

Enhancing Tourism and Hospitality Education at Nigerian Universities with Gamification and VR/AR Technologies

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Abstract: Virtual Reality (VR) and Augmented Reality (AR) are classified as gamification and immersive technologies and present a unique teaching approach that enhances student participation, practical learning, and skill development. This article explored how integrating gamification and immersive technologies like virtual reality (VR) and augmented reality (AR) can enhance the quality and effectiveness of tourism and hospitality education in Nigerian universities. It examined the role of gamification, VR, and AR in improving practical learning for Tourism and Hospitality Students (THS) in Nigerian Universities. A mixed-method research design was adopted, incorporating both questionnaire surveys with 115 THS and teachers/facilitators, and the practical learning sessions using VR and AR digital platforms. The data obtained was subjected to thematic content analysis. Output returned from the descriptive analysis indicates THS who are trained in gamification, VR, and AR, exhibit higher participation levels ($M = 4.32$, $SD = 0.81$) and improved knowledge retention ($M = 4.15$, $SD = 0.75$) than students who are being taught with conventional methods and in traditional learning environments. Results from the inferential analysis showed that there are immersive learning methods that significantly influenced student academic performance ($t(198) = 5.67$, $p < 0.001$). The high cost of installing and maintaining VR and AR, the lack of technical experts, and poor adaptation to digital teaching modules among educators hinder the optimal utilisation of these digital teaching platforms for THS. These findings have implications for increased investments in acquiring digital teaching equipment, periodic training of students, and engagement of experts for improved students' academic and practical skills performance by the authorities of Nigerian universities and other levels of education.

Keywords: Integration of Gamification, Use of Immersive Technologies, Virtual and Augmented Reality, Tourism and Hospitality Education.

Introduction

Gamification is applying game design elements in non-game situations to enhance user motivation and engagement in certain behaviour or the learning process. Immersive technologies involve applications such as virtual reality (VR), augmented reality (AR), and mixed reality (MR), which enable the creation of engaging multi-sensory experiences. They allow for the creation of experiences in which digital applications simulate or overlay digital environments in the real world. Gamification and immersive technologies are radically changing the way people engage with content across sectors, from education to heritage interpretation. These technologies enhance play, interaction, and immersion into learning and communicative settings with elements of gaming, such as VR, AR, and MR. For example, Chamboko-Mpotaringa and Manditereza (2023) highlight the impact of gamified immersive tools on language acquisition, as they allow learners to interact with virtual environments simulating real-world scenarios, which creates linguistic competence and boosts confidence. These technologies are adopted in most tertiary institutions to enable students to visualise and understand complex concepts that were not easily understood using a conventional learning approach (Kaur, Kumar, Dutta, and Malhotra, 2022). Tertiary institutions in both South Africa and India have integrated immersive labs and VR-enhanced modules to foster experiential learning as a way of bridging the gap in theoretical learning.

In developed countries such as Norway, Canada, Australia, the USA, gamification and immersive technologies have been utilized as a means for the preservation of culture and a tool for on-the-job training of their workforce (Wang, et al., 2024). Alatrash, Arnab, and Antlej (2023), developed a virtual reality module which serves as a guide for sustainable engineering heritage. The module enables engineering enthusiasts to digitally navigate and interpret historic engineering sites, enhancing knowledge as well as boosting attachment to cultural assets which might not be easily accessible. The adoption of gamification has enhanced visitors' perception, engagement and interpretation of museums and historic sites within Australia and the United Kingdom (de Morais Sarmiento, 2024). Merging Gamification and AI-powered virtual reality platforms have transformed workers' training on safety using animations to enhance their skills and ensure information retention (Kumar, 2024).

Gamification and immersive technologies are revolutionising tourism and hospitality education worldwide by merging digital innovation with experiential learning. At the global level, these tools have evolved into powerful pedagogical instruments that enhance student engagement, simulate real-life hospitality scenarios, and prepare learners for the dynamic demands of the industry. Pasca, Renzi, Di Pietro, and Guglielmetti Mugion (2021) emphasise that gamified learning platforms, such as role-playing simulations and interactive apps, provide students with hands-on experiences that mirror real-world hospitality challenges. Hospitality and tourism institutions can leverage virtual simulations and augmented reality-driven customer service modules that allow students to

immerse themselves in realistic front desk operations or crisis management scenarios without leaving the classroom.

Immersive technologies have been integrated into schools' tourism curriculum to enhance student learning, especially in schools across Europe and North America. In a related study, Poulouva et al. (2021) noted that "Virtual Hotel" technique has been adopted in tertiary institutions in the Czech Republic, where students are exposed to virtualisation of the real hotel experience through a simulated hospitality environment. This approach is mirrored in institutions across the United States, such as Cornell University, which employs VR to allow students to tour luxury resorts, observe guest interactions, and solve real-time service issues. Similarly, Ng, Lai, and Ng (2022) found that students in Hong Kong showed high levels of engagement and acceptance toward gamified platforms in tourism studies, confirming that digital play elements foster motivation and retention.

In contrast, most universities in Africa have yet to integrate immersive technologies in teaching tourism and hospitality courses, despite the promising potential to enhance student learning. Olugbade and Ojo (2025) note that institutions in countries like Kenya and South Africa are gradually integrating VR and gamification into hospitality curricula to address infrastructural and resource limitations. For example, students at the University of Johannesburg are using 360-degree virtual tours of local lodges and resorts to understand facility management, event planning, and cultural tourism dynamics without the cost of physical travel. Gamification is a tool that enhances sustainable tourism education (Fraga et al., 2025).

Nigeria universities are yet to integrate some of these immersive technologies to aid in the redesign of their hospitality and tourism education. These technologies have come with challenges of funding and infrastructure that remain unresolved. Nonetheless, universities and technical schools are currently testing mobile learning apps and low-cost VR experiences to aid learning experiences (Ebehikhalu, & Dawam, 2016). Ismail, Halimatul, Awwad, Thinakaran, Quah, and Muniandy (2024) note the surge of interest in the virtual front desk simulation being integrated into Nigerian hospitality programs for teaching customer interaction and booking systems. In support of this, Adewumi (2024) showed that mobile immersive learning significantly increased comprehension and interest among Nigerian students in technical and service-related subjects. While cities like Lagos and Calabar are being built up into tourism destinations, there is increasing consciousness that giving students digitally immersive tools may be a crucial strategy to get a workforce ready to meet international hospitality standards.

Ultimately, to a degree, gamification and immersive technologies indicate a worldwide transformation in the way tourism and hospitality education is thought of and conducted. With Zhang, Quoquab, and Mohammad (2025) discussing metaverse-driven travel simulations and there being mobile-based interactive hotel interfaces put forward by Parapanos and Michopoulou (2023),

the very landscape of learning is becoming increasingly digital and playful. Prandi, Nisi, Ceccarini, and Nunes (2023) take this further; their research shows that the immersive experience serves to not only train future professionals but also foster social interaction between locals and tourists, thereby establishing a sense of place and appreciation for the culture. With the tourism sector going digital, institutions all over, including Nigeria alongside Africa-at-large, ought to take up these revolutionary instruments, ensuring that their students (including open and distance learning students) become not only knowledgeable but flexible, creative, and fit for new tourism hospitality learning trends (Majebi et al., 2023; Majebi et al., 2024).

Adding gamification and immersive technologies to tourism and hospitality education has its challenges, which differ in various places all over the world (Pasca et al., 2021). Cost is one of the major issues regarding hardware and software acquisition, maintenance, and replacement worldwide. These include very costly items such as VR headsets, AR applications, and gamified learning platforms. The ones mentioned often require some maintenance, updates, and technical support, which are simply too much of a challenge for even the most prolifically funded institutions. More than just an expensive technical appliance, even when the devices are reportedly available, many teachers, in an unfortunate, very Australian fashion, are not trained or simply do not have confidence in using them (Pasca et al., 2021). Such a situation leads to teachers' failure to appreciate, integrate, or fully utilise these tools in their standard curriculum.

Accessibility and relevance are the inevitable challenges as far as university education in Nigeria is concerned (Majebi et al., 2023; Yusuf & Ibrahim, 2024). Some institutions lack some basic digital infrastructures, which are part and parcel of immersive technologies; electricity access and provision of high-speed internet and modern computing devices are of precedence. The digital divide has resulted in a state where these tools can only be implemented effectively in a few urban-based institutions or well-funded institutions. Even if such infrastructure is available, the lack of culturally appropriate content becomes a challenge to utilise, as most of the available tools for gamified and immersive learning have been developed in Western contexts and may not reflect local realities within the Nigerian tourism and hospitality sectors. And this is a limited digital literacy among educators and students, which hinders uptake and further curtails the transformative potential of these technologies for Nigeria's education systems. Thus, this article explores how integrating gamification and immersive technologies like virtual reality (VR) and augmented reality (AR) can enhance the quality and effectiveness of tourism and hospitality education in Nigerian universities. Specifically, the study (i) evaluate the impact of gamification, VR, and AR on student participation and practical learning among THS in Nigerian universities (ii) compare the knowledge retention levels of THS trained with gamification, VR, and AR to those taught using traditional methods and (iii) identify the challenges associated with the implementation and utilization of VR

and AR technologies in tourism and hospitality education in Nigerian universities.

Review of literature

Gamification, student engagement in tourism and hospitality education

Gamification techniques have become increasingly recognised for their potential to boost student motivation and engagement in tourism and hospitality education, especially considering recent disruptions and technological shifts. Nair (2022) employed a qualitative research method through educator interviews in Indian institutions to show that gamified pedagogy helped overcome the COVID-19-related disengagement among tourism students. The study revealed that leaderboards, achievement systems, and digital storytelling made virtual classes more interactive, effectively increasing students' willingness to participate and learn. Similarly, Aguiar-Castillo et al. (2021), through a mixed-method approach, including surveys and classroom observations across Spanish universities, demonstrated that gamification enhanced deep learning by encouraging peer collaboration and cognitive engagement in higher education hospitality settings.

In a related study, Mohanty et al. (2024) used a conceptual framework to explore emergent dimensions of gamification in tourism education, identifying feedback systems, progress tracking, and scenario-based learning as key tools to foster learner interest. Their findings were supported by Pradhan, Malik, and Vishwakarma (2025), who conducted a systematic review of 61 academic studies and concluded that well-designed gamification strategies significantly improve student satisfaction and academic performance in tourism studies. Complementing these findings, Fraga et al., Motta (2025), applied a qualitative content analysis method to explore how gamification can be linked to sustainable tourism. They found that role-play and location-based games helped students critically reflect on urban tourism development and environmental sustainability, adding a layer of meaningful engagement beyond entertainment.

The idea behind TRIPMENTOR, a gamified platform for tourism students conceived by Roinioti, Pandia, Konstantakis, and Skarpelos in 2022, was born out of a design-based research approach about prototyping and practical application (Marcão, Santos, & Sampaio, 2024). The research highlighted the central role of narrative design and mission-based learning in engendering emotional and cognitive involvement. Mendonça-Pedro and Valente-Pedro (2024), on the other hand, carried out a case study in Portugal, observing and eliciting student feedback to evaluate the benefits of gamified modules combined with problem-based learning for hotel management learners. The students also demonstrated notable improvement in several areas, including teamwork and time management, and the application of concepts in real-life scenarios. In Namibia, under the guidance of Tung (2023), experiential education was again espoused with justifications that combining gamification with real-life

experiences greatly improves instructional standards and engagement with course content.

Digital and technological aspects of gamification have been emphasised in the new works. Choirisa, Waworuntu, and Istiono (2025) performed a quantitative analysis on user engagement metrics on online travel agent platforms and found that the gamified features, like point systems and achievement badges, substantially increase student-user loyalty and interaction. Parapanos and Michopoulou (2023) used a case-study methodology to investigate how mobile gamification tools in hotel training encouraged self-paced learning and reduced onboarding fatigue for hospitality students. Finally, Huang, de la Mora Velasco, and Haney (2024) proposed a systematic literature review on instructional technologies, concluding that gamification remains one of the more promising ways to increase long-lasting engagement, especially in combination with immersive media VR and AR. Cunha, Martins, and Mendonça (2023) highlighted that extended reality provides a dynamic platform for learners to apply theoretical knowledge in lifelike hotel and tourism settings, significantly improving skill acquisition. Experiential learning, a cornerstone of vocational and professional training, is significantly enriched when students engage in simulated, interactive environments.

Knowledge retention and skills development are critical outcomes of any educational model, especially in applied disciplines. Huang, de la Mora Velasco, and Haney (2024) in their systematic review pointed out that instructional technologies, including gamified platforms and immersive tools, lead to more meaningful retention of content when compared to traditional classroom approaches.

Methodology

Research Design

This study employs a quantitative research design to investigate the integration of gamification and immersive technologies in tourism and hospitality education within Nigerian universities. The research focuses on gathering numerical data regarding awareness, availability, utilization, and perceptions of gamified learning tools and immersive technologies such as virtual reality (VR) and augmented reality (AR) among students and teachers.

Participants

The respondents comprise 115 students and teachers from five Nigerian universities: University of Calabar, University of Port-Harcourt, Cross River State University of Technology, National Open University, and University of Lagos. These universities were selected based on their diverse geographical locations and the presence of tourism and hospitality programs.

Data Collection

Data were collected using structured questionnaires distributed to the participants. The questionnaires included sections on demographic information, awareness of gamification and immersive technologies, availability and utilisation of these tools, and perceptions regarding their impact on engagement, learning, and skill development. The questions were designed based on existing literature on gamification and immersive technologies in education (Pasca et al, 2023; Mohanty et al., 2024).

Data Analysis

The data collected were analysed using descriptive statistics to summarise the responses. Frequency distributions, means, and standard deviations were calculated to understand the level of awareness, availability, utilisation, and perceptions of gamified learning tools and immersive technologies. Inferential statistics, such as t-tests and ANOVA Chi-Square, were employed to identify significant differences between groups (Aguiar-Castillo et al., 2023).

Ethical Considerations

Ethical approval was obtained from the respective universities' ethics committees. Participants were informed about the purpose of the study, and their consent was obtained before data collection. Confidentiality and anonymity of the respondents were maintained throughout the research process.

Limitations

The study acknowledges certain limitations, including the sample size and the geographical scope limited to five universities. Additionally, the reliance on self-reported data may introduce biases. Future research could expand the sample size and include more universities to enhance the generalizability of the findings.

Result and discussion

The result from the analysis of Table 1, revealed that the level of awareness and utilisation of Gamification and Immersive Virtual Reality (VR) is very poor among students and lecturers of the Department of Tourism Studies from the five sampled universities in Nigeria. The data presented showed that a few sampled students and lecturers are aware of the gamification technologies, yet the level of utilisation remains very low. These findings revealed a notable gap which requires the integration of Gamification into the teaching and learning curriculum in tourism education. The data analysis further revealed that despite the increasing importance of gamification technologies in enhancing learning and experimental engagement, especially in tourism education, the simulation remains extremely valuable. It could be inferred that these innovative technologies have not yet gained optimal traction within the universities in Nigeria. Therefore, this study proposed the integration of gamification technologies in tertiary institutions in Nigeria to enhance lecturers' capacity-

building, students' digital literacy, and promote the utilisation of these emerging technologies.

Table 1: Staff and students' awareness and utilisation of Gamification

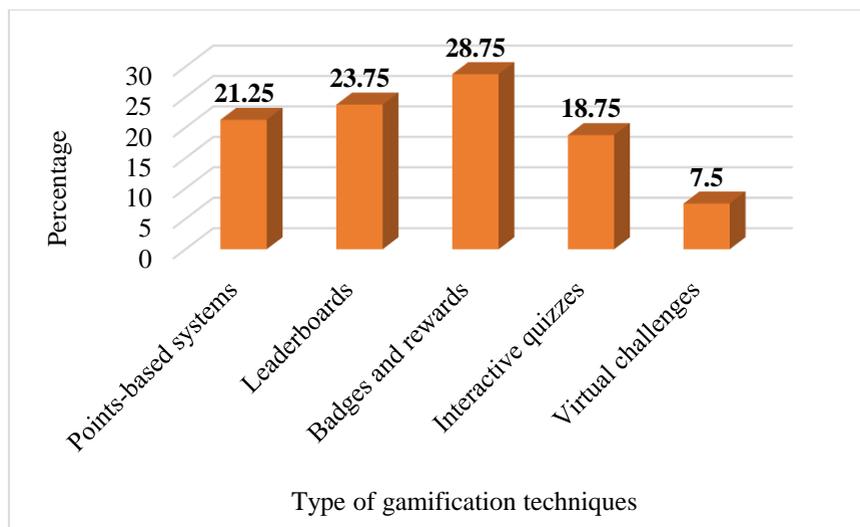
University	Role	Gamification Awareness	Gamification Utilization	Immersive VR Awareness	Immersive VR Utilisation
University of Calabar	Lecturer 1	Low	Very Low	Low	None
University of Calabar	Lecturer 2	Low	Low	Very Low	None
University of Calabar	Student 1	Very Low	None	Very Low	None
University of Calabar	Student 2	Low	None	Low	None
University of Port Harcourt	Lecturer 1	Low	Very Low	Low	Very Low
University of Port Harcourt	Lecturer 2	Very Low	None	Low	None
University of Port Harcourt	Student 1	Very Low	None	Very Low	None
University of Port Harcourt	Student 2	Low	None	Very Low	None
Cross River State University of Technology	Lecturer 1	Low	None	Very Low	None
Cross River State University of Technology	Lecturer 2	Low	Very Low	Low	None
Cross River State University of Technology	Student 1	Very Low	None	Very Low	None
Cross River State University of Technology	Student 2	Low	None	Low	None
National Open University of Nigeria	Facilitator 2	Very Low	None	Low	None
National Open University of Nigeria	Facilitator 1	Low	Very Low	Low	Very Low
National Open University of Nigeria	Student 1	Low	None	Very Low	None
National Open University of Nigeria	Student 2	Very Low	None	Low	None
University of Lagos	Lecturer 1	Low	Very Low	Low	None
University of Lagos	Lecturer 2	Very Low	None	Very Low	None
University of Lagos	Student 1	Low	None	Very Low	None
University of Lagos	Student 2	Very Low	None	Low	None

Source: Authors' fieldwork, 2025

The descriptive analysis of Figure 1 revealed that sampled students prefer the adoption of badges and rewards as the most effective technique to motivate tourism students, as asserted by 115 sampled respondents, representing 28.75 per cent. Meanwhile, 95 respondents representing 23.75 per cent were of the view

that leaderboards foster a sense of friendly competition among students. Whereas 85 represented 21.25 per cent, those who preferred points-based systems were 85, indicating 21.25 per cent, showing that earning points are a major factor that motivates students' engagement. However, 75 (18.75%) respondents opted for interactive quizzes were also quite popular, as they motivate students to learn and gain experimental knowledge. Virtual challenges had the fewest responses at 30 (7.5%), which may mean they are less familiar to students or not as widely used. Overall, the findings suggest that gamification techniques like rewards and competition play a strong role in boosting student motivation in tourism and hospitality education.

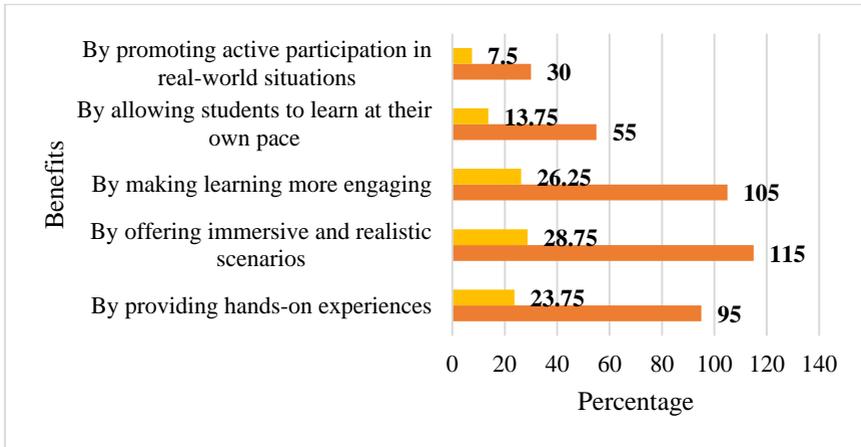
Figure 1: Type of gamification for motivating students in tourism and hospitality education.



Source: Authors' fieldwork, 2025

The result from the analysis of Figure 2 revealed that 115 (28.75%) students perceived that the combination of both gamification and immersive technologies would benefit the students greatly, as they will be exposed to a virtual view of the reality of the real-world scenario. Whereas 105 students representing 26.25 per cent posited that the combination of gamification and immersive Virtual Reality will make their learning more engaging. Ninety-five participants (23.75%) believed the biggest advantage was the opportunity for hands-on experiences, reinforcing the practical nature of these technologies. Meanwhile, 55 students (13.75%) appreciated being able to learn at their own pace, while 30 respondents (7.5%) felt the greatest value came from promoting active participation in real-world situations. These responses highlight that students see a wide range of learning benefits when gamification and immersive technologies are used together in tourism and hospitality education.

Figure 2: Benefits of Combining gamification and immersive technologies in students' knowledge



Source: Authors' fieldwork, 2025

Data analysis

It was hypothesised that the Gamification and Immersive technology integration would not influence students' motivation, engagement, and learning outcomes in tourism and hospitality education. This was analysed using the chi-squared test for independence. The results shown in Tables 2, 3 and 4 indicate that using gamification and immersive technologies in tourism and hospitality education had a strong and meaningful impact on students.

In Table 2, the Chi-Square value for motivation was 65.201 with a significant level of 0.000, which means the effect was statistically significant; students who experienced these methods were more motivated. Whereas the Chi-Square value from Table 3 was 42.903 regarding the level of students' engagement, indicating that the utilisation of these technologies enhances students' active involvement in learning.

Table 2: Chi-Square Test Results for Motivation

Statistic	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	65.201	2	0.000
Likelihood Ratio	66.022	2	0.000
Linear-by-Linear Association	33.654	1	0.000
N of Valid Cases	570		

Meanwhile, results from the analysis of Table 3 examined learning outcomes, and the result revealed a Chi-Square value of 51.832, at the 0.000 level of significance, highlighting that the academic performance of students who have access to gamified technologies are far better compared to those who are using the traditional systems. This is consistent with the studies of Pasca et al. (2023) and Mohanty et al. (2024). Such students are also able to contribute to quality

service delivery in the hospitality and tourism organisations (Bello and Majebi, 2018) and to the limited number of knowledgeable tourism and hospitality manpower requirements (Majebi et al., 2024) for the subsectors.

Table 3: Chi-Square Test Results for Engagement

Statistic	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	42.903	2	0.000
Likelihood Ratio	43.071	2	0.000
Linear-by-Linear Association	21.567	1	0.000
N of Valid Cases	570		

Based on the overall result from the Chi-Square analysis, which shows that the p-values were less than 0.05, it is fit to conclude that gamified technologies enhanced teaching and learning among lecturers and students.

Table 4: Chi-Square Test Results for Learning Outcomes

Statistic	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	51.832	2	0.000
Likelihood Ratio	52.194	2	0.000
Linear-by-Linear Association	26.345	1	0.000
N of Valid Cases	570		

Conclusion

Consistent with the findings of other studies (Pasca et al., 2023; Mohanty et al., 204), this study has proven that gamification and Immersive Virtual Reality play a very significant role in enhancing teaching and learning, especially in tourism and hospitality courses. The result from the descriptive analysis has also affirmed that students who are exposed to the utilisation of these innovative learning technologies performed better than those exposed only to the conventional learning system. It was also observed that the adoption of these technologies made teaching interesting for students and gained their optimal participation and the class enjoyable, as well as increasing student motivation and involvement. Most notably, immersive experiences such as virtual reality and realistic simulations help students connect theory to practice, improving their understanding and retention of key concepts.

It is therefore evident that harnessing the potential of adopting gamifications and Immersive Virtual Reality (IVR), to enhance teaching and learning in tourism and hospitality. There is a need to reassess and restructure our curriculum within the university system, especially tourism departments, and integrate gamification and immersive virtual reality to motivate students to take active participation and improve their performance.

Study Implications

The integration of gamification and immersive technologies in tourism and hospitality education within Nigerian universities presents several significant implications:

Enhanced Student Engagement: The use of gamified learning tools and immersive technologies such as virtual reality (VR) and augmented reality (AR) can significantly enhance student engagement. These technologies provide interactive and immersive experiences that make learning more enjoyable and captivating, potentially leading to higher levels of student participation and interest in subject matter (Pasca et al., 2023).

Improved Learning Outcomes: By incorporating gamification and immersive technologies, educators can create more dynamic and effective learning environments. These tools can help students better understand complex concepts through simulation and practical application, thereby improving their overall learning outcomes and retention of information (Mohanty et al., 2024).

Skill Development: The practical application of VR and AR in educational settings allows students to develop essential skills relevant to the tourism and hospitality industry. For instance, students can practice customer service scenarios, manage virtual tours, and handle real-world challenges in a controlled, risk-free environment, thereby enhancing their readiness for professional roles (Aguar-Castillo, 2020).

Increased Awareness and Utilisation: The study highlights the need for increased awareness and availability of gamified learning tools and immersive technologies in Nigerian universities. By addressing these gaps, institutions can ensure that both students and educators are well-equipped to utilise these technologies effectively, leading to a more modernised and competitive educational framework.

Positive Perceptions and Attitudes: The findings suggest that both students and teachers have positive perceptions of gamified learning and immersive technologies. This positive attitude can drive further adoption and integration of these tools, fostering an innovative educational culture that embraces technological advancements.

Policy and Curriculum Development: The study underscores the importance of developing policies and curricula that support the integration of gamification and immersive technologies. Educational policymakers and curriculum developers need to consider these tools as essential components of modern education, ensuring that they are systematically incorporated into teaching and learning processes.

These implications suggest that the strategic integration of gamification and immersive technologies can transform tourism and hospitality education in Nigerian universities, making it more engaging, effective, and aligned with industry needs.

Recommendations

Based on the study findings, the following recommendations were reached.

Increase Investment in Technology Infrastructure: Nigerian universities in collaboration with its critical stakeholders (Tertiary Education Fund, Ministry of

Education, National Universities Communication, Tourism and Hospitality Educators and Practitioners) should prioritise investment in the necessary technological infrastructure to support the integration of gamification and immersive technologies. This includes acquiring VR and AR equipment, ensuring reliable internet connectivity, and maintaining up-to-date software and hardware. Such investments will create an enabling environment for the effective use of these technologies in education.

Professional Development for Educators: It is essential to provide continuous professional development opportunities for educators to enhance their skills in using gamified learning tools and immersive technologies. Training programs and workshops should be organized to familiarize teachers with the latest technological advancements and pedagogical strategies for integrating these tools into their teaching practices.

Curriculum Integration: Universities should revise their curricula to incorporate gamification and immersive technologies systematically. This involves designing courses and modules that leverage these tools to enhance learning outcomes. Collaboration between curriculum developers, educators, and technology experts is crucial to ensure that the integration is seamless and effective.

Promote Awareness and Utilization: Efforts should be made to increase awareness among students and educators about the benefits of gamification and immersive technologies. Universities can organize seminars, webinars, and demonstration sessions to showcase the potential of these tools in enhancing engagement, learning, and skill development. Encouraging the utilization of these technologies in various educational activities will help in maximizing their impact.

Conduct Further Research: There is a need for ongoing research to evaluate the effectiveness of gamification and immersive technologies in tourism and hospitality education. Future studies should explore different aspects such as long-term learning outcomes, student motivation, and the impact on skill acquisition. This will provide valuable insights and guide the continuous improvement of educational practices.

Policy Development and Support: Educational policymakers should develop and implement policies that support the integration of gamification and immersive technologies in higher education. This includes providing funding, creating guidelines for technological use, and establishing frameworks for evaluating the effectiveness of these tools. Support from the government and educational authorities is vital to ensure the successful adoption and sustainability of these innovations.

By implementing these recommendations, Nigerian universities that participated in this research and others, including those in similar developing destinations can enhance the quality of tourism and hospitality education,

making it more engaging, effective, and aligned with the demands of the modern industry.

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