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Smart Learning, Smart Earning: The Integration of Smart Technologies into Entrepreneurial Education and Its Impact on University Students' Career Choices

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ABSTRACT

This mixed-methods study examined how integrating smart technologies into entrepreneurship education influences university students' learning and career intentions. Quantitative survey data (n = 250) showed that 68% of students had exposure to at least one smart tool in their courses; the most frequently used were AI platforms (54% frequent use) and data analytics tools (48%), with IoT (28%) and VR/AR (22%) emerging. Perceived learning benefits were high: engagement 83%, problem-solving confidence 79%, and ability to grasp real-world scenarios 76%. Entrepreneurial intention (5-point scale) increased with exposure: 4.3 (high exposure, ≥3 tools) vs 3.8 (moderate) vs 3.1 (low), and smart-technology exposure correlated positively with intention (r = 0.52, 95% CI [0.42, 0.61], p < .01). Reliability for all survey constructs was acceptable (α > .70). Multiple regression indicated smart-tool usage remained a significant predictor of entrepreneurial intention after controlling for demographics (details in Results). Qualitative interviews (10 faculty; 15 students) explained the mechanisms—hands-on simulations, data-driven feedback, and AI-supported ideation increased self-efficacy and opportunity recognition—clarifying how smart learning environments translate into heightened entrepreneurial motivation. These findings provide empirical support for theory-driven accounts (e.g., TPB, SCCT) and offer actionable guidance for curriculum designers and policymakers seeking to build digitally fluent, innovation-ready graduates.

Keywords: Smart technologies; entrepreneurship education; university students; educational innovation; digital literacy

INTRODUCTION

The global transition towards a knowledge-based digital economy is compelling higher education institutions to rethink how they prepare students for the workforce. Amidst the fourth industrial revolution, the integration of smart technologies, such as Artificial Intelligence (AI), Machine Learning (ML), the Internet of Things (IoT), and Virtual Reality (VR), is reshaping education and transforming the way learners engage with entrepreneurial knowledge and skills (Benítez et al. 2023; Morrar et al. 2024).

Entrepreneurship education, which traditionally emphasized creativity, risk-taking, and innovation, is now evolving to incorporate technology-driven tools that enhance experiential learning and problem-solving capabilities (Fayolle & Liñán 2023). Through simulations, digital labs, AI-powered business model canvases, and data analytics platforms, students can actively explore entrepreneurial decision-making in real-world contexts (Giones et al. 2023). As such, smart learning ecosystems are no longer an add-on to business education; they are becoming central to shaping the competencies required in today's entrepreneurial landscape.

Recent studies have shown that smart technologies significantly improve students' learning motivation, engagement, and entrepreneurial self-efficacy (Zhou et al. 2024). The use of AI-driven learning platforms, for instance, has been found to personalize instruction, improve feedback loops, and facilitate adaptive learning pathways tailored to individual learners' needs (Zawacki-Richter et al. 2023). Similarly, IoT-enabled classrooms and VR simulations provide immersive experiences that mimic entrepreneurial environments, enabling learners to practice

business ideation, risk analysis, and strategic planning (Bican et al. 2023).

Despite the growing body of literature on digital transformation in education, there remains a research gap in understanding how the integration of smart technologies into entrepreneurship education directly influences students' career intentions, particularly their inclination to pursue self-employment or entrepreneurial ventures. While previous studies have explored factors affecting entrepreneurial intention—such as personal traits, institutional support, and curriculum quality—few have specifically analyzed the mediating role of digital tools and smart technologies (Liñán et al. 2024; Rauch & Hulsink 2023).

Furthermore, the context of Gulf Cooperation Council (GCC) countries, including Oman, adds particular significance to this research. Governments in the region are prioritizing digital transformation, innovation, and entrepreneurship as part of national visions, such as Oman Vision 2040, which explicitly encourages youth-led innovation and economic diversification (Ministry of Economy, Oman, 2023). In such settings, understanding how smart learning impacts students' entrepreneurial readiness is vital for aligning education policy with labor market and innovation goals.

Therefore, this study aims to address the following research objectives:

RO1: To examine the extent of smart technology integration within entrepreneurship education programs in selected universities.

RO2: To assess the impact of smart learning tools on students' entrepreneurial competencies, engagement, and skill development.

RO3: To evaluate how exposure to smart technologies influences students' career intentions, particularly toward entrepreneurship.

This study is grounded in the Theory of Planned Behavior (Ajzen 1991) and Social Cognitive Career Theory (Lent et al. 2002), both of which emphasize the role of perceived capability and environment in shaping individual intentions and actions. The use of a mixed-methods approach, combining surveys, interviews, and institutional case studies, enables a comprehensive analysis of how digital pedagogies foster an entrepreneurial mindset.

The integration of smart technologies into entrepreneurial education holds the potential to transform university students from passive learners to active innovators, better equipped to navigate the digital economy. By empirically investigating this transformation, the current study contributes to the academic discourse on educational innovation and offers practical implications for educators, curriculum developers, and policymakers worldwide.

LITERATURE REVIEW

SMART TECHNOLOGIES IN HIGHER EDUCATION

The digitalization of higher education has seen the proliferation of smart technologies such as Artificial Intelligence (AI), Machine Learning (ML), the Internet of Things (IoT), Virtual and Augmented Reality (VR/AR), and Big Data analytics. These technologies have significantly reshaped instructional design, pedagogical delivery, and learner engagement (Benítez et al. 2023; Zawacki-Richter et al. 2023). Smart technologies facilitate personalized, adaptive, and experiential learning environments that respond dynamically to students' learning behaviors, preferences, and progress (García-Peñalvo et al. 2023).

AI-powered learning systems, for example, provide real-time feedback, generate adaptive quizzes, and identify at-risk learners through predictive analytics (Lu et al. 2023). Similarly, IoT-enabled classrooms support interactivity, mobility, and collaboration by integrating sensors, digital boards, and smart devices that foster contextual and immersive learning experiences (Bican et al. 2023). These innovations mark a transition from passive content delivery to learner-centered ecosystems that cultivate autonomy and engagement (Zhou et al. 2024).

ENTREPRENEURSHIP EDUCATION AND INNOVATION

Entrepreneurship education has evolved from traditional theory-driven approaches to experiential and action-oriented methodologies. The objective is no longer just to inform but to develop entrepreneurial competencies, such as opportunity recognition, risk management, critical thinking, and innovation (Fayolle & Liñán, 2023). Pedagogies such as problem-based learning, business simulations, hackathons, and startup incubators are now standard features of contemporary entrepreneurship curricula (Giones et al. 2023).

According to Nabi et al. (2017), effective entrepreneurship education should not only transmit knowledge but also shape attitudes, self-efficacy, and intentions. Smart technologies enhance this objective by enabling students to simulate entrepreneurial processes in

safe environments, perform data-driven decision-making, and interact with AI-based virtual mentors (Ratten 2023). Moreover, integrating VR and AR into classroom settings allows students to virtually explore business ecosystems, develop prototypes, and engage in real-time customer feedback simulations (Bican et al. 2023).

DIGITAL TOOLS AND ENTREPRENEURIAL INTENTIONS

A growing body of literature suggests that the integration of digital tools into entrepreneurship education positively influences students' entrepreneurial intentions (EI)—the motivational state that precedes the actual act of venture creation (Liñán et al. 2024; Rauch & Hulsink, 2023). EI is shaped by several factors, including perceived feasibility, perceived desirability, and entrepreneurial self-efficacy, as posited by the Theory of Planned Behavior (Ajzen 1991).

Research by Zhou et al. (2024) and Fayolle and Liñán (2023) confirms that technology-enabled learning environments foster higher confidence in business problem-solving, autonomous learning, and opportunity recognition, all of which are crucial antecedents to EI. Students exposed to AI- and IoT-integrated courses tend to exhibit stronger motivation to innovate and a greater likelihood of considering entrepreneurship as a viable career path (Lu et al. 2023).

Additionally, Zhou et al. (2024) found that smart learning technologies mediate the relationship between educational experience and entrepreneurial intention, acting as a catalyst in converting theoretical knowledge into practical ambition. This finding is supported by experimental studies showing that gamified learning systems and simulation platforms substantially enhance engagement, creativity, and risk tolerance (Benítez et al. 2023).

SOCIAL COGNITIVE CAREER THEORY AND THE ROLE OF ENVIRONMENT

The Social Cognitive Career Theory (SCCT) offers a complementary framework by emphasizing the interplay between individual capabilities, learning experiences, and environmental factors (Lent et al. 2002). SCCT suggests that students' career aspirations—such as becoming entrepreneurs—are influenced by their self-efficacy beliefs, outcome expectations, and contextual supports/barriers.

Smart technologies contribute to these SCCT components by providing accessible tools, timely feedback, and collaborative platforms, thus creating a learning environment conducive to entrepreneurial exploration (García-Peñalvo et al. 2023). University environments that integrate smart tools effectively also enhance perceived behavioral control, which further strengthens the formation of entrepreneurial intentions (Liñán et al. 2024).

GAPS IN LITERATURE AND THE NEED FOR CONTEXTUAL RESEARCH

While literature on smart learning and entrepreneurship education is growing, significant gaps remain. First, there is limited empirical evidence exploring how smart technology adoption in entrepreneurship education influences actual career choices—particularly in emerging economies and non-Western contexts (Morrar et al. 2024). Most studies are concentrated in North America, Europe, and East Asia, with minimal focus on Gulf Cooperation Council (GCC) countries like Oman, where national visions increasingly emphasize entrepreneurship and digital transformation (Ministry of Economy, Oman 2023).

Second, there is a need to assess the institutional readiness and strategic integration of smart technologies in entrepreneurial programs. Research often overlooks organizational infrastructure, faculty competencies, and policy support—all crucial for scaling smart education (Zawacki-Richter et al. 2023).

This study aims to bridge these gaps by empirically examining how smart technology integration affects university students' entrepreneurial learning outcomes and career aspirations in a context where digital transformation is both an educational challenge and a strategic national imperative.

METHODOLOGY

RESEARCH DESIGN

This study adopted a mixed-methods research design, integrating both quantitative and qualitative approaches to provide a comprehensive understanding of how smart technology integration in entrepreneurship education influences university students' career choices. This approach allowed for triangulation of findings, enhancing the reliability and depth of insights (Creswell & Plano Clark, 2018).

The quantitative phase explored correlations and trends in student responses, while the qualitative phase provided nuanced insights into how students and faculty perceive the role of smart technologies in shaping entrepreneurial learning and intention.

POPULATION AND SAMPLING

The study focused on undergraduate and postgraduate students enrolled in entrepreneurship-related courses, as well as faculty members teaching those courses, at selected universities in Oman and the broader Gulf region. To ensure diverse and representative data, a stratified random sampling technique was employed. This method allowed the researchers to capture variation across several key strata, including type of university (public versus private institutions), degree level (bachelor's and master's programs), gender, and level of exposure to smart technologies. By applying this stratified approach, the study enhanced the representativeness and generalizability of its findings, while also reducing the potential for sampling bias.

SAMPLE COMPOSITION

Quantitative sample: A stratified random sampling method was used to ensure representation across universities, degree levels (bachelor's/master's), and gender. A total of 250 students participated in the online survey (Figure 1).

Qualitative sample: 10 faculty members and 15 students were selected through purposive sampling for in-depth interviews, ensuring diversity in institutional background and experience with smart technologies.

A total of 250 student responses were included in the quantitative phase. The stratification by degree level is illustrated in the table and figure below (Table 1)

TABLE 1. Stratified Sample by Degree Level

Degree Level	Number of Students	Percentage (%)
Bachelor's	180	72%
Master's	70	28%
Total	250	100%

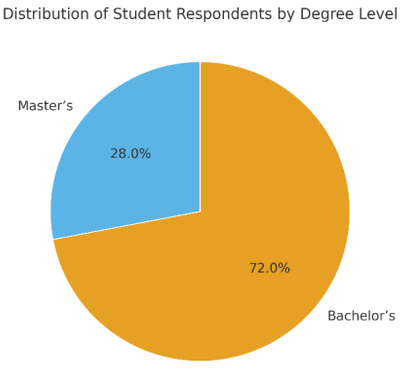

FIGURE 1. Distribution of Student Respondents by Degree Level

The sample was further balanced to reflect a mix of disciplines (e.g., business, information systems, and engineering students enrolled in entrepreneurship electives) to capture varied experiences with smart technologies.

In the qualitative phase, 10 faculty members and 15 students were selected using purposive sampling. Criteria for inclusion included:

1. Direct engagement with smart technology tools in coursework.
2. Experience in teaching or learning entrepreneurship.
3. Willingness to participate in a 30–45-minute interview session.

This dual-sampling approach (stratified for quantitative and purposive for qualitative) ensured a robust and holistic understanding of the research problem.

RESEARCH INSTRUMENTS

QUANTITATIVE INSTRUMENT: SURVEY QUESTIONNAIRE

A structured questionnaire was developed based on validated instruments from prior entrepreneurship education and smart learning research (Liñán & Chen, 2009; Zhou et al. 2024). The survey consisted of five sections:

1. Demographics (e.g., age, gender, field of study)
2. Exposure to smart technologies (AI tools, VR, IoT platforms used in class)
3. Perceived learning experience (engagement, satisfaction, personalization)
4. Entrepreneurial competencies (innovation, risk tolerance, opportunity recognition)
5. Entrepreneurial intentions (using the Entrepreneurial Intention Questionnaire - EIQ).

All items were measured using a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).

QUALITATIVE INSTRUMENT: SEMI-STRUCTURED INTERVIEWS

To complement the survey data and gain deeper insights, semi-structured interview guides were developed separately for students and faculty participants. These guides were designed to explore several key themes, including participants' experiences with smart technologies in teaching and learning, their perceptions of skill

development and entrepreneurial confidence, the institutional support and challenges encountered in integrating digital tools, and their views on how smart learning environments influenced students' career choices. The semi-structured format allowed for flexibility in probing responses while maintaining consistency across interviews. Each interview was conducted either via Zoom or in-person, depending on participant preference and availability, and lasted approximately 30 to 45 minutes.

DATA COLLECTION PROCEDURES

The data collection process was conducted in two phases—quantitative and qualitative. The survey was administered electronically via Google Forms and disseminated with the assistance of faculty coordinators across the participating universities. For the qualitative phase, interviews were conducted over a two-month period, either in person or through virtual platforms such as Zoom, depending on participant availability and preference. Each interview was recorded with the participants' informed consent and lasted approximately 30 to 45 minutes. The study received ethical approval from the research ethics committee of the lead university. All participants were informed about the purpose and scope of the research and provided voluntary consent. Throughout the study, anonymity and confidentiality were strictly upheld to maintain the ethical integrity of the research process.

DATA ANALYSIS

QUANTITATIVE ANALYSIS

The quantitative data collected from the survey responses were analyzed using IBM SPSS Statistics version 28. To begin, descriptive statistics, including means and standard deviations, were computed to summarize the demographic profiles of respondents and their responses across key variables. For inferential analysis, Pearson correlation was employed to examine the relationships between students' exposure to smart technologies and their entrepreneurial intentions. Additionally, multiple regression analysis was conducted to identify the most significant predictors of entrepreneurial intention, while controlling for variables such as gender, degree level, and perceived competence. To ensure the construct validity of the questionnaire, an Exploratory Factor Analysis (EFA) was performed to group related items and confirm underlying dimensions. A standard significance level of $p < 0.05$ was used for all statistical tests to determine the robustness of the results.

QUALITATIVE ANALYSIS

The qualitative data, collected through semi-structured interviews, were analyzed using thematic analysis in accordance with the six-step approach proposed by Braun and Clarke (2006). This process involved an initial phase of familiarization with the data through repeated reading of the transcripts, followed by the generation of initial codes that captured meaningful segments of text. These codes were then organized into broader patterns during the theme-searching stage. The next steps involved a careful review of the identified themes, refinement through iterative analysis, and the eventual definition and naming of each theme to accurately reflect their core meanings. Finally, the findings were synthesized into a comprehensive narrative report. To support the coding and analysis process, NVivo 12 software was employed. Additionally, the emerging qualitative themes were cross-referenced with the survey results to ensure consistency, enhance credibility, and enable triangulation across data sources.

VALIDITY AND RELIABILITY

To ensure the rigor of the research instruments, several validity and reliability checks were performed. Content validity (Table 2) of the questionnaire was established through a thorough expert review process, in which three senior academics specializing in entrepreneurship education evaluated the relevance, clarity, and alignment of the survey items with the research objectives. For the quantitative data, internal consistency was assessed using Cronbach's alpha, with all constructs demonstrating acceptable reliability coefficients ($\alpha > 0.7$), confirming the coherence of the measured items. In the qualitative phase, trustworthiness and credibility were ensured through member checking, where participants reviewed their interview summaries for accuracy, and peer debriefing, where research colleagues provided critical feedback on the coding and theme development processes.

TABLE 2. Summary of Validity and Reliability Measures

Instrument Component	Type of Validity/Reliability	Method Used	Result/Indicator
Survey Questionnaire	Content Validity	Expert Review (3 academics)	Items approved with minor edits
Survey Constructs	Internal Consistency	Cronbach's Alpha	All constructs $\alpha > 0.70$
Interview Protocol	Trustworthiness (Qualitative)	Member Checking & Peer Debriefing	No discrepancies reported

LIMITATIONS

While this study offers valuable insights into the integration of smart technologies in entrepreneurship education, several limitations must be acknowledged. First, the sample was confined to a select group of universities within the Gulf region, which may limit the generalizability of the findings to broader educational contexts or other geographical regions. Second, the reliance on self-reported data introduces potential biases, including the possibility of social desirability effects or the overestimation of students' technological proficiency. Finally, as a cross-sectional study, it did not capture longitudinal outcomes, such as the actual formation of student-led startups or sustained entrepreneurial engagement after graduation, which could provide deeper insights into long-term impacts

FINDINGS AND DISCUSSION

EXTENT OF SMART TECHNOLOGY INTEGRATION

Survey results revealed that 68% of students reported exposure to at least one smart technology (AI, IoT, VR/AR, or data analytics) in their entrepreneurship-related courses T followed by data analytics software, while VR/AR and IoT usage was growing but less common. This is illustrated in Figure 2. The most commonly used tools were AI-based platforms (e.g., ChatGPT, IBM Watson), followed by data analytics software (e.g., Tableau, Power BI). Less prevalent, though emerging, were VR/AR simulations and IoT project kits.

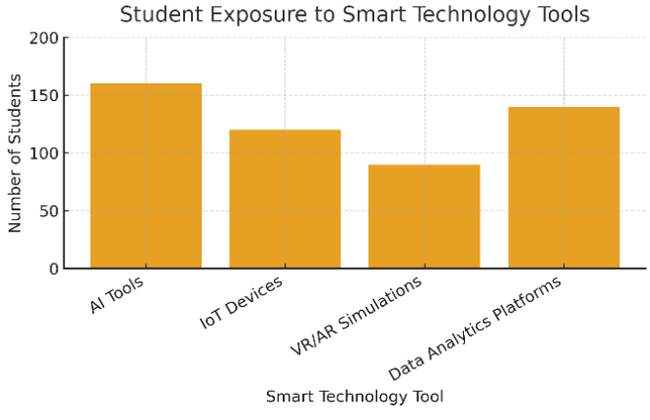

FIGURE 2. Student Exposure to Smart Technology Tools

The chart shows (Table 3) the number of students exposed to AI tools, IoT devices, VR/AR simulations, and data analytics platforms in entrepreneurship education courses

TABLE 3. Frequency of Smart Tool Usage in Classroom

Tool Category	Frequently Used (%)	Occasionally Used (%)	Not Used (%)
AI Tools	54%	35%	11%
Data Analytics Tools	48%	33%	19%
IoT Devices	28%	40%	32%
VR/AR Simulations	22%	36%	42%

Faculty interviews confirmed a growing institutional push toward embedding digital tools into entrepreneurship education. However, they noted challenges, such as lack of infrastructure, insufficient training, and limited time for tool integration in course structures.

IMPACT ON LEARNING AND ENTREPRENEURIAL COMPETENCIES

Survey responses (Table 4) showed that smart technologies significantly enhanced students' learning experience in several ways:

1. 83% agreed that smart tools increased their engagement.
2. 79% felt more confident solving business-related problems.
3. 76% agreed they could visualize real-world entrepreneurial scenarios better through simulations.
4. Students exposed to more smart tools rated themselves higher in key entrepreneurial competencies such as opportunity recognition, digital literacy, problem-solving, and risk analysis.

TABLE 4. Perceived Learning Outcomes by Tool Type

Learning Outcome	AI Tools	Data Analytics	IoT Devices	VR/AR
Increased engagement (%)	88%	81%	67%	73%
Improved problem-solving	85%	79%	61%	68%
Real-world scenario grasp	76%	71%	60%	80%

Interview themes revealed that students found these tools useful in developing real business ideas, especially when connected to hands-on projects and startup simulation exercises. Faculty emphasized that technologies like AI helped students develop data-driven decision-making skills and increased autonomy in team-based projects.

INFLUENCE ON ENTREPRENEURIAL INTENTIONS

A key finding is that the level of smart technology exposure was strongly associated with higher entrepreneurial intention scores. Using a 5-point Likert scale, students with high exposure (3+ tools) averaged 4.3, compared to 3.8 for moderate and 3.1 for low exposure groups.

TABLE 5. Entrepreneurial Intention Score Comparison

Tech Exposure Group	Average Intention Score (out of 5)
High Exposure	4.3
Moderate Exposure	3.8
Low Exposure	3.1

Statistical analysis (Table 5) using Pearson correlation showed a significant positive correlation ($r = 0.52$, $p < 0.01$) between smart technology exposure and entrepreneurial intention. Multiple regression analysis also confirmed that smart tool usage was a significant predictor of entrepreneurial intention, even after controlling gender, degree level, and academic performance.

QUALITATIVE INSIGHTS

Interviews further illuminated the psychological and motivational dimensions behind this trend. Students expressed increased confidence, a stronger sense of entrepreneurial identity, and greater risk tolerance as a result of engaging with real-world simulations and smart technology tools. One student noted:

"When we used AI to build business plans and test pricing models, I felt like I could actually launch something after graduation."

Faculty echoed that student who worked with smart technologies demonstrated greater initiative, creativity, and comfort with ambiguity—all key traits for entrepreneurs.

DISCUSSION

The findings align with the Theory of Planned Behavior (Ajzen, 1991) and Social Cognitive Career Theory (Lent et al. 2002), highlighting how smart technologies contribute to perceived behavioral control, self-efficacy, and entrepreneurial intention. This research confirms and extends recent studies by Zhou et al. (2024) and Bican et

al. (2023), showing that digital tool integration does not only improve learning but also reorients career aspirations.

Notably, students do not perceive these technologies as replacements for teaching but as powerful enhancers of interactive, application-based learning. Institutional readiness, faculty training, and curriculum redesign emerge as critical enablers for scaling the impact of these technologies.

CONCLUSION AND IMPLICATIONS

CONCLUSION

This study set out to explore how the integration of smart technologies in entrepreneurship education influences university students' learning experiences, competency development, and ultimately, their career intentions toward entrepreneurship. Utilizing a mixed-methods approach across institutions in Oman and the Gulf region, the research revealed a significant relationship between smart technology exposure and heightened entrepreneurial intention.

Key findings demonstrate that tools such as AI, IoT, VR/AR, and data analytics platforms not only enhance student engagement and digital literacy but also foster critical entrepreneurial skills—namely, opportunity recognition, risk analysis, and real-world decision-making. Students with higher exposure to these technologies consistently reported greater self-confidence, adaptability, and motivation to pursue entrepreneurial paths. These results affirm and expand on established theories such as the Theory of Planned Behavior (Ajzen, 1991) and Social Cognitive Career Theory (Lent et al. 2002), showing that smart learning environments strengthen students perceived behavioral control and self-efficacy—key predictors of entrepreneurial intention.

In essence, smart learning fosters smart earning: when entrepreneurship education embraces technological innovation, it not only improves academic outcomes but also prepares students to thrive in a rapidly evolving digital economy.

THEORETICAL IMPLICATIONS

This study contributes to the growing body of literature on digital transformation in education by introducing a tech-integrated lens to entrepreneurial intention theory. While previous research has emphasized psychological and socio-cultural predictors of entrepreneurial behavior, this research shows that technology-enhanced learning environments are a powerful contextual driver.

It also reinforces the relevance of SCCT and TPB in analyzing how smart learning tools shape cognitive and affective dimensions of career choice. Future theoretical models of entrepreneurship education may benefit from explicitly incorporating digital technology as an influencing variable.

PRACTICAL IMPLICATIONS FOR EDUCATORS

The findings carry strong implications for educators and curriculum designers:

1. Curriculum redesign should prioritize the integration of AI-based simulations, business modeling software, and real-time data analytics to enhance experiential learning.
2. Faculty training programs are necessary to build digital pedagogy skills and enable instructors to confidently use smart technologies in classroom settings.
3. Assessment models must evolve to include project-based and simulation-based evaluations that mirror real-world business environments.

Universities should also consider embedding interdisciplinary collaboration between business, IT, and engineering departments to promote tech-driven entrepreneurship.

POLICY IMPLICATIONS

At the policy level, this research supports national innovation strategies such as Oman Vision 2040 and the GCC's broader digital transformation agenda. Policymakers and education authorities should:

1. Allocate funding for smart campus infrastructure and entrepreneurial incubators.
2. Incentivize cross-sectoral partnerships between academia, industry, and technology providers.
3. Establish national frameworks for smart education that align with labor market demands and innovation targets.

Strategic investments in digital education will not only improve learning outcomes but also foster an entrepreneurial workforce capable of addressing regional development challenges.

IMPLICATIONS FOR STUDENTS AND INSTITUTIONS

For students, the results suggest that early exposure to smart technologies can act as a catalyst for developing an entrepreneurial mindset. Institutions, therefore, have a responsibility to democratize access to such tools through well-equipped labs, digital libraries, and startup support centers.

Moreover, entrepreneurship education should not be confined to business schools alone. Institutions should promote interdisciplinary entrepreneurship tracks supported by smart technologies across faculties to broaden participation and innovation potential.

LIMITATIONS AND FUTURE RESEARCH

While this study provides robust insights into the role of smart technologies in entrepreneurship education, several limitations should be acknowledged. The sample was geographically concentrated in Oman and the broader Gulf region, which may limit the generalizability of the findings to other educational or cultural contexts. Additionally, the study employed a cross-sectional design, which restricts the ability to assess long-term impacts on actual entrepreneurial behavior or sustained use of skills beyond graduation. To address these limitations, future research could consider longitudinal studies that track students' entrepreneurial activities post-graduation, thereby providing insights into real-world outcomes. Moreover, comparative international studies would be valuable in examining how cultural, institutional, and infrastructural differences influence the integration and effectiveness of smart technologies in entrepreneurship education. Finally, experimental research designs that isolate the impact of specific technologies—such as comparing the learning outcomes and intention shifts triggered by VR versus AI tools—could offer more precise evidence on which innovations yield the most transformative effects on student learning and career intent.

FINAL REFLECTION

As the digital economy expands and labor markets evolve, universities must respond with transformative educational practices that not only impart knowledge but also nurture innovation and self-agency. This study affirms that smart technology-integrated entrepreneurship education can play a pivotal role in shaping the next generation of entrepreneurs—individuals who are digitally fluent, creatively confident, and socially responsive. In short, by embracing smart learning today, we empower smart earning tomorrow.

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DECLARATION OF COMPETING INTEREST

None.

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