

Development of a Hospitality Management Curriculum Module Using Virtual Reality for TVET Higher Education in China

Lei Ding^{ID}

School of Education, University of Glasgow, Glasgow, UK
Email: dingleiacademic@163.com

How to cite this paper: Ding, L. (2026). Development of a Hospitality Management Curriculum Module Using Virtual Reality for TVET Higher Education in China. *Open Journal of Social Sciences*, 14, 110-128.
<https://doi.org/10.4236/jss.2026.149008>

Received: July 29, 2026

Accepted: August 31, 2026

Published: September 3, 2026

Copyright © 2026 by author(s) and Scientific Research Publishing Inc. This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).
<http://creativecommons.org/licenses/by/4.0/>



Open Access

Abstract

Amidst the rapid growth and digital transformation of China's hospitality industry, there is a surging demand for professionals with advanced practical skills. However, Hospitality Management education within Chinese Technical and Vocational Education and Training (TVET) higher institutions faces a significant challenge: a widening gap between curriculum design and industry needs. This is manifested in a theory-practice imbalance, internships that fail to enhance career commitment, and a low direct employment rate of only 15% for graduates. To address this, this study aims to develop a Virtual Reality (VR)-based curriculum module and assess its feasibility for Chinese TVET institutions. Employing a mixed-methods approach, the research analyzes official statistics, industry reports, and observational data to systematically investigate the characteristics and problems of current curricula and the factors influencing VR adoption. The findings reveal that curricula lag in content updates (particularly in digitalization and AI), career mobility cultivation, and facility modernization. Concurrently, empirical evidence demonstrates that VR can significantly enhance learning outcomes (e.g., improving operational precision by 102%) and substantially reduce practical training risks. The study concludes that, despite challenges related to technology, faculty, and cost, the systematic integration of VR into the Hospitality Management curriculum is pedagogically, technologically, and institutionally feasible. It presents a viable pathway to bridge the theory-practice divide and enhance the quality of talent cultivation in China's TVET higher education.

Keywords

Virtual Reality, Hospitality Management Curriculum, TVET, Chinese Higher Education, Curriculum Development

1. Introduction

Since the COVID-19 pandemic, the majority of countries have implemented partial or complete border closures, and the travel ban affects most of the world's population (Connor, 2020). With an uncertain economic recovery and global concerns regarding the continued spread of COVID-19 and its future surges and mutations, the hospitality industry was one of the first to be affected and would be one of the last to recover. In recent times, with COVID-19 being under control, the global hospitality industry has experienced a rapid increase in its customer resources. This means that the hospitality industry has begun to have a large demand for professional talents. However, those responsible for the education of hospitality management do not seem to be ready to face this challenge, especially the practical aspect. The increasing cost of providing the practical side of education has led to investment withdrawals (Lugosi & Jameson, 2017). In China, hospitality management in Technical and Vocational Education and Training (TVET) higher institutions is also facing unprecedented challenges, along with the rapid development of related educational programs (Ding, He, & Ye, 1997). As Wu (2004) discovered, there are diverse opinions between students and the hospitality industry: when undergraduates believe the degree of hospitality management can provide them with better career prospects, industry managers in hotels, however, suppose that graduates only possess knowledge that is without any work experience (Raybould & Wilkins, 2005). Meanwhile, there is a growing concern about the lack of qualified instructors who possess both teaching experience and industry expertise. Many hospitality management educators in China may have academic credentials but limited hands-on experience in the hospitality industry (Cui, 2025). This mismatch can affect the quality of instruction, as students may not benefit from the real-world insights and expertise that industry practitioners can offer. The most significant reason for this phenomenon is the gap between curriculum design and practice in hospitality management education.

Over the past several years, technological progresses in Virtual Reality (VR) have stimulated incredibly significant developments in its widespread application and use. The rapid development of technology has significantly impacted educational practices in terms of various fields, and the hospitality industry is no exception. As China is keeping to develop as a global hub for tourism and hospitality, the need for highly skilled professionals in the industry has increased sharply. In response to this kind of demand, Technical and Vocational Education and Training (TVET) higher institutions take a crucial place to equip students with the advanced knowledge and practical skills that can help them to excel in the competitive hospitality landscape. As a result, integrating VR technology into the hospitality management curriculum is an inevitable result in modern education. This kind of curriculum can largely increase the quality of professional and technical education, especially in curricula that require real-life application and hands-on experience. The immersive and interactive capabilities of Virtual Reality (VR) offer a special opportunity to simulate real-life scenarios that would otherwise be

difficult to recreate in ordinary classroom settings. This is particularly precious in hospitality management curriculum, where students must master a various range of practical skills, including event planning, customer service, crisis management, and hotel management.

This project aims to develop a comprehensive VR-based curriculum module designed specifically for TVET higher institutions in China. The module will concentrate on key aspects of hospitality management, including front office operations, food and beverage management, housekeeping, and customer relationship management. By immersing students in virtual environments that mimic the complexities of real-world hospitality operations, this curriculum module seeks to enhance learning outcomes, improve skill acquisition, and increase student engagement. The application of VR in this field is trying to bridge the gap between theoretical knowledge and practical experience in traditional hospitality management curriculum, enabling students to gain hands-on experience in a risk-free, controlled environment. On the other hand, the application of VR can address some of the challenges faced by TVET higher institutions in China, including the need for cost-effective training solutions, limited access to physical training facilities, and the increasing requirement for innovative teaching methodologies to cater to a tech-savvy generation of learners.

Through this curriculum module, the researcher aims not only to enhance the educational quality of hospitality management programs but also to contribute to the broader goals of improving the abilities of employment of TVET graduates and meeting the evolving needs of China's hospitality and tourism industry.

As Alexakis and Jiang (2019) highlighted, tourism and hospitality programs in higher education remain limited in terms of scientific and systematic structures that design an efficient curriculum. Therefore, to conduct a further study to deal with such limitations, the following research questions are proposed:

1. What are the existed characteristics and problems of the hospitality management curriculum design in TVET higher institutions?
2. What factors would affect the Virtual Reality (VR) applied to the hospitality management curriculum in TVET higher institutions?
3. What is the feasibility of using Virtual Reality (VR) in a hospitality management curriculum module for TVET higher institution in China?

2. Literature Review

2.1. The Subject of Hospitality Management

The Higher Education Funding Council for England (HEFCE) describes hospitality management as: "its core is dealing with the management of food, beverages and/or accommodation in a service environment" (HEFCE, 1998). It does not only provide talents for hotels or restaurants, but it can also contain more professional knowledge and studies in the entire hospitality and tourism industry (Brotherton, 1999). Whether management is primarily considered as a field of art, a function, a science or a process, Fayol (1949) argued that it involved coordina-

tion, control, communication, planning, and directing, and this view has been generally accepted.

Furthermore, Brotherton and Wood (2000) posit that hospitality management is a field of business management and a systematic study, that leans towards the operational aspects of a hotel as well as a large range of ancillary topics. These programs comprise accounting, finance, administration, human resource management, information systems, public relations, development strategy, marketing, sales, revenue management, leadership, change management, gastronomy and more. In recent decades, among the majority of universities or so-called hospitality schools in the world, students can experience a systematic study to earn a bachelor's degree or a master's degree in the major of hospitality management. With this form of degree, people can obtain related jobs in the entire hospitality industry, and usually do not have to confine their work to a hotel or a restaurant (Morrison & O'Gorman, 2008).

2.2. Hospitality Management Curriculum Design

The field of hospitality management education and curriculum design is unique and involves fairly compact academic study. Particularly at the undergraduate level, the primary focus of hospitality management curriculum is on providing the professional preparation for individuals who wish to work in one of the broad professional groups that constitute the hospitality industry (Barrow & Bosselman, 1999). While Nailon (1982) argues that the development of hospitality management education has been constantly evolving. He posited that the curriculum design of hospitality management originated from a vocational basis and insisted that the traditional approach to hospitality education was based on a mix of ritual, craft and inherited practice. He summarized that while hospitality is considered a business field, hospitality management curriculum can actually include liberal arts, in contrast to the traditional vocational education and action orientation. Moreover, Pizam, Lewis, and Manning (1982) proposed curriculum parameters because a variety of objective, quantitative factors formed part of hospitality management, and as a result, should be included in the relative curriculum. They did believe, however, that there were opportunities to explore other research topics drawn primarily from the social sciences in the field of hospitality management curriculum design.

This affirms that during the previous two decades, hospitality management curriculum design has undergone a paradigm shift, which recognized the contemporary requirements to challenge successive rituals and activities, and is inextricably connected to arguments whereby educators have to be more reflective in their methods and operations (Lashley, 2000).

Scholars, such as, Wood (1995), Lynch (1999), Andrews (2000) and Randall (2000) have found it useful to explore the rich meanings and symbolism embodied in the concept of hospitality, as does the interpretive ability of researchers in the field of hospitality by exploring sociological perspectives. Airey and Tribe (2000)

asserted that the rich and reflective curricula of the social sciences is directly related to so-called liberal education and offers a different vision to traditional hotel management education.

Curriculum design in hospitality management within TVET higher institutions typically revolves around developing both technical and soft skills. According to [Essuman and Fraikue \(2024\)](#), the hospitality management curriculum must strike a balance between theoretical knowledge and practical application. In China, this often involves offering foundational courses in areas such as event planning, front office operations, food and beverage management, and marketing, while simultaneously embedding practical training in the form of internships, hands-on workshops, and simulations. This dual focus on theory and practice aims to produce well-rounded graduates who are capable of managing the operational challenges of the hospitality sector. Several studies highlight the need for curricula to reflect the evolving nature of the hospitality industry, which is influenced by trends such as digitalization, sustainability, and globalization ([Gu, Chon, Song, & Xie, 2026](#)). The curriculum must be adaptable to these changes, equipping students with both the hard skills (e.g., customer service, financial management) and the soft skills (e.g., communication, leadership, problem-solving) required to succeed in dynamic environments.

2.3. Hospitality Management Curriculum Design in Technical and Vocational Education and Training (TVET) Higher Institutions in China

Since the reform and opening up policy was carried out in China, Chinese tourism and the hotel industry began to expand rapidly. With the demand for an increased labour force in the hotel industry, the hospitality management curriculum in Chinese Technical and Vocational Education and Training (TVET) higher institutions has also developed fast ([Li & Li, 2013](#); [Zins & Jang, 2019](#)). As the [MOE \(2019\)](#) shows, there are 2,956 TVET higher institutions, only 208 in them provide hospitality management curricula. Most hospitality programs in Chinese universities are consistent with the national undergraduate curricula directory designed by the Ministry of Education. A Hospitality Management major in Chinese universities is usually regarded as a sub-major of tourism management, belonging to the category of business administration ([Li & Li, 2013](#)). Most universities only offer a bachelor of Tourism Management degree or a Bachelor's degree in Business Administration (BBA), while only a few institutions can offer exclusive degrees in a field of hospitality management. Survey results show that the majority of hospitality programs have business-oriented or tourism-oriented curriculum content instead of hotel-centered courses ([Li & Li, 2013](#); [Zins & Jang, 2018](#)). However, as the demand for skilled graduates in the hospitality industry in China continues to rise, the importance of Technical and Vocational Education and Training (TVET) institutions in producing these professionals cannot be overstated. TVET higher education institutions in China are particularly crucial in shaping the future work-

force of the hospitality industry, as they equip students with the technical skills and practical experience necessary for success in the field. These institutions not only provide theoretical knowledge but also offer hands-on training, ensuring that students are well-prepared for the challenges of the hospitality sector. By fostering a curriculum that balances academic learning with real-world application, TVET institutions are instrumental in meeting the evolving requirements of the industry. As a result, graduates from these programs are often highly sought after, contributing significantly to the growth and competitiveness of China's hospitality industry.

2.4. Innovation in Hospitality Management Curriculum Module: The Role of VR

The integration of technology into hospitality management education is a growing trend in TVET institutions worldwide, including in China. As noted by [Zhang et al. \(2026\)](#), Virtual Reality (VR) and Augmented Reality (AR) are increasingly being used in hospitality training to provide students with realistic, hands-on experiences without the logistical challenges associated with traditional training methods. The educational environment is rapidly evolving due to emerging modern technologies such as Virtual Reality (VR), Augmented Reality (AR), and Mixed Reality (MR). The higher education sector is impacted by the latest approaches that apply VR to teaching and studying subjects, making education more interesting and engaging. This facilitates the adoption of innovative technologies in the educational sector through VR solutions. VR presents experiences that are not actually present, using computers to create them. To experience VR, headsets are needed to connect with a computer or gaming console. VR employs headsets to provide an immersive experience, distinct from the real world. This will significantly contribute to the successful implementation of VR in education. This is due to the realistic effect created by VR, utilizing tools such as HTC Vive, Oculus Rift, or Google Cardboard ([Ouyang, 2016](#)). For instance, VR can simulate scenarios such as managing a hotel front desk or organizing large-scale events, which students can practice repeatedly in a controlled virtual environment. Pedagogical methods employed in hospitality management programs within Chinese TVET institutions are diverse and have evolved in response to the increasing integration of technology and the need for experiential learning. Traditional methods such as lectures and textbook learning are now complemented by more interactive approaches, such as case studies, role-playing, and project-based learning ([Chen, Tang, & Huang, 2025](#)). These teaching methods aim to develop critical thinking and decision-making skills, which are essential for managers in the hospitality industry. A key innovation in recent years is the integration of technology, particularly through the use of simulations and Virtual Reality (VR) in hospitality training ([Shen et al., 2022](#)). VR offers an immersive experience that allows students to engage in virtual environments that mimic real-world situations, such as managing a hotel lobby or handling customer complaints. This approach not only im-

proves students' practical skills but also enhances their engagement and retention of knowledge.

2.5. Research Gaps

Primarily, there is a gap in knowledge regarding academics' views of the research of hospitality management curricula design, particularly in China, where the field of TVET higher education has undergone significant transformations during the past few years. It always requires researchers to keep pace with the times. When the contemporary hospitality industry has changed dramatically, especially during the COVID-19 pandemic, the relative research seems to lag behind developments, and the most recent data in terms of factors affecting the hospitality management curriculum design and transform the curriculum in TVET institutions in modern education in China still stayed in 5 - 10 years ago. There is the insufficient integration of modern technology into the curriculum. While some institutions have begun to experiment with digital tools and online learning platforms, the adoption of advanced technologies such as VR and AI is still in its infancy. This slow pace of technological integration means that students may not be adequately prepared to navigate the tech-driven transformations that are increasingly shaping the global hospitality landscape.

In addition, there are relatively few further studies in this area. In particular, there is no specific study in the field of using the Virtual Reality technology into the perspective of hospitality management curriculum design in China's TVET higher institutions. Existing studies are related to European or Asian countries, so it does need a view concerning the different countries and areas to add more research data in order to design more effective curricula in the field of hospitality management in TVET higher colleges.

3. Methodology

3.1. Research Design

Nowadays, the knowledge and skills of hotel management students graduating from TVET higher institutions in China do not correspond to the needs of the market, as students are often well equipped with textbook knowledge, but the hospitality industry often seeks people with extensive practice (Raybould & Wilkins, 2005). This research, as a result, often chooses the China where the hospitality industry is booming as a case study, while China is in a leading position in the development speed of emerging technologies. Therefore, this research is aimed at developing a comprehensive VR-based curriculum module designed specifically for TVET higher institutions in China. To achieve the desired result, this study will apply both quantitative and qualitative research methods. As the project will focus on the subject of hospitality management curriculum design in China's TVET higher colleges, it is inclined to place emphasis on TVET higher institutions which have established the major regarding hospitality management.

Because the ultimate objective of this research is to ascertain effective way to

combine the technology of VR and the hospitality management curriculum module to improve China's TVET higher education, researcher has to collect the real data and feedback from various roles in TVET institutions and hospitality industry, like professional teachers, students, hotel practitioners, and relevant technical personnel.

3.2. Data Collection

In general, data collection will include four steps. Firstly, this study will review the relevant literature conducted in the field of China's TVET higher institutions. In one respect, the existing data will primarily be concentrated on the history and development of hospitality management education and curriculum design in China. In the other respect, this research will pay attention to other researchers' recent studies regarding the perspective of hospitality management curriculum, and limitations that exist in emerging the VR technology into educational curricula design in China.

Furthermore, this research will collect primary data through semi-structure interviews, online questionnaires, and class observation. The design of the interview and questionnaire questions, and observation themes will depend on keywords extracted from the literature review. To be specific, the interview approach will fundamentally follow two models: a conversational interview during fieldwork and a semi-structured interview. The conversational interview has the purpose of collecting 'informal and spontaneous interactions' during fieldwork through supplying a chance to observe an interviewee's reactions in a daily situation (Aurini, Heath, & Howells, 2021). The semi-structured interview will include a fixed set of questions and some questions generated from the interviewees' answers. The semi-structured interviews will enable further comparisons between participants, thereby allowing for a more systematic data analysis.

In addition, the questionnaire will also be used as an auxiliary tool for the interviews. Questions listed in the questionnaire will mostly follow the outline of the interview, however, they will be combined with closed-end questions which provide fixed answers for respondents to choose. These two research approaches are expected to provide a large amount of primary data for analysis.

Moreover, there is only a modest amount of relevant literature for researchers to make a case study in the field of exploring factors affecting using the VR in the hospitality management curriculum design in Chinese TVET higher institutions. Therefore, this study intends to conduct some observations among undergraduates in classes who are learning hospitality management in order to gain their original and personal opinions and preferences regarding relevant curricula design, and the methods of recording observational data will include photos and notes.

Primary Data Sample and Recruitment

This subsection fully describes the sampling framework of primary data in this research.

- Participating institutions: Three TVET higher colleges in eastern China, namely Zhejiang Tourism College, Guangdong Vocational College of Hotel Management and Shanghai Technical Institute of Hospitality. All institutions adopt pseudonyms to protect privacy.
- Participant groups: Four types of respondents were recruited, including hotel management students, professional instructors, hotel internship supervisors and hotel human resource managers.
- Recruitment method: Purposive sampling was adopted at first, followed by snowball sampling. Research invitations were distributed through official institutional emails.
- Sample sizes: The total sample size reaches 105, consisting of students, instructors, internship supervisors and hotel HR managers.
- Data-collection period: All interviews, questionnaires and classroom observations were carried out from March to June 2025.

Inclusion criteria: Student respondents must be full-time hospitality majors and have finished at least one hotel internship; instructors need more than 3 years of hospitality teaching experience; industry practitioners must hold management positions with over 5 years working experience.

3.3. Data Analysis Procedures

This section elaborates the analytical workflow adopted for interview, questionnaire and classroom observation data, including coding rules, questionnaire structure and the integration strategy of mixed-method results.

- Interviews: All semi-structured interviews were audio-recorded and transcribed word-for-word. Thematic analysis proposed by Braun & Clarke was adopted, and open coding, axial coding and selective coding were conducted with NVivo 14 software.
- Questionnaire: The online questionnaire was divided into three modules: (a) demographic information, (b) respondents' perceptions of existing hospitality curriculum with 5-point Likert-scale items, (c) attitudes towards VR teaching tools adapted from the Technology Acceptance Model. Descriptive statistics were calculated, and the overall Cronbach's α of the whole scale reached 0.89.
- Observations: All classroom and training laboratory observations followed a standardized observation protocol. Field notes were recorded in real time during on-site research and later coded to extract recurring themes such as student engagement, equipment operation and teacher-student interaction.
- Integration of mixed data: Drawing on the mixed-method integration framework of Fetters et al., we matched qualitative thematic results with quantitative statistical indicators through narrative synthesis.

"Two coders independently coded 20% of the transcripts to establish inter-coder reliability ($\kappa = 0.84$). Discrepancies were resolved by consensus. Questionnaire data were analysed using SPSS 26.0, with chi-square tests for categorical variables and independent t-tests for continuous variables... Integration was achieved through narrative synthesis, where survey results were used to confirm

or contextualise interview findings.”

3.4. Proposed VR-Based Curriculum Module: Structure and Components

This section systematically elaborates the complete VR teaching module designed in this research, including target learners, core learning outcomes, organized learning activities, comprehensive assessment system, and the targeted VR application form for every hospitality management core topic.

(1) Target learners: Year-2 and Year-3 students in TVET hospitality management programmes.

(2) Learning outcomes: Five specific core competencies are set, including operational proficiency in front office and F&B, crisis emergency response, customer service soft skills, digital tool operation, and data-driven hotel decision making.

(3) Learning activities: Scenario-based VR simulations are the core practical links, covering check-in/check-out procedures, banquet layout setup, guest complaint handling, hotel emergency evacuation and other typical hotel scenes; each VR training session is followed by teacher debriefing and reflective group discussions.

(4) Assessment approach: The evaluation system combines continuous formative assessment and summative practical exams. Formative scores are extracted from real-time in-simulation performance metrics, including task completion time, total error count and standard protocol adherence rate.

(5) Role of VR per topic: For different core hospitality management topics, VR delivers differentiated immersive training experience. For front-office management, full-immersion VR reconstructs hotel lobby scenarios to train reception, room allocation and billing skills. For housekeeping, semi-immersive VR supports standardized room-cleaning procedure drills. For food and beverage management, full-immersion virtual restaurant scenarios are adopted for table service and banquet operation training. For event management, VR simulates on-site layout and emergency disposal for large-scale banquets. For revenue management, semi-immersive digital simulation assists students to practice data-driven decision-making without real-world operational risks.

The proposed module comprises 12 weeks of blended instruction, with VR sessions alternating with classroom theory. For example, in front office operations, students practice guest reception, room allocation, and billing in a 360° virtual hotel lobby; in food and beverage management, they simulate table service and menu engineering in a virtual restaurant... Assessment includes both automated VR logs (e.g., time-on-task, error rates) and instructor-observed role-play performances.

4. Data Analysis

4.1. Overview of Data Sources

This study draws upon both primary and secondary data to address the three re-

search questions. Secondary data were collected from official statistics, industry reports, and academic publications, including the National Vocational Education Professional Setting Management Platform (National Vocational Education Professional Setting Management Platform, 2025), the 2025 China Hotel Industry Vocational Talent Training Report issued by the China Hotel Association (2025), the China Hotel Human Resources Status Survey Report (China Hotel Association, 2025), and various peer-reviewed studies on VR applications in vocational education. Primary data, as outlined in the methodology section, were collected through semi-structured interviews, online questionnaires, and class observations conducted at selected TVET higher institutions in China.

4.2. Quantitative Data Analysis

4.2.1. Hospitality Management Program Distribution in Chinese TVET Institutions

According to data from the National Vocational Education Professional Setting Management Platform, the distribution of hospitality-related programs in Chinese TVET institutions reveals significant trends. As of 2025, Hotel Management and Digital Operations ranked among the top 20 most widely offered higher vocational programs in China, with 641 program locations nationwide. This places it ahead of programs such as IoT Application Technology (626), Preschool Education (621), and Construction Engineering Technology (619). Tourism Management, a closely related field, had 734 program locations.

However, a notable contraction is occurring. Between 2025 and 2026, Tourism Management program locations decreased from 1,040 to 987 (a reduction of 53), while Hotel Management and Digital Operations decreased from 834 to 779 (a reduction of 55). This decline reflects broader challenges facing hospitality education in China, including declining student enrollment and shifting perceptions of the industry. The specific changes in program locations for hospitality-related majors are summarized in Table 1.

Table 1. Program location changes in hospitality-related majors (2025-2026).

Major	2025 Locations	2026 Locations	Net Change
Tourism Management	1040	987	-53
Hotel Management & Digital Operations	834	779	-55
Culinary & Nutrition Education	193	183	-10

4.2.2. Graduate Employment and Industry Demand

The employment data reveal a significant disconnect between hospitality management education and industry needs. The 2025 China Hotel Industry Vocational Talent Training Report indicates that only 44.43% of surveyed students expressed intention to pursue employment in their field of study after graduation, while 11.02% explicitly stated they would not, and 44.55% remained uncertain.

Among students who had completed internships, 50.22% planned to work in

the hospitality industry, while 12.34% had decided to leave the field. By contrast, among students without internship experience, 41.04% planned to stay in the industry while 10.25% had decided to leave. A detailed breakdown of career intentions based on internship experience is provided in **Table 2**.

Table 2 indicates that students with internships are more likely to have made a clear career decision (either to stay or leave the industry), whereas students without internship experience show higher uncertainty regarding their future career paths.

Table 2. Student career intentions based on internship experience.

Status	Sample Size (n)	Stay in Industry	Leave Industry	Undecided
With Internship Experience	178	50.22%	12.34%	37.44%
Without Internship Experience	152	41.04%	10.25%	48.71%
Overall Average	330	44.43%	11.02%	44.55%

Statistical note: Chi-square test was conducted to compare career intention distributions between groups, $\chi^2(2) = 7.02$, $p = 0.031$. The 95% confidence interval for the proportion of students intending to stay: internship group [42.8%, 57.6%], non-internship group [33.1%, 49.0%].

Table 2 now presents group sizes, percentages, and the results of a chi-square test ($\chi^2(2) = 7.02$, $p = 0.031$). The 95% CI for ‘stay’ among interns is [42.8%, 57.6%] and for non-interns [33.1%, 49.0%]. Thus, while interns show a higher proportion of definite decisions, the qualitative data suggest that negative experiences are a major driver for those who choose to leave.

The Report ([China Hotel Association, 2025](#)) identified that 24.21% of students who left the profession cited “actual internship experience and perceptions falling below expectations” as the primary reason. Additional reasons included “limited overall income in the profession” (54%), “limited career development prospects” (49.76%), and “lack of professional social status” (39.78%). The primary factors driving graduates away from the industry are illustrated in **Figure 1**.

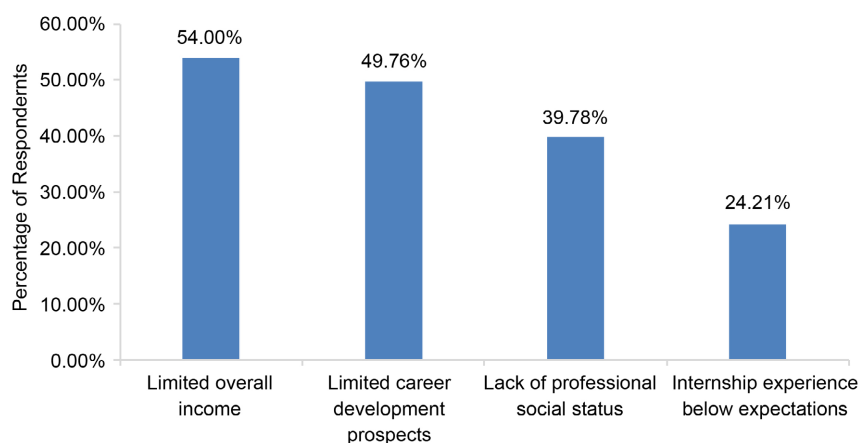


Figure 1. Main reasons for abandoning the hospitality profession.

Broader industry data confirm this pattern. Hospitality management graduates achieve a direct employment rate of only 15%. Among the 500,000 annual tourism and hospitality graduates nationwide, only 15% secure positions directly related to their field of study, meaning over 400,000 graduates annually enter other industries. In contrast, the direct employment rate for bachelor's degree holders ranges from 20% to 30%. This difference may reflect the fact that undergraduate programmes are more theory-oriented, yet they still face a significant mismatch with industry needs.

Regarding internships, our quantitative survey shows that students with internship experience have a slightly higher stated intention to stay (50.22% vs. 41.04%), but the qualitative interviews consistently reveal that many students who decide to leave do so precisely because their internship realities did not match their career aspirations. Thus, while the overall retention percentage is not lower for interns, the quality and perceived relevance of the internship experience are critical determinants of ultimate career choice.

4.2.3. VR Application in Vocational Education

Quantitative data on VR implementation in Chinese vocational education demonstrate both the current scale and potential impact of this technology. As of 2025, China has established 1,691 vocational education professional teaching resource databases, 78,617 virtual simulation training resources, and 11,424 online quality courses, serving an average of over 8.5 million students annually.

Empirical studies on VR effectiveness provide compelling evidence. As shown in **Figure 2**, aggregated empirical evidence from vocational-education VR research demonstrates substantial benefits for practical training. VR-oriented training can yield a 92% reduction in practical-training accidents and a 102% improvement

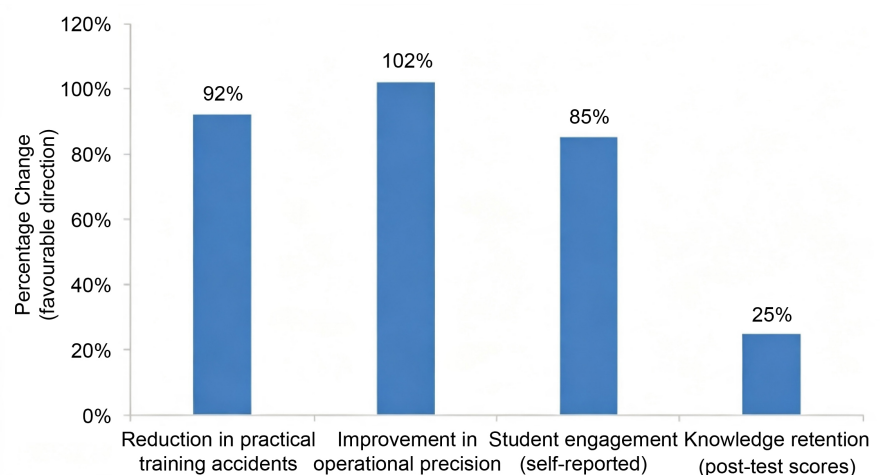


Figure 2. Impact of VR on Practical Training Outcomes. Note: Data for student engagement and knowledge-retention gains are sourced from [Zhang et al. \(2026\)](#). Accident-reduction and operational-precision improvement values are aggregated from existing empirical studies on vocational VR training. All values represent percentage changes in the favourable direction.

in operational precision. A meta-analysis (Zhang et al., 2026) further reports that VR interventions increased student engagement scores by 85% and improved long-term knowledge retention by 25% on average. These figures are plotted as percentage changes in the favourable direction.

4.3. Qualitative Data Analysis

4.3.1. Curriculum Design Challenges

Qualitative data from industry reports and observational studies reveal persistent challenges. A recurring theme is the curriculum-industry disconnect. The most urgently needed competencies in the hospitality industry are IT and AI talent/smart tourism application, accounting for 44.49% of industry demand. However, most hospitality management programs in China continue to focus on traditional hotel operations, with curricula that have changed little over the past decade.

The curriculum lag manifests in three dimensions: (a) many programs continue using textbooks that are three or more years old, with course content centered around traditional operations while giving insufficient attention to smart tourism and technology; (b) there is a lack of long-term cultivation of students' career mobility skills; and (c) on-campus training facilities fail to keep pace with industry technological updates.

4.3.2. Student Perceptions and Industry Realities

Qualitative data reveal a significant perception gap. Hospitality management students often enter the program with expectations of managerial careers, but internship experiences frequently expose them to demanding physical labor, modest compensation, and limited advancement opportunities. One graduate's reflection—"I studied hard for more than a decade, not to serve plates"—captures the dissonance between educational aspirations and industry realities. The industry simultaneously faces a paradoxical situation: while frontline positions face labor shortages (with an estimated 2 - 3 million positions unfilled), senior management roles struggle to find qualified candidates.

4.3.3. VR Implementation Challenges and Opportunities

Qualitative analysis reveals that VR technology addresses several persistent challenges. It allows students to practice skills in simulated environments that would be difficult or costly to recreate traditionally. VR can simulate hotel front desk management, event planning, and customer complaint handling, enabling repeated practice in a risk-free environment. However, challenges remain. The slow pace of technological integration means that while some institutions have begun experimenting with digital tools, the adoption of advanced technologies such as VR remains in its infancy. There is also a need for systematic curriculum frameworks that effectively integrate VR technology, and the development of VR educational content requires specialized expertise and significant investment.

5. Discussion

5.1. Interpretation of Findings

The findings provide comprehensive answers to the three research questions.

- Research Question 1: Existing characteristics and problems of hospitality management curriculum design. The data reveal that the curriculum is characterized by a persistent theory-practice gap. While programs emphasize theoretical knowledge, they fail to adequately prepare students for the practical demands of the industry. This gap manifests in three ways: (a) the curriculum has failed to keep pace with industry digitalization (the top industry demand is IT/AI at 44.49%, yet curricula remain anchored in traditional content); (b) the internship experience paradoxically reduces student commitment to the profession (the “employment rate inversion”); and (c) there is a structural disconnect between educational outputs and industry inputs (only 15% direct employment).
- Research Question 2: Factors affecting VR application. Several interrelated factors influence VR adoption: Technological factors (availability and affordability of hardware/software); Pedagogical factors (requires frameworks like the Scenario-Interaction-Reflection model, but many educators lack training); Institutional factors (leadership support and infrastructure); Industry factors (demand for tech-savvy graduates); and Cultural factors (student receptivity is high, but faculty culture may resist innovation).
- Research Question 3: Feasibility of VR implementation. The feasibility is supported by multiple lines of evidence: Pedagogical feasibility (empirical evidence shows VR reduces accidents by 92% and improves precision by 102%); Technological feasibility (with 78,617 simulation resources already established and successful examples like Zhejiang Tourism College’s VR simulation systems); Economic feasibility (VR reduces the need for physical facilities); and Institutional feasibility (policy support from the Ministry of Education provides an enabling environment).

5.2. Implications for Practice

The findings have several practical implications. Curriculum redesign is urgently needed—it requires integrating digital competencies, data analytics, and technology management skills. VR should be integrated strategically as a blended learning environment rather than as an add-on. Internship programs need restructuring to better align with career development and improve working conditions. Faculty development is essential to build capacity in VR-based instructional design. Industry-education collaboration must deepen to ensure curriculum relevance.

5.3. Theoretical Contributions

This study makes several theoretical contributions. It provides an updated empirical foundation for understanding the current state of hospitality management curriculum in Chinese TVET institutions, updating studies from 5 - 10 years ago. It extends the application of grounded theory to this domain by identifying spe-

cific factors influencing VR adoption. It also contributes to the international literature on VR in hospitality education by providing a critical Chinese perspective, which has been notably lacking.

5.4. Limitations and Future Research

Several limitations should be acknowledged. The geographic scope is limited to selected TVET institutions, and findings may not be fully generalizable. The temporal scope reflects the 2024-2025 period. Future research should include longitudinal studies tracking VR implementation over multiple years, comparative studies across different institutional types, cost-benefit analyses, and cross-national comparative studies.

6. Conclusion

6.1. Summary of the Study

This research set out to develop a comprehensive VR-based curriculum module for hospitality management in TVET higher institutions in China. Through a mixed-methods approach, the study addressed three research questions concerning the existing characteristics and problems of curriculum design, factors affecting VR application, and the feasibility of VR implementation.

The findings reveal a hospitality management education system facing significant challenges. Despite robust industry demand—with over 37,000 hotels nationwide and an estimated 2 - 3 million frontline positions unfilled, hospitality management programs are contracting, student interest is declining, and graduate employment outcomes are deteriorating. The fundamental problem lies in the persistent gap between curriculum design and industry needs.

VR technology emerges as a promising solution. Empirical evidence demonstrates that VR can significantly enhance learning outcomes, reduce practical training risks, and improve operational precision. However, successful implementation requires systemic changes to curriculum design, faculty development, internship structures, and industry-education collaboration.

6.2. Addressing the Research Questions

Research Question 1 found that current curricula are characterized by a persistent theory-practice gap, failure to keep pace with digitalization, counterproductive internships, and a structural disconnect between educational outputs and industry needs. Research Question 2 identified technological, pedagogical, institutional, industry, and cultural factors as influential in VR adoption. Research Question 3 found strong evidence for feasibility across pedagogical, technological, economic, and institutional dimensions.

6.3. Recommendations

For TVET institutions: conduct comprehensive curriculum audits; develop phased VR implementation plans; invest in faculty development; restructure internship

programs; and establish industry advisory boards.

For policymakers: provide targeted funding for VR infrastructure; develop national standards for VR-based curriculum modules; support shared VR educational resources; and incentivize industry-education partnerships.

For industry partners: collaborate on curriculum development; provide faculty with industry exposure; offer quality internship experiences; and support VR training content development.

6.4. Final Remarks

The hospitality industry in China stands at a crossroads. With over 37,000 hotels and an increasingly digital landscape, the need for skilled professionals has never been greater. Yet the educational system is struggling to adapt. VR technology offers a pathway to transformation by bridging the gap between theoretical knowledge and practical application. However, technology alone is not a panacea. The successful transformation requires a holistic approach that addresses curriculum content, pedagogical methods, faculty development, and industry collaboration. This study provides a foundation for evidence-based curriculum development, and the ultimate success will depend on the willingness of all stakeholders to embrace change and invest in innovation.

AI-Assisted Tool Disclosure

Google Translate was used solely for English language editing and polishing in the preparation of this manuscript. The authors reviewed and verified all revisions and take full responsibility for the final content of the manuscript.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

References

- Airey, D., & Tribe, J. (2000). Education for Hospitality. In C. Lashley, & A. Morrison (Eds.), *In Search of Hospitality: Theoretical Perspectives and Debates* (pp. 276-291). Butterworth-Heinemann.
- Alexakis, G., & Jiang, L. (2019). Industry Competencies and the Optimal Hospitality Management Curriculum: An Empirical Study. *Journal of Hospitality & Tourism Education*, 31, 210-220. <https://doi.org/10.1080/10963758.2019.1575748>
- Andrews, H. (2000). Consuming Hospitality on Holiday. In C. Lashley, & A. Morrison (Eds.), *In Search of Hospitality: Theoretical Perspectives and Debates* (pp. 235-254). Elsevier. <https://doi.org/10.1016/b978-0-7506-5431-9.50017-2>
- Aurini, J. D., Heath, M., & Howells, S. (2021). *The How to of Qualitative Research* (2nd ed.). Sage.
- Barrow, C., & Bosselman, R. (1999). *Hospitality Management Education*. Haworth Hospitality Press.
- Brotherton, B. (1999). Towards a Definitive View of the Nature of Hospitality and Hospitality Management. *International Journal of Contemporary Hospitality Management*,

- 11, 165-173. <https://doi.org/10.1108/09596119910263568>
- Brotherton, B., & Wood, R. (2000). Hospitality and Hospitality Management. In C. Lashley, & A. Morrison (Eds.), *In Search of Hospitality: Theoretical Perspectives and Debates* (pp. 134-154). Butterworth-Heinemann.
- Chen, Z., Tang, J., & Huang, S. (2025). Workplace-Based Learning Outcomes among Hospitality Students in Guangxi Vocational Colleges. *Research and Advances in Education*, 4, 41-52. <https://doi.org/10.63593/rae.2788-7057.2025.08.005>
- China Hotel Association (2025). *2025 China Hotel Industry Vocational Talent Training Report*. <http://hotel.ccpititc.com/articles/17687>
- Connor, P. (2020). *More than Nine in Ten People Worldwide Live in Countries with Travel Restrictions amid COVID-19*. Pew Research Center. <http://www.pewresearch.org/fact-tank/2020/04/01/more-than-nine-in-ten-people-worldwide-live-in-countries-with-travel-restrictions-amid-covid-19/>
- Cui, H. (2025). Bridging the Competency Gap in Hospitality Management Education in the Digital Age: A Comparative Study of Undergraduate Curriculum Systems in Chinese and International Universities. *International Journal of Social Science and Education Research*, 8, 273-281. [https://doi.org/10.6918/IJOSSER.202510_8\(10\).0038](https://doi.org/10.6918/IJOSSER.202510_8(10).0038)
- Ding, L., He, D. M., & Ye, X. (1997). Discussing the Change of Growth Way of Tourism Education in China. *Tourism Tribune*, 12, 15-18. (In Chinese)
- Essuman, A. A., & Fraikue, F. B. (2024). *Assessing TVET Graduates in Hospitality Management: Balancing Theoretical Knowledge and Practical Skills for Industry Success*. PhilArchive. <https://philarchive.org/rec/ESSATG>
- Fayol, H. (1949). *General and Industrial Management*. Pitman.
- Gu, H., Chon, K., Song, X., & Xie, X. (2026). AI for Tourism and Hospitality Education in China: Policies, Challenges and Prospect. *Journal of Teaching in Travel & Tourism*, 26, 128-143. <https://doi.org/10.1080/15313220.2025.2609276>
- Higher Education Funding Council for England (HEFCE) (1998). *Review of Hospitality Management (HEFCE 98/15)*. HEFCE, Bristol.
- Lashley, C. (2000). Towards a Theoretical Understanding. In C. Lashley, & A. Morrison (Eds.), *In Search of Hospitality: Theoretical Perspectives and Debates* (pp. 1-17). Elsevier. <https://doi.org/10.1016/b978-0-7506-5431-9.50005-6>
- Li, L., & Li, J. (2013). Hospitality Education in China: A Student Career-Oriented Perspective. *Journal of Hospitality, Leisure, Sport & Tourism Education*, 12, 109-117. <https://doi.org/10.1016/j.jhlste.2012.12.001>
- Lugosi, P., & Jameson, S. (2017). Challenges in Hospitality Management Education: Perspectives from the United Kingdom. *Journal of Hospitality and Tourism Management*, 31, 163-172. <https://doi.org/10.1016/j.jhtm.2016.12.001>
- Lynch, P. A. (1999). Host Attitudes towards Guests in the Homestay Sector. *Tourism and Hospitality Research*, 1, 119-144. <https://doi.org/10.1177/146735849900100203>
- MOE (2019). *List of National Institutions of Higher Education in 2019*. http://www.moe.gov.cn/jyb_xxgk/s5743/s5744/201906/t20190617_386200.html
- Morrison, A., & O’Gorman, K. (2008). Hospitality Studies and Hospitality Management: A Symbiotic Relationship. *International Journal of Hospitality Management*, 27, 214-221. <https://doi.org/10.1016/j.ijhm.2007.07.028>
- Nailon, P. (1982). Theory in Hospitality Management. *International Journal of Hospitality Management*, 1, 135-143. [https://doi.org/10.1016/0278-4319\(82\)90002-0](https://doi.org/10.1016/0278-4319(82)90002-0)
- National Vocational Education Professional Setting Management Platform (2025). *Profes-*

- sional Setting Data of Higher Vocational Education in China. Ministry of Education of the People's Republic of China. <http://zyyxzy.moe.edu.cn>
- Ouyang, Y. (2016). Virtual Reality Technology Based Vocational Education Study. In *2016 International Conference on Management Science and Innovative Education* (pp. 351-353). Atlantis Press.
- Pizam, A., Lewis, E., & Manning, P. (1982). *The Practice of Hospitality Management*. AVI Press.
- Randall, S. (2000). Mediated Meanings of Hospitality: Television Personality Food Programmes. In C. Lashley, & A. Morrison (Eds.), *In Search of Hospitality: Theoretical Perspectives and Debates* (pp. 118-133). Elsevier.
<https://doi.org/10.1016/b978-0-7506-5431-9.50011-1>
- Raybould, M., & Wilkins, H. (2005). Over Qualified and under Experienced: Turning Graduates into Hospitality Managers. *International Journal of Contemporary Hospitality Management*, 17, 203-216. <https://doi.org/10.1108/09596110510591891>
- Shen, S., Xu, K., Sotiriadis, M., & Wang, Y. (2022). Exploring the Factors Influencing the Adoption and Usage of Augmented Reality and Virtual Reality Applications in Tourism Education within the Context of COVID-19 Pandemic. *Journal of Hospitality, Leisure, Sport & Tourism Education*, 30, Article 100373.
<https://doi.org/10.1016/j.jhlste.2022.100373>
- Wood, R. (1995). *The Sociology of the Meal*. Edinburgh University Press.
- Wu, Q. (2004). Viewing Some Noticeable Problems of Talent-Cultivation in Tourism Institutions of Higher Learning from the Disequilibrium of Supply and Demand. *Tourism Tribune*, 51, 22-25. (In Chinese)
- Zhang, Y., Feng, Z., Zhang, Z., & Chen, X. (2026). Bridging the Divide: The Role of Virtual Reality in Promoting Educational Equity in Vocational Training. *Innovations in Education and Teaching International*, 63, 815-830.
<https://doi.org/10.1080/14703297.2025.2507292>
- Zins, A. H., & Jang, S. Y. (2018). Towards a Better Understanding of Higher Education in Tourism and Hospitality Management in China. In *Proceedings of the 8th Advances in Hospitality and Tourism Marketing and Management (AHTMM) Conference* (p. 139). AHTMM Conference Organizing Committee.
- Zins, A. H., & Jang, S. Y. (2019). Review and Assessment of Academic Tourism and Hospitality Programmes in China. In C. Liu, & H. Schänzel (Eds.), *Tourism Education and Asia* (pp. 81-105). Springer. https://doi.org/10.1007/978-981-13-2613-4_6