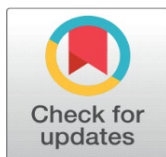


ARTIFICIAL INTELLIGENCE AND EMPLOYABILITY SKILLS IN HOSPITALITY EDUCATION: EVIDENCE FROM INDIAN INSTITUTIONS

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ABSTRACT

Artificial Intelligence (AI) has brought revolutionary changes to the hospitality industry through automation and improved decision-making, and has created hybrid jobs that require competencies from both the technological and hospitality sides. The growing need for AI competence in the industry has led to the development of digital literacy among employees. However, the hospitality education system has been reluctant to integrate such aspects into its curricula, and thus, the employability readiness of hospitality students is at risk. In view of the above, the study evaluates hospitality students' employability readiness in the context of artificial intelligence integration in industry, with particular focus on technical abilities, career preparedness, and willingness to upgrade their qualifications to meet industry needs. Quantitative cross-sectional research has been implemented, using a structured questionnaire. It included 377 hospitality students who answered 46 questions regarding their technical abilities, career preparedness, and willingness to acquire additional skills. A five-level Likert scale was used for data collection. Descriptive statistics (mean and standard deviation) were used as measures of central tendency, and internal reliability was evaluated using Cronbach's Alpha ($\alpha = 0.983$). It should be noted that the analysis shows that the overall level of employability readiness in the field of AI integration is relatively high, with career readiness and willingness to upgrade especially high (students are highly motivated to adapt to industry changes). However, relatively low marks in technical abilities indicate that students are not well-equipped, technologically speaking. Thus, there is a considerable gap between theoretical knowledge and students' practical skills. It can be concluded that, despite students' high adaptability and employability readiness regarding AI implementation, they lack the practical skills to operate in such conditions.

Keywords: Artificial Intelligence, Employability Skills, Hospitality Education, Career Readiness, Skill Gap, Digital Competency



1. INTRODUCTION

There are massive changes underway in the hospitality industry due to the rapid pace at which artificial intelligence (AI)- related technologies have developed. It has been observed that in the past, the hospitality industry was dominated by heavy human efforts, as well as manual services offered to customers[1, 2]. However, now it is transforming itself towards a digitally advanced ecosystem where automation plays an important part in improving efficiency, along with the customer experience[3].

1.1. AI AND WORKFORCE TRANSFORMATION IN HOSPITALITY

The impact of artificial intelligence on the hospitality industry is evident in its effects on the workforce and job roles. With the advent of automation, more and more repetitive jobs, such as reservations, customer inquiries, and housekeeping tasks, are being taken over by robots. Chatbots take care of customer queries, whereas robots help with luggage handling, room services, and cleaning activities[4].

However, rather than eliminating jobs, AI is transforming how work is done in the hospitality industry. It has become increasingly apparent that hybrid jobs requiring both technological and human-centered competencies are taking shape. The employees are expected to deal with the AI system, understand the insights offered by big data, provide personalization, and retain their ability to empathize and show emotions[5]. In essence, there is a shift from a service role to an AI-empowered job in which people work alongside AI to provide better services.

Changes in workforce dynamics have also increased the need for technology-related skills, such as using artificial intelligence tools, data analysis, and proficiency in information systems. Consequently, employability in the hospitality industry is based not only on traditional service-related skills but also, increasingly, on a person's capacity to embrace technological developments. Talbert and Talbert (2026)

1.2. EMPLOYABILITY SKILLS IN THE AI ERA

In relation to the AI-driven revolution, the notion of employability has been transformed to encompass a broader array of skills that combine technical knowledge with soft skills. It is also important for hospitality employees to have technical skills as they help in the use of AI tools, analysis of data, use of digital platforms, and information technology skills[6].

It is also important to understand the importance of soft skills in a business where a lot of work is done to provide a service. Skills such as flexibility, critical thinking, problem-solving, and communication and emotional intelligence are key to resolving complex customer issues. Given how rapidly AI technology evolves, the need for adaptability is particularly pronounced:[7].

Due to the combined demand for technical and soft skills in the digital economy, the term "hybrid employability skills" has emerged, as modern society requires people who can combine technical skills with the capacity to provide human-oriented services.

Despite the high demand for these competencies, there is a lack of empirical research on the extent to which hospitality students are being prepared with the necessary technology, career, and skill-upgrading competencies to meet the industry's changing nature.

1.3. HOSPITALITY EDUCATION CHALLENGES

As the hospitality sector rapidly adopts AI and digitization, educational establishments have not been quick enough to update their programs to address these trends. The existing traditional hospitality education programs still focus on practical operations and services, with a very low percentage of AI knowledge and digital skills involved [8]. There appears to be an inconsistency between educational programs and industry needs, causing a significant skills shortage.

The shift towards Industry 4.0 has also made the matter more difficult for hospitality educators. This concept entails the use of cyber-physical systems, automation, and information flows that affect the sector's operations. Unfortunately, most training institutions do not possess the necessary facilities, knowledge, and financial power to include such technologies in their learning programs [9].

Yet another challenge is the absence of experiential learning programs for students. Most students get very little experience applying AI in real-life situations through their courses or internship programs, which makes it difficult for them to acquire the necessary skills. Also, the readiness of faculty members becomes an issue, since instructors might lack the required knowledge in AI [10].

Thorough reform of the hospitality education sector, through measures such as curriculum design, the involvement of industry partners and technology-focused learning methodologies, is needed to prepare future hospitality workers for a workplace augmented by artificial intelligence.

1.4. RESEARCH GAP

Despite a number of contributions evaluating the role of AI in the hospitality industry, the hospitality literature remains deficient regarding AI's role in preparing the workforce for employability. Currently available studies are mainly concerned with technology implementation, operational efficiency, and consumer experience, rather than with student employability readiness [1, 8].

Notably, there are few empirical studies assessing students' readiness for employment, particularly in developing countries like India. There are numerous theoretical frameworks regarding the required competencies and curricular design, but there is limited quantitative research on students' technical capabilities, career readiness, and adaptability to the AI environment.

Additionally, previous studies investigating the topic have not recognized AI's influence on the construct, thus limiting understanding of how technology changes shape the demands and employability of workers. Moreover, there is a lack of standardized approaches to measuring students' employability, which is influenced by developments in AI.

However, bridging such gaps will require a rigorous methodology that incorporates various aspects of employability in the context of AI. In doing so, one could gain useful information about how well-prepared students are for industry demands.

1.5. STUDY AIM

To address the research gaps mentioned above, this current study seeks to examine hospitality management students' readiness to use AI to improve their employability potential, with a particular emphasis on the following three areas:

- **Technical readiness** – students' competence in AI technology;
- **Career readiness** – students' career preparedness and their readiness to pursue AI-related career paths; and
- **Upskilling readiness** – Students' preparedness to upskill in relation to the advancement of technology.

This study will also contribute to the existing literature on employability readiness in the artificial intelligence era from the perspective of student-centered empiricists. Additionally, it is anticipated that the findings will support curriculum development, facilitate industry-academia collaboration, and enhance the skills needed to align education with the demands of the artificial intelligence era.

2. METHODOLOGY

2.1. RESEARCH DESIGN

A quantitative cross-sectional research design was used to assess the employability readiness of hospitality students in the era of AI transformation. A quantitative methodology was chosen because this approach can systematically assess latent constructs using well-structured measures, enabling statistical analysis and generalization of results [11].

Cross-sectional studies are widely used in education research and studies of technology adoption to collect baseline data about awareness, attitudes, and readiness [12]. Because AI technology is changing rapidly in the hospitality industry, this study is needed to gather information on students' readiness for AI technology in hospitality.

2.2. SAMPLE AND SAMPLING STRATEGY

The data was collected using purposive sampling. The sample population consisted of students enrolled in hospitality programs, who were considered to be future contributors to the AI-enabled workforce. Purposive sampling is appropriate when a sample is selected based on their characteristics or qualifications relative to the question of interest, such as in education-focused research [13]

Since our sample size of $n = 377$ is adequate for conducting a descriptive analysis and a reliability analysis [12], and since we collected our sample from a range of institutions in various locations, it minimizes the potential bias of sampling from one location, thus improving the external validity and generalizability of our findings [14].

The unit of analysis was the self-reported employability readiness of individual hospitality students to use artificial intelligence (AI) technologies.

2.3. DATA COLLECTION INSTRUMENT

The data were collected using a structured questionnaire to measure AI-enabled employability readiness, which was developed after a wide-ranging review of the literature on employability skills, digital transformation, and the adoption of AI in the hospitality field [2, 8].

The questionnaire contained multiple items for several constructs, such as:

- Technical knowledge of AI and digital technologies
- Career readiness and confidence
- Open to new skills and technological advancements.

All items were rated on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree) . Likert scaling is widely accepted in the field of social science to capture subjective phenomena such as attitudes, beliefs, perceptions, and self-reported skills [15]

To ensure content validity of the instrument, experts from academia and industry assessed whether questionnaire items covered the construct of interest and were clearly worded and relevant to contemporary practice and educational needs[16].

2.4. VARIABLES AND MEASUREMENT CONSTRUCTS

The three key employability readiness domains were:

2.4.1. TECHNICAL SKILL READINESS

This construct measures the extent to which students feel capable of using AI, digital systems, and data analysis systems within hospitality and tourism operations.

2.4.2. CAREER READINESS

Career readiness refers to students' confidence in their ability to perform effectively in AI-enabled job roles. It includes aspects such as job preparedness, career awareness, and perceived competence.

2.4.3. UPSKILLING WILLINGNESS

This dimension is reflected in students' motivation and ability to learn new skills and information, as well as in their responses to technology's impact on their work. They are closely linked to the employability framework and technology acceptance models (Technology Acceptance Model [TAM];[17]) that identify constructs (for example, perceived usefulness and perceived technology readiness) that influence technology acceptance. Composite scores for each construct were formed by averaging responses to the items designed to assess said construct.

2.5. RELIABILITY ANALYSIS

The internal consistency of the questionnaire was also evaluated, using the Cronbach's alpha coefficient, which is a common measure for assessing the reliability of survey scales. The Cronbach's alpha coefficient was found to be approximately 0.983, which is above the threshold value of 0.70, and indicates excellent internal consistency [18].

A high value for Cronbach's alpha indicates that survey items within the same construct are measuring the same latent constructs. High reliability is particularly important for survey questionnaires as it reduces the chance that a measurement error caused the statistical relationship observed in the outcome of the survey [19] .

The instrument's high reliability provides a sound basis for any subsequent statistical analysis and the strength of the conclusions.

2.6. DATA ANALYSIS TECHNIQUES

Descriptive statistics (such as mean and standard deviation) were calculated to summarize the responses for each of the different constructs. Descriptive statistics are useful in exploratory studies for recognizing patterns or trends in the data set [20].

The mean values measure the overall level of technical skills, employment readiness, and learning willingness, while the standard-deviation values measure the extent to which data are spread. Later on, means and standard deviations were interpreted using the five-point Likert scale, classifying the participants' responses as low, moderate, or high.

Composite construct scores can also be calculated to improve the interpretability of the overall results and the comparison between different constructs, as they are additive.

This framework will enable the use of inferential statistics, such as correlation and regression analyses, to identify relationships between variables and to test the model of the theory in the next stage of research.

3. RESULTS

3.1. DEMOGRAPHIC PROFILE OF RESPONDENTS

The data was collected from 377 hospitality students enrolled in undergraduate (UG), postgraduate (PG), and B.Voc degree programs. The students were selected from various institutes and regions to account for the diversity in their academic experience and institutional practices [14].

3.2. EMPLOYABILITY SKILL READINESS

Employability readiness was measured in three domains (technical skill readiness, career readiness, and willingness to upskill) , using a five-point Likert scale.

3.2.1. TECHNICAL SKILL READINESS

Table 1

Table 1 Technical Skill Readiness (Mean ± SD)			
Dimension	Mean	SD	Interpretation
Familiarity with AI tools	3.6	1.2	Moderate
Digital system usage	3.7	1.1	Moderate
Data analytics awareness	3.5	1.3	Moderate
Overall Technical Readiness	3.6	1.2	Moderate

Figure 1

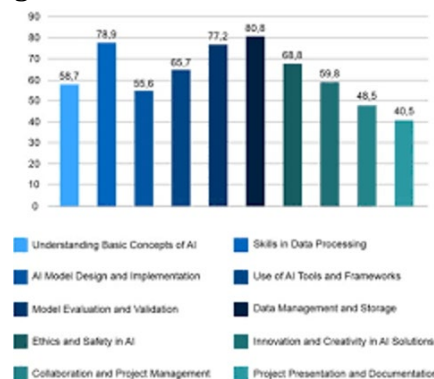


Figure 1 Technical Skill Readiness

This means that students were equipped with fundamental digital technology and AI application skills, though they reported lower readiness in data analytics, which is important for deploying AI technologies to assist hospitality decision-making, as shown in Table 1 and Figure 1.

3.2.2. CAREER READINESS

Table 2

Table 2 Career Readiness (Mean ± SD)			
Dimension	Mean	SD	Interpretation
Confidence in AI-driven roles	3.9	1.1	Moderate-High
Job preparedness	4.0	1.0	High
Career awareness	3.8	1.2	Moderate-High
Overall Career Readiness	3.9	1.1	Moderate-High

This finding reflects students' readiness in terms of their career and adaptability to changing technologies in the workplace, which is encouraging for their future careers in the technology-forward hospitality industry, as shown in Table 2. The results are in line with previous studies on workforce transformation, and employees' perceptions of technology's impact on job roles [2].

3.2.3. UPSKILLING WILLINGNESS

Table 3

Table 3 Upskilling Willingness (Mean ± SD)			
Dimension	Mean	SD	Interpretation
Willingness to learn AI tools	4.2	1.0	High
Interest in training programs	4.1	1.1	High
Adaptability to new technologies	4.0	1.1	High
Overall Upskilling Score	4.1	1.1	High

Figure 2

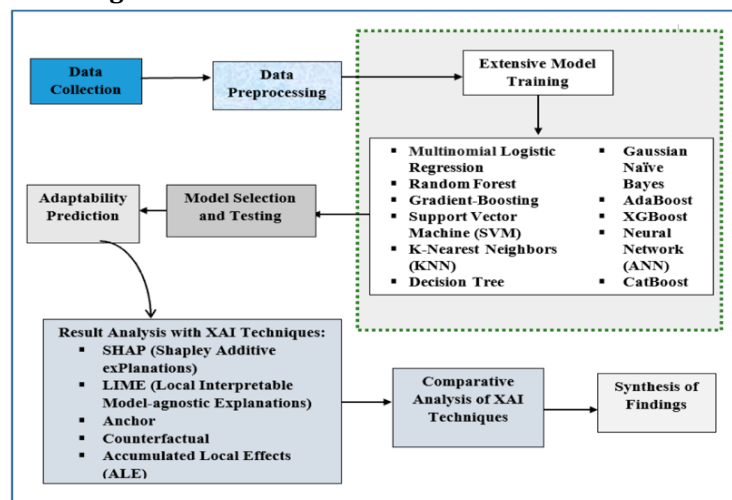


Figure 2 Upskilling Willingness

This points toward a high propensity to upskill, signifying that the students are ready to learn and adapt to the proliferation of AI tools, as shown in Table 3 and Figure 2. This is relevant to modern employability frameworks, which focus on lifelong learning and adaptability [7], where taking the initiative to upskill is pivotal

3.3. OVERALL EMPLOYABILITY READINESS

Table 4

Table 4 Composite Employability Readiness Scores			
Construct	Mean	SD	Interpretation
Technical Readiness	3.6	1.2	Moderate
Career Readiness	3.9	1.1	Moderate-High
Upskilling Willingness	4.1	1.1	High
Overall Readiness	3.87	1.13	Moderate-High

We thus conclude that students are generally ready for career development and upskilling, but are somewhat less ready to develop technical skills because they fail to translate their motivation and self-efficacy into technical skills. The results were shown in Table 4. Career readiness and willingness to learn more are high, whereas technical skills are only modest. However, their motivation and confidence do not appear to be reflected in their technical skills [8].

3.4. RELIABILITY ANALYSIS

Under these conditions, the results obtained are considered very reliable, as seen in the Cronbach's alpha coefficient, which is shown below [18] For this analysis, it was found to be 0.983, as shown in Table 5.

Table 5

Table 5 Reliability Statistics		
Construct	Cronbach's Alpha (α)	Interpretation
Technical Skills	0.983	Excellent
Career Readiness	0.983	Excellent
Upskilling	0.983	Excellent
Overall Scale	0.983	Highly Reliable

4. DISCUSSION

This study provides a thorough overview of hospitality students' employability readiness in the age of Artificial Intelligence (AI)-driven transformations. Based on the results, three main findings are discussed and two implications suggested. First, students' technological skills readiness is medium. It includes general knowledge of artificial intelligence (AI) tools or technical infrastructure, but not skills such as data analysis and AI-based decision-making. Second, students' career readiness is at a moderate to high level. Third, the situation points to a high level of willingness to improve skills. In other words, students are highly motivated to learn new skills according to what is required by employers in the labor market. Therefore, while students are motivated and psychologically ready, they lack technical readiness. Therefore, achieving a balance between developing technical skills and building a favorable attitude towards AI adoption will be important.

The findings of this pilot study reflect those of previous studies regarding the demand for new skills in AI-augmented hospitality work environments, although Knani et al. (2022) note that while there is growing awareness of AI technologies in general, there is as yet little education in their practical application. The present research's findings confirm that a high motivation and positive attitude to learn do not necessarily equate with a high technical readiness. Bulchand-Gidumal (2024) noted that AI adoption by hospitality businesses has been ahead of the changes made to educational programs, creating a misalignment between industry needs and graduate skills. On the one hand, the moderate level of technical readiness found in the present research suggests that students may not yet be fully equipped

with the necessary skills for the digital workplace. On the other hand, this study's high level of willingness to upskill is consistent with Hasanein (2024), which stresses the need for continuous learning and adaptability in the face of digital transformation. Likewise, this study's moderate-high career readiness supports the view that study students perceive the role of AI in the job in the near future as positive. The existing literature examines the employability aspect from the industry or technological perspective. Therefore, this current paper's contribution is that it provides empirical evidence on employability readiness from the student's perspective. This addresses a gap in the current literature in the context of emerging economies like India.

4.1. INTERPRETATION OF FINDINGS

A key finding from the study was a "readiness-competency gap": students in the sample were highly motivated and career-ready but lacked the technical competencies needed to perform in AI-based hospitality organizations.

This gap is due, in part, to school systems stressing theoretical learning over practical learning, leaving students with limited exposure to the tools that drive real-world AI. Students may develop a theoretical understanding of AI but lack the technical skills to implement or create AI-based solutions. Additionally, few programs offer work-integrated opportunities or experiences that relate specifically to the skillsets of AI-enabled jobs.

The high willingness to upskill found in this study is particularly interesting because it implies that students are not resistant to change, they are adaptable to technology. This indicates that what stands in the way of students being employability ready is not student attitude but rather the structure of the education system.

This moderate level of technical readiness suggests that there is a need to change the way in which technical skills are developed. Instead of developing technical skills through conventional methods, there would be a stronger fit for competency-based skills development that would allow students to work with the basic tools of AI, data analytics, and digital systems.

4.4. IMPLICATIONS

4.4.1. ACADEMIC IMPLICATIONS

To address the gaps in readiness and competency, hospitality courses should further integrate AI-related competencies. Additional hospitality courses that focus on developing digital competency, data analytics, and AI capabilities in hospitality management will equip hospitality students with the knowledge and skills by providing hands-on experience with AI tools and technology.

Experiential learning programs such as simulation-based training, AI laboratories, and collaborations with practitioners in the AI industry may benefit students, while professional development opportunities may help teachers develop the skills and knowledge to teach the AI curriculum[21].

The importance of lifelong learning and flexibility should also be incorporated into hospitality education programs for working in a rapidly changing environment.

4.4.2. INDUSTRY IMPLICATIONS

The implications for industry are evident in employers' focus on recruitment practices that consider not only technical skills but also service skills. However, given the moderate level of preparation observed in this study, graduates may expect to pursue further training or education.

Hospitality organizations need to offer training and skills development to narrow the gap between school and work. Close partnerships between the industry and academia are important to ensure that the curriculum meets industry skills requirements.

Also, given students' strong willingness to upskill, organizations could proactively create structured pathways for graduates to transition from traditional to AI-enabled roles.

4.5. THEORETICAL CONTRIBUTION

This study extends current employability literature by introducing the employability concept into the era of AI transformation in the hospitality workplace. In contrast to the predominant employability definitions and frameworks that focus on general skills in general employability, the study suggests a multi-dimensional employability readiness for AI in hospitality: technical skills, career readiness, and adaptability.

The study therefore makes a novel contribution to theory with respect to employability in technology-rich contexts and proposes that the readiness-competency gap is a distinct, but previously unexplored, component of employability that separates students' motivation from their skill levels.

Furthermore, the study confirms and extends the Technology Acceptance Model (TAM) by showing the role of perceived readiness and willingness to adapt in determining the employability outcomes in AI-enabled workplaces [17].

5. FUTURE SCOPE

While the current study provides valuable insights into employability readiness through the lens of artificial intelligence, several areas for future research could further elucidate this topic and contribute to developing a more comprehensive theoretical and practical framework. Future research may apply inferential statistics such as correlation and multiple regression analysis on the potential relationship between the variables, technical readiness, career preparedness, and upskilling willingness, so that the identificatory factors that may affect employability readiness can be identified, and the structural relationships identified in this study can be tested [12].

Second, there is a need for theory and empirically proven development of a thorough AI competency framework for hospitality education. Future studies can build on the findings of this study to develop a competency framework that includes the dimensions of technical skills, digital skills, adaptability, and human-oriented service skills based on industry expectations. This framework can underlie curriculum design, training and development programs, and policy design and development[1, 7].

Third, longitudinal study designs may assess how employability readiness develops through off-curricular or curricular approaches to AI training , and evaluate how learning and employability readiness change over time. Longitudinal studies could be effective in measuring the acquisition of skills and knowledge, and the long-term impact of such trainings[22].

However, additional studies could also consider the potential involvement of wider actors, including faculty members, industry representatives, professional bodies, alumni, and other relevant stakeholders, in order to provide a more thorough picture of employability readiness and its integration into the curriculum of the AI era. Comparative research across regions or countries would further deepen understanding.

Future studies might incorporate statistical methods like Structural Equation Modeling (SEM) to scrutinize the complex relationships between constructs and their potential mediation or moderation effects (e.g., upskilling willingness as a mediator of technical readiness and career outcomes) . Such a methodological evolution would not only improve the theoretical contribution but also the applicability of practical implications in future research.

6. CONCLUSION

This study empirically measures the employability readiness of hospitality students in the AI era. The study found that hospitality students have moderate levels of technical skill readiness, moderate to high levels of career readiness, and a high level of willingness to upskill in light of changes brought on by technology. These findings indicate that, while students are motivated and psychologically ready to work with AI solutions in the hospitality industry, they lack the technical competencies. A major contribution of this study is the identification of the readiness-competency gap; even though students were confident and adaptable to work with AI-based solutions in the hospitality field, they did not have the relevant technical competencies. The gap is a limitation of hospitality programs, which focus more on theory than practical applications. However, students acknowledge the importance of AI and are willing to adapt. Formal instruction in AI concepts and practice is needed to ease the transition from understanding AI's importance to developing practical skills and competencies. From an education perspective, the findings imply the need for a radical redesign of hospitality

education to include the teaching of data analytics, digital systems and technology-enabled service as part of the curriculum. Furthermore, experiential learning strategies, including simulations, industry projects and AI-based training modules, should be implemented within university studies to ensure that the workforce acquires the required skills. From the industry's perspective, the findings imply that a workforce development strategy should focus on the technical skills as well as service skills. Organizations also help to reduce the skills gap by training and upskilling graduates who want to pursue a career in AI-enabled workplaces. To sum up, although hospitality students are generally well aware and enthusiastic towards transitioning to an AI-enabled environment, they may still be limited in working in AI-improved workplaces due to a lack of technical skills. Addressing this gap through curriculum innovation, industry collaboration, and competency-based education will be essential for developing a future-ready hospitality workforce capable of thriving in the era of Artificial Intelligence.

CONFLICT OF INTERESTS

None.

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RS conceived and designed the research. RS and ASS conducted the experiments. RS analyzed the data. RS and ASS wrote the manuscript. All authors read and approved the manuscript.

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