425 | 1.224 | *** |
| Independence | 0.866 | 14.714 | 4.539 | 1.201 | *** |
| Adaptability | 0.865 | 14.674 | 4.665 | 1.190 | *** |
| Interpersonal | 0.870 | 13.378 | 4.856 | 1.126 | *** |
| Feedback | 0.853 | 14.324 | 4.713 | 1.152 | *** |
| Strain capacity | 0.830 | 13.716 | 4.485 | 1.236 | *** |
| Expression | 0.794 | 12.745 | 4.904 | 1.173 | *** |
| Flexibility | 0.832 | 13.735 | 4.599 | 1.157 | *** |
| Understanding | 0.853 | 14.325 | 4.641 | 1.183 | *** |
| Position attitude | 0.860 | 14.521 | 4.419 | 1.184 | *** |
| Psychological quality | 0.862 | 14.621 | 4.485 | 1.226 | *** |
| Comprehensive quality (CR= 0.965, AVE = 0.717) | | | | | |
| Sense of responsibility | 0.887 | N/A | 4.593 | 1.198 | *** |
| Practice and operation | 0.924 | 16.848 | 4.874 | 1.152 | *** |
| Professional ethics | 0.777 | 13.160 | 5.114 | 1.184 | *** |
| Correct values | 0.820 | 14.551 | 5.078 | 1.237 | *** |
| Concept of time | 0.880 | 16.887 | 4.808 | 1.119 | *** |
| Teamwork | 0.898 | 17.753 | 5.036 | 1.156 | *** |
| Service consciousness | 0.906 | 18.093 | 4.838 | 1.239 | *** |
| Patience | 0.860 | 16.080 | 4.581 | 1.179 | *** |
| Loyalty | 0.808 | 14.138 | 4.754 | 1.310 | *** |
| Dedication | 0.792 | 13.68 | 4.641 | 1.363 | *** |
| Professional knowledge (CR=0.921, AVE = 0.628) | | | | | |
| Safety knowledge | 0.757 | N/A | 4.737 | 1.136 | *** |
| Job product knowledge | 0.792 | 13.133 | 4.754 | 1.148 | *** |
| Working standard | 0.814 | 11.105 | 4.952 | 1.140 | *** |
| Policy and regulations | 0.804 | 10.979 | 4.952 | 1.226 | *** |
| Etiquette knowledge | 0.798 | 10.870 | 4.958 | 1.137 | *** |
| Culture knowledge | 0.828 | 11.343 | 4.641 | 1.163 | *** |
| Service knowledge | 0.819 | 11.190 | 4.916 | 1.209 | *** |

Note: *** Significant at 0.000 level; SD = Standard deviation; CR = Combined reliability; AVE = Average variance extracted.

5. DISCUSSION

This study aims to identify job competencies for evaluating the performance of Generation Z employees in light of the evolving landscape shaped by intelligent environments. The literature review primarily explores performance assessment methodologies, including result-oriented approaches like the balanced scorecard, key performance indicator appraisal, job descriptions, and behavioral assessments. In terms of research methodologies, the case qualitative analysis, exploratory factor analysis, and confirmation factor analysis methods are commonly employed (Bao, 2016; Gao & Zhang, 2014; Ge, 2019). Bao (2016) conducted a factor analysis, identifying 17 indicators across four dimensions: knowledge, attitude, skills, and performance - relevant for assessing front-line employees. Similarly, Gao and Zhang (2014) developed a 5-dimensional assessment tool with 11 items, employing factor analysis to measure work attitude, results, personal quality, professional skills, and quality inspection.

Previous studies have provided comprehensive examples, but this study claims that the job competencies of Generation Z employees differ within an intelligent environment. It explores assessment criteria and indicators influenced by intelligent technologies in the hotel. The impact of the hotel's intelligent environment on employee's job duties was summarized in this study, including work support, internal employee communication, customer experience, and connections between customers and employees. It helps employees enhance their job efficiencies, allowing them to devote more effort to building an emotional connection with customers and meeting their needs. Job competencies required for Generation Z employees primarily emphasize their occupational social competence, which includes their ability to interact, cooperate, and collaborate with others, problem-solving, innovative skills, and others. Additionally, their overall qualities are also taken into consideration.

The existing literature on hotel job competencies typically focuses on specific roles, particularly management roles. For instance, Wang, Li, and Li (2012) outlined the hotel job competence model comprising four dimensions: knowledge and skills, value perception, personality traits, and behavioral patterns, with value perception and personality traits being the most significant. Similarly, Zhao (2007) summarized four dimensions that contribute to college students' competence in hotel internship roles, including behavioral traits, external competence, emotional aspects, and professional cognition.

However, recognizing the applicability issues of existing competencies and dimensions, and building upon previous research highlighting the shift towards occupational social competence and comprehensive quality within intelligent environments, this study identified 33 job competencies tailored specifically for Generation Z employees in hotels. It addresses the limitations of existing literature by assessing the suitability of competencies in the hotels and provides robust validation for employee competency evaluation standards.

Furthermore, to verify the influence of hotel employees' 33 job competencies, this study categorizes the competencies into three dimensions: professional skills/abilities, comprehensive quality, and professional knowledge. We conduct this categorization using exploratory factor analysis and confirmation factor analysis, relying on McClelland (1973) job competence model as the research foundation. This validates the relationship between these three dimensions and job competence among Generation Z employees. Professional skills/abilities, consisting of 16 indicators, emerge as the most critical dimension. The comprehensive quality, comprising 10 indicators, follows closely behind. Lastly, there is professional knowledge, which covers 7 indicators. These dimensions confirm the impact of intelligent environments on evolving job responsibilities and highlight the hotel's increasing expectations for employees to possess progressive socio-professional competence and overall quality.

6. CONCLUSION, IMPLICATION, LIMITATIONS AND FUTURE RESEARCH

6.1. Conclusion

This study examines the influence of intelligent environments on various aspects of employee work support, internal employee communication, customer experience, and connections between customers and employees. The study reveals a shift in the required competencies for Generation Z employees in Chinese hotels, with a focus on enhancing professional skills and occupational social competency within an intelligent environment. We categorize the job competencies of Generation Z employees in hotels into three dimensions: professional skills/capabilities, comprehensive quality, and professional knowledge, and we measure these three-dimensional variables with 33 indicators.

6.2. Implication

The impact of intelligent environments on job roles in hotels informs the construction and verification of job competencies in this study, which establishes a competency framework specifically for Generation Z employees. This framework complements existing job competency frameworks for Generation Z and provides a theoretical foundation for further exploration of their work behaviors. Additionally, this study employs a mixed-methods approach to bridge the gap between qualitative and quantitative research, highlighting the model's fitness and enhancing the data's reliability and validity.

Moreover, the identified job competencies for Generation Z employees will assist hotel managers in understanding and implementing effective competency assessment standards. By integrating these insights, hotels can enhance their training programs, development plans, and performance evaluation systems, ultimately reducing employee turnover and improving operational efficiency. This study also encourages hotel management colleges and universities to revise their talent training programs using these job competency indicators. Analyzing the work performance capabilities of Generation Z employees and prioritizing the training of essential skills for hotel professionals can achieve this.

6.3. Limitations and Future Research Directions

This study uses a mixed research method to find out what job skills Generation Z employees have. It fills in gaps in the literature about suitable indicators and focuses on the special issues that come up in smart environments. However, certain limitations are acknowledged:

Firstly, the research sample exclusively represents hotel management's viewpoint, lacking a multi-dimensional analysis incorporating assessments from both customers and Generation Z employees. Secondly, the assessment process leans heavily on subjective evaluations, relying solely on overall judgment scores from hotel management for analysis. Customers' and Generation Z employees' points of view should be included in future research that wants to fully look into the effects and differences in employee competence that come from positional changes in intelligent environments.

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