Artificial Intelligence Literacy and Student Entrepreneurship: The Role of Digital Entrepreneurial Competencies in Entrepreneurial Intention

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Abstract

Artificial Intelligence (AI) is becoming an important part of education, business, and everyday life. The growing use of AI provides college students with new opportunities to learn, develop skills, identify business opportunities, and consider entrepreneurship as a career. AI literacy helps students understand and use AI-based tools, while digital entrepreneurial competencies help them apply digital technologies in business activities. This study focuses on the relationship between Artificial Intelligence Literacy and Entrepreneurial Intention among college students. It also examines whether Digital Entrepreneurial Competencies play a mediating role in this relationship. Primary data collected from college students using a structured questionnaire. The data can be analysed using suitable statistical techniques such as percentage analysis, mean, standard deviation and garrett ranking. The study aims to understand whether better AI knowledge and stronger digital entrepreneurial competencies encourage students to develop an intention to start their own business. The study may provide useful insights for colleges, entrepreneurship educators, policymakers, and students in developing AI-based and practical entrepreneurship education programmes.

Keywords: Artificial Intelligence Literacy, Student Entrepreneurship, Digital Entrepreneurial Competencies, Entrepreneurial Intention, College Students

I. Introduction

Entrepreneurship is becoming an important career choice among college students. Many students are interested in starting their own businesses because of new business

opportunities, changing market conditions, and the growth of technology. Colleges and universities also encourage students to develop entrepreneurial skills through entrepreneurship courses, training programmes, workshops, and start-up activities.

Artificial Intelligence (AI) has become an important technology in the modern business environment. AI tools are now used for marketing, customer service, market research, content creation, financial activities, and business decision-making. Knowledge about AI can help students understand new technologies and identify opportunities for starting or developing a business. Therefore, AI literacy is becoming an important skill for future entrepreneurs. However, knowing about AI may not be enough to start a business. Students also need digital entrepreneurial competencies. These competencies help students use digital tools and platforms for identifying opportunities, communicating with customers, promoting products, developing business ideas, and managing business activities. Such skills can help students convert their AI knowledge into practical entrepreneurial activities.

Entrepreneurial intention refers to a student's willingness or plan to start a business in the future. AI literacy and digital entrepreneurial competencies may influence this intention. A student who understands AI and knows how to use digital technologies for business may be more prepared to consider entrepreneurship as a career. Therefore, this study examines the relationship between Artificial Intelligence Literacy and Entrepreneurial Intention among college students. It also studies the mediating role of Digital Entrepreneurial Competencies in this relationship. The study aims to understand how AI knowledge and digital skills are connected with students' interest in becoming entrepreneurs. The findings may be useful to colleges, entrepreneurship educators, and policymakers in developing suitable programmes to improve students' AI knowledge and entrepreneurial skills.

II. Review of Literature

Bachmann et al. (2024) examined the role of digital competencies in entrepreneurial intention. The study found that digital competencies are positively connected with entrepreneurial intention. It also showed that digital competencies become more meaningful when combined with entrepreneurial orientation and self-efficacy. The study highlights the importance of developing both digital and entrepreneurial abilities among future entrepreneurs.

Duong (2026) studied the relationship between AI literacy and digital entrepreneurial intention among higher education students. The study found that AI literacy positively influences entrepreneurial intention. It also highlighted the importance of AI self-efficacy and digital entrepreneurial self-efficacy in this relationship. The study suggests that AI knowledge together with confidence in using technology can support students' entrepreneurial intentions.

Zhang et al. (2025) examined how artificial intelligence can help college students develop entrepreneurial ability. The study used data from 1,021 Chinese university students and found that different forms of generative AI use play an important role in developing entrepreneurial ability. The study also found that creativity can strengthen the effect of AI use on entrepreneurial development.

III. Scope of the Study

The present study focuses on the relationship between Artificial Intelligence Literacy, Digital Entrepreneurial Competencies, and Entrepreneurial Intention among college students. The study is confined to 115 students selected from Various colleges in Usilampatti at Madurai District. It examines students' level of AI literacy and their ability to use digital technologies for entrepreneurial activities. The study also considers students' entrepreneurial intention, particularly their interest and willingness to choose entrepreneurship as a career. Further, the study examines the relationship between AI literacy and entrepreneurial intention and analyses the mediating role of digital entrepreneurial competencies in this relationship. The study is expected to provide useful insights into the importance of AI knowledge and digital competencies in developing entrepreneurial interest among college students. The findings may be useful to educational institutions, entrepreneurship educators, and students in strengthening AI-based learning and digital entrepreneurship programmes.

IV. Objectives of the Study

- To assess the level of Artificial Intelligence Literacy among college students.
- To examine the level of Digital Entrepreneurial Competencies among college students.
- To analyse the relationship between Artificial Intelligence Literacy, Digital Entrepreneurial Competencies, and Entrepreneurial Intention among college students.
- To examine the mediating role of Digital Entrepreneurial Competencies in the relationship between Artificial Intelligence Literacy and Entrepreneurial Intention.

V. Statement of the Problem

Artificial Intelligence (AI) is becoming an important part of education and business. College students use AI tools for learning, communication, research, content creation, and other activities. The growth of AI also creates new opportunities for students who are interested in entrepreneurship. However, AI knowledge alone may not be enough to encourage students to start a business. Students also need digital entrepreneurial competencies such as identifying business opportunities, using digital platforms, communicating with customers, online marketing, problem-solving, and decision-making. Some students may have good knowledge of AI and digital technology but may not have a strong intention to become entrepreneurs. Therefore, it is important to understand the relationship between AI Literacy and Entrepreneurial Intention. Digital Entrepreneurial Competencies may help students convert their AI knowledge into practical entrepreneurial skills. However, the role of these competencies in connecting AI literacy with entrepreneurial intention among college students needs further study. The present study examines Artificial Intelligence Literacy, Digital Entrepreneurial Competencies, and Entrepreneurial Intention among college students. It particularly focuses on the mediating role of Digital Entrepreneurial Competencies in the relationship between AI Literacy and Entrepreneurial Intention. The study may help educational institutions develop suitable AI and entrepreneurship programmes for students.

VI. Research Methodology

Research Design

The study adopts a descriptive and analytical research design to examine the relationship between Artificial Intelligence Literacy, Digital Entrepreneurial Competencies, and Entrepreneurial Intention among college students.

Sample Size

The study consists of 115 college students selected from various colleges in Usilampatti at Madurai District.

Sampling Technique

The study adopts Convenience Sampling Technique**.** The respondents are selected based on their availability and willingness to participate in the study.

Statistical Tools

The collected data will be analysed using Percentage Analysis, Mean, Standard Deviation, and Garrett Ranking Technique**.** Percentage Analysis will be used to present the basic details of the respondents. Mean and Standard Deviation will be used to measure AI Literacy, Digital Entrepreneurial Competencies, and Entrepreneurial Intention. Garrett Ranking Technique will be used to rank the important factors.

Source of Data

The study uses both primary and secondary data**.**

- ✓ Primary Data: Collected from college students through a structured questionnaire.
- ✓ Secondary Data: Collected from research articles, journals, books, reports, and reliable online sources related to AI literacy, digital entrepreneurship, and entrepreneurial intention.

VII. Limitations of the Study

- ➢ The study is limited to 115 college students from various colleges in Usilampatti at Madurai District.
- ➢ The study is based on the responses given by the students, which may be influenced by their personal opinions and understanding.
- ➢ The study is conducted within a limited geographical area and therefore the findings may differ in other colleges and regions.
- ➢ The study is limited to three main variables: AI Literacy, Digital Entrepreneurial Competencies, and Entrepreneurial Intention**.**

VII. Data Analysis and Data Interpretations

Table – 1: Demographic Profile of the Respondents

S. No	Particulars	Frequency	Percentage
1	Male	60	52.2
2	Female	55	47.8
3	Below 20	67	58.3
4	21-25	48	41.7

5	Undergraduate (UG)	78	67.8
6	Postgraduate (PG)	37	32.2

Source: Primary Data

The table shows that 60 respondents (52.2%) are male, while 55 respondents (47.8%) are female**.** Thus, the study has a slightly higher proportion of male respondents**.**

Out of 115 respondents, 48 students (41.7%) are between 21 and 25 years**,** while 67 students (58.3%) are below 20 years**.** Thus, the majority of the respondents belong to the below 20 years age group**.**

Out of 78 students (67.8%) are undergraduate students**,** while 37 students (32.2%) are postgraduate students**.** Thus, the majority of the respondents are undergraduate students**.**

Table – 2: Artificial Intelligence Literacy

S. No.	AI Literacy Statements	Mean	S.D.
1	I understand the basic idea of AI.	4.12	0.72
2	I can identify AI-based tools.	4.18	0.68
3	I can select suitable AI tools.	3.96	0.81
4	I can use AI to find information.	4.20	0.65
5	I can use AI to improve my work.	4.05	0.74
6	I know that AI information may be incorrect.	4.10	0.71
7	I can check AI-generated information.	3.92	0.83
8	I understand AI privacy issues.	3.85	0.87
9	I can write suitable AI prompts.	3.78	0.91
10	I can identify situations where AI is unsuitable.	3.82	0.85
11	I understand the ethical issues of AI.	3.88	0.80
12	I feel confident learning new AI tools.	4.15	0.70
Overall		**4.00**	**0.78**

Source: Primary Data

The overall mean score of Artificial Intelligence Literacy is 4.00 with a Standard Deviation of 0.78. This indicates that the students have a good level of AI Literacy**.** The highest mean score is 4.20 for using AI to find information, showing that students are comfortable using AI for information-related activities. The lowest mean score is 3.78 for writing suitable AI prompts, which shows that some students need more practice in giving effective instructions to AI tools. Overall, the result shows that students have a good understanding and practical awareness of AI.

Table – 3: Digital Entrepreneurial Competencies

S. No.	Competency Statements	Mean	S.D.
1	Identifying business opportunities through digital platforms	4.02	0.76
2	Using social media for business promotion	4.15	0.70
3	Digital customer communication	4.08	0.73
4	Understanding customer needs through digital tools	3.91	0.82
5	Creating digital business content	3.88	0.85
6	Reaching customers through online platforms	4.12	0.72
7	Selecting suitable digital platforms	3.84	0.86
8	Solving business problems using technology	3.95	0.79
9	Using AI to improve business ideas	4.10	0.74
10	Adapting to new digital technology	4.06	0.77
11	Managing basic digital business activities	3.89	0.81
12	Using digital information for business decisions	3.93	0.80
Overall		**4.00**	**0.78**

Source: Primary Data

The overall mean score of Digital Entrepreneurial Competencies is 4.00 with a Standard Deviation of 0.78**.** This indicates that the students have a good level of digital entrepreneurial competencies**.** The highest mean score is 4.15 for using social media for business promotion. This shows that students are familiar with using social media for business-related activities. The lowest mean score is 3.84 for selecting suitable digital

platforms. This indicates that students may need more knowledge about choosing the right digital platforms for business. Overall, students have a good ability to use digital technology for entrepreneurial activities.

Table – 4: Entrepreneurial Intention

S. No.	Intention Statements	Mean	S.D.
1	I would like to start my own business	4.08	0.75
2	I am interested in becoming an entrepreneur	4.12	0.71
3	I consider entrepreneurship as a career	3.96	0.82
4	I am willing to develop my own business idea	4.01	0.77
5	I would like to identify business opportunities	4.05	0.73
6	I am willing to take reasonable business risks	3.72	0.91
7	I would use digital technology in my business	4.15	0.68
8	I would use AI in my future business	4.18	0.66
9	I am willing to learn entrepreneurial skills	4.20	0.64
10	I can imagine myself running a business	3.94	0.80
11	I prefer creating business opportunities	3.82	0.86
12	I intend to start a business after my studies	3.90	0.84
	Overall	**4.01**	**0.77**

Source: Primary Data

The overall mean score of Entrepreneurial Intention is 4.01 with a Standard Deviation of 0.77. This indicates that the students have a good level of entrepreneurial intention. The highest mean score is 4.20 for willingness to learn entrepreneurial skills. This shows that students are interested in developing the skills required for entrepreneurship. The lowest mean score is 3.72 for willingness to take business risks, indicating that students are comparatively less willing to take risks. Overall, the findings show that students have a positive interest in entrepreneurship and are willing to develop the skills needed to start a business.

Table – 5: Garrett Ranking – Factors Influencing Entrepreneurial Intention

S. No.	Factor	Rank
1	Digital Skills	I
2	Government Support	X
3	Business Idea	III
4	Entrepreneurial Education	V
5	Family Support	VII
6	Access to Digital Technology	IX
7	AI Knowledge	II
8	Financial Support	VIII
9	Confidence in Technology	IV
10	Market Opportunities	VI

Source: Primary Data

The Garrett Ranking results show that Digital Skills is ranked first among the factors influencing students' entrepreneurial intention. AI Knowledge is ranked second, followed by Business Idea and Confidence in Technology. This shows that students consider digital skills and AI knowledge important for developing entrepreneurial interest. Government Support is ranked tenth, indicating that it received the lowest rank among the selected factors. Overall, the ranking highlights the importance of digital and AI-related skills in encouraging students towards entrepreneurship.

VIII. Findings

- The gender-wise analysis shows that 52.2% of the respondents are male and 47.8% are female.
- The study shows that 58.3% of the respondents are in the age group of below 21-15 years, while 41.7% are below 20 years.
- The study shows that 67.8% of the respondents are undergraduate students, while 32.2% are postgraduate students.
- The overall mean score of Artificial Intelligence Literacy is 4.00, showing that the students have a good level of AI Literacy.

- The students show better awareness in using AI for finding information and improving their academic work.
- The overall mean score of Digital Entrepreneurial Competencies is 4.00, indicating that students have a good level of digital entrepreneurial skills.
- Students show good ability in using social media and online platforms for business activities.
- The overall mean score of Entrepreneurial Intention is 4.01, indicating that students have a good interest in entrepreneurship.
- Students show strong willingness to learn entrepreneurial skills and use AI in future business activities.
- The Garrett Ranking shows that Digital Skills is the first important factor influencing students' entrepreneurial intention, followed by AI Knowledge and Business Idea.

IX. Suggestions

- Colleges should conduct regular AI training programmes to improve students' knowledge and practical use of AI tools.
- Students should be given practical training in digital marketing, social media, online business platforms, and digital communication.
- Colleges should encourage students to use AI for developing new business ideas, identifying market opportunities, and solving business problems.
- Entrepreneurship courses should include practical activities such as business idea competitions, start-up projects, workshops, and mentoring.
- Students should be encouraged to develop confidence, creativity, problem-solving ability, and willingness to take reasonable risks for starting a business.

X. Conclusion

The study concludes that Artificial Intelligence Literacy and Digital Entrepreneurial Competencies are important for developing entrepreneurial interest among college students. The findings show that the students have a good level of AI Literacy, Digital Entrepreneurial Competencies, and Entrepreneurial Intention. Students are interested in using AI and digital technologies for business activities. Therefore, colleges should provide practical AI training, digital skill development, and entrepreneurship programmes to encourage students to develop their own business ideas and consider entrepreneurship as a career.

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