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Exploring Learner Satisfaction in Virtual Tourism Integrated with Experiential-Based Learning Model

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ABSTRACT

Objective: The aim of this study is to evaluate learner satisfaction with the Virtual Tourism Education and Learning (VTEL) model and to identify the determinants of student satisfaction among individuals enrolled in tourism programs. **Methods:** This study utilised a convergent mixed methods research design. Computerised Qualitative Data Analysis (CQDA) was employed to analyse the data obtained from a Likert scale questionnaire completed by forty students, which produced descriptive statistics. Additionally, exploratory data were gathered through interviews with eight purposively selected students. This qualitative data was subsequently analysed through coding and thematic categorisation. **Results and Conclusions:** The analysis of learner satisfaction revealed an average score of three, which supports the research findings. The validity indices (Cronbach's alpha: 0.88 and composite reliability: 0.77) further indicate a general acceptance of the VTEL model. Qualitative data identified several key factors contributing to satisfaction: the inclusion of clear learning goals and objectives, the nature and depth of the course experiences, the variety of reflection techniques, practical experiences in real-life settings, and the assessment strategies. **Practical Implications:** The study has demonstrated that the integration of the VTEL model effectively prepares and develops tourism students with the competencies necessary to meet professional standards. Consequently, it is recommended that the VTEL model be sustained and further developed to enhance educational activities in the field of tourism.

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Introduction

Experiential learning emphasises active engagement in practical activities and real-life situations, focusing on the acquisition of experience and reflection (Chang & Hwang, 2023; Salinas-Navarro et al., 2024), in contrast to traditional methods of information transmission and retrieval in teaching, training, and development. This approach has been adopted

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within tourism education, demonstrating its effectiveness (Martin & Bolliger, 2022). The advent of virtual tourism has proven advantageous for sustainable tourism development, particularly as the COVID-19 pandemic necessitated home confinement (Nurrahman, Permana, & Akbardin, 2022). Virtual tourism addresses challenges related to static tourism resources and non-recurring activities in teaching, mitigates safety risks associated with practical activities, and fulfils the need for cultivating professional talent in the tourism sector (Hong & Lai, 2017). Although the concept of virtual tourism remains evolving, it is progressively integrating distance learning and educational perspectives into future curricula.

Tourism education plays a pivotal role in enhancing understanding of the industry and its trends (Chau & Cheung, 2018; Espinoza-Figueroa et al., 2021; Wen & Sumettikoon, 2024), as well as in identifying emerging challenges and devising innovative solutions, fostering education-driven innovation, and improving competitiveness, with China being a leading country in tourism education research. However, there remains a significant gap between the global conceptualisation of tourism education and its practical implementation due to an inadequate empirical foundation and lack of guidelines in the literature (Dwivedi et al., 2024). This paper aims to address this gap by integrating theory and practice through the development of the VTEL model, which seeks to equip tourism students with the evolving professional skills required in the sector. Derived from the synergy between virtual tourism and experiential learning (Nafi'ah et al., 2023; Rodrigues, Sousa, & Pinto Borges, 2024), the VTEL model is based on Kolb's four-stage experiential learning framework, with modifications including the replacement of one stage and the combination of another, "objection," with a newly added stage, "evaluation." The VTEL model comprises five phases: goal, experience, reflection, practice, and assessment. It applies virtual tourism to the experiential learning needs assessment, enhancing students' decision-making abilities and preparedness for the tourism industry (Miao & Sriwisathiyakun, 2024). The experience phase utilises virtual tourism to make learning more experiential and fosters the development of innovative learning approaches.

The VTEL model is designed to support learners by addressing their needs at various stages of the learning process (Sriwisathiyakun, 2024). These stages include: goal-setting, where industry experts assist in the formulation of learning objectives; virtual tourism, which allows learners to engage in practical, immersive tourism experiences; reflection, which involves input from experts, peer discussions, self-assessment by learners, and guidance from the teacher; and the practice stage, where students collaborate in groups to make informed decisions (Miao & Sriwisathiyakun, 2024). This approach enhances students' learning outcomes and offers innovative possibilities and strategies for future educational models.

Learner satisfaction has a direct impact on students' motivation and level of participation in learning, which in turn affects their academic performance (Chau & Cheung, 2018). Higher satisfaction also increases the likelihood of students continuing their studies and recommending their institutions to others, thereby boosting student retention and progression. Additionally, feedback on learner satisfaction is crucial for educational management, helping institutions develop strategies for the continuous improvement of services and offerings (Eaknarajindawat, 2023; Nardi, 2018). Although virtual tourism and experiential learning have shown promise in enhancing education (Miao &

Sriwisathiyakun, 2024; Moorhouse & Jung, 2017; Vaishnavi & Ajit, 2024), their overall impact on learner satisfaction has yet to be fully explored. This study adopts an explanatory research design to assess student satisfaction with the VTEL model, aiming to enhance its implementation and development as a more effective and widely used educational approach. The following research questions are proposed in this study.

1) What is the level of student satisfaction after completing the VTEL model tutorial?
2) How is student satisfaction defined and measured within the VTEL model?

Literature Review

The Theoretical Framework of the Vtel Model is Described in the Following Points

The VTEL model, developed for tourism majors, is a structured five-step process consisting of goal setting, experience, reflection, practice, and evaluation. The implementation of this model has been shown to positively impact student achievement, as well as enhance their performance and decision-making skills, with comparisons made before and after its application (Abdullah et al., 2022; Miao & Sriwisathiyakun, 2024). According to constructivist learning theory, knowledge is constructed by students based on their interactions with their environment (Al Doghan & Sundram, 2023; Alghazali et al., 2022; Chuang, 2021; Hussein & Kammoun, 2024). In the VTEL model, tutors and industry professionals collaborate to define learning goals, making the course more engaging and effective for students. Virtual tourism provides students with an immersive and interactive experience, facilitating knowledge construction through hands-on exploration. This model not only broadens students' conceptual understanding and recall but also enhances overall learning satisfaction. Learning, as a continuous process of concrete experience, observation, reflection, and action, is reinforced in the VTEL model through virtual tourism experiences and group activities. These contextually relevant learning opportunities are followed by various reflection methods, ensuring that lessons learned are effectively transformed into content knowledge. This process contributes to a sense of continuous accomplishment, ultimately improving students' satisfaction with their learning experience.

Learner Satisfaction

From an academic standpoint, learner satisfaction refers to the extent to which learners' needs, expectations, and demands regarding the educational environment, resources, and outcomes of the teaching-learning process are met (Álamos-Gómez, 2023; Dunn et al., 2022; Hyun-sung, 2024; Martin & Bolliger, 2022; Yalçın & Dennen, 2024; Yunusa & Umar, 2021; Zheng & Xiao, 2024). It reflects learners' evaluation of various aspects, including content, instruction, interaction, and environment. According to expectancy confirmation theory, learners are likely to feel satisfied when their expectations align with or surpass their actual learning experience. Learning satisfaction is a multifaceted construct shaped by cognitive, affective, and psychomotor dimensions—the three domains of learning. The cognitive domain involves knowledge processing, the affective domain relates to learners' emotions and attitudes, and the psychomotor domain involves the development of physical or motor skills (Al Salih & Al Doghan, 2023; Azizah et al., 2023; Krumrei-Mancuso et al., 2020; Makransky & Petersen, 2021; Pranajaya, Idris, & Abidin, 2023).

Research Methodology

Research Design

This study employs a mixed-methods approach, which is commonly used in contemporary academic research. Following the implementation of the teaching model, learner satisfaction levels were assessed among 40 students. Additionally, qualitative interviews were conducted with 8 volunteer students to further explore the factors influencing their satisfaction with the VTEL model (see Figure 1).

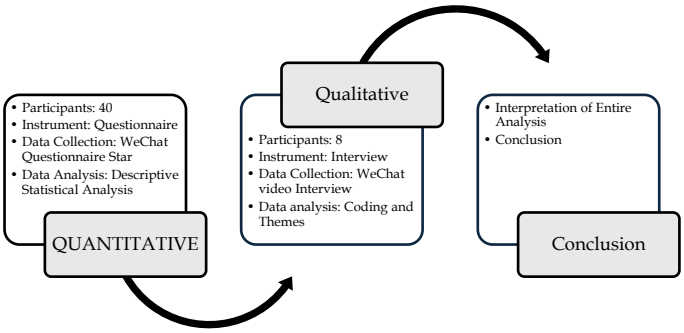

Figure 1: *Research Design.*

Participants

The study involved forty second-year undergraduate students from Shanxi Engineering and Technology Vocational University, enrolled in the Tourism Planning and Design programme. All participants had completed the VTEL model courses related to telecommunications. Among them, 30 were female and 10 were male, with an age distribution of approximately 20 students aged 20 and 12 students aged 21. From the student population, those with ID numbers ending in 3 were selected. Eight students were randomly chosen from the survey participants for interviews. This group consisted of ten students in total, including six females and two males, all of whom willingly consented to participate in the interviews.

Instruments

The questionnaire was developed to assess satisfaction with the lab rotation model intervention, focusing on cognitive, emotional, and psychological aspects of the VTEL model. It was reviewed for reliability by five experts. The questionnaire employed a Likert scale to gauge student satisfaction levels, using a five-point scale where 1 represented "very dissatisfied," 2 "dissatisfied," 3 "neutral," 4 "satisfied," and 5 "very satisfied." It included 10 items, with a reliability coefficient of 0.95. Student responses were categorised into five levels of satisfaction: very satisfied (4.21–5.00), satisfied (3.41–4.20), neutral (2.61–3.40), dissatisfied (1.81–2.60), and very dissatisfied (1.00–1.80). Additionally, eight students were selected for interviews to explore factors affecting their perceived satisfaction with the VTEL model. The interview data provided insights into the key factors' students considered important and sought to understand the reasons behind their preference for the VTEL learning approach in the tourism planning and development course.

Data Collection and Analysis

Following the implementation of the VTEL model, changes will be evaluated as depicted in Figure 1, with the associated learning activities shown in Figure 2. A satisfaction questionnaire was administered to 40 students via the WeChat Questionnaire Star platform, and the collected data were subsequently processed through this platform. The data from the Likert 5-point scale questionnaire were subjected to quantitative descriptive statistical analysis. The total Eight students were interviewed via WeChat video calls. These interviews were transcribed, coded, and analysed thematically. The data analysis was conducted in five stages: rating the method, familiarising with the data, coding, searching for potential themes, and defining these themes. Scholars also examined interactions between themes to compare them, as outlined in Table 1. Figure 3 illustrates the virtual tourism experiences.

Figure 2: *VTEL Model.*
Source: Miao and Sriwisathiyakun (2024).

Table 1

VTEL Model Activities

Objectives	A meeting was held with tourism industry experts and teaching and research group members to jointly determine the teaching objectives.
Experience	Virtual tourism experiences simulating natural disasters and showcasing traditional cultural practices help students understand the roles of nature, culture, and economy in sustainable tourism, enabling informed tourism planning decisions.
Reflection	The program integrates expert guidance on sustainable development, group discussions, reflection journals, and teacher feedback to enhance student learning.
Action	Students will apply knowledge from virtual experiences and reflections to collaboratively design a sustainable tourism development plan for a destination in Shanxi Province.
Assessment	Evaluation Process: Experts and peers assess student design plans, and the teacher provides consolidated feedback and suggestions.

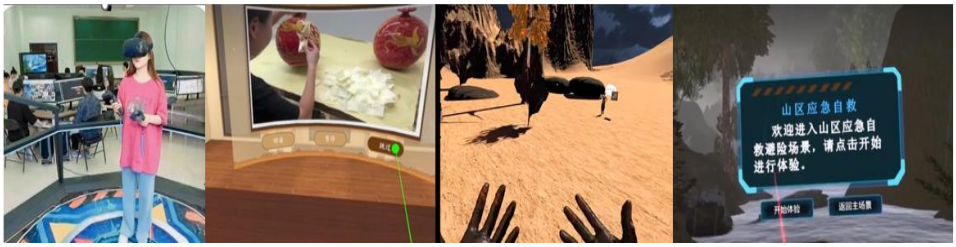

Figure 3: *Virtual Tourism Experiences.*

Results

Learner Satisfaction Results

A descriptive analysis was performed on the data from 40 students. The satisfaction survey results revealed that the mean scores and standard deviations for all items fell into the high category, as detailed in Table 2 and illustrated in Figure 4. Table 2 presents a summary of the average satisfaction scores for various aspects of the VTEL model, with a mean score of 3.87 and a standard deviation of 0.77. This moderate standard deviation indicates that the satisfaction levels among students are generally consistent, reflecting overall contentment with the services provided. Satisfaction ratings for the VTEL model ranged from 3.68 to 4.01, suggesting that students are generally pleased with the model's performance across all evaluated areas. The standard deviations ranged from 0.70 to 0.86, further indicating consistency in students' evaluations. A survey investigating the impact of the VTEL model on students' learning experiences revealed its positive influence. Students reported high levels of satisfaction with the model in the emotional, cognitive, and psychomotor domains.

Students' perception of the quality of the VTEL model has improved over the years, as illustrated in Chart 1. Among the nine identified dimensions, the Affective dimension received the highest score of 3.98, reflecting strong motivation and interest. The Cognitive dimension scored an average of 3.86, indicating effective course design in linking theory with practice. The Psychosocial dimension had the highest mean score, followed closely by the Psychomotor dimension, which scored slightly lower at 3.71. While feedback was generally positive, students indicated a need for further enhancement. This data suggests that while the VTEL model is effective in engaging students and developing cognitive skills, additional improvements are needed to enhance practical skills and self-directed learning.

Overall, the VTEL model received a high-average rating. Among the four items evaluated, the highest score was 4.03 for "Satisfied with participating in the VTEL model." In contrast, the lowest score was for "More proactive in independent learning after using the VTEL method," indicating challenges in fostering student independence. Although the VTEL model has successfully increased students' interest and cognitive achievements, further efforts are needed to enhance proactive independent learning. Despite the generally high satisfaction levels, no item achieved a score of 4, which would indicate 'very satisfied.' This suggests that there is still significant potential for improvement in this area (see Figure 5).

Table 2

Student Satisfaction Results

Items	Mean	S. D	Meaning
Cognitive			
1. Using the VTEL model has enhanced my ability to apply theoretical knowledge to practical situations.	3.86	0.80	Satisfied
2. The VTEL learning model can easily handle comprehensive and complex tourism courses.	3.82	0.83	Satisfied
3. The VTEL model made the course easier for me.	3.91	0.72	Satisfied
Average Score	3.86	0.78	Satisfied
Affective			Satisfied
4. I am satisfied with participating in VTEL model learning activities.	4.03	0.71	Satisfied
5. I believe that the VTEL model learning method can motivate me to learn actively.	4.01	0.71	Satisfied
6. Studying with the VTEL model, I don't feel bored.	3.99	0.70	Satisfied
7. Each activity in the VTEL model has sparked my passion for learning.	3.93	0.74	Satisfied
Average Score	3.98	0.71	Satisfied
Psychomotor			Satisfied
8. After using the VTEL method, I have become more proactive in independent learning.	3.68	0.86	Satisfied
9. I am more engaged in the classroom when using the VTEL method.	3.70	0.84	Satisfied
10. I recommend using the VTEL model for learning.	3.77	0.85	Satisfied
Average Score	3.71	0.85	Satisfied
Total Scores	3.87	0.77	Satisfied

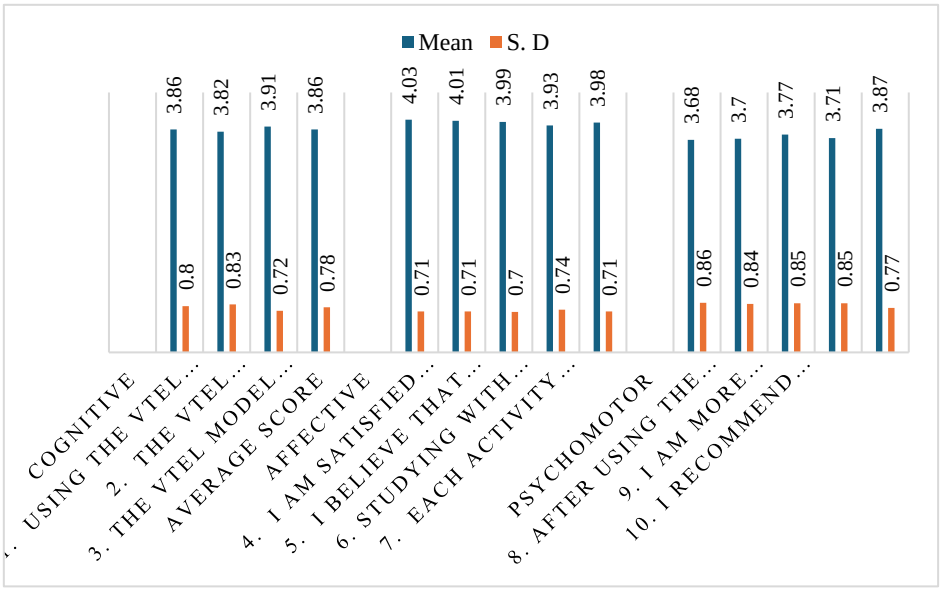

Figure 4: *Student Satisfaction Results.*

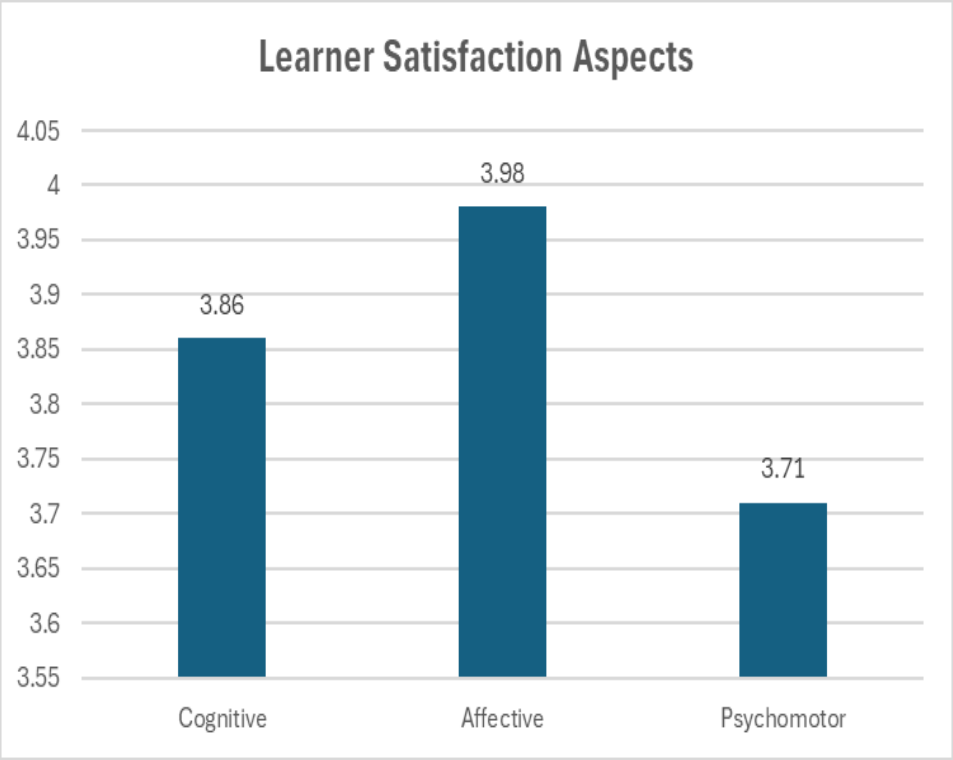

Figure 5: *Categories of Learning Satisfaction.*

Factors Influencing Learner Satisfaction

This step utilises a qualitative research method to thoroughly analyse previous findings and identify key themes related to student satisfaction with the implementation of the VTEL model in tourism courses. The interview transcripts relevant to this analysis are presented in Table 3. In conclusion, the VTEL model demonstrates a positive impact on student satisfaction across various dimensions, as indicated by the data presented in the table 3. Key factors contributing to this satisfaction include the relevance of teaching objectives, the effectiveness of learning-teaching constructs, diverse reflection methods, authentic practice simulations, and comprehensive multidimensional assessments. Additionally, students express high levels of recognition and satisfaction with the VTEL model. Learning objectives significantly influence students' satisfaction with VTEL, particularly when these objectives are practically relevant, aligned with career planning, meet students' needs, and are clearly defined. The involvement of industry experts in developing learning objectives is crucial. Future improvements should focus on ensuring that learning objectives align with students' goals and incorporating additional VTEL experts from relevant fields into the educational framework.

Table 3

Factors Influencing Learner Satisfaction

Theses	Sub-Themes	Quotes
Relevance of Objectives	-Related to Real-World Situations -Related to Career Planning -Related to Actual Needs -Activities Closely align with Teaching Objectives.	Student 1: These learning objectives match real-world work issues, making the knowledge very practical. Student 2: The learning objectives are exactly what I need for my career, which motivates me. Student 3: These objectives tackle the challenges I face in my studies and offer practical solutions. Student 4: The content throughout the course is well-aligned with the learning objectives.
High-Quality Experience	-Realistic Immersive Tourism Experience -Technical Reliability -Rich Learning Resources	Student 5: I feel like I'm visiting the site, which helped ease my awkwardness and anxiety about lacking a real tourism experience. Student 6: The platform was smooth throughout, so I could focus on the learning content. Student 7: When I had technical issues, the support team quickly resolved them, which made me very satisfied. Student 8: I hope the school can offer more rich and easily accessible virtual tourism opportunities after class.
Diverse Reflection Methods	-Multiple Perspectives and In-Depth Reflection	Student 2: Different reflection methods help me think about problems from multiple angles and deeply reflect on what I've learned. Student 3: Using various reflection methods, I can understand and internalize the knowledge more comprehensively. Student 4: The practice activities are well-designed and simulate a real work environment, helping me better understand and apply what I've learned. Student 7: The simulated work scenarios are very realistic, making me feel like I'm in a real job, which is valuable.
Real-world Practice	-Activities Closely Related to the Actual Application	Student 3: Hands-on practice opportunities let me truly master the skills, not just the theory. Student 2: The practice activities are well-designed and simulate a real work environment, which helps me better understand and apply what I've learned. Student 3: The simulated work scenarios are so realistic, they make me feel like I'm in a real job, which is valuable. Student 8: Hands-on practice opportunities let me truly master the skills, not just the theory.
Multi-Dimensional Evaluation	-Diverse Evaluation Methods -Fair Evaluation -Timely Feedback	Student 4: Timely feedback helps us understand our progress and areas to improve. Student 5 We hope to showcase our projects and get social recognition. Student 6: The teacher's timely feedback helps me see my progress and where I need to improve. Student 7: The teacher's constructive feedback clarifies my direction for improvement and boosts my learning effectiveness.

Technical authenticity and reliability in virtual tourism experiences directly impact students' perceptions and satisfaction with the VTEL model by enhancing their learning content knowledge. Realistic virtual tourism experiences are designed to bridge classroom knowledge with real-world application, thereby increasing student engagement and the practicality of their learning. The effectiveness of the learning process hinges on technical reliability, which ensures stability by minimising interruptions from technical issues, thus improving student achievement and satisfaction. Students' ability to think and reflect from multiple perspectives enhances their satisfaction with the VTEL model. Diverse reflective practices, such as group discussions, self-reflection, and teacher feedback, help students gain a comprehensive understanding of the material, improve learning efficiency, and support knowledge retention. Quantitative data indicate that the VTEL model is highly regarded for its effectiveness in improving students' understanding of the material, particularly when practical activities are well-designed to simulate a near-real work environment. The relevance and timeliness of these practical tasks facilitate the development of practical skills and enhance problem-solving abilities. This realistic learning environment not only boosts students' motivation to learn but also improves their employability.

The diverse evaluation methods and timely feedback in the VTEL model ensure comprehensive and fair assessments. Multi-dimensional evaluations allow students to view their progress from different perspectives, while ongoing feedback helps them adjust their learning strategies. This structured approach enhances students' confidence and awareness, leading to greater satisfaction with the VTEL model. In addition to the previously mentioned questionnaire on satisfaction factors, students have proposed several specific enhancements for the VTEL model. They suggest that teaching objectives should closely align with industry needs and career planning and recommend involving industry professionals and academics in the development and review of these objectives. To further improve the VTEL model, it is advised to expand virtual tourism experiences and diversify content, increase the number of projects, and include various tourist and cultural activities from different countries. Educational institutions should implement a responsive feedback system for timely student engagement and establish regular student achievement exhibitions with awards for outstanding work. Additionally, fostering collaborations with international tourism and educational institutions is recommended to facilitate student exchange programs and internships.

Discussion

The level of satisfaction among the students by the time they have gone through the VTEL model.

The VTEL model demonstrates a high level of satisfaction overall. The mean satisfaction scores for emotional, cognitive, and psychomotor dimensions are 3.38. Proponents of experiential learning advocate for a 'whole person' approach, which integrates cognitive, affective, and psychomotor domains within self-regulation theory and an integrated taxonomy model for analysing these dimensions (Micklich, 2011). Research indicates that virtual reality significantly enhances nurses' cognitive, affective, and psychomotor skills, as well as their learning satisfaction (Efendi et al., 2023). Self-reported assessments by

learners in the emotional, cognitive, and psychomotor domains reveal moderate to high levels of satisfaction. Notably, the Emotional dimension received the highest average score of 3.98, followed by the Cognitive dimension with an average score of 3. The Behavioural dimension scored the lowest at 0.86, while the Knowledge and Skill dimensions scored 0.88. The Attitudinal dimension achieved the highest score. Emotions, which engage brain areas responsible for addressing fundamental issues, effectively enhance the learning process. Cognitive processes and teaching methods are influenced by what students find significant. To foster academic aspirations and deeper learning experiences, educators should incorporate emotional elements into their teaching strategies. Cognitive development typically follows a structured progression as outlined in this study. Emotional motivations facilitate the assimilation of new information, leading to behavioural changes through practical application. Behavioural adjustments are reinforced by practical experience and practice (Tasrif, Ferdian, & Andres, 2023).

The post-survey data on the VTEL model reveal that participants expressed the highest satisfaction with a mean score of 4.03 for "satisfaction with participating in the VTEL model," while "proactivity in independent learning after using the VTEL method" received the lowest mean of 3.68. Research comparing different environment simulation formats—360-degree panoramic images, virtual reality (VR), and conventional images—found that 360-degree images were most psychologically similar to the referent environment, whereas VR provided the closest physiological resemblance. Higuera-Trujillo, López-Tarruella Maldonado and Llinares Millán (2017) demonstrated links between the sense of presence and both physiological and psychological responses. Mauri et al. (2024) explored how immersive photo browsing and VR tours affect real estate buyers, discovering that VR tours fostered positive emotions, increased physiological activity, heightened presence, and improved user experience evaluations. However, no significant differences were observed in behavioural intentions, such as purchase intent. Incorporating VR into educational practices can enhance knowledge comprehension and retention, as virtual learning environments are found to be more engaging and participatory (Makransky & Mayer, 2022). To achieve higher satisfaction scores, the VTEL model should be adjusted to enhance emotional engagement, strengthen cognitive skills, and improve psychomotor skills.

The Roles of Student Satisfaction in the Dialectical Sustainable of The VTEL Model

Factors affecting student satisfaction with the VTEL model include the relevance of learning objectives, the quality and immersion of the experience, diverse reflective practices, practical application of activities, and comprehensive assessment methods. However, there is a notable gap in preparing graduates for the demands of Industry 4.0. Implementing an Academia-Industry Collaboration Plan, where industry members help define learning objectives, could address this shortfall (Ahmed et al., 2022; Arthur-Mensah, 2020). Addressing academic factors that influence student performance and social demands can improve college retention rates (Caballero, 2020). Research involving 22 students on virtual tour preparation in English highlighted the significance of virtual reality in tourism education. The study found that virtual reality is highly valued for enhancing educational outcomes (Alizadeh & Hawkinson, 2021). Additionally, a focus group study of tourism students in southern Ecuador indicated that research-based

learning approaches, such as the Cajas Massif Biosphere Reserve project, are more effective than traditional methods in applying theoretical knowledge (Espinoza-Figueroa et al., 2021). Engaging in reflective learning helps students develop their professional identity, gain insights into their strengths and weaknesses, and address professional challenges, thereby promoting sustainability (Colomer et al., 2020). Wen and Sumettikoon (2024) noted that improvements in the tourism sector enhance learning outcomes in China's vocational education by aligning curricula with workplace demands and ensuring proper teacher encouragement and student motivation. Incorporating authentic assessment tools, such as reflective journals and managerial reports, into higher education improves employment readiness by addressing real-world problems (Shafait et al., 2021).

Conclusion and Recommendation

The assessment of the VTEL model reveals satisfactory ratings across the emotional, cognitive, and psychomotor domains of students' learning experiences. Key factors contributing to student satisfaction include the relevance and alignment of learning objectives with the subject matter, high-quality learning experiences, a variety of reflection methods, practical tasks, and diverse assessment types. These elements ensure students are engaged in a realistic and technologically reliable learning environment, enhancing their interest and satisfaction. However, challenges remain in achieving a more effective VTEL model in tourism courses. To improve the cognitive domain, there is a need to integrate real-life situations, enhance international project coordination, and offer individualized learning paths. For the affective domain, incorporating more opportunities for gamification, group activities, continuous praise, and involvement of industry guests is necessary. In the psychomotor domain, the use of simulations, diverse motor learning activities, and consistent feedback is essential for enhancing the learning experience.

Future research should focus on aligning learning outcomes with students' capabilities and the needs of various industries and society, assessing how these alignments impact the relevance and applicability of educational content. Additionally, expanding virtual tourism to include diverse global attractions and cultural experiences can enhance learning. Improving technical quality and usability, broadening the range of reflection activities to support deep learning, and strengthening internships and practical experiences in international tourism projects are also crucial. Furthermore, enhancing evaluation and feedback systems to provide timely and constructive feedback will contribute significantly to the effectiveness of the VTEL model.

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