

Factors Influencing Technopreneurial Intention among University Students in West Jakarta

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Abstract

This study seeks to examine the influence of information and communication technology (ICT) self-efficacy, technopreneurial learning, and individual entrepreneurial orientation (Individual EO) on the technopreneurial intentions of university students in West Jakarta. The population comprises university students in West Jakarta who demonstrate an interest in entrepreneurship, particularly in technology driven ventures. A total of 130 respondents were selected through purposive sampling, with the criteria that participants must be students enrolled in universities in West Jakarta and have an interest in technopreneurial activities. Data were gathered using online Likert-scale questionnaires distributed via Google Forms, which were adapted from previously validated and reliable instruments. The data were then analyzed using Structural Equation Modeling (SEM) with the assistance of SmartPLS 4.1.1.6 software. The findings reveal that ICT self-efficacy has a positive but statistically insignificant effect on technopreneurial intention. In contrast, technopreneurial learning demonstrates a positive and significant effect on technopreneurial intention. Similarly, Individual EO is found to have a positive and significant influence on technopreneurial intention. In summary, although ICT self-efficacy does not have a direct significant impact, both technopreneurial learning and Individual EO play crucial roles in shaping technopreneurial intention among university students in West Jakarta.

Keywords: ICT self-efficacy, technopreneurial learning, individual EO, technopreneurial intention.

INTRODUCTION

In recent years, technological developments in Indonesia have shown an increasingly rapid trend. According to the survey from APJII, at the beginning of 2024 the number of internet users reached 79.5% of the population, an increase of 2.75% compared to early 2023. This rise in technology use has been proven to generate various impacts on daily life. These developments also indicate that Indonesia is beginning to require efficient and automated information technology systems (Arifin & Soelaiman, 2024).

This need is especially apparent in efforts to support entrepreneurial development and promote economic growth. Technological transformation has created a wide range of new opportunities, one of the most commonly discussed being technopreneurship, which combines technology with entrepreneurship. Technopreneurship is a distinct area within the field of entrepreneurship that focuses on the creation of new business ventures through the integration of technological capabilities and entrepreneurial skills. (Salhie & Al-Abdallat, 2022).

According to Hassan et al. (2020), entrepreneurship contributes significantly to job creation, economic development, higher productivity, and the promotion of innovation. However, the proportion of entrepreneurs in Indonesia is still relatively low at about 3.1% of the total population, with only an estimated 0.43% involved in technology-based ventures (Machmud, 2019). This finding is reinforced by a survey from APJII, which revealed that 76.71% of respondents had not used the internet for entrepreneurial activities, whereas only 23.29% had taken advantage of it.

This situation positions university student as a potential new driving force in leveraging technology to create business opportunities. The Development Studies Forum (FKP) organized by The SMERU Research Institute (2020) revealed that young people have a high level of interest and potential in entrepreneurial careers. However, among the 81% who are interested in entrepreneurship, only 8% actually run a business. This low proportion reflects the numerous challenges faced by youth in becoming entrepreneurs.

This phenomenon can be influenced by several factors, including the limited provision of entrepreneurial education, restricted access to technology, and insufficient facilities to develop digital entrepreneurial potential. (Putri, 2017) stated that entrepreneurship education not only provides theoretical foundations for entrepreneurial concepts but also shapes a person's attitudes, behaviors, and mindset toward entrepreneurship. Supporting this view, (Pérez et al., 2019) argued that implementing an entrepreneurial culture by integrating entrepreneurship education into the curriculum is an initial step aimed at inspiring students and equipping them with entrepreneurial attitudes and creative thinking skills, enabling them to identify opportunities and create new value. This is supported by the study of (Machmud et al. 2020), suggesting that higher levels of technopreneurship education are associated with stronger intentions to pursue technology-based entrepreneurial ventures. In contrast, (Choirunnisa et al. 2024) reported that the link between technopreneurial learning and technopreneurial intention is not statistically significant.

In addition, a lack of confidence in one's technological skills can influence university student psychological preparedness when facing entrepreneurial challenges. Self-efficacy is a key factor that affects how far individuals are willing to make an effort, persist, and control their behavior in order to achieve their goals (Marden & Hidayah, 2022). This view is reinforced by the study of (Koe et al., 2021), which indicates that individuals who are more confident in their ability to use technology tend to demonstrate stronger entrepreneurial intentions. However, (Koe et al. 2023) revealed that ICT self-efficacy does not significantly impact technopreneurial intention. Those who possess advanced technological skills are more inclined to pursue careers as technology professionals rather than engage in technopreneurship.

From another perspective, weaknesses in developing innovative, proactive, and risk-taking attitudes three key dimensions of Individual Entrepreneurial Orientation (Individual EO) show that many university student individuals are still hesitant to take advantage of digital business opportunities. In fact, risk-taking is a reflection of strong entrepreneurial character, where an individual possesses resilience and courage to start and manage a business without fear or anxiety about potential failure (Wijaya & Hidayah, 2022). Research by (Koe et al., 2021) indicates that individuals with innovative, proactive, and risk-taking characteristics tend to have higher intentions to engage in technology-based entrepreneurship. However, these findings are not entirely in line with the results of (Koe, 2016), which state that not all dimensions of Individual EO significantly influence entrepreneurial intention, as the risk-taking aspect does not show a meaningful relationship.

Based on these distinctions and drawing on several prior studies that mainly emphasize general entrepreneurial factors, such as the study by (Natalia & Rodhiah 2019), which

explored the effect of self-efficacy on entrepreneurial intention rather than ICT self-efficacy on technopreneurial intention, as well as the studies by (Willison & Rodhiah 2021) and (William & Rodhiah 2024), which examined entrepreneurial learning in a broader educational context instead of focusing on technology-driven entrepreneurship, it is clear that research specifically addressing technopreneurship is still relatively scarce. Therefore, this study seeks to analyze the effect of ICT self-efficacy on technopreneurial intention. Furthermore, it aims to investigate the direct impact of technopreneurial learning on technopreneurial intention and to examine the influence of Individual EO on technopreneurial intention. This research was conducted among university students in West Jakarta.

METHOD

This study employed a quantitative research method, with the population consisting of university students studying in West Jakarta. A total of 130 respondents were included as the research sample, selected using purposive sampling based on the criteria that respondents were university students who have an interest in entrepreneurial activities, particularly those related to technology-based ventures. The sample was further defined by four characteristics: age, gender, university location in West Jakarta, and academic major or faculty.

The ICT self-efficacy variable instrument was adapted from (Belmonte et al., 2022), using four indicators (Privacy and Security, Communication, Differentiation and Learning, Privacy and Security). The Technopreneurial Learning variable was adapted from (Belmonte et al. 2022) and measured using four indicators: perceived social norms, personal attraction, self-efficacy, and entrepreneurial intention. The Individual Entrepreneurial Orientation (EO) variable was adapted from (Bolton and Lane 2012) and consisted of three indicators: risk-taking, innovativeness, and proactiveness. Meanwhile, the Technopreneurial Intention variable was also adapted from (Belmonte et al., 2022) and measured using five indicators: readiness to take any action, professional goals, making every effort, determination, and serious consideration of becoming a technopreneur.

The research instrument used in this study was an online questionnaire distributed through Google Form. Responses were measured using a five-point Likert scale with the following options: strongly agree (5), agree (4), neutral (3), disagree (2), and strongly disagree (1).

This study employs SmartPLS version 4, applying a Structural Equation Modeling (SEM) approach using the Partial Least Squares (PLS) technique. The PLS-SEM framework consists of two main components, namely the inner model and the outer model (Hair et al., 2022). Convergent and discriminant validity tests were conducted to assess validity, while reliability was evaluated using Cronbach's Alpha and composite reliability, both of which met the required criteria for all variables and indicators. Furthermore, the evaluation of the inner model was carried out to determine the relationships among the variables examined in this study. The specification of the PLS model is presented as follows:

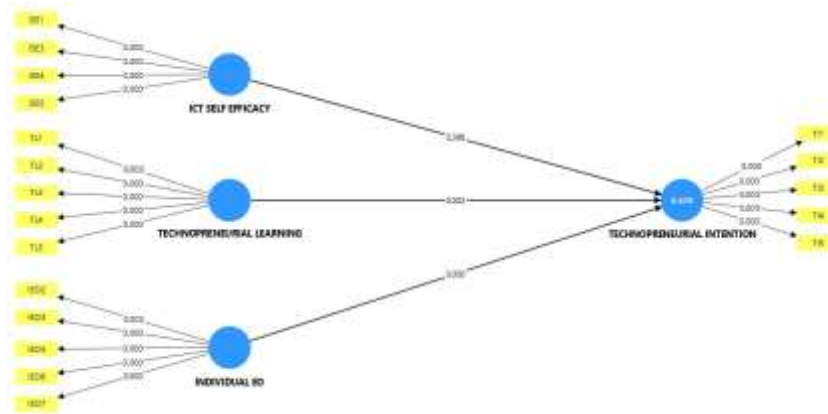


Figure 1. Research Model Specifications

RESULT AND DISCUSSION

There were 130 respondents in this research, consisting of university students currently pursuing higher education in the West Jakarta area and who have an interest in entrepreneurial activities. Based on the respondents age profile, 113 respondents or approximately 86.9% were within the 18–22 age category, while 17 respondents or about 13.1% were aged above 22 years. In terms of gender distribution, 40 respondents or around 30.8% were male, while 90 respondents or about 69.2% were female.

Regarding university affiliation, 68 respondents or 52.3% were students of Tarumanagara University, 30 respondents or 23.1% were from Trisakti University, 21 respondents or 16.2% were from Krida Wacana University, 8 respondents or 6.4% were from Bina Nusantara University, 1 respondent or 0.8% was from Raffles Jakarta, 1 respondent or 0.8% from Esa Unggul University, and 1 respondent or 0.8% from Universitas Terbuka.

Based on academic majors, 90 respondents or 69.2% were business management students, 28 respondents or 20.4% were accounting students, 3 respondents or 2.3% were psychology students, 2 respondents or 1.6% were communication science students, and 2 respondents or 2.5% were IT students. Additionally, 1 respondent or 0.8% majored in interior design, 1 respondent or 0.8% in information systems, 1 respondent or 0.8% in cyber security, 1 respondent or 0.8% in fashion design, and 1 respondent or 0.8% in computer science.

Outer Loading

Table 1. Convergent Validity Analysis

	Average Variance Extracted (AVE)
Individual EO	0.691
Technopreneurial Intention	0.732
Technopreneurial Learning	0.736
ICT self-efficacy	0.649

Source: SmartPLS processing

In table 1, convergent validity is assessed through the AVE values, which are all above 0.50, indicating that the requirement is met.

Table 2. Internal Consistency Reliability Analysis

	Cronbach's Alpha	Composite Reliability	Composite Reliability
Individual EO	0.889	0.893	0.918
Technopreneurial Intention	0.908	0.910	0.932
Technopreneurial Learning	0.910	0.912	0.933
ICT self-efficacy	0.819	0.836	0.880

Source: SmartPLS processing

In table 2, each item shows a composite reliability and Cronbach's alpha value > 0.60, indicating that the items are reliable for measuring the variable.

Inner Model

Table 3 Coefficient of Determination (R-Square)

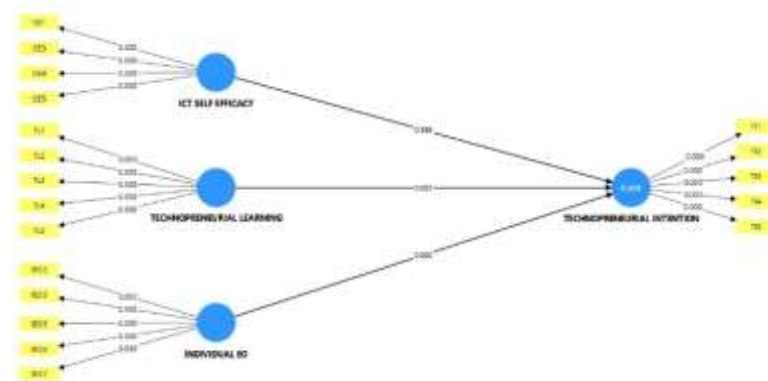
	R-Square	R-Square Adjusted
Technopreneurial Intention	0.638	0.630

Source: SmartPLS processing

Table 3 indicates that the coefficient of determination (R^2) for the Technopreneurial Intention variable is 0.630. This result suggests that 63% of the variation in Technopreneurial Intention can be explained by the independent variables included in this study, while the remaining 37% is attributable to factors not covered in the research model. Based on the criteria proposed by (Hair et al. 2022), this R^2 value is categorized as moderate.

Inner Model Testing

The testing of path coefficients is carried out to identify whether there is any influence among the variables examined in this study. The findings from the path coefficient analysis are shown in Figure 2, which illustrates the results of the bootstrapping procedure.

**Figure 2. Bootstrapping Test Result**

Based on the results of data analysis using SmartPLS 4, as illustrated in Figure 2, it can be observed that the majority of indicators have loading factor values greater than 0.7, which indicates that they are valid. However, six indicators ISE2, IEO1, IEO4, IEO8, IEO9, and IEO10 were removed because their loading factor values were < 0.7. After this elimination, all remaining indicators met the criteria for convergent validity, with each indicator having a loading factor value > 0.7.

The Table 4, Final Path Poefficient:

Table 4. Path Coefficient Result

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Individual EO → Technopreneurial Intention	0,494	0,491	0,077	6,382	0,000
Technopreneurial Learning → Technopreneurial Intention	0,319	0,317	0,103	3,114	0,002
ICT self-efficacy → Technopreneurial Intention	0,078	0,087	0,092	0,846	0,398

Source: SmartPLS Processing

There is 1 hypothesis that is rejected, namely the ICT self-efficacy variables on Technopreneurial Intention. Because the P value is > 0.398.

Based on Table 4, the path coefficient of 0.494, together with a T-statistic of 6.382 (exceeding 1.96) and a p-value of 0.000 (below 0.05), confirms a significant positive influence of Individual EO on Technopreneurial Intention. In addition, the examination of Technopreneurial Learning in relation to Technopreneurial Intention reveals a path coefficient of 0.319, a T-statistic of 3.114, and a p-value of 0.002, indicating a statistically significant positive association between the two variables. Meanwhile, the path coefficient of 0.078, along with a T-statistic of 0.846 and a p-value of 0.398, shows that ICT self-efficacy has a positive but not statistically significant effect on Technopreneurial Intention.

Based on these findings, ICT self-efficacy shows a positive yet statistically insignificant relationship with technopreneurial intention. This suggests that confidence in using information and communication technologies alone does not necessarily translate into a stronger intention to engage in technopreneurship. This result is in line with (Koe et al. 2022), who pointed out that an individual's technological confidence is not sufficient by itself to directly foster technopreneurial intention.

In contrast, technopreneurial learning demonstrates a positive and significant influence on technopreneurial intention. This is consistent with the findings of (Machmud et al. 2020), which confirmed that learning experiences related to technopreneurship play a vital role in shaping students' intentions to become technopreneurs. Similarly, (Hartiningtyas and Muna 2024) found that technopreneurial learning has a substantial impact on entrepreneurial intentions in the technology field. These results highlight that effective technopreneurial learning is a crucial factor in developing technology-oriented entrepreneurial intentions among students in the digital era.

It can be concluded that Individual EO positively and significantly influences technopreneurial intention. This result is in line with the findings of (Koe et al. 2021), who stated that individual entrepreneurial orientation has a positive and significant effect on technopreneurial intention. This conclusion is also supported by (Agung 2023), who found that Individual EO has a significant positive impact on technopreneurial intention. These findings suggest that individuals who possess strong entrepreneurial characteristics, such as

a tendency to take risks, proactive attitudes, and innovative thinking, are more likely to develop an intention to engage in entrepreneurship, particularly in technology-based fields.

CONCLUSION

Based on the findings of the data analysis and the discussion, several key conclusions can be formulated. First, ICT self-efficacy shows a positive relationship with technopreneurial intention among university students in West Jakarta however, this relationship is not statistically significant. This finding shows that although students may feel confident in their ability to use technology, such confidence alone is not sufficient to directly generate strong intentions to pursue technology based entrepreneurial activities. In relation to this, it is recommended that educational institutions and relevant stakeholders provide more structured programs that strengthen students' technological abilities and connect those abilities to real entrepreneurial practices, for example through workshops on digital product creation, training in the use of technology for business solutions, or activities that encourage students to solve problems using digital entrepreneurship experience. These efforts can help transform technological confidence into actual interest in technopreneurship.

Technopreneurial Learning has a positive and significant effect on Technopreneurial Intention. This means that the more diverse and in depth the learning experiences that students obtain through courses, mentoring, project work, and practical activities, the stronger their intention to engage in entrepreneurship within the technology sector. In accordance with this finding, universities are advised to expand the technopreneurship learning ecosystem by increasing the use of project-based learning, building cooperation with technology-based industries, offering internships in startup environments, and strengthening entrepreneurship incubator programs. These initiatives can provide practical experience and real exposure that supports the formation of strong technopreneurial intentions.

Individual Entrepreneurial Orientation was found to positively and significantly influence Technopreneurial Intention. This finding highlights that entrepreneurial trait such as innovativeness, proactiveness, and risk-taking willingness play a crucial role in shaping students' intentions to pursue entrepreneurship in the technology sector. Based on this, it is recommended that universities develop programs that stimulate creativity, courage, and innovation, for example through innovation challenges, creativity training, leadership development activities, and opportunities for students to test their ideas in an environment with minimal risk. These activities can strengthen entrepreneurial characteristics and increase student's readiness to pursue business opportunities based on technological innovation.

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