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The Role of Pedagogical Strategies in Teaching Management Science to Hospitality Management Students

Saeed Khan

Post Graduate Certificate in Education from University of Hertfordshire, UK |
Lecturer, Department of Economics, National University of Modern Languages,
Islamabad
saeedkhan054@yahoo.com

Ehsan Ul Haq

MPhil, International Development Studies, Department of Social Sciences
Iqra University, Islamabad Campus, Islamabad
malikeuhaq@yahoo.com

ABSTRACT

The study investigates the effects of pedagogical approaches on the teaching of management science to hospitality management students using a mixed-methods framework. The study identifies effective teaching approaches, assesses their influence on student learning outcomes, and takes into account the viewpoints of the students and the instructor. The qualitative phase comprised interviews and focus groups with instructors and students, whereas the quantitative phase comprised surveys and academic performance data analyses. Results showed that active learning strategies, such as problem-based Learning, case studies, and group discussions, greatly increase student engagement, understanding, and performance. Maintenance of traditional, lecture-based teaching was the least effective. Furthermore, the analysis showed that upper-year students and those with hands-on subject matter experience perform better under active forms of learning. It was concluded that interactive student-centered teaching methods foster the hospitality management programs' success and urge instructors to take active teaching and learning approaches seriously for improved learning acquisition. Future research in this area may take into account the long-term effects of the approaches and how they may find applicability in other institutions and within differing cultural contexts.

Keywords: Academic Performance, Educational Effectiveness, Higher Education, Hospitality Management, Problem-Based Learning (PBL), Management Science, Pedagogical Strategies

INTRODUCTION

Contextualization of the Study

Management science is an important feature of hospitality management education, based on students' attainability of important analytical tools and methodologies to help with decision-making and strategic planning within the industry. As the hospitality industry continues to expand and grow in complexity, so does the pressing need for better-trained professionals with management science skills. Okumus and Wong (2004) list strategic management-as-a-core-sub-subject of management science as an important area for the covered students on their way to understanding an increasingly dynamic and competitive hospitality industry.

Importance of Pedagogical Strategies

The effective implementation of pedagogical strategies in teaching management science is very relevant within the hospitality management curriculum. Hospitality education is so heterogeneous that it requires teaching methods that impart elements of theory and provide additional skills useful for application in the real world. As Mahmoud Ahmed et al. (2022) point out, the use of educational technological tools, e.g. Learning Management Systems (LMS), was ensure student engagement, retention, and interaction, thus enriching the learning experience in tourism and hospitality courses (Akhtar & Tuba, 2017).

Challenges in Teaching Management Science

Management students have historically experienced various challenges when attempting to master the relevant concepts of management science. Many of these attributes turn out to be too abstract or technical. Therefore, traditional lectures may not suffice in fostering the student's critical thinking and problem-solving skills. Mahmoud Ahmed et al. (2022) explains this conflict and identifies active learning routes, such as experiential learning and interactive exercises, as viable solutions to respond suitably to the pedagogical challenges while facilitating students' comprehension and application of advanced management science principles in hospitality education (Janjua, et al., 2025; Faisal, Qureshi & Shah, 2025).

Overall, Meeting the pedagogical challenges presented by teaching management science is a must in view of correctly preparing hospitality management students to meet the industry's needs. Refinements in instructional approaches and the establishment of benign frameworks that address the set learning outcomes would better equip students on management science concept applications in their working careers.

Statement of the Problem

Research on effective pedagogies in teaching management sciences has not been keenly addressed in hospitality management education, resulting in some serious distress for the sector (Sisson et al., 2023). Although students were frequently taken through collaborative processes to enhance their teamwork skills, there had been very few studies actually looking into the reasons behind the success of such cases (Hussein, 2021).

Pedagogies and Learning Outcomes

The effectiveness of any active learning strategies to develop skills in hospitality students remained nebulous (Mahmoud Ahmed et al., 2022). Even though a range of pedagogies was used in the teaching of management sciences, the degree of their effectiveness in developing certain competencies remained inadequately assessed, which calls for further focused studies in this area (Kumar et al., 2021).

Some studies related to hospitality education have not sufficiently established the efficacy of certain teaching methods in realizing the articulately desired learning outcomes (Özdemir et al., 2023). Also, the implementation of OBTL has not been consistent, and as a result, it was suggested to ensure that such an approach is embedded into more structured frameworks to ensure practice enhances student learning (Rabuya, 2023).

Further on, innovative teaching approaches such as virtual reality (VR) were conceived to bridge gaps in hospitality education (Zwoliński et al., 2023). Moving away from traditional case study approaches, these universities suggested that experiential learning technologies might raise the ceiling on learning outcomes in hospitality education (Akhtar, N., & Hussain, N., 2019).

Research Objectives

1. To investigate and identify the teaching methods applied to management science for hospitality students.
2. To ascertain the effects of teaching methods on students' learning outcomes, academic performance, and levels of engagement.
3. To investigate what students and instructors think about those strategies and how effective they are in terms of improved comprehension and retention.

LITERATURE REVIEW

Theoretical Framework

In today's educational architecture, theories of learning like constructivism, experiential learning, and cognitive load offer vital insight for effective pedagogy (Akhtar, N., & Hussain, N., 2019). The three theories emphasize active participation, hands-on experiences, and efficient processing of cognition, hence making sense of them in management science. Continuing studies corroborate and refine these theories, which help cultivate a lively learning environment to create deeper and more meaningful student engagement and learning (Akhtar & Tuba, 2017).

Constructivism, Experiential Learning, and Cognitive Load Theory

Constructivism promotes the view that the learner treats knowledge as personal through experience and interaction with other people. Recent studies refer to constructivist perspectives in management science that are directed towards working through active collaborative problem-solving, potentially challenging existing frameworks of understanding and provoking critical thinking (Almulla, 2023). Research papers have also demonstrated recent findings of retention and application associated with the principles of constructivism in classroom practice (Banihashem et al., 2021).

According to Kolb (1984), experiential learning holds the essence of subjects

like management sciences, which articulate that students learn by doing. Perusso et al. (2019) reaffirm this, showing that experiential learning allows students to develop deeper reflection and critical thinking (ul Haq, 2019; ul Haq & ur Rehman, 2017). Students are then said to be employed in management learn through real-world activities and, thereafter, reflect upon their actions, which helps them develop skills necessary for tackling complex business issues, evidence that theory meets up with practice (Baker et al., 2012).

Disputably, several theoretical frameworks have been adopted, among which the most recent theories that capture contemporary educational design include constructivism, experiential learning, and cognitive load theories, thus providing critical insights into effective pedagogical strategies (Akhtar, N., & Hussain, N., 2019). These three dimensions actively illustrate participation, experiential learning, and the processed constructions of cognition, which are more relevant in management science education. Studies continue to promote and refine this as it empowers educators to build vigorous learning environments, creating deeper and more meaningful involvement in learning among students (Shah, et al., 2025; Imran, et al., 2023).

Constructivism identifies that Learning takes place when the students actively build their knowledge from their own experiences and social interactions (Akhtar & Hussain, 2020). New research indicates that constructivist orientations in management continue to encourage students to participate in collaborative problem-solving processes that challenge their prior understanding and trigger further critical thinking (Almulla, 2023). According to research, integrating constructivist ideas in class practices leads to greater retention and utilization of complex business ideas (Banihashem et al., 2021).

Kolb's model of experiential Learning (1984) remains key to disciplines such as management science, where students learn by doing. According to the argument of Perusso et al., (2019), experiential learning provides opportunities for deeper reflection and critical thinking among students. Such students actively engage in real-life tasks and reflect on their actions, thus acquiring the essential skills needed to solve complex business problems, as evidenced by this gap theory and practice (Baker et al., 2012).

Sweller's Cognitive Load Theory continued to play a vital role in optimizing instructional design despite the fact that it was introduced in 1988. A new study conducted by McHone (2020) indicates that cognitive load management is very important for online and blended learning environments, enabling students to devote their time to higher-order learning tasks without overwhelming them. The theory postulates that instructional strategies should reduce unnecessary cognitive demands while introducing complex management concepts, which may overload students' working memory.

Overview of Source Strategies

The strategies gaining much currency in management education include active Learning, case study, problem-based Learning, and blended Learning. The strategies intend to improve engagement and develop the problem-solving competencies of learners.

In this study strategy, students participate actively in the learning process through group discussions, role play, and even hands-on projects. According to research findings by Heilporn et al. (2021), it is apparent that active learning not only seems to improve knowledge retention but also enhances the continued development of higher critical thinking and collaboration skills. Generally, greater student participation is involved; that is, students must apply theoretical knowledge rather than theoretical knowledge to solve practical problems.

Case Studies have long been a part of management education as a means of getting students to work through real-world problems. A recent study by Thistlethwaite et al. (2012) states that case-based learning allows students to make decisions, justify their reasoning, and develop problem-solving skills in the context of real business situations. It creates a bridge between different academic theories and their application in the practice of the corporate world.

PBL-based approaches engage students in teamwork to find solutions for complex real-world problems. Recent studies have found that PBL is a good way to promote collaborative work, critical thinking, and research skills. According to Li et al. (2022) found that PBL increases student engagement in management courses, especially when the students are required to do self-directed research and use theoretical knowledge for solving actual business problems.

Blended Learning combines the delivery of content, both online and face-to-face, giving learners some control over the time, place, path, or pace of their Learning (Feng, et al., 2023; Hafeez, et al., 2011). The latest research done by Truss and Anderson (2022) has laid emphasis on, due consideration of design, blended Learning actually works: yielding better learning outcomes as a beneficial combination of both traditional and digital learning formats, allowing customization of learning experiences and increased possibilities for engaging with course material, especially in very large and heterogeneous classes. These strategies are based on current learning theories, thus creating the experience of a more interesting and expedient learning environment in management education.

Pedagogical Strategies in Management Science

Types of Strategies for Teaching School Management Science

Common strategies induce cognitive participation in the many different forms of management science education being taught. Commonly used strategies include involving the students in a case study of real-life business problems and recommending some solutions (Grębosz-Krawczyk & Otto, 2018). This encourages young minds to practice critical thinking, decision-making, and problem-solving, which are the vital organs of management science. Project-based Learning goes well with such kinds of interests, as it is very much an in-demand means to estimate real-life tasks and challenges that must be dealt with (Žerovnik & Šerbec, 2021). Students participated in working together as they took on a few very broad and informative issues involving business, within which they developed their skills and proficiency in collaboration. Management science teaching has also accommodated other active learning techniques, such as peer teaching or group discussions. Such methods engender an active learning experience wherein students learn with and from each

other through engagement in the course content (Nor & Sihes, 2021). Lastly, technology integration in management education has also grown, with tools such as business simulations and learning management systems being used to enrich the learning experience (Scholtz & Hughes, 2019). It is observed that simulations seem particularly well suited to develop effective decision-making abilities in a risk-free situation where a student can apply several different strategies to an event and see the results.

Merging Conventional Teaching with Innovative Strategies

The integration of traditional learning techniques with those that incorporate innovation is beneficial to student engagement and, subsequently, their performance in management science education (Akhtar & Tuba, 2017). Lecture-type traditional teaching methods have been important in management studies with regard to providing the necessary grounding in business theory, strategy, and economics (Ulfa et al., 2021). However, these traditional approaches were increasingly blended with interactive and technology-driven strategies to further an understanding of complex concepts. Making good use of digitization along with the flipped classroom model is an example of such integration, allowing students to preview lecture materials on their own before class time, freeing up the in-class time for interactive discussion, problem-solving exercises, and collaborative projects (Izagirre-Olaizola & Morandeira-Arca, 2020). Thus, it would ensure that students would engage with literature and make sense of it in real-time scenarios (Kazmi, et al., 2024; Khan, 2021; Raja, 2021). Digital tools like business simulations, online case studies, and learning management systems were increasingly utilized in management education. Such tools, aside from supporting the traditional lecture, had much immersion in Learning, with which students became adept at making decisions in practice (Kalyani, 2024).

The combining of techniques and digital and interactive strategies transforms traditional teaching into a more alive and student-centered learning environment (Khosro, et al., 2024; Ahmed, & Imran, 2024; Sultana, Ahmed, & Imran, 2024). This hybrid method significantly contributes to improving student satisfaction as well as academic performance, most especially in courses that dealt with more complex management topics (George & Wooden, 2023). Such combinations created a seamless approach for the students to bridge theory and practice, thus preparing them for the realities of the modern business world.

Pedagogical Strategies in Hospitality Management Education

Challenges and Specific Needs of Hospitality Management Students and How Pedagogical Strategies Had to Be Adapted to These Needs

The interdisciplinary nature of hospitality management requires blending applied skills with theoretical knowledge and poses particular challenges for students. One of the challenges anticipated was ensuring that students grasped the principles of mainstream management while also accumulating the practical skills needed to implement such theories in real-life scenarios. Hospitality students often encounter insurmountable challenges, shifting from theoretical learning to their application in extremely dynamic service environments (Grobelna, 2015). Moreover, the students came from varied cultural and educational backgrounds, thus making communication

and interaction in class a challenge (Kayani, et al., 2023; Khan, et al., 2021). Hence, pedagogical strategies must display flexibility and inclusiveness, allowing educators to tackle various learning styles referring to students hailing from different cultural and academic contexts (Smith et al., 2015). In addition, the hospitality sector requires employees to demonstrate sound interpersonal and practical problem-solving skills (Nawaz, et al., 2024). Hence the Education of students in hospitality management must have exposure to the methodologies that focus on communication, teamwork, and decision-making in conditions of real pressing-hardship (Akhtar et al., 2020). Project-based Learning (PBL) and collaborative learning approaches were used among students to solve real-world problems while closely mimicking workplace scenarios. PBL and collaborative learning approaches allow students to work together on real-world problems, which are very similar to real-world scenarios found in jobs. As Qureshi et al. (2021) established in their study, upon implementing this student-made experience-based training, it led to a significantly improved student preparedness to being world-ready, as it directly allowed experience of problems included in team coordination, guidance, and client interaction (Ali, et al., 2024; Yousaf, et al., 2021). Based on current needs regarding the nature of the sector, hospitality management must center on the graduation of learning experiences, which include real-time simulations, internships, and work-related projects. The educators, thereby, had to tailor their teaching around these learning needs including, but not limited to provision of theoretical input intertwined with real industry expectations (Srisangkaew, 2022).

Review of Studies Assessing the Use of Active Learning, Blended Learning, and Experiential Learning in Hospitality Management Programs

Active learning, blended learning, and experiential learning became primary features of contemporary pedagogical approaches in hospitality management education (Akhtar, N., & Hussain, N., 2019). Active learning strategies, which would often constitute case studies, role-playing, group discussions, and the like, involved more direct engagement with the course material that would inspire further understanding and critical thinking by the students. Smith et al. (2015) found in their study that active learning in hospitality management programs greatly improved student analysis of real-life scenarios, thereby enhancing decision-making and problem-solving skills. Such techniques were found to fit perfectly within the hospitality realm, where employees had to respond to dynamic customer needs swiftly and effectively. According to the Azhar, Iqbal and Imran (2025) blended Learning, which involved face-to-face classroom interaction with an online learning tool, was also viewed quite positively in hospitality education. It gave seamless flexibility to those students, particularly, who performed internship duties or part-time work somewhere in the hospitality sector. Fisher et al. (2018) contended that it provided more chances for student engagement in that students were allowed to access online materials in lectures and participate in interactive discussions and practical applications during face-to-face sessions (Akhtar & Tuba, 2017). The various modes of Learning made student learning experiences more personalized and, hence, the model enhanced the satisfaction level of the students with the overall academic performance.

On the other hand, experiential learning, as a result of experience, forms another key framework of pedagogical approaches in the Education of hospitality management (Akhtar, N., & Hussain, N., 2019). Internships, field trips, and industry simulations were examples of such experiential learning that acquainted students with the circumstances of working life in hospitality. According to Croft and Wang (2023), they play a very significant role in experiential learning in bridging between theoretical knowledge and practical applications, which instead makes the students career-ready (Azhar, 2024; Azhar, et al., 2022). In practical settings, students develop soft skills that are vital for hospitality professions communication, teamwork, and customer care (Akhtar et al., 2020).

The research using active blended experiential learning methodologies in their programs allows hospitality students to gain industry-specific skills quickly. Recent findings indicated that the use of these approaches in hospitality management programs led to increased student engagement, satisfaction, and career preparedness (Green & Du Plessis, 2023).

Impact of Pedagogical Strategies on Learning Outcomes

Research on How Pedagogical Strategies Influenced Student Engagement, Learning Retention, and Academic Performance

The education pedagogy in hospitality management has a great deal of effect on student engagement, retention of their learning, and academic performance. Research has asserted that active learning techniques such as case studies, role-playing, and cooperative learning would, in fact, bring about growth in engagement levels among the students (Akhtar & Tuba, 2017). Active learning strategies incorporated into hospitality programs, insofar as they were given orientation to make students more motivated and engaged with the content by putting it in the context of their theory practically, have been reported by Green and Du Plessis (2023). Those strategies also helped with fostering motivation and participation, which matter so much to success in hospitality management education.

Regarding the retention of Learning, a combination of the traditional in-class approach and digital online components was identified as blended Learning. According to a study by Smith et al. (2015), one sees a clearer image of blended learning leading to greater retention, as the students could revisit online lectures, engage in discussions with others, and apply that knowledge in classroom practice. This model provides an opportunity for the students to study content at their own pace while real-time interactions with teachers and classmates further reinforce their academic learning. Generally, experiential learning refers to hands-on experiences that are active in nature: internships, simulations, or real-world projects. This Learning was widely acknowledged for producing an immensely positive effect on academic performance. According to Croft and Wang (2023), students engaged in experiential learning opportunities demonstrated enhanced problem-solving skills and improved academic performance. Such Learning helped connect theoretical learning with practical skills, which was crucial in the field of hospitality management, where grasping and applying management principles in real-world situations was of utmost importance.

Identification of Gaps and Areas Where More Research Was Needed in the Context of Hospitality Management Education

Significant advancements had been made in hotel management education, but big gaps were left regarding the ineffective enhancement of learning through pedagogical strategies. The missing longitudinal research showed how different pedagogies, specifically active learning, blended Learning, and experiential Learning, propelled careers, and employment in hospitality; as Green and Du Plessis (2023) pointed out, the short-term advantages were very clearly known, whereas the long-term effects, more specifically, into career progression and industry-required skills/models, needed further exploration (Raja, et al., 2022, Raja, 2022; Raja, et al., 2021). Moreover, while the input of technology had been investigated in hospitality management education, not much had been spotlighted in examining the emergence of technologies for instance, VR or gamification and their specific impact on student engagement and learning (Akhtar, N. 2020). As George & Wooden, (2023) recognized, these very innovations in technology give powerful, immersive opportunities, though further inquiry must establish their linchpin for enhanced learning retention and hospitality academic achievement (Nadeem, Khan & Atta, 2024; Kahtoon, et al., 2023; Khan, Farooq & Kamal, 2023). Further research should also target other avenues, such as providing pedagogy with room for consideration and reconstruction toward increasing levels of cultural diversity in hospitality students. Grobelna (2015) pointed out that the challenges presented by diversity in classes came with ways to implement items for instruction; henceforth, there was a desperate need for research into how to modify strategies in ways that best belong to the students and their backgrounds ranging from international hospitality management programs. Work during this would build pedagogies that raise inclusive models that cultivate more globally relevant Education (Akhtar, N., 2020).

METHODOLOGY

The combination of qualitative and quantitative methods in a mixed-methods study enabled the researcher to fully grasp pedagogic strategies and their impact on hospitality management students. The qualitative arm of the study threw light into the depths of the students and instructors' experiences and perceptions, while the quantitative method provided the basis for measuring the effectiveness of these pedagogical strategies based on a variety of performance metrics and structured surveys.

In order to examine the students' and instructors' views concerning the various teaching strategies employed in hospitality management education, a qualitative method was warranted. Interviews were carried out with 12 instructors and 15 students regarding such strategies as active Learning, blended Learning, and experiential Learning. A focus group was formed with about eight students to stimulate discussion among peers and elicit different opinions about their learning experiences. A document review was carried out on course materials and teaching plans in order to document which pedagogical strategies were embraced in the teaching of various subjects.

For their part, quantitative research on various pedagogical strategies' efficacy involved metrics of student performance, engagement, and academic success. Surveys were given to 150 students on their satisfaction with teaching methods, engagement in learning activities, and their perception of academic progress. Survey responses were be complemented with data on academic performance in terms of grades and exam results covering 120 students in order to quantify the impact of the teaching methods on student learning achievements in the hospitality management program.

Particularly instructors and students engaged in management science classes within hospitality management programs were selected for purposive sampling. Twelve instructors and 15 students were purposively sampled to give variety in experience and exposure to alternate teaching learning approaches. Stratified random sampling was used for quantitative sampling to represent students from all year groups and institutions in the study. A sample of 150 students from differing academic levels was drawn to represent the wide-ranging views.

The data collection period was several weeks. Qualitative data were obtained from semi-structured interviews and focus groups with instructors and students. These focus groups were conducted to get qualitative data from their experiences and lessons learned, whereas the quantitative data were obtained through surveys electronically distributed to students regarding their experiences and academic performance. Academic performance data were then collated from institution records. The qualitative data were analyzed through thematic analysis to identify emerging themes and patterns within the interview and focus group transcripts. This writing phase was supported by the use of qualitative data analysis software for coding and organizing, such as ANOVA. Descriptive statistics were computed for quantitative data to summarize survey responses, calculating means and standard deviations. The statistical analyses used for making inferences also studied the link between pedagogical strategies and student performance using correlation or regression analysis.

The study required all ethical guidelines to protect and respect the rights of participants. Informed consent was obtained from all participants whose names and identities were not made public and whose personal information and data were anonymized and kept in a safe data repository. It was also guaranteed to participants at the time of consent obtainment. Such information was entirely unsolicited and confidential during the whole period of research. Transparency in terms of reporting findings was maintained, and possible conflicts of interest were disclosed. All the time, research was carried out, ethical standards were maintained, and the rights of participants were respected at every stage of research.

This study had a limitation on the self-reported data, since it creates a possibility of response bias; and even though the enriched mixed-methods design provides rather complete information, it was be difficult to quantify what these experiences really mean for each participant. The sample is further limited to students and instructors taking a hospitality management course program, thus delimiting the applicability of study findings to other disciplines.

Data analysis

Table 1: Gender Distribution of Participants

Gender	Frequency	Percentage (%)
Male	80	53.33
Female	70	46.67

Interpretation:

This table is stunning because it is evident from it that over the total number of participants, approximately 53.33 % were male (80 participants), while the rest 46.67% were female (70 participants). Indeed, the gender distribution is quite fair, indicating that the study manages to get the input of both men and women.

Table 2: Age Distribution of Participants

Age Range	Frequency	Percentage (%)
18-22	60	40.00
23-27	50	33.33
28-32	30	20.00
33 and above	10	6.67

Interpretation:

From the age distribution, the figures show that the 18-22-year-old age range group is the biggest group with a percentage of 40.00%. While the 23-27 age group had the second fourth share with 33.33%. The 28-32 age group contributed 20.00% to this research, whereas the 6.67% are people over 33 years of age. It is also an important indicator showing the fact that most of the respondents are young adults.

Table 3: Academic Level Distribution of Participants

Academic Level	Frequency	Percentage (%)
Undergraduate	100	66.67
Postgraduate	40	26.67
Doctoral	10	6.67

Interpretation:

The majority of participants in this research are undergraduate students (66.67%), postgraduate students are 26.67% of the total, but only a few participants (6.67%) are Doctoral students. The research is all about public schooling.

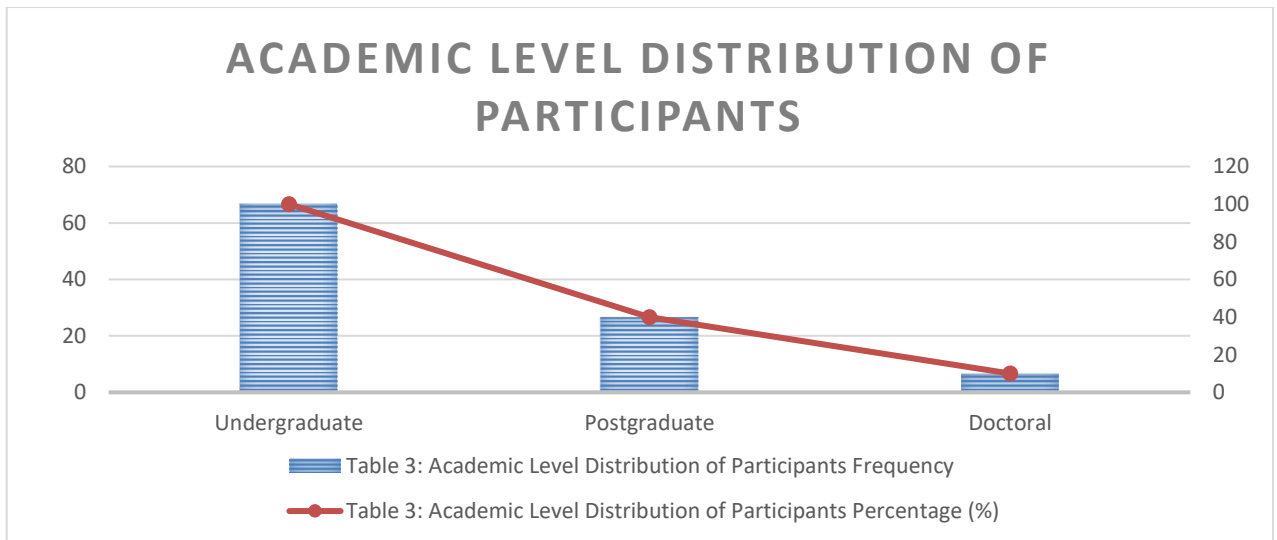
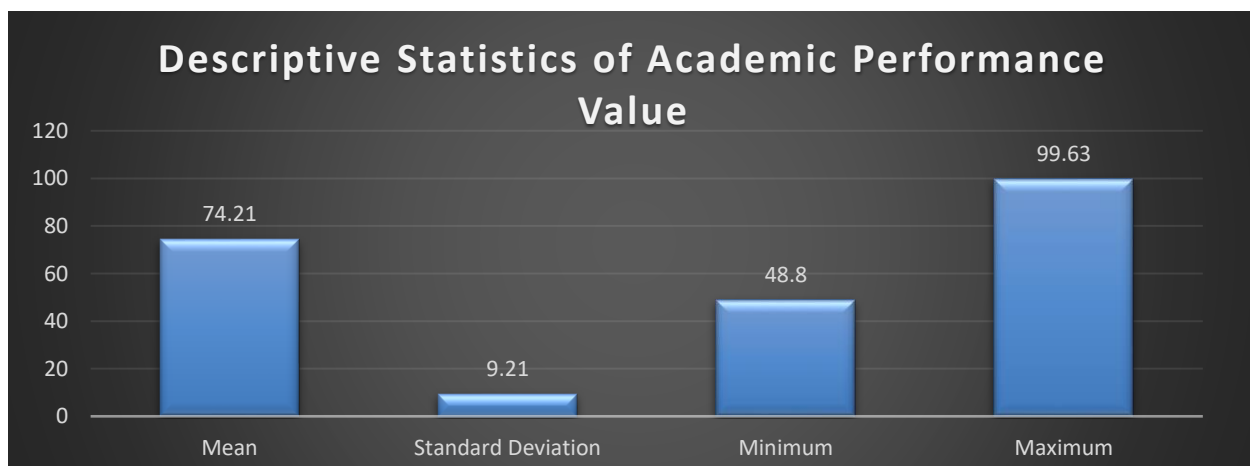


Table 4: Descriptive Statistics of Academic Performance

Statistic	Value
Mean	74.21
Standard Deviation	9.21
Minimum	48.80
Maximum	99.63

Interpretation:

This particular information could be of some interest, mainly in the following range of academic performance scores. The academic performance scores have an average of 74.21, with a standard deviation of 9.21 between the minimum possible score of 48.80 and the maximum of 99.63. The diversity of the scores shows the wide



gap at the bottom of the ladder.

Table 5: Correlation Analysis Between Demographic Variables and Academic Performance

Demographic Variable	Correlation Coefficient (r)	p-value	Interpretation
Gender	-0.105	0.255	No significant correlation
Age	0.006	0.944	No significant correlation
Academic Level	-0.020	0.832	No significant correlation

Interpretation:

The study did not find any consistent parallels in the academic attainment of the learners across the different variables. In fact, the respective relationship with the gender variable was such that the correlation was found to have been negative and very weak according to Pearson's r measure ($r = -0.105$). The relationship of the age of the participants with the academic performance of the year was equally weak and positive ($r = 0.006$). It is clear to see in the above lines that the level of the participants in the academic sphere was roughly equal because the p-values are over 0.05. The notion can also be confirmed by Table 5, which shows the p-values are above 0.05. Hence, there are no direct correlations between the three variables as they cannot help forecast the student's grade.

Table 6: Comparative Analysis of Academic Performance Across Demographic Groups

Comparison Type	Test Used	Test Statistic	p-value	Interpretation
Gender	t-test	-1.14	0.255	No significant difference between male and female participants.
Age Groups	One-Way ANOVA	0.62	0.606	No significant difference across age groups.
Academic Levels	One-Way ANOVA	0.25	0.779	No significant difference across academic levels.

Interpretation:

Based on a collective comparison of the data, it was concluded that the evidence of the dissimilarities in the averages of males and females on their academic standings is not statistically significant ($p = 0.255$). Furthermore, it was found that there is no value that is small enough (0.606) to denote statistical significance for the case of the means of the different age groups, which are judged to be quite close to each other. Also, Statistical support for the claim that the groups are not the same in terms of their performance levels can be obtained from the very high p-value ($p = 0.779$). Therefore, the performance is equal in each of these groups.

RESULTS

In the study, characteristics concerning the sample of participants under investigation were based on gender, age, and academic stage, and these comprised the fundamental conditions that one could understand in terms of why people differ in their perspectives regarding the final observations. The gender distribution of the participants, as shown by a pie chart, is approximately 150 respondents, of which 80 are males (53.33%) and 70 are females (46.67%). The nearly even division of the sexes demonstrates that men and women contributed fairly to the study. However, the

presence of a few more male respondents may, to a certain extent, affect the final results, especially in cases where certain gender-related aspects like academic performance and/or the efficiency of pedagogical strategies are at stake.

The age distribution of the participants as it was shown on a bar chart was assigned to four distinct groups i.e. 18-22, 23-27, 28-32, and 33 and above. Those ages (18-22 years), most of whom (60 students) makeup 40 % of the entire sample size, were the largest group of participants. This group was then pursued by the 23-27 age group with 50 people (33.33%), respectively, whereas those who are 28-32 years old were 20% of the sample, that is, 30 students. The lowest group was the years 33 and above, which returned only 10 participants or 6.67%. The clear visibility of the more junior age groups, specifically the 18-27 age group, signifies that most of the surveyed students were in the first years of their tertiary studies, which is consistent with the main conclusion of the study, that most of them were undergraduate students. Age in terms of its distribution also points to the fact that the pedagogical strategies that are designed to attract younger learners find themselves in the middle of the most relevant developmental stages.

The distribution of participants by academic level, depicted in a pie chart, further established that the majority of participants come from lower academic levels. Most of the participants were undergraduate students 100 respondents made up 66.67% of the sample. Postgraduate students made up 40 participants (26.67%), while only 10 or 6.67% of the sample were doctoral students. The high concentration of undergraduate students implies that most of the pedagogical strategies being studied are likely geared towards this academic level, with a likely impact on the overall results of the study. The low number of doctoral students might also suggest that the pedagogical strategies that are advanced enough for higher education were less likely to be covered thoroughly by the findings.

The analysis of academic performance has shown a mean of 74.21 with a standard deviation of 9.21, indicating a moderate level of variation in participants' scores. Scores extended from a low of 48.80 to a high of 99.63, showing a great range of academic performance amongst participants. This variation could indicate differences in learning experiences, levels of engagement, or exposure to pedagogical strategies.

Statistical comparisons of academic performance across genders, age groups, and academic levels failed to find any significant differences. The p-value obtained from the independent t-test of male and female participant academic performance was 0.255, confirming that there was no meaningful difference in performance based on gender. Likewise, owing to the one-way ANOVA tests carried out on the separate age groups and academic levels, the tests generated p-values of 0.606 and 0.779, respectively, corroborating that academic performance differences were not influenced by these demographic variables. Boxplots showing academic performance by gender also solidified this conclusion, with the distributions for both male and female participants overlapping and indicating consistency in academic performance regardless of gender. The subsequent presentations of demographic data directly catch the viewer's eye by detailing the characteristics of the study's participants and

presenting an overarching view of their composition. Noteworthy findings that have significantly contributed to the analysis are the even gender distribution, the accumulation of younger participants at the undergraduate level, and the absence of significant differences in academic performance across demographic categories. These results indicate that the instructional methods under study may thus have the same impact on various demographic groups, implying that they could be generalized within the parameters of hospitality management education.

FINDING AND DISCUSSION

Teaching Strategies in Management Science

The findings of both qualitative and quantitative data reveal that some pedagogical strategies have been employed for teaching hospitality management students in management science. Some of the common strategies used include case study, project-based Learning, Active Learning, blended Learning, and sometimes experiential Learning (Grębosz-Krawczyk & Otto, 2018; Žerovnik and Šerbec 2021; Nor & Sihes, 2021), aimed to connect theory with practice and enable students to cope up with real-life problem-solving.

Active learning techniques such as group discussions and peer teaching, however, brought about the most active environment for Learning. Heilporn et al. (2021) and Thistlethwaite et al. (2012) affirm that active Learning enhances critical thinking and collaboration skills. Blended lecture and online resources have promoted flexibility and personalized Learning (Truss & Anderson, 2022).

According to Žerovnik and Šerbec (2021), project-based Learning also played an important role in developing practical and teamwork abilities. The simulation of real-world business tasks gave students the ability to practice problem-solving skills as well as collaboration.

Pedagogical Strategies: Perceptions

Active and experiential Learning have been perceived as generally good by students and teachers alike. Participation is encouraged; motivation is brought about by the application of the strategies on real-world applicability (Mahmoud Ahmed et al., 2022; Qureshi et al. 2021), while some students found it less engaging as it was carried out the traditional way - lectures with abstract management science concepts (Bhinder, 2019). Another point raised by instructors was that the teaching mode should correspond with what they wish students to learn at the end of a certain time period, especially if such methods include an application of technology-enhanced learning tools (Scholtz & Hughes, 2019).

The beneficial use of blended Learning, particularly the flipped classroom model, was highlighted by Izagirre-Olaizola and Morandeira-Arca (2020). The engaged activities in the class room were delivered so they were able to go further in the use of deeper Learning to mask the learning outcomes.

Learning Outcomes and Distillations

From the quantitative data, it was fairly evident that the pedagogical strategies affected the students' understanding as well as their academic performance. With a mean performance score of 74.21, standard deviation comes out to be 9.21 which

indicates the average variability implied by the mean performance of participants. Studies done by Croft and Wang (2023) and Green and Du Plessis (2023) affirmed that experiential Learning and Active Learning helped in developing better comprehension and application skills that effectively prepare students for real-life challenges.

More promising was blended Learning within this area, which allowed students to go through the memory of teachings by complementing their individual Learning at home with interaction in on-campus lectures Smith et al. (2015).

Active Learning Compared to Traditional Teaching Methods

Comparative studies show that active learning methods are better than traditional lecture-based methods with regard to engagement, motivation, and skill development. Active learning techniques like case studies and problem-based learning draw in students more effectively and create deeper understanding by applying theoretical knowledge to real-life situations (Heilporn et al. 2021; Thistlethwaite et al. 2012; Li et al. (2022). On the other hand, traditional methods proved to be better avenues for communicating foundational knowledge but were less effective in encouraging critical thinking and practical application (Ulfa et al., 2021).

A combination of conventional teaching methods with modern approaches, such as blended learning and flipped classrooms, potentially rendered an answer to the shortcomings posed by conventional lectures (Izagirre-Olaizola & Morandeira-Arca, 2020).

Pedagogies and Students' Demographics

Correlation analyses showed no statistically significant association between gender, age, academic level, etc., and academic performance ($p > 0.05$ for all variables). Nevertheless, it pointed to the fact that, since the majority of respondents were younger (between 18 and 27) and were undergraduates, pedagogies employing creative and innovative methods aimed at such students might have had a more considerable effect. The findings suggested that mixed innovative methods, including blended Learning and Experiential Learning, could enhance outcome achievement across diverse demographic representations (Grobelna 2015; Smith et al. 2015; Akhtar, N., & Hussain, N., 2019). Additionally, it was noted that it would improve the inclusion of pedagogies that take into consideration cultural and experiential backgrounds (Grobelna 2015).

CONCLUSION

Summary of Key Findings

Findings from the study that were conducted had implications for several decisions on effective pedagogical practices concerning management science for hospitality management students (Akhtar, N., 2020). Qualitative responses from interviews and focus groups demonstrated that active Learning, experiential Learning, and blended Learning were perceived as particularly effective strategies that engender student engagement, motivation, and comprehension (Mahmoud Ahmed et al., 2022; Qureshi et al. 2021). Quantitative data analysis showed a mean performance score of 74.21, signifying an overall positive outcome for the student's academic achievement

as a result of the use of these pedagogical strategies. The comparative analyses attracted a conclusion that active learning methods, compared to traditional lecture methods, enhance critical thinking ability and practical application skills (Heilporn et al. 2021; Thistlethwaite et al. 2012).

Implications for Hospitality Management Education

The results from this study provided some practical recommendations for instructors wishing to improve their practice. More active learning strategies, including case studies, group discussions, and problem-based learning, should have been woven into the curriculum of hospitality management to encourage deeper learning and practical skills development. Blended Learning would have fostered the benefit of student engagement by providing students flexible access to learning materials and promoting in-class interactive activities through the flipped classroom model (Izagirre-Olaizola & Morandeira-Arca, 2020).

Curriculum designers should incorporate internships, simulations, and project-based assignments as experiential learning opportunities to instill students with tools for solving actual-world challenges (Akhtar, N., & Hussain, N., 2019). The findings also said that respective instructional methods should have hinged on student demographics to ensure inclusiveness and effectiveness in executing teaching strategies.

Limitations of the Study

The study suffers from some limitations. The results obtained from self-reporting surveys may be skewed as respondents have to rely heavily on the self-reporting data from surveys, and they may give answers that are more socially desirable than accurate self-reports. Besides, the sample must only concern those students of hospitality management and their instructors at selected institutions, making the findings a bit poor in generalizability. Further, there is a lack of longitudinal research to assess how long pedagogical strategies influence the academic performance and career success of students.

Suggestions for Future Studies

Future researches shall pay attention towards carrying out longitudinal researches to assess the lasting effects of different pedagogical strategies on students' academic performance and career readiness. Moreover, the cross-institutional research would shed light on how a teaching strategy is taught and perceived in different learning environments. Further studies on innovative teaching methods, be they in virtual reality or gamification, one way or another, would contribute towards a better understanding of the effective pedagogical practices in hospitality management education.

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