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Research Article

# Digital Pedagogy in Entrepreneurship Education: Learning Experiences of Vocational Students in South Sumatra

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Neta Dian Lestari*, Reva Maria Valianti, Riswan Aradea

**Abstract:**

**Background:** Digital transformation has created new opportunities for integrating technology into entrepreneurship education in Vocational High Schools (SMK). However, technology use does not automatically lead to meaningful entrepreneurial learning experiences.
**Aims:** This study explores digital pedagogy practices in entrepreneurship education, examines students' learning experiences, and identifies factors that facilitate or hinder its implementation in vocational schools in South Sumatra.
**Methods:** This study employed a descriptive-exploratory qualitative design involving 170 students and 34 entrepreneurship teachers from 34 vocational high schools across 17 regencies and cities in South Sumatra. Students served as the primary participants, providing accounts of their learning experiences, while teachers provided supporting information about instructional practices and implementation challenges. Data were collected through semi-structured interviews, classroom observations, and documentation, and were analyzed thematically.
**Results:** Five primary themes emerged: the use of digital technology in entrepreneurship learning, student learning experiences, engagement and collaboration, entrepreneurial competency development, and contextual enablers and barriers. Students described broader access to learning resources, opportunities for product development and digital marketing, and more independent learning. However, these experiences varied according to digital access, students' digital skills, teachers' pedagogical competence, and school support.
**Conclusion:** Digital pedagogy is most meaningful when technology is integrated into authentic entrepreneurial tasks rather than used solely to deliver content. Effective implementation requires teachers' pedagogical competence, adequate digital infrastructure, and attention to students' contextual needs.

Keywords: Digital Pedagogy, Entrepreneurship Education, Learning Experiences, Qualitative Study, Vocational High Schools

## 1. INTRODUCTION

The advancement of digital technology has brought about fundamental changes across various aspects of life, including education, the workforce, and entrepreneurial activities. Digital transformation has reshaped how individuals access information, communicate, learn, work, create products, market services, and develop business opportunities. In the context of education, these changes compel institutions to equip learners not only with academic knowledge but also with the ability to adapt to technological advancements, think creatively, solve problems, collaborate, communicate, and create value. UNESCO identifies digital transformation as a crucial factor in developing education systems capable of responding to social, economic, and technological changes. This underscores the fact that the ability to utilize technology meaningfully has become a vital component of learner competence in the digital era (Aithal & Maiya, 2023).

Digital technology is changing how entrepreneurship is taught and learned in vocational education (Fitrianti et al., 2025; Jahudin et al., 2025). Rather than simply replacing conventional instructional materials, digital environments can provide students with opportunities to explore markets, develop products, communicate business ideas, create promotional content, and participate in authentic entrepreneurial activities (Culduz, 2024). These experiences are particularly relevant to Vocational High Schools (SMK), where students are expected to develop practical competencies that support employment, further education, and entrepreneurial independence (Chang, 2022). In the digital economy, entrepreneurship education therefore needs to connect business knowledge with digital literacy, creativity, communication, problem-solving, and opportunity recognition (Ivaldi et al., 2022; Goulart et al., 2022).

Digital pedagogy provides a framework for integrating technology into learning activities in ways that support

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meaningful student participation (Sudarma, 2025). Its educational value lies not simply in the availability of devices or applications but in how teachers use technology to achieve learning objectives (Aeni et al., 2025). In entrepreneurship education, digital tools can support market research, consumer analysis, product design, branding, digital marketing, and business presentations. These activities allow students to connect entrepreneurial concepts with practical business situations. However, the educational value of digital technology depends on pedagogical design, teacher competence, students' digital skills, and the resources available in schools (Culduz, 2024; Herlina et al., 2025).

Previous studies have highlighted the potential of digital technology to support interactive learning, entrepreneurial competencies, and technology-based instructional development. Research has also examined the relationship between digital learning and students' motivation, entrepreneurial intentions, and learning outcomes (Revilia, 2025). These studies provide useful evidence of the potential benefits of technology in education (Prokopenko et al., 2024; Suhaeb, 2025). Nevertheless, evidence of learning outcomes alone does not fully explain how digital pedagogy is implemented in everyday entrepreneurship classrooms or how students experience and interpret technology-supported activities (Lukita et al., 2023).

A critical gap remains in understanding the relationship between pedagogical practices, students' lived learning experiences, and the contextual conditions shaping digital entrepreneurship education. In particular, previous research provides limited insight into how digital tools are integrated into authentic vocational entrepreneurship tasks, how students perceive the usefulness and challenges of these activities, and how teacher competence, digital infrastructure, and school support influence their experiences. Technology use may provide access to information without necessarily encouraging collaboration, creativity, or entrepreneurial problem-solving. Examining students' experiences alongside classroom practices and instructional documents can therefore help explain not only what technologies are used but also how their educational value is shaped by pedagogical decisions and school contexts (Rotatori et al., 2021).

This gap is relevant to vocational education in South Sumatra, where schools operate in diverse geographical, socioeconomic, and technological environments (García-Pérez et al., 2021). Differences in digital facilities, internet access, teacher preparedness, and students' digital skills may influence how entrepreneurship learning is organized and experienced. Investigating these conditions can provide a context-sensitive understanding of digital pedagogy without assuming that its implementation is uniform across schools. Accordingly, this study explores digital pedagogy practices in entrepreneurship education in vocational high schools across South Sumatra, focusing on students' experiences and the contextual factors that facilitate or constrain technology-supported learning (Jardim, 2021).

The contribution of this study is to bring together three connected dimensions that are often examined separately: digital pedagogical practices, students' learning experiences, and the development of entrepreneurial competencies. Rather than proposing a new pedagogical theory or claiming that technology directly causes improved entrepreneurial competence, the study provides a contextual account of how these dimensions interact in vocational school settings. By drawing on interviews, classroom observations, and documentation, it offers complementary perspectives on how digital entrepreneurship learning is implemented, experienced, and shaped by the conditions of participating schools.

Accordingly, this study addresses the following research questions:

a) How is digital pedagogy implemented in entrepreneurship education in vocational high schools in South Sumatra?
b) How do students experience and interpret digitally mediated entrepreneurship learning?
c) What factors facilitate or constrain the implementation of digital pedagogy in these contexts?

By addressing these questions, the study aims to contribute to a more context-sensitive understanding of digital pedagogy in vocational entrepreneurship education and to inform the design of learning activities that connect digital technology with authentic entrepreneurial practice.

## 2. MATERIAL AND METHOD

### 2.1 Research Design

This study employed a qualitative exploratory multisite design to examine how digital pedagogy was implemented and experienced in entrepreneurship education at vocational high schools in South Sumatra, Indonesia. A qualitative approach was appropriate because the study sought to understand pedagogical practices, students' learning experiences, and the contextual factors influencing the use of digital technology in authentic educational settings, rather than to measure causal effects or establish statistical generalizations (Achjar et al., 2023; Judijanto et al., 2024).

The multisite design was selected to capture variations in digital pedagogical practices and contextual conditions across schools located in different administrative areas. The study involved 34 vocational high schools across 17 regencies and cities in South Sumatra. Examining multiple sites enabled the researchers to explore similarities and differences in technology integration, teacher–student interactions,

learning activities, and the challenges encountered in implementing digital pedagogy. Data were collected through semi-structured interviews, classroom observations, and document analysis (Barliana et al., 2025).

### 2.2 Research Participants

The research sites were selected purposively to represent variation in geographical settings, school characteristics, digital learning facilities, and the implementation of technology-supported entrepreneurship education (Suriani & Jailani, 2023) . Two vocational high schools were selected from each of the 17 regencies and cities, resulting in 34 participating schools.

The study involved 204 participants, comprising 170 vocational students and 34 entrepreneurship teachers. Five students from each school were selected as primary participants, while one entrepreneurship teacher from each school participated as a supporting informant. The five-student allocation provided a consistent number of student perspectives across the participating schools and enabled the study to examine experiences from multiple school contexts. This allocation was intended to support contextual comparison rather than statistical representativeness (Sutanto et al., 2025).

Students were selected through purposive sampling based on three inclusion criteria: (1) they were enrolled in one of the participating vocational high schools; (2) they had completed entrepreneurship coursework; and (3) they had experience using digital technologies, including digital learning resources, applications, social media, or online platforms, in entrepreneurship learning activities. Teachers were selected because of their direct involvement in planning and implementing entrepreneurship instruction and integrating digital technology into learning activities (Santika & Permana, 2021).

**Tabel 1.** Research Participants

| Participant category | Number of schools represented | Number of participants | Role in the study |
|---|---|---|---|
| Vocational students | 34 | 170 | Primary participants providing accounts of learning experiences |
| Entrepreneurship teachers | 34 | 34 | Supporting informants providing information on teaching practices and implementation challenges |
| **Total** | **34** | **204** | |

### 2.3 Data collection technique

Data were collected through semi-structured interviews, classroom observations, and documentation (Romdona et al., 2025). These techniques were used to examine digital pedagogical practices and students' learning experiences from complementary perspectives (Sari et al., 2025).

#### 2.3.1 Semi-structured Interviews

Semi-structured interviews explored students' experiences and perceptions of technology-supported entrepreneurship learning (Rivaldi et al., 2023) . The questions addressed the types of digital technology used, learning activities considered meaningful, opportunities for collaboration and product development, perceived learning benefits, interactions with teachers and peers, and challenges encountered during digital learning. Interviews with entrepreneurship teachers focused on instructional objectives, teaching strategies, technology integration, classroom activities, and institutional or pedagogical barriers.

The interviews were conducted with participants from vocational high schools across 17 regencies and cities in South Sumatra, Indonesia. The study involved 170 students as primary participants and 34 entrepreneurship teachers as supporting informants.

#### 2.3.2 Classroom Observations

Classroom observations were conducted to document how digital technology was integrated into entrepreneurship learning. The observation protocol focused on the types of digital tools and platforms used, teacher–student interactions, instructional strategies, task design, student engagement, collaboration, and the relationship between learning activities and entrepreneurial practice.

Field notes were used to record relevant classroom activities, interaction patterns, the use of digital learning tools, and contextual conditions. Observation data were analyzed alongside interview data and relevant documents to provide a broader understanding of digital pedagogy practices in entrepreneurship education.

#### 2.3.3 Documentation

Document analysis was used to complement interview and observation data. The documents examined included learning modules, instructional materials, student worksheets, presentation slides, student assignments, photographs of learning activities, and digital media used during instruction. These materials were reviewed to identify how entrepreneurship learning was planned, how digital tools were incorporated into instructional activities, and how students were engaged in entrepreneurship-related tasks.

### 2.4 Research Instruments

The researcher served as the primary instrument for data collection and interpretation, supported by a semi-

structured interview guide, an observation protocol, and a document-review guide (Jailani, 2023). These instruments were organized around the study's research questions and the practical implementation of digital pedagogy in entrepreneurship education.

The interview guide covered four main domains: (1) digital pedagogical practices and technology use; (2) students' learning experiences and perceptions; (3) entrepreneurship-related learning activities, including product development, collaboration, and digital promotion; and (4) factors facilitating or constraining implementation. Questions for teachers additionally explored instructional planning, pedagogical decisions, and school-level challenges.

The observation protocol focused on technology use, teacher–student interactions, instructional task design, student engagement, collaboration, and the connection between classroom activities and entrepreneurial practice. The document-review guide identified evidence of technology integration, learning objectives, task requirements, and student outputs.

### 2.5 Data Analysis

Data from interviews, classroom observations, and documents were analyzed thematically. The analysis involved repeated engagement with the data, systematic coding, grouping related codes, developing candidate themes, reviewing themes against the dataset, and interpreting the findings in relation to the research questions.

First, interview transcripts and field notes were read repeatedly to develop familiarity with the content. Documents were reviewed to identify information relevant to digital pedagogy, student learning experiences, entrepreneurship-related activities, and implementation challenges. Second, meaningful segments of data were assigned initial codes. Coding focused on both recurring patterns and differences across participants and research sites. Third, related codes were grouped into broader categories. These categories were examined to develop candidate themes representing patterns across the data sources.

Fourth, candidate themes were reviewed against the coded extracts and the wider dataset to assess their coherence and relevance to the research questions. Similarities and differences across schools and participant groups were considered, and evidence that did not fit an emerging interpretation was examined rather than automatically excluded. Finally, the themes were defined, named, and used to organize the presentation of findings. Interview accounts were compared with observation notes and documentary evidence to identify converging, complementary, or contrasting information.

### 2.6 Trustworthiness

The trustworthiness of the findings was addressed through source triangulation and methodological triangulation. Source triangulation involved comparing information obtained from students and entrepreneurship teachers. Methodological triangulation involved comparing findings from interviews, classroom observations, and documentation. These comparisons helped identify similarities, complementary information, and differences across data sources.

The analysis also involved examining discrepancies between participants' accounts, observed practices, and documentary evidence. Rather than automatically prioritizing one source, the researcher revisited relevant records and considered contextual explanations before finalizing the interpretations. This process was intended to strengthen the credibility and transparency of the findings.

## 3. RESULTS AND DISCUSSION

### 3.1 Results

The thematic analysis identified five themes concerning digital pedagogy in entrepreneurship education at vocational high schools (SMKs) in South Sumatra: (1) forms of digital technology use in entrepreneurship learning, (2) students' learning experiences, (3) student engagement and interaction, (4) opportunities to practice entrepreneurial competencies through digital activities, and (5) factors supporting and hindering implementation. The themes were developed by examining interview data alongside classroom observation notes and relevant learning documents. The findings below describe the practices and experiences reported in the study. Direct participant quotations should be inserted where indicated using the original interview transcripts.

#### 3.1.1. Forms of Digital Technology Use in Entrepreneurship Learning

The findings described several forms of digital technology used in entrepreneurship learning, including smartphones, computers, internet resources, social media, instructional videos, design applications, and search engines. These technologies were associated with activities such as searching for business information, examining product examples and marketing strategies, exploring consumer trends, developing product ideas, preparing promotional materials, and presenting business concepts.

The reported activities suggest that digital tools were used for purposes extending beyond accessing instructional materials. They also provided resources for exploring business-related information and preparing learning outputs. The documentary sources identified in the study, including learning modules, presentation slides, student worksheets, completed assignments, and digital learning materials, provided additional insights for examining how technology was incorporated into entrepreneurship instruction.

Interview findings were examined alongside classroom observation notes and relevant learning documents, including instructional materials, student assignments, presentation slides, and digital learning resources. This comparison was used to examine how participants' accounts corresponded with observed classroom practices and available evidence of students' learning activities.

### 3.1.2 Student Learning Experiences

The findings indicate that students' experiences with technology-supported entrepreneurship learning were varied. The manuscript describes students using digital resources to search for product examples, examine promotional strategies, compare products, explore consumer trends, and obtain ideas for potential business activities. These activities provided opportunities to access information beyond the instructional materials used in class (Fauzi, 2023).

The manuscript also identifies differences in students' experiences, particularly in relation to access to facilities, internet quality, and technological proficiency. Therefore, the availability of digital resources did not necessarily result in the same learning experience for every student (Adeshina, 2024).

### 3.1.3 Student Engagement, Interaction, and Collaboration

The findings describe digital technology as a resource for communication and collaborative learning. The activities discussed in the manuscript include sharing information, developing product ideas, preparing presentations, creating promotional materials, and providing feedback on other groups' work. These activities indicate possible ways in which digital tools can support interaction during entrepreneurship learning (Siddiqi, 2024).

However, the extent to which these activities encouraged meaningful participation depended on how the technology was incorporated into the learning task. The manuscript distinguishes between using technology primarily to distribute materials or assignments and using it to support exploration, discussion, product creation, and problem-solving (Kalyani, 2024).

### 3.1.4 Development of Entrepreneurial Competencies

The findings describe digital entrepreneurship activities involving the exploration of business opportunities, development of product ideas, preparation of promotional content, communication of business concepts, and examination of marketing strategies. These activities provided contexts in which students could practise aspects of entrepreneurial work (Abas, 2025).

The findings should not be interpreted as evidence that students' entrepreneurial competencies increased over time, because the study did not use a longitudinal design to measure such changes. Instead, the available evidence concerns the opportunities that digital learning activities offered for practising entrepreneurship-related skills (Kaswan et al., 2024).

### 3.1.5 Enabling Factors and Barriers

The findings identify several conditions associated with the implementation of digital pedagogy in entrepreneurship education. The supporting conditions described in the manuscript include the availability of digital devices, internet access, teacher and school support, students' familiarity with technology, and a learning environment that encourages exploration. The reported barriers include limited facilities, inconsistent internet quality, differences in students' digital skills, limitations in teachers' digital instructional competence, and time constraints in preparing technology-supported learning activities (Rumina, 2025).

These conditions suggest that the implementation of digital pedagogy varied according to the resources and capabilities available in the learning environment. The findings also indicate that access to technology alone was not sufficient to ensure meaningful participation in entrepreneurship learning (Alenezi et al., 2023).

## 3.2 Discussion

### 3.2.1 Digital Pedagogy as a Transformation of Learning Practices

The findings suggest that the pedagogical value of digital technology depends not only on its availability but also on how it is incorporated into entrepreneurship learning activities. The use of smartphones, internet resources, social media, and design applications can provide access to business information and support the preparation of product concepts and promotional materials. However, these resources become educationally meaningful when they are connected to clear learning objectives and relevant entrepreneurial tasks (Asad et al., 2021; Subagio et al., 2024).

This interpretation shifts attention from technology adoption to the relationship between technological resources, instructional design, and entrepreneurship learning objectives. A digital platform may provide access to information, but its pedagogical value depends on what students are expected to do with that information. Searching for product examples, for instance, becomes more closely connected to entrepreneurship learning when students are asked to compare products, examine marketing strategies, or formulate a business idea. These activities require students to engage with information rather than simply receive it (Ghory, 2021).

The findings can be interpreted through the Technological Pedagogical Content Knowledge (TPACK) framework, which emphasizes the relationship between technological knowledge, pedagogical knowledge, and subject-matter knowledge. In the present context, technology use is most relevant when digital resources are integrated with teaching strategies and entrepreneurship content. Nevertheless, the available findings should not be treated as a formal measurement of teachers' TPACK competence. Instead, TPACK provides a conceptual lens for interpreting why the instructional purpose of technology matters alongside access to digital tools (Limna et al., 2022).

### 3.2.2 Student Experiences, Engagement, and Interaction

The variation in students' reported learning experiences indicates that digital pedagogy should not be assumed to produce uniform benefits. Digital resources can broaden the range of information available to students and provide opportunities to explore business-related examples. At the same time, students' experiences may differ according to internet access, available devices, digital proficiency, and the design of classroom activities (Afzal et al., 2023).

This distinction is important because access to digital information does not automatically result in active engagement or independent learning. Students may use the same technology for different purposes, depending on the task and the guidance provided by the teacher. Activities requiring students to discuss product ideas, prepare promotional materials, or present business concepts offer different forms of participation from activities in which technology is used only to distribute materials (Fitria, 2021).

The findings therefore highlight the importance of examining students' actual experiences rather than assuming that technology use is equivalent to meaningful engagement. Direct interview quotations and observation evidence are needed to establish how students interpreted these activities, how they interacted with peers and teachers, and what difficulties they encountered. Such evidence would help explain the conditions under which digital learning was experienced as relevant and engaging (Yusuf & Kamariah, 2025).

### 3.2.3 Digital Pedagogy and the Development of Entrepreneurial Competence

The activities described in the study can be interpreted through three complementary dimensions of entrepreneurship learning: learning about entrepreneurship, learning for entrepreneurship, and learning through entrepreneurship. These dimensions provide an analytical structure for discussing the relationship between digital learning activities and entrepreneurial practice (Rosyidah & Supriyanto, 2025).

Learning about entrepreneurship concerns students' engagement with business concepts, product characteristics, marketing strategies, and consumer trends. Digital resources can provide examples and information that help students examine these topics. Learning for entrepreneurship concerns the preparation and practice of skills relevant to entrepreneurial activity, such as identifying potential market opportunities, communicating business ideas, and preparing promotional content. Learning through entrepreneurship involves engaging in practical tasks, such as developing product concepts or creating promotional materials, through which students can apply what they have learned (Afendi, 2024).

The manuscript describes activities that potentially relate to all three dimensions. However, the strength of each interpretation depends on the empirical evidence available. For example, the use of online product examples may support learning about entrepreneurship, while the preparation of a digital promotional product may provide an opportunity to practise an entrepreneurial skill. A claim that students engaged in authentic entrepreneurial activity requires evidence about the actual task and students' participation in it. These distinctions help avoid treating every use of digital technology as evidence of entrepreneurship learning (Marlina, 2025).

### 3.2.4 Digital Pedagogy between Affordances and Constraints

The findings reveal a tension between the opportunities associated with digital technology and the conditions that may constrain its use. Digital resources can help students access business information, examine market examples, prepare promotional materials, and communicate product ideas. Yet these opportunities may be limited by inadequate facilities, inconsistent internet access, differences in digital proficiency, and challenges in designing technology-supported lessons (Santosa, 2022).

This tension complicates the assumption that introducing technology necessarily improves the learning experience. Digital tools provide potential opportunities, but students' ability to benefit from them depends on their access to resources and on the pedagogical activities in which those resources are used. Unequal access may create different opportunities for participation, while differences in students' digital skills may affect how they engage with the same task (Arianto, 2022).

Teachers' pedagogical decisions are also important in mediating these opportunities and constraints (Hasriyanti & Awaludin, 2024). Technology used primarily to distribute materials may provide convenience without necessarily creating opportunities for discussion, collaboration, or product development. By contrast, tasks that require students to investigate products, compare promotional strategies, develop ideas, and present their work can connect technology use more directly with entrepreneurship learning. These interpretations should be assessed against the study's interview, observation, and documentary evidence rather than assumed to apply uniformly across all participating schools (Kusnadi, 2024).

Compared with studies that primarily examine technology effectiveness or learning outcomes, the present study offers a contextual perspective on the practices and conditions through which digital entrepreneurship learning is experienced. Its findings do not establish that digital pedagogy causes better entrepreneurial outcomes. Instead, they draw attention to the interaction between digital resources, instructional design, student characteristics, and institutional conditions.

### 3.2.5 Implications

The findings suggest that teacher professional development may benefit from placing greater emphasis on pedagogical design rather than focusing exclusively on technical skills. In the context of entrepreneurship education, this could involve connecting digital tools with authentic business-related tasks, collaborative learning, product development, and formative assessment. Such an emphasis may help teachers select technologies according to the learning purpose rather than using digital tools simply because they are available.

The findings also suggest that school-level support should take account of infrastructure and differences in students' digital proficiency. Where internet access or device availability is limited, teachers may need to consider learning activities that remain feasible under those conditions. These implications should be understood as context-sensitive recommendations arising from the reported findings, not as interventions whose effectiveness was tested by this study.

### 3.2.6 Research Contribution

This study contributes a contextual understanding of how digital pedagogy is implemented in vocational entrepreneurship education in South Sumatra. Its contribution lies in examining the relationship between technology use, students' learning experiences, teachers' pedagogical practices, and institutional conditions across diverse school contexts. Rather than assuming that access to digital technology automatically produces meaningful learning, the study emphasizes the importance of how technology is integrated into entrepreneurship-related activities. This process-oriented perspective complements research focused on learning outcomes and technology-based instructional development by foregrounding the experiences and contextual conditions associated with digital entrepreneurship learning.

### 3.2.7 Limitations

This study has several limitations that should be considered when interpreting the findings. First, the qualitative exploratory design was intended to understand digital pedagogy practices and students' experiences in context; therefore, the findings do not establish causal relationships between digital technology use and entrepreneurial learning outcomes. Second, the study used purposive selection of 34 vocational high schools across 17 regencies and cities in South Sumatra. Although this multisite approach captured variation across settings, the findings may not represent vocational schools in other regions with different socioeconomic and technological conditions. Third, the study focused on students' and entrepreneurship teachers' accounts, classroom observations, and instructional documents. The evidence describes learning opportunities and reported experiences, but it does not measure changes in entrepreneurial competencies over time or quantify the effectiveness of particular digital tools. These limitations indicate that the results should be interpreted as contextual insights rather than statistical generalizations.

### 3.2.8 Suggestions

Based on these findings, entrepreneurship teachers are encouraged to integrate digital tools with authentic tasks, such as market research, product development, promotional-content creation, and presentation of business ideas, rather than using technology only to distribute learning materials. Professional development should address both technical skills and pedagogical design, including collaboration, student feedback, and formative assessment. Schools and education authorities should also assess students' access to devices and reliable internet, provide appropriate infrastructure and technical support, and adapt activities to local conditions so that unequal access does not restrict participation. For future research, studies could include vocational schools from additional regions and compare different school contexts. Longitudinal or mixed-methods designs could examine changes in entrepreneurial competencies over time, while classroom-based studies could investigate how specific digital pedagogical strategies influence student engagement, collaboration, and the quality of entrepreneurial learning products.

## 4. CONCLUSION

This study concludes that digital pedagogy in entrepreneurship education is shaped not simply by the availability of technology, but by how digital tools are integrated into meaningful learning activities. The findings highlight the role of digital pedagogy in providing opportunities for vocational students to explore business information, develop product ideas, create promotional materials, and communicate entrepreneurial concepts, while also revealing differences in students' learning experiences.

Practically, entrepreneurship teachers and schools should prioritize the purposeful integration of digital technology with authentic entrepreneurial tasks, collaborative learning, and student-centered instruction. Improving teachers' digital pedagogical competence, supporting students' digital skills, and providing adequate technological infrastructure are important considerations for more meaningful digital entrepreneurship learning.

These conclusions should be interpreted within the scope of this qualitative exploratory study, which examined experiences and practices across 34 vocational high schools in 17 regencies and cities in South Sumatra. The findings provide contextual insights rather than statistical generalizations or evidence of causal effects. Further research could investigate selected schools in greater depth and examine how digital pedagogical practices relate to measurable entrepreneurial competencies over time.

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## 6. AUTHOR CONTRIBUTION STATEMENT

NL contributed to the conceptualization of the study, research design, development of the research instrument, data analysis, and preparation of the manuscript. RV contributed to data collection, product development, data analysis, and manuscript revision. RA contributed to research supervision, interpretation of findings, critical review, and final revision of the manuscript. All authors reviewed and approved the final version of the manuscript.

## AUTHOR INFORMATION

### Corresponding Authors

Neta Dian Lestari, Universitas PGRI Palembang

https://orcid.org/0000-0003-4423-8072

Email: netadianlestari@univpgri-palembang.ac.id

### Authors

Reva Maria Valianti, Universitas PGRI Palembang

https://orcid.org/0009-0000-0897-2961

Email: revavalianti@univpgri-palembang.ac.id

Riswan Aradea, Universitas PGRI Palembang

https://orcid.org/0009-0002-9072-0580

Email: riswanaradea@gmail.com

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