Nurturing Future Women TVETpreneurs: A Study on Female TVET Students' Entrepreneurial Intentions

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ABSTRACT

The Malaysian government's commitment to Technical and Vocational Education and Training (TVET) is crucial for promoting economic growth and reducing youth unemployment, particularly among women. Recognizing female TVETpreneurship as a pivotal pathway for economic empowerment and gender equality, this study aims to investigate the factors that influence female TVET students' entrepreneurial intentions. Based on the 104 female TVET students who participated in this study, the results indicate that role models, digital literacy, technology adoption, and access to resources are significant factors influencing female TVET students' entrepreneurial intentions, irrespective of whether they have taken formal entrepreneurship courses. The findings contribute to the existing body of literature and offer practical recommendations for TVET institutions, policymakers, and society. By equipping female TVET students with essential digital, technical, and entrepreneurial skills, this study contributes to Malaysia's long-term economic and social development, paving the way for a more inclusive and sustainable future for women.

KEYWORDS: Entrepreneurship, TVET, Female TVET students, Entrepreneurial intentions, Gender equality

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1. INTRODUCTION

In Malaysia, over 70% of employed graduates work in semi- and low-skilled jobs (FMT, 2025). To become a fully industrialized and developed nation, the government has prioritized Technical and Vocational Education and Training (TVET) as a strategic approach to developing a skilled workforce, as indicated by the Vocational Education Transformation Plan and Malaysia's Twelfth Plan 2021–2025. This has resulted in a steady increase in the number of TVET students and graduates, but at the expense of career opportunities. According to a recent report by Malaysia's Department of Statistics (DOS), the number of graduates in skill-related underemployment increased by 7.9% in 2022, reaching 1.68 million from 1.55 million in 2021 (HR Asia, 2023).

Employers' growing expectations, driven by rapid technological advancements, combined with TVET institutions' slow curricula adaptation (Husain et al., 2024; Low, 2023; Teoh et al., 2023), have resulted in job search barriers for many graduates, particularly in high-tech sectors such as artificial intelligence (AI), electric vehicles (EV), and welding across the key sectors of manufacturing, engineering, and technology. According to Teoh et al. (2024), young females are disproportionately affected, with a 13.39% higher unemployment rate compared to men (World Bank, 2023). Further, their involvement in professional and technical occupations remains comparatively lower at 41.5%, compared to 58.5% for men (Ajos, 2023). This trend is also evident in other developing countries transitioning to a knowledge-based economy.

Recognizing this challenge, the Malaysian government has promoted entrepreneurship as an alternative pathway for TVET graduates, introducing initiatives such as the National TVET Entrepreneurship Program and collaborating with SME Corporation and TEKUN Nasional to support business start-ups among TVET

alumni (Bernama, 2025). These efforts seek to capitalize on TVET graduates' technical competencies while fostering self-employment and job creation.

In this context, entrepreneurship education has become a key strategy for nurturing entrepreneurial aspirations and supporting new business ventures (Munawar et al., 2023). Studies have shown that incorporating entrepreneurship education into students' learning experiences can significantly improve their entrepreneurial skills, increase their likelihood of entrepreneurial success (Nabi et al., 2017), and reduce unemployment. Consistent with this, UNESCO-UNEVOC (2024) emphasizes the importance of prioritizing entrepreneurial skills training in TVET institutions to prepare contemporary workers and creative entrepreneurs to successfully contribute to post-pandemic recovery efforts and the advancement of sustainable communities.

Engaging TVET graduates in entrepreneurial activities is essential for accelerating national economic growth, creating employment opportunities, and alleviating unemployment (Alamineh, 2020; Donani et al., 2021). This is consistent with Teoh et al.'s (2024) assertion that encouraging female TVET students to pursue entrepreneurship is crucial for economic resilience. It is therefore paramount to empower female TVET students through entrepreneurship, which has the potential to contribute to national development while also promoting gender inclusivity in traditionally male-dominated technical fields.

Despite women owning 21% of businesses and contributing considerably to Malaysia's gross domestic product (GDP) (VSDaily, 2025), female TVET students confront a number of obstacles that stifle their entrepreneurial intentions. Many TVET programs largely focus on technical skills (such as operating machinery, writing code, or performing laboratory tests) while offering limited entrepreneurial training (Lindner, 2020; Martini, 2024), leaving graduates unprepared for self-employment or business ventures. Furthermore, societal norms, gender biases (Meyer et al., 2017; Padi et al., 2022), and financial constraints (Gul, 2022; Mosisa, 2016) have further discouraged female TVET students from pursuing entrepreneurship, particularly in male-dominated technical fields. In addition, the lack of role models (Abbasianchavari & Moritz, 2021), mentoring (Rofa & Ngah, 2024), industry exposure (Hasan, 2023; Markova, 2025), digital literacy (Martini, 2024), and resource accessibility (Ndou et al., 2024) impede their ability to leverage business opportunities. These have further hampered female TVET students' participation in entrepreneurship.

Teoh et al. (2023) pointed out that the current literature does not adequately address frameworks that integrate both technical and entrepreneurial skill development and are targeted to female TVET students' specific needs. While previous studies have explored entrepreneurial intention among university students, relatively few have focused on female TVET students, whose educational and socio-economic contexts differ substantially. Although previous research has examined personality traits, perceptual, or motivational aspects associated with entrepreneurial intentions (Farrukh et al., 2019), they are often done in isolation without an integrated framework. There remains a notable lacuna in research on entrepreneurship intention among female TVET graduates. While research suggests that factors such as entrepreneurial exposure, mentorship, digital literacy, curriculum design, technology adoption, and resource access are important (Brush et al., 2009; Fayolle & Gailly, 2015; Liñán & Chen, 2009; Minniti & Nardone, 2007; Nabi et al., 2017; Rauch et al., 2005; Souitaris et al., 2007; St-Jean & Audet, 2012; Wilson et al., 2007), little is known about their specific effects on female TVET students. Most research on this group focuses on personality traits, as examined by Wang and Liu (2024) and Wu and Tian (2022). As a result, understanding the distinct behaviors and challenges encountered by female TVET graduates remains limited. Given TVET's practice-oriented and industry-aligned nature, their experiences, motivations, and obstacles may differ from those of female university graduates, underscoring the need for a more comprehensive analysis of entrepreneurial intentions in this specific context.

This study addresses this gap by investigating how factors such as human capital (entrepreneurial exposure, mentorship, role models, and curriculum design), technological (digital literacy, technology adoption), and resource-based (access to resources) influence entrepreneurial intentions among female TVET students. Understanding these relationships is important because these determinants may interact differently for this group. Such insights are vital for developing a future-ready workforce equipped to navigate future challenges, thereby contributing to Malaysia's economic growth and achieving the goals outlined in the National Entrepreneurship Policy 2030.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 Entrepreneurial Exposure and Entrepreneurial Intention

Entrepreneurial exposure can influence an individual's entrepreneurial intentions and behavior (Cieślik & van Stel, 2017). Entrepreneurial exposure, including having entrepreneurial parents, may spark an individual's interest in entrepreneurship (Peterman & Kennedy, 2003; Tarling et al., 2016; Zapkau et al., 2015, 2017). Stel (2017) discovered that students with a family business background have higher levels of entrepreneurial intention than those without one.

In addition, entrepreneurship education and prior start-up experience are important elements for an individual to behave entrepreneurially (Malebana & Mothibi, 2023). Patel et al. (2024) found that entrepreneurship programs organized at the university have a significant effect on most students' increased entrepreneurial intention. Active and experiential teaching methods can aid in facilitating the formation of entrepreneurial intention (Tshehla et al., 2021; Yang & Kim, 2020). In addition, Kimathi et al. (2021) observed that entrepreneurial exposure through interactions with guest speakers, practicing entrepreneurs, and networking opportunities has a significant impact on TVET graduates' entrepreneurial intentions. Research suggests that providing students with practical insights and inspiration can help them overcome barriers and build confidence, leading to increased motivation to engage in entrepreneurship (Galvão et al., 2018; Hockerts, 2017; Malebana & Mothibi, 2023).

However, Zhang et al. (2015) found that previous experiences in entrepreneurship can significantly diminish individuals' intentions to pursue entrepreneurial ventures. This is because prior start-up experiences, especially those involving business failure or significant challenges, can weaken self-efficacy, increase perceived risks, and undermine confidence in achieving business success. For female students, such experiences may be even more pronounced due to existing gender-related barriers such as limited access to entrepreneurial networks, societal expectations, and lower perceived access to resources (Shinnar et al., 2012). As a result, negative antecedent experiences may reinforce self-doubt and risk aversion. Even when female TVET students participate in entrepreneurship education or training, these issues may diminish their entrepreneurial intentions.

2.2 Mentorship and Entrepreneurial Intention

Mentoring is a process by which an experienced entrepreneur or professional provides guidance and support to a mentee in developing the essential skills and knowledge needed to advance in their career (Xiao & North, 2017).

Mentors, both formal and informal, can provide students with valuable practical insights, feedback, advice, and assist them in finding and seizing business opportunities (Dilshodovich, 2023), as well as developing their entrepreneurial skills, knowledge, and attitudes (Daragmeh & Halabi, 2023; Wilbanks, 2013). Besides, it also fosters their personal growth and enhances their entrepreneurial maturity, resulting in a positive attitude toward entrepreneurship (Audet & Couteret, 2012; Sullivan, 2000; Teoh & Chong, 2007). As a result, mentorship can have an indirect impact on the development of entrepreneurial potential among students (Hossain et al., 2023), especially female students (Mishra et al., 2024) and their intention to become entrepreneurs (Huszak & Oborni, 2022). Prior studies (e.g., Baluku et al., 2019; Hoang et al., 2024; Nabi et al., 2017) reveal a strong correlation between mentorship and entrepreneurial intention. While mentors are especially important for female students as they support them in navigating challenges, building confidence, and developing an entrepreneurial mindset (St-Jean et al., 2018), Rofa and Ngah (2024) point out that a lack of mentorship is a significant barrier for them.

2.3 Role Models in TVET and Entrepreneurial Intention

Role models, such as family members, friends, and colleagues, play an important role in inspiring and guiding individuals by sharing their entrepreneurial experiences, behaviors, and practices that contribute to an individual's entrepreneurial success within their social environment (Abbasianchavari & Moritz, 2021). This influence can motivate those around them (Fornahl, 2003), enhance individual self-efficacy, and reduce fear of failure (Murari & Pathak, 2022). Parental role models, in particular, can serve as an instrumental guide for children to pursue entrepreneurial paths (Staniewski & Awruk, 2021). For instance, children of entrepreneurial mothers who regard their mothers as positive and successful role models are more likely to emulate their entrepreneurial behaviors (Brennan et al., 2003).

Specifically, Roslan et al. (2020) highlight the importance of role models within TVET institutions in shaping students' entrepreneurial intentions. The influence of role models can vary between men and women. Research suggests that women tend to be less confident in entrepreneurship (Shinnar et al., 2014), and their entrepreneurial intention tends to be lower than their male counterparts (Nowiński & Haddoud, 2019; Zhao et al., 2005). Despite this, female students benefit greatly from gender-specific role models, which inspire them to view entrepreneurship as a viable career path (Greene et al., 2013; Roslan et al., 2020). Research also shows that female students' entrepreneurial intentions are significantly correlated with personally knowing businesspeople in the family (Montes et al., 2025).

However, several studies indicate that exposure to successful business role models in academic settings positively influences students' entrepreneurial aspirations (Barnir et al., 2011; Zhang et al., 2015). Such exposure can be effectively facilitated through guest lectures and interactions with practicing female entrepreneurs, since these individuals provide real-life success stories, practical insights, and true experiences of overcoming obstacles. This enables students to observe and interact with inspiring entrepreneurs, while also providing them with business information, experiential learning, and practical insights into entrepreneurship (Boldureanu et al., 2020; O'Gorman, 2019; Passavanti et al., 2024; Saoula et al., 2025).

2.4 Digital Literacy and Entrepreneurial Intention

Digital literacy refers to the ability to effectively use digital tools and technologies to access, manage, and generate information (Reddy et al., 2020; Reddy et al., 2023). It includes proficiency in computing tools, which is essential for students as it allows them to access online business resources and make both informed and data-driven decisions (Van Laar et al., 2017). This skill is especially crucial for female students, who often encounter challenges related to traditional gender roles and have limited access to entrepreneurial networks, as well as in today's entrepreneurial ventures.

Research reveals that individuals, particularly students, with higher digital literacy are more likely to recognize entrepreneurial opportunities (Setiawati et al., 2022; Suryani & Chaniago, 2023) because they can better identify market trends, customer needs, and digital solutions (Nguyen et al., 2015; Hasanah & Setiaji, 2019). Because of this, Suryani and Chaniago (2023) recommend that vocational students, including females, should consistently devote time to strengthening their digital technology skills as part of their entrepreneurial development. Mastering key digital tools such as accounting software, cloud services, and digital marketing platforms enhances students' confidence and self-efficacy, as both are significant predictors of entrepreneurial intention (Alt & Raichel, 2020; Bandura, 1997; Sahut et al., 2021). It could help students towards starting an entrepreneurial project (Lv et al., 2021; Tomy & Pardede, 2020) and encourage creativity (Alt & Raichel, 2020). In addition, digital literacy helps to reduce barriers to entrepreneurship, such as the intricacies of financial management and marketing, which might otherwise deter aspiring entrepreneurs. Strengthening digital competencies, therefore, plays a pivotal role in cultivating future female TVETpreneurs, particularly in technology-driven economies.

2.5 Curriculum Design and Entrepreneurial Intention

Curriculum design is a significant predictor of students' entrepreneurial intentions (Biemans et al., 2014). Entrepreneurship curricula and resources in schools or universities significantly contribute to cultivating positive attitudes and behaviors toward entrepreneurship. Students will have a better grasp of business start-ups and the support services available (Katundu & Gabagambi, 2016).

Moreover, the entrepreneurship education framework and structure at TVET institutions play an essential role in shaping students' entrepreneurial aspirations. Existing research confirms that effective entrepreneurship curricula that emphasize the adoption of practical-oriented and experiential learning approaches (Otache et al., 2020) equip students with the necessary knowledge and skills to develop an entrepreneurial mindset (Lackéus & Sävetun, 2018; Purwanti et al., 2024). The TVET curriculum also incorporates entrepreneurship education with essential skills such as teamwork, problem-solving, and innovation (Masri et al., 2021). Furthermore, by integrating practical elements like business plan competitions, role-playing, project methods, internships, and cooperative programs, TVET institutions can foster entrepreneurial aspirations and prepare students for the reality of business ventures (Gavigan, 2021).

According to Kariv et al. (2025), female students may reject entrepreneurship as a career option if the curriculum design does not reflect their real-world entrepreneurial experience. In this context, a well-designed curriculum can lay the foundation for entrepreneurial intention, shaping female students' attitudes and beliefs toward entrepreneurship. Kariv et al.'s (2025) work implies that curriculum design should consider gender, since female students may encounter specific problems and opportunities that differ from their male counterparts. These include disparities in access to resources, risk perception, and confidence levels, all of which are influenced by cultural norms and societal expectations. Entrepreneurship education can be more appealing to female students by incorporating gender-sensitive elements, such as showcasing diverse female role models, addressing barriers faced by women entrepreneurs, and providing experiential learning opportunities that mirror real-world scenarios. This approach fosters a more inclusive learning environment that encourages them to consider entrepreneurship as a viable career path.

2.6 Technology Adoption and Entrepreneurial Intention

The adoption of cutting-edge technology has a significant impact on female TVET students' entrepreneurial intentions since it provides them with essential tools for innovation and competitiveness in today's dynamic marketplace (Rogers, 2003). The integration of emerging technologies such as AI, machine learning (ML), big data analytics, and the Internet of Things (IoT) can considerably boost their entrepreneurial aspirations. By harnessing these advanced technologies, students can develop distinctive and innovative products and services tailored to meet consumers' evolving needs.

This notion is further supported by Ajzen's (1991) Theory of Planned Behavior (TPB), which states that individuals who are well-versed and comfortable with technological tools are likely to regard themselves as capable entrepreneurs. This instills strong confidence in their abilities to launch and run successful ventures, thus empowering them to take initiative and actively pursue their business goals (Chen, 1997). Such empowerment has facilitated individual growth and contributed to a more diverse and dynamic entrepreneurial landscape (Melissa et al., 2015). Similarly, Zenebe et al. (2017) report

that students demonstrate a strong entrepreneurial tendency when they adopt information technology and possess related knowledge.

2.7 Access to Resources and Entrepreneurial Intention

According to Alzamel et al. (2019, p. 77), access to resources is "the ease with which individuals can access and utilize resources needed to support and progress the entrepreneurial career". Financial support, operational tools, and comprehensive training programs are all important resources influencing entrepreneurial success. Extensive research indicates that having access to a variety of financial resources, such as bank loans, private and public grants, personal savings, and diverse funding opportunities, has a significant impact on female students' entrepreneurial intentions (Alzamel et al., 2019; Mishra et al., 2024; Rusu et al., 2022). Chowdhury (2017) provides evidence to support the notion, indicating that access to funding influences and positively shapes the key factors that develop entrepreneurial mindsets and intentions. Similarly, Islam (2021) reveals that accessible funding opportunities can considerably boost entrepreneurial intentions and help to pave the way for aspiring entrepreneurs to turn their ideas into viable businesses.

In addition, strategic alliances between financial institutions, government agencies, and educational establishments can lead to a more supportive environment for potential entrepreneurs (Shahriar et al., 2024). TVET institutions act as an important platform in this ecosystem, offering a variety of support services, including targeted financial aid, start-up support, infrastructure, and specialized entrepreneurship education and training programs. These initiatives are designed to help female students overcome societal and economic barriers and, hence, encourage a more positive outlook toward entrepreneurship (Cheng & Liao, 2017; Mishra et al., 2024).

The constructs examined in this study are conceptually mapped to TPB's three core dimensions, namely attitude toward entrepreneurship, subjective norms, and perceived behavioral control. Entrepreneurial exposure, curriculum design, and technology adoption are all linked to attitudes toward entrepreneurship since they shape individuals' perceptions, interests, and positive evaluations of entrepreneurial activities. Mentorship and role models correspond to subjective norms, which represent the social influences and support that encourage entrepreneurial behavior. Meanwhile, digital literacy and access to resources are associated with perceived behavioral control, reflecting individuals' confidence, skills, and perceived ability to engage in entrepreneurial ventures. Collectively, these constructs constitute a comprehensive TPB-based framework for understanding the factors influencing the entrepreneurial intention of female TVET students. **Figure 1** depicts how these variables interact to construct an integrated framework explaining the determinants of entrepreneurial intention among female TVET students. Based on the framework, the following hypotheses are formulated:

H1: There is a significant relationship between entrepreneurial exposure and entrepreneurial intention of female TVET students.
H2: There is a significant relationship between mentorship and entrepreneurial intention of female TVET students.
H3: There is a significant relationship between role models and entrepreneurial intention of female TVET students.
H4: There is a significant relationship between digital literacy and entrepreneurial intention of female TVET students.
H5: There is a significant relationship between curriculum design and entrepreneurial intention of female TVET students.
H6: There is a significant relationship between technology adoption and entrepreneurial intention of female TVET students.
H7: There is a significant relationship between access to resources and entrepreneurial intention of female TVET students.

3. METHODOLOGY

This study employed a quantitative research design using a cross-sectional survey approach to examine the seven hypotheses formulated. Data were collected at a single point in time from final-year female undergraduate students at Universiti Teknikal Malaysia Melaka (UTeM). UTeM was chosen for this study because it is a public technical university that is part of the Malaysian Technical University Network (MTUN). It offers a variety of TVET-related programs in engineering, information technology, and technology management. Notably, a high proportion of female students are enrolled in technical fields. Furthermore, UTEM's active entrepreneurship initiatives, such as student business incubators, industry-linked projects, and collaborations with government agencies, make it an ideal setting for examining female TVET students' entrepreneurial intentions.

A self-administered structured questionnaire with a Google Form link was distributed online via WhatsApp and LinkedIn over three months. The students provided prior consent and were assured that their confidentiality and anonymity would be preserved. The questionnaire, which comprised validated scales adapted from prior studies along with the input from three academic experts and one industrial expert, was organized into three sections: demographic information, predictor variables (including entrepreneurial exposure, mentorship, role models, digital literacy, curriculum design, technology

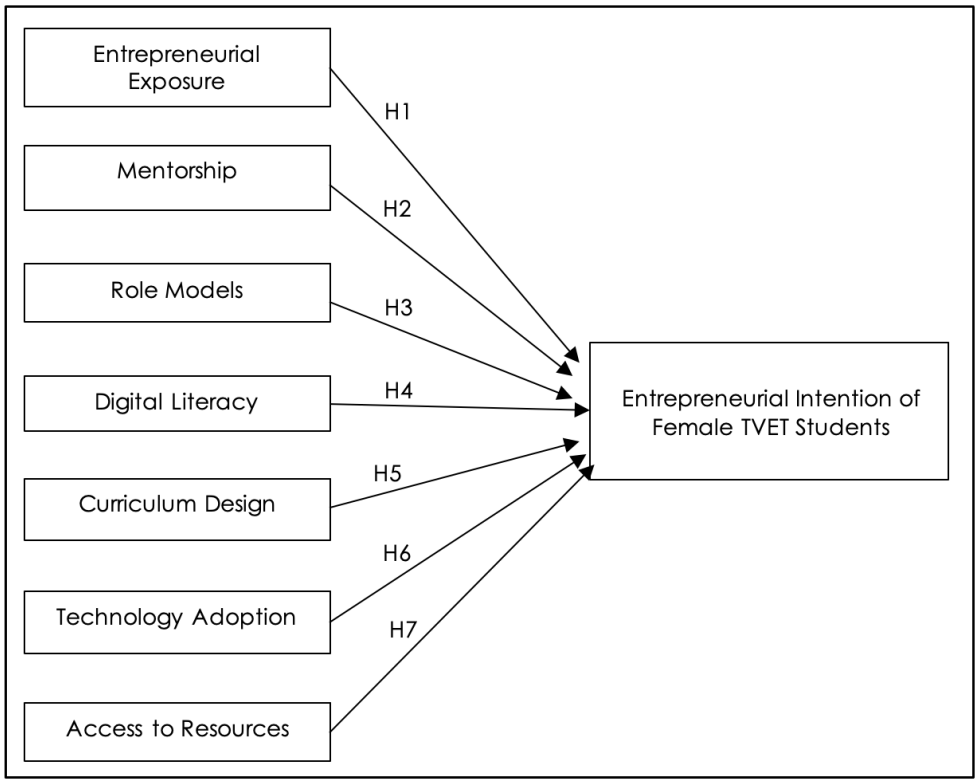

Figure 1: *Research model on entrepreneurial intention of female TVET students*

adoption, and access to resources), and the dependent variable (entrepreneurial intention). Responses were scored using a nominal scale and a 5-point Likert scale. The measurements focused on several key areas. Entrepreneurial exposure was rated on a binary scale, ranging from 0 (no) to 1 (yes), based on Peterman and Kennedy's (2003) work. Mentorship (Baluku et al., 2019) was measured on a scale from 1 (never) to 5 (always). Both role models and curriculum design were assessed using the same scale of 1 (strongly disagree) to 5 (strongly agree), taken from Ooi et al. (2011). Digital literacy was measured using Ng's (2012) work on a scale of 1 (not confident) to 5 (highly confident). Technology adoption, based on Radzi et al. (2017), ranged from 1 (rarely) to 5 (very frequently). Access to resources, as outlined by Aragon-Sanchez et al. (2017), was rated from 1 (no access) to 5 (full access). Entrepreneurial intention was measured by adapting Liñán et al.'s (2011) items, rated from 1 (strongly disagree) to 5 (strongly agree).

A total of 104 valid responses were obtained. Although the sample was limited to one institution, the respondents represented a diverse range of academic programs, providing a relevant context for understanding entrepreneurial intention in a localized university setting. Although the sample size appears modest, it is considered adequate for multivariate analysis, as recommended by Hair et al. (2019), who suggest a minimum ratio of five respondents per estimated parameter. Additionally, based on Cohen's (1992) statistical power analysis, this sample size achieves sufficient power (≥ 0.80) for medium effect sizes at a significance level of 0.05. Since the total population of female TVET students in Malaysia is not precisely known, Krejcie and Morgan's (1970) sample size determination table (n = 384) is not applicable in this study.

The data were analyzed using IBM SPSS Statistics version 29. Reliability analysis, using Cronbach's alpha, was performed to assess the scales' internal consistency. Descriptive statistics were used to summarize the demographic data. Additionally, the mean and standard deviation were computed to describe the dataset by indicating its central tendency and the extent of variability, providing a comprehensive overview of the data distribution. Subsequently, multiple regression analysis was performed to examine the relationships between the independent variables and entrepreneurial intention in female TVET students. Structural Equation Modeling (SEM) was not employed in this study due to the relatively small sample size, which may not provide stable or reliable parameter estimates for complex structural models.

4. RESULTS

Table 1 displays the pilot study results of the reliability test, which included 30 respondents. To improve

reliability and consistency among the items, two items related to entrepreneurial exposure (EX4 and EX5) were eliminated. The initial six-item technology adoption scale yielded a Cronbach's alpha of 0.913. However, items TA4, TA5, and TA6 showed low factor loadings and were removed. The revised three-item scale produced a Cronbach's alpha of 0.895. The refined version was retained for the main study. Overall, all variables met the criteria, with a Cronbach's alpha exceeding 0.70, indicating a strong level of internal consistency among the constructs (Hair et al., 1998).

Table 1: *Reliability test for pilot study*

Variable	Cronbach's Alpha
Entrepreneurial Exposure	0.719
Mentorship	0.947
Role Models	0.924
Digital Literacy	0.904
Curriculum Design	0.967
Technology Adoption	0.895
Access to Resources	0.942
Entrepreneurial Intention	0.934

Exploratory factor analysis (EFA) was performed on each construct to check whether the items measured a single concept, as shown in **Table 2**. The Bartlett test of sphericity was highly significant, and the Kaiser-Meyer-Olkin (KMO) value for the independent variables was greater than 0.60, indicating that the data were suitable for factor analysis. Seven independent factors were extracted, each with eigenvalues greater than 1.0 and accounting for 49.62% and 82.76% of the total variance. Although the total variance explained by entrepreneurial exposure is slightly below the often-suggested 50% threshold (Hair et al., 2019), it is deemed acceptable for exploratory research in social sciences where human behavior is inherently complex (Peterson, 2000).

All items had factor loadings of 0.50 or greater and were grouped within their factors, except for technology adoption, where three items were removed due to low factor loadings below 0.50. The dependent variable showed similar results, with 78.81% of the variance explained, a KMO of 0.90, and factor loadings ranging from 0.85 to 0.92.

Based on **Table 3**, the respondents' mean age was 23.5 years (SD = 1.2), corresponding to the typical age range for final-year undergraduate students. The majority (52.9%) identified as Malays, with most specializing in engineering (33.7%). The vast majority of respondents claimed no prior business experience (78.8%) and no family background in business (77.9%). Furthermore, a sizeable proportion of respondents came from urban areas (65.4%) and were single (99%). Among them, 73.1% had completed formal entrepreneurship courses, with most enrolling in their first and third years (26% each). Approximately 77.9% of them had never participated in any business competitions or boot camps.

Further analysis using an independent samples t-test, as presented in **Table 4**, revealed no statistically significant difference in entrepreneurial intention between students who had taken a formal entrepreneurship course and those who had not ($p > 0.05$).

Table 2: *Exploratory factor analysis for independent and dependent variables*

Construct	No. of Items	KMO	Bartlett's Test χ^2(df), p	No. of Factors Extracted	Variance Explained (%)	Factor Loadings Range
Entrepreneurial Exposure	4	0.691	57.444 (6), $p < .001$	1	49.627	0.624–0.807
Mentorship	7	0.867	460.701 (21), $p < .001$	1	64.480	0.682–0.896
Role Models	6	0.878	487.835 (15), $p < .001$	1	73.793	0.790–0.919
Digital Literacy	6	0.883	410.014(15), $p < .001$	1	69.949	0.755–0.895
Curriculum Design	6	0.916	591.143(15), $p < .001$	1	80.170	0.871–0.931
Technology Adoption	3	0.723	190.710(3), $p < .001$	1	82.756	0.886–0.938
Access to Resources	6	0.881	375.674(15), $p < .001$	1	68.499	0.779–0.865
Entrepreneurial Intention	6	0.903	586.943(15), $p < .001$	1	78.808	0.848–0.919

Table 3: *Demographic profile of respondents*

Variables	Classification Variables	n	%
Age	Mean = 23.5; SD = 1.2		100.0
Ethnicity	Malay	55	52.9
	Chinese	35	33.7
	Indian	12	11.5
	Others	2	1.9
Area of Specialization in TVET	Technical	11	10.6
	Vocational	5	4.8
	Engineering	35	33.7
	Business	29	27.9
	IT & Communication	21	20.2
	Others	3	2.9
Prior Business Experience	No	82	78.8
	Yes	22	21.2
Family Background in Business	No	81	77.9
	Yes	23	22.1
Residential Area	Urban	68	65.4
	Rural	36	34.6
Marital Status	Single	103	99.0
	Married	1	1.0
Any Formal Entrepreneurship Courses Taken	No	28	26.9
	Yes	76	73.1
Entrepreneurship Education Level of Study	First Year	27	26.0
	Second Year	10	9.6
	Third Year	27	26.0
	Fourth Year	21	20.2
	Others	19	18.3
Participated in Business Competition/Bootcamp	No	81	77.9
	Yes	23	22.1

Table 4: *Results of independent samples t-test*

		Levene's Test for Equality of Variances		T-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-sided p	Two-sided p	Mean Difference	Std. Error Difference	Lower	Upper
EI	**Equal variances assumed**	3.146	.079	-2.587	102	0.006	0.011	-.52352	.20241	-.92500	-.12205
	Equal variances not assumed			-2.733	57.3	0.004	0.008	-.52352	.19153	-.90702	-.14003

Note: EI = Entrepreneurial intention

Table 5 shows the mean and standard deviation scores for all items grouped under each variable (see Appendix for full item wordings). Among the variables, technology adoption recorded the highest mean score, followed by curriculum design and role models. Overall, all standard deviation values are below 1.00, implying a high level of consistency in the respondents' responses to this study.

Table 6 depicts the association between the independent variables and entrepreneurial intention among female TVET students. The variation inflation factor (VIF) values are less than 10, suggesting that multicollinearity is not a significant concern, thereby confirming the suitability of the variables for regression analysis (Hair et al., 2019). With an R2 value of 52.5%, four variables, namely role model (p=0.029), digital literacy (p=0.022), technology adoption (p=0.050), and access to resources (p=<0.001), are significantly associated with entrepreneurial intention among female TVET students. As such, H3, H4, H6, and H7 are accepted, whereas H1, H2, and H5 are not accepted. **Table 7** presents a summary of the results of the hypothesis testing.

Table 5: *Mean and standard deviation scores for all the variables*

Variables	Mean	Standard Deviation
EX1	0.21	0.410
EX2	0.51	0.502
EX3	0.25	0.435
EX6	0.43	0.498
Entrepreneurial Exposure	**0.35**	**0.324**
M1	3.51	0.954
M2	3.01	0.128
M3	3.18	1.077
M4	3.60	1.010
M5	3.10	1.119
M6	2.80	1.169
M7	3.11	1.157
Mentorship	**3.19**	**0.873**
RM1	3.50	1.115
RM2	3.51	1.061
RM3	3.54	1.097
RM4	3.57	1.031
RM5	3.49	1.024
RM6	3.50	1.097
Role Models	**3.52**	**0.919**
DL1	3.12	0.851
DL2	3.49	1.014
DL3	3.55	1.004
DL4	3.42	1.058
DL5	3.56	0.933
DL6	3.61	1.037
Digital Literacy	**3.46**	**0.823**
CD1	3.62	0.896
CD2	3.53	0.859
CD3	3.64	0.891
CD4	3.69	0.860
CD5	3.75	0.845
CD6	3.62	0.948
Curriculum Design	**3.64**	**0.790**
TA1	3.92	0.900
TA2	4.01	0.887
TA3	3.94	0.879
Technology Adoption	**3.96**	**0.808**
ATR1	3.33	1.092
ATR2	3.55	1.004
ATR3	3.09	1.183
ATR4	3.56	0.954
ATR5	2.92	1.267
ATR6	3.13	1.207
Access to Resources	**3.26**	**0.927**
EI1	3.45	0.994
EI2	3.38	1.072
EI3	3.30	1.096
EI4	3.61	0.999
EI5	3.13	1.175
EI6	3.37	1.089
Entrepreneurial Intention	**3.37**	**0.951**

Table 6: *Multiple regression results between independent variables and entrepreneurial intention among female TVET students*

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	β			Tolerance	VIF
(Constant)	0.275	0.359		0.766	0.445		
Entrepreneurial Exposure	-0.102	0.267	-.028	-0.382	0.704	.904	1.106
Mentorship	-0.100	0.122	-.092	-0.822	0.413	.395	2.532
Role Models	0.259	0.117	.250	2.219	0.029	.388	2.577
Digital Literacy	0.330	0.141	.285	2.332	0.022	.330	3.029
Curriculum Design	-0.253	0.166	-.210	-1.520	0.132	.258	3.869
Technology Adoption	0.246	0.124	.209	1.984	0.050	.904	1.106
Access to Resources	0.414	0.115	.404	3.601	<.001	.394	2.539

Note: $F = 15.169$ ($p < .001$); $R^2 = 0.525$.

Table 7: *Summary of hypothesis testing*

Hypothesis	Relationship	Result			Result
		β Value	t Value	p Value	
H1	Entrepreneurial Exposure → Entrepreneurial Intention	-.028	-0.382	0.704	Reject
H2	Mentorship→ Entrepreneurial Intention	-.092	-0.822	0.413	Reject
H3	Role Models→ Entrepreneurial Intention	.250	2.219	0.029	Accept
H4	Digital Literacy→ Entrepreneurial Intention	.285	2.332	0.022	Accept
H5	Curriculum Design→ Entrepreneurial Intention	-.210	-1.520	0.132	Reject
H6	Technology Adoption→ Entrepreneurial Intention	.209	1.984	0.050	Accept
H7	Access to Resources→ Entrepreneurial Intention	.404	3.601	<.001	Accept

Note: "→" indicates a hypothesised direct effect from the independent variable to the dependent variable.

5. DISCUSSION

It is worth noting that the mean score for entrepreneurial intention was relatively low (3.37), implying that many of these students intend to seek employment rather than entrepreneurship after graduation. The low score for entrepreneurial exposure (0.35) can be attributed to the fact that 79% of the students reported having no prior business experience, and 78% did not have entrepreneurial family members or participate in business competitions or bootcamps. This may also imply that the entrepreneurship course is taken primarily to fulfill the graduation requirement.

Despite the small sample size, the findings offer insight into the entrepreneurial intentions of female TVET students. Among the seven independent variables, role models, digital literacy, technology adoption, and access to resources significantly influence female TVET students' entrepreneurial intentions (**Table 6**), regardless of whether they have taken formal entrepreneurship courses (**Table 5**). Although substantial research suggests that equipping TVET students with the requisite knowledge, skills, and tools can help them become successful entrepreneurs (Bahaw et al., 2024; Giones & Miralles, 2020), course attendance alone may not be a determining factor influencing female TVET students' entrepreneurial intention (Botha et al., 2021; Sitaridis & Kitsios, 2017).

While mean scores greater than 3.50 for technology adoption and role models corroborate the findings, this was not true for digital literacy (3.46) and access to resources (3.26). Entrepreneurial exposure, mentorship, and curriculum design, on the other hand, showed no statistically significant influence, despite curriculum design recording an average mean score of 3.64. Previous findings (Dilshodovich, 2023; Malebana & Mahlaole, 2023; Sisu et al., 2024) contradict the notion that entrepreneurial exposure and mentorship are insignificant. Mentoring not only facilitates the development of specific knowledge but also encourages students to act in looking for and seizing business opportunities, thereby increasing their entrepreneurial intentions. However, in this study, the insignificance of these factors is comprehensible given the limited exposure and the fact that mentorship is not regarded as important when these female TVET students do not intend to become entrepreneurs. Curriculum design may be viewed as moderately important, but it does not appear to foster entrepreneurial behavior, since emphasis is given to technical competencies rather than entrepreneurial mindsets and soft skills, limiting its effectiveness (Ndofirepi, 2020). To some extent, the findings contradict existing theories on the factors that influence entrepreneurial intention (Iwu et al., 2021; Najmudin et al., 2024), but they may be relevant to the female TVET students' context.

The significant influence of role models on entrepreneurial

intention (H3) is consistent with prior studies that have highlighted the importance of observational learning and social influence in the formation of entrepreneurial attitudes (Barnir et al., 2011; Rofa & Ngah, 2024; Roslan et al., 2020; Zhang et al., 2015). Female students, particularly in male-dominated fields like TVET, may acquire motivation and confidence by observing successful female entrepreneurs with similar backgrounds, reinforcing the belief that entrepreneurship is a viable option. Moreover, exposure to role models, including professors and successful entrepreneurs associated with the university, can also influence students' entrepreneurial intentions as these role models provide valuable training, share expertise, and offer advice to help students cultivate their entrepreneurial potential (Rofa & Ngah, 2024).

As hypothesized in H4, the importance of digital literacy as a significant predictor aligns with prior research identifying digital competency as a key enabler for entrepreneurship in the digital age (Alt & Raichel, 2020; Bandura, 1997; Suryani & Chaniago, 2023). In the context of TVET, where technical and vocational skills are essential, digital literacy empowers female students to access markets, network with potential customers, and utilize e-commerce platforms, eliminating entry barriers to business creation.

Technology adoption (H6) also emerged as a significant predictor, indicating that female TVET students' exposure to technology lays a strong foundation for incorporating such technologies into entrepreneurial activities. The finding suggests that with strategic support and opportunities for application, the technological skills gained can be effectively translated into innovative and competitive entrepreneurial behavior as technology adoption provides comprehensive benefits to support a job or business (Elia et al., 2020; Sutiman et al., 2022; Zenebe et al., 2017).

Access to resources, including funding, training, and business development support, was also identified as a significant factor towards entrepreneurial intention (H7). When female students have access to tangible and intangible resources, they are more likely to perceive entrepreneurship as attainable and sustainable (Alzamel et al., 2019; Patel et al., 2024; Rusu et al., 2022).

6. THEORETICAL AND PRACTICAL IMPLICATIONS

From a theoretical standpoint, this study extends the TPB by integrating contextual factors, such as digital literacy, role models, and access to resources, into its core dimensions. It provides a more nuanced understanding of how cognitive and environmental elements jointly shape entrepreneurial intention among female TVET students. The findings support and extend Ajzen's (1991) TPB by showing that subjective norms (through the influence of role models) and perceived behavioral control (through digital literacy, technology adoption, and access to resources) are key drivers of entrepreneurial intention among female TVET students. They highlight how technological capability and resource accessibility act as modern enablers of perceived control, while role models are especially important in shaping subjective norms in male-dominated fields. This offers a more gender-sensitive and context-specific understanding of how TPB operates among female TVETpreneurs.

From a practical perspective, the findings emphasize the importance of strengthening digital readiness, technology integration, resource accessibility, and gender-oriented role modeling in entrepreneurship education for female TVET students. Meanwhile, existing efforts in entrepreneurial exposure, mentorship, and curriculum design may require deeper alignment with female TVET students' entrepreneurial journey to yield meaningful outcomes.

The findings underscore several key implications for enhancing female TVET students' entrepreneurial intentions. First, the importance of role models highlights the need for policymakers and TVET institutions to consciously and actively promote successful female entrepreneurs as models. Female entrepreneurs can be identified and invited to lead mentorship programs. TVET institutions can showcase female entrepreneurs' success stories through their newsletters and social media, particularly among their own alumni. TVET institutions should be encouraged to collaborate with women's business networks to provide female students with role models from relevant industries through partnerships with the Ministries of Entrepreneur and Cooperatives Development, as well as Women, Family, and Community Development. These role models who share their success stories will instill confidence, dispel gender stereotypes, and boost young women's self-esteem.

Second, the influence of digital literacy underscores the importance of integrating digital skills into the TVET curriculum. Digital skills are essential for accessing markets, managing businesses, and leveraging modern tools. In addition to the TVET curriculum, short courses or bootcamps in digital marketing, e-commerce, and online financial management could be offered. Providing gender-sensitive instruction and considering potential impediments faced by female TVET students can empower them to start and manage businesses in the digital economy.

Third, technology improves productivity, market reach, and competitiveness. Adopting technology is critical for ensuring that female TVET students are not only exposed to technology but also taught how to use it

strategically in entrepreneurial ventures. Policymakers and TVET institutions should prioritize hands-on learning opportunities in leveraging emerging technologies relevant to business, establish makerspaces, and promote the use of female-friendly platforms to foster entrepreneurship.

Fourth, improving access to resources is vital; targeted support such as networking, markets, micro-finance, business development services, and incubator programs should be made more accessible to female TVET students. TVET institutions can develop entrepreneurship toolkits specifically for female students.

In contrast, the non-significant findings for entrepreneurial exposure, mentorship, and curriculum design suggest that existing initiatives in these areas may not be sufficiently targeted to female TVET students' needs. Policymakers and TVET institutions should reassess and revamp these components to make them more inclusive, immersive, and industry-relevant. Mentorship programs, for example, must go beyond generic guidance to offer consistent and gender-sensitive support. Similarly, curriculum design should incorporate real-world entrepreneurial challenges and opportunities relevant to female TVET students' contexts. Further, the practical application of these findings can be explored within industry contexts, particularly how partnerships between TVET institutions and industries can foster entrepreneurial prospects for female students.

Overall, policymakers and TVET institutions must track female students' participation, success rates, and challenges faced in entrepreneurship programs. A gender-sensitive, digitally focused, and resource-enabled policy approach is required to establish a supportive ecosystem for future-ready female TVETpreneurs.

7. LIMITATIONS AND FUTURE RESEARCH AGENDA

One key limitation of this study is the sample size from a single institution, which may not accurately represent the broader population of female TVET students in Malaysia. Consequently, the use of SEM was not feasible, as the limited sample size may not provide reliable estimates for complex structural models.

In addition, the use of non-probability sampling (purposive sampling) may introduce sampling bias, limiting the extent to which the results can be applied to other educational settings or demographic groups. As a result, while the findings provide meaningful insights within this specific context, caution should be exercised when attempting to generalize them to a larger population.

Future research should consider a bigger sample size and include participants from multiple institutions across different regions in Malaysia. This would enhance the representativeness of the sample and allow for greater generalizability of the findings. Future studies with larger samples could employ SEM to confirm and extend the current findings. Besides, employing probability sampling methods, where feasible, would further strengthen the validity of the results. Comparative studies across different demographic segments or academic disciplines could also offer a deeper understanding of the factors influencing entrepreneurial intention among female TVET students. Further research could look into measures to address real-world challenges faced by female entrepreneurs in technical fields, such as access to resources, market entry barriers, and industry support mechanisms.

8. CONCLUSION

In conclusion, the main purpose of this study is to explore the entrepreneurial intention of female TVET students by proposing a framework that examines the factors that affect it. In the TVET setting, this study's findings highlight the significance of role models, digital literacy, technology adoption, and access to resources towards the female TVET students' entrepreneurial intention. These results suggest that entrepreneurial motivation from the experience of experts, such as parents, friends, and colleagues, contributes to shaping the students' entrepreneurial aspirations. Furthermore, a greater participation of female TVET students in entrepreneurial ventures can be anticipated if they can strengthen their digital skills, technology engagement, as well as improve their access to entrepreneurial resources.

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REFERENCES

Abbasianchavari, A., & Moritz, A. (2021). The impact of role models on entrepreneurial intentions and behavior: A review of the literature. *Management Review Quarterly, 71*(1), 1–40. https://link.springer.com/article/10.1007/s11301-019-00179-0

Ajos, E.G. (2023). *Babitkan lebih ramai golongan wanita muda dalam TVET [Increasing the involvement of young women in TVET]*. Berita Harian. https://api.bharian.com.my/berita/nasional/2023/02/1069575/babitkan-lebih-ramai-golongan-wanita-muda-dalam-tvet

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179–211. https://doi.

org/10.1016/0749-5978(91)90020-T

Alamineh, H. (2020). Students' entrepreneurial intentions and determinants in Technical Vocational Education and Training (TVET) colleges: Lessons from Gurage Zone, Ethiopia. *Management, 10*(3), 71–80. https://www.researchgate.net/publication/361678047_Students'_Entrepreneurial_Intentions_and_Determinants_in_Technical_Vocational_Education_and_Training_TVET_Colleges_Lessons_from_Gurage_Zone_Ethiopia

Alt, D., & Raichel, N. (2020). Enhancing perceived digital literacy skills and creative self-concept through gamified learning environments: Insights from a longitudinal study. *International Journal of Educational Research, 101*, Article 101561. https://doi.org/10.1016/j.ijer.2020.101561

Alzamel, S., Nor M. N. M., Omar, S., & Mohammed, M. M. (2019). The mediation role of resource accessibility between perceived social support and e-entrepreneurial intention of female students in Saudi Arabia. *Journal of Technology Management and Business, 6*(3), 76–84. https://doi.org/10.30880/jtmb.2019.06.03.008

Aragon-Sanchez, A., Baixauli-Soler, S., & Carrasco-Hernandez, A.J. (2017). A missing link: The behavioral mediators between resources and entrepreneurial intentions. *International Journal of Entrepreneurial Behavior & Research, 23*(5), 752–768. https://doi.org/10.1108/IJEBR-06-2016-0172

Audet, J., & Couteret, P. (2012). Coaching the entrepreneur: Features and success factors. *Journal of Small Business and Enterprise Development, 19*(3), 515–531. https://doi.org/10.1108/14626001211250207

Bahaw, P., Baboolal, A., Mack, A.J., & Carter-Rogers, K. (2024). Exposure to entrepreneurship education interventions reveal improvements to vocational entrepreneurial intent: A two-wave longitudinal study. *Discover Education, 3*(145). https://doi.org/10.1007/s44217-024-00241-4

Baluku, M.M., Leonsio, M., Bantu, E., & Otto, K. (2019). The impact of autonomy on the relationship between mentoring and entrepreneurial intentions among youth in Germany, Kenya, and Uganda. *International Journal of Entrepreneurial Behavior & Research, 25*(2), 170–192. https://doi.org/10.1108/IJEBR-10-2017-0373

Bandura, A. (1997). *Self-efficacy: The exercise of control.* W.H. Freeman and Company. https://archive.org/details/selfefficacyexer0000band?

Barnir, A., Watson, W.E., & Hutchins, H.M. (2011). Mediation and moderated mediation in the relationship among role models, self-efficacy, entrepreneurial career intention, and gender. *Journal of Applied Social Psychology, 41*(2), 270–297. https://doi.org/10.1111/j.1559-1816.2010.00713.x

Bernama. (2025, May 19). *Tekun Nasional to introduce financing scheme for TVET grads to start businesses*. https://www.bernama.com/en/news.php?id=2424588

Biemans, H. J. A., Lans, T., Chizari, M., & Mulder, M. (2014). The impact of entrepreneurship education: A study of Iranian students' entrepreneurial intentions and opportunity identification. *Journal of Small Business Management, 54*(1), 187–209. https://doi.org/10.1111/jsbm.12137

Boldureanu, G., Ionescu, A. M., Bercu, A. M., Bedrule-Grigoruţă, M. V., & Boldureanu, D. (2020). Entrepreneurship education through successful entrepreneurial models in higher education institutions. *Sustainability (Switzerland), 12*(3), 1–33. https://doi.org/10.3390/su12031267

Botha, M., Pohl, M., & Mubita, L. (2021). Modelling the relationship between prior entrepreneurial exposure, entrepreneurship education and entrepreneurial action using neural networks. *Development Southern Africa, 38*(2), 264–281. https://doi.org/10.1080/0376835X.2020.1826291

Brush, C. G., de Bruin, A., & Welter, F. (2009). A gender-aware framework for women's entrepreneurship. *International Journal of Gender and Entrepreneurship, 1*(1), 8–24. https://doi.org/10.1108/17566260910942318

Chen, Y. (1997). Paying customers to switch. *Journal of Economics & Management Strategy, 6*(4), 877–897. https://doi.org/10.1111/j.1430-9134.1997.00877.x

Cheng, L.J., & Liao, C.C. (2017). The drivers of entrepreneurial intention: The role of social capital and overconfidence. *Contemporary Management Research, 13*(2), 143–162. https://doi.org/10.7903/cmr.17589

Chowdhury, F. N. (2017). A study of entrepreneurship development in Bangladesh: Pros and cons. *Journal of Asian Scientific Research, 7*(1), 1–11. https://doi.org/10.18488/journal.2/2017.7.1/2.1.1.11

Cieślik, J., & van Stel, A. (2017). Explaining university students 'career path intentions from their current entrepreneurial exposure. *Journal of Small Business and Enterprise Development, 24*(2), 313–332. https://doi.org/10.1108/JSBED-09-2016-0143

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*(1), 155–159. https://doi.org/10.1037/0033-2909.112.1.155

Daragmeh, A., & Halabi, A. (2023). A diagnostic study of entrepreneurial education readiness in the humanities and social sciences in Palestine. *Journal of Entrepreneurship, Business and Economics, 11*(1), 63–101. https://scientificia.com/index.php/JEBE/article/view/202/191

Dilshodovich, P. D. (2023). Entrepreneurship and start-up culture: Nurturing innovation and growth. *Procedia on Economic Scientific Research, 4*(2023), 36–41. https://procediaonline.org/index.php/economic/article/view/850

Donani, M., Saan, R., Kuuyine, F., & Adams, Y. (2021). An empirical study discussing industrialization and technical education in Ghana. *International*

Journal of Vocational and Technical Education, 13(1), 1–12. https://doi.org/10.5897/IJVTE2021.0297

Elia, G., Margherita, A., & Passiante, G. (2020). Digital entrepreneurship ecosystem: How digital technologies and collective intelligence are reshaping the entrepreneurial process. *Technological Forecasting and Social Change, 150*(1), 1–12. https://doi.org/10.1016/j.techfore.2019.119791

Farrukh, M., Lee, J. W. C., Sajid, M., & Waheed, A. (2019). Entrepreneurial intentions: The role of individualism and collectivism in perspective of theory of planned behaviour. *Education + Training, 61*(7–8), 984–1000. https://doi.org/10.1108/ET-09-2018-0194

Fayolle, A., & Gailly, B. (2015). The impact of entrepreneurship education on entrepreneurial attitudes and intention: Hysteresis and persistence. *Journal of Small Business Management, 53*(1), 75–93. https://doi.org/10.1111/jsbm.12065

FMT. (2025). *Many Malaysian graduates are earning just enough to survive, says report*. https://www.freemalaysiatoday.com/category/nation/2025/05/22/many-malaysian-graduates-are-earning-just-enough-to-survive-says-report

Fornahl, D. (2003). Entrepreneurial activities in a regional context. In *En D. Fornahl & T. Brenner (Eds.), Cooperation, networks and institutions in regional innovation systems* (pp. 38–57). Edward Elgar Publishing. https://www.researchgate.net/publication/27281551_3_Entrepreneurial_Activities_in_a_Regional_Context

Galvão, A., Marques, C.S., & Marques, C.P. (2018). Antecedents of entrepreneurial intentions among students in vocational training programs. *Education + Training, 60*(7/8), 719–734. https://doi.org/10.1108/ET-03-2017-0034

Gavigan, S. (2021). *The contribution of entrepreneurship training towards perceived emancipation amongst nascent rural female entrepreneurs in Uganda* [Unpublished doctoral thesis]. School of Marketing, College of Business, Technological University Dublin. https://arrow.tudublin.ie/busdoc/12/

Giones F., & Miralles F. (2020). Bound for glory or cursed for life? Exploring the impact of initial resources on the venture emergence of new technology-based firms. *International Journal of Entrepreneurial Venturing, 12*(2), 143–160. https://doi.org/10.1504/IJEV.2020.105532

Greene, F.J., Han, L., & Marlow, S. (2013). Like mother, like daughter? Analyzing maternal influences upon women's entrepreneurial propensity. *Entrepreneurship Theory and Practice, 37*(4), 687–711. https://doi.org/10.1111/j.1540-6520.2011.00484.x

Gul, N. (2022). Skilled women's self-employability and TVET. *Research for Social Transformation and Advancement (RASTA)*. https://rasta.pide.org.pk/wp-content/uploads/Nagina_Gul_Research_Paper.pdf

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate data analysis* (5th ed.). Prentice Hall. https://books.google.com.my/books/about/Multivariate_Data_Analysis.html?id=-ZGsQgAACAAJ&redir_esc=y

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis* (8th ed.). Cengage Learning. https://eli.johogo.com/Class/CCU/SEM/_Multivariate%20Data%20Analysis_Hair.pdf

Hasan, K. M. (2023). *Understanding the career aspirations and challenges faced by female students in the Bangladeshi TVET sector.* https://www.kmmahmudhasan.com/understanding-the-career-aspirations-and-challenges-faced-by-female-students-in-the-bangladeshi-tvet-sector/

Hasanah, U., & Setiaji, K. (2019). Pengaruh literasi digital, efikasi diri, lingkungan terhadap intensi berwirausaha mahasiswa dalam e-business [The influence of digital literacy, self-efficacy, and environment on students' entrepreneurial intentions in e-business.]. *Economic Education Analysis Journal, 8*(3), 1198–1215. https://journal.unnes.ac.id/sju/eeaj/article/view/35715

HR Asia. (2023). *Nearly 6 million fresh grads in Malaysia in 2022*. https://hr.asia/top-news/nearly-6-million-fresh-grads-in-malaysia-in-2022/

Hoang, T. K., Nguyen, H. V., & Tran Thi, G. (2024). The impact of startup mentoring programs on the entrepreneurial intention of startup projects in Central Vietnam. *Journal of Economics, Finance and Accounting Studies, 6*(3), 167¬–177. https://doi.org/10.32996/jefas.2024.6.3.13

Hockerts, K. (2017). Determinants of social entrepreneurial intentions. *Entrepreneurship Theory and Practice, 41*(1), 105–130. https://doi.org/10.1111/etap.12171

Hossain, M. I., Tabash, M. I., Siow, M. L., Ong, T. S., & Anagreh, S. (2023). Entrepreneurial intentions of gen Z university students and entrepreneurial constraints in Bangladesh. *Journal of Innovation and Entrepreneurship, 12*(1), 1–34. https://doi.org/10.1186/s13731-023-00279-y

Husain, N.H., Husin, M.M., Kadir, F.A., & Nor Ashaha, N.S.L. (2024). Malaysia fails to meet 70 percent TVET graduate employment target. *Sinar Daily*. https://www.sinardaily.my/article/217434/focus/national/malaysia-fails-to-meet-70-per-cent-tvet-graduate-employment-target

Huszak, L., & Oborni, K. (2022). Entrepreneurship mentoring for women at universities. *Információs Társadalom, 22*(4), 31–48. https://doi.org/10.22503/inftars.XXII.2022.4.3

Islam, S. (2021, November 15). *Bangladesh bank to mop up idle money*. https://thefinancialexpress.com.bd/economy/bangladesh-bank-to-mop-up-idle-money-1628217749

Iwu, C. G., Opute, P. A., Nchu, R., et al. (2021).

Entrepreneurship education, curriculum and lecturer-competency as antecedents of student entrepreneurial intention. *The International Journal of Management Education, 19*(1), Article 100295. https://doi.org/10.1016/j.ijme.2019.03.007

Kariv, D., Giglio, C., & Corvello, V. (2025). Fostering entrepreneurial intentions: Exploring the interplay of education and endogenous factors. *International Entrepreneurship and Management Journal, 21*(1), 1–27. https://doi.org/10.1007/s11365-024-01020-1

Katundu, M. A., & Gabagambi, D. M. (2016). Barriers to business start-up among Tanzanian university graduates: Evidence from the University of Dar-es-Salaam. *Global Business Review, 17*(1), 16–32. https://doi.org/10.1177/0972150915610667

Kimathi, R. K., Njeru, F. W., & Korir, M. (2021). Effect of trainer attributes on entrepreneurial intention of technical and vocational education and training graduates in Kenya. *The University Journal, 2*(1), 11–22. https://doi.org/10.59952/tuj.v2i1.25

Krejcie, R.V., & Morgan, D.W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement, 30*(3), 607–610. https://doi.org/10.59952/tuj.v2i1.25

Lackéus, M., & Sävetun, C. (2018). Assessing the impact of enterprise education in three leading Swedish compulsory schools. *Journal of Small Business Management, 57*, 33–59. https://doi.org/10.1111/jsbm.12497

Liñán, F., & Chen, Y. W. (2009). Development and cross-cultural application of a specific instrument to measure entrepreneurial intentions. *Entrepreneurship Theory and Practice, 33*(3), 593–617. https://doi.org/10.1111/j.1540-6520.2009.00318.x

Liñán, F., Rodríguez-Cohard, J. C., & Rueda-Cantuche, J. M. (2011). Factors affecting entrepreneurial intention levels: A role for education. *International Entrepreneurship and Management Journal, 7*(2), 195–218. https://doi.org/10.1007/s11365-010-0154-z

Lindner, J. (2020). *Entrepreneurial learning for TVET institutions: A practical guide*. UNESCO International Centre for Technical and Vocational Education and Training. https://unesdoc.unesco.org/ark:/48223/pf0000375209

Low, C. W (2023). Harmonizing human capital: Insights from the Malaysian labor market. *Asian Journal of Research in Business and Management, 5*(4), 72–77. https://doi.org/10.55057/ajrbm.2023.5.4.7

Lv, Y., Chen, Y., Sha, Y., Wang, J., An, L., Chen, T., Huang, X., Huang, Y., & Huang, L. (2021). How entrepreneurship education at universities influences entrepreneurial intention: Mediating effect based on entrepreneurial competence. *Frontiers in Psychology, 12*, Article 655868, https://doi.org/10.3389/fpsyg.2021.655868

Malebana, M.J., & Mahlaole, S.T. (2023). Prior entrepreneurship exposure and work experience as determinants of entrepreneurial intentions among South African university of technology students. *Frontiers in Psychology, 14*, Article 1176065. https://doi.org/10.3389/fpsyg.2023.1176065

Malebana, M.J., & Mothibi, N.H. (2023). Relationship between prior entrepreneurship exposure and entrepreneurial intention among secondary school learners in Gauteng, South Africa. *Journal of Innovation and Entrepreneurship, 12*(1), Article 43. https://doi.org/10.1186/s13731-023-00309-9

Markova, J. (2025). *Asian insights: The role of TVET in hospitality and tourism in empowering women entrepreneurs in the Mekong region*. TVET Journal. https://tvetjournal.com/tvet-systems/asian-insights-the-role-of-tvet-in-hospitality-and-tourism-in-empowering-women-entrepreneurs-in-the-mekong-region/

Martini, L. (2024). Promoting entrepreneurship education through the adoption of innovative and best practices in technical education and vocational training. *Entrepreneurship Education, 7*, 263–302. https://doi.org/10.1007/s41959-024-00124-7

Masri, N., Abdullah, A., Asimiran, S., & Zaremohzzabieh, Z. (2021). Relationship between engagement in learning entrepreneurship education and entrepreneurial intention among vocational college students. *Pertanika Journal of Social Sciences & Humanities, 29*(S1), 19–38. https://doi.org/10.47836/pjssh.29.s1.02

Melissa, E., Hamidati, A., Saraswati, M., & Flor, A. (2015). The Internet and Indonesian women entrepreneurs: Examining the impact of social media on women empowerment. In *A. Chib, J. May, & R. Barrantes (Eds.), Impact of Information Society Research in the Global South* (pp. 203–222). Springer. https://doi.org/10.1007/978-981-287-381-1_11

Meyer, V., Tegtmeier, S., & Pakura, S. (2017). Revisited: How gender role stereotypes affect the image of entrepreneurs among young adults. *International Journal of Gender and Entrepreneurship, 9*(4), 319–337, https://doi.org/10.1108/ijge-07-2017-0031

Minniti, M., & Nardone, C. (2007). Being in someone else's shoes: Gender and nascent entrepreneurship. *Small Business Economics, 28*(2–3), 223–238. https://doi.org/10.1007/s11187-006-9017-y

Mishra, R., Albalushi, J., & Varshney, D. (2024). Attitudes and intentions towards entrepreneurial interest of female university students in Oman. *International Journal of Multidisciplinary Research and Publications, 6*(10), 104–110. https://doi.org/10.5281/zenodo.11004688

Montes, J., Avila, L., Hernández, D., Apodaca, L., Zamora-Bozaf, C., & Cordova-Buiza, F. (2025). The influence of role models and entrepreneurial support on the business start-up intentions of women and men. *Cogent Business & Management, 12*(1). https://doi.org/10.1080/23311975.2025.2466069

Moo, K. H., & Chang, D. W. (2023). Graduate employability in Malaysia: Unpacking the concept, policy and practices. *IIUM Journal of Educational Studies, 11*(2), 3–25. https://doi.org/10.31436/ijes.v11i2.471

Mosisa, B. (2016). The influence of technical and vocational education and training on entrepreneurial and job opportunities in Asella Town. *Global Educational Research Journal, 4*(1), 424–453. https://www.springjournals.net/articles/pdf/865929052016

Munawar, S., Yousaf, H. Q., Ahmed, M., & Rehman, S. (2023). The influence of online entrepreneurial education on entrepreneurial success: An empirical study in Pakistan. *The International Journal of Management Education, 21*(1), Article 100752. https://doi.org/10.1016/j.ijme.2022.100752

Murari, K., & Pathak, S. (2022). Impact of role models on self efficacy and entrepreneurial intention on aviation management students. *Delhi Business Review, 23*(1). https://doi.org/10.51768/dbr.v23i1.231202205

Nabi, G., Liñán, F., Fayolle, A., Krueger, N., & Walmsley, A. (2017). The impact of entrepreneurship education in higher education: A systematic review and research agenda. *Academy of Management Learning & Education, 16*(2), 277–299. https://doi.org/10.5465/amle.2015.0026

Najmudin, N., Setyawati, S., Suliyanto, S., Arini, D. (2024). Direct and indirect influence of role model on e-commerce entrepreneurial decisions: The case of Generation Z. *Proceedings ICMA-SURE, 3*(1), 38–45. https://files.core.ac.uk/download/599438757.pdf

Ndofirepi, T. M. (2020). Relationship between entrepreneurship education and entrepreneurial goal intentions: Psychological traits as mediators. *Journal of Innovation and Entrepreneurship,* 9(1), 1–20. https://doi.org/10.1186/s13731-020-0115-x

Ndou, V., Mele, G., Hysa, E., & Mansi, E. (2024). Empowering women for technology entrepreneurship: opportunities and challenges. *International Conference on Gender Research, 7*(1), 251–261. https://doi.org/10.34190/icgr.7.1.2064

Ng, W. (2012). Can we teach digital natives digital literacy? *Computers & Education, 59*, 1065–1078. https://doi.org/10.1016/j.compedu.2012.04.016

Nguyen, T. M., Newby, M., and Macaulay, M. J. (2015). Information technology adoption in small business: Confirmation of a proposed framework. *Journal of Small Business Management, 53*(1), 207–227. https://doi.org/10.1111/jsbm.12058

Nowiński, W., & Haddoud, M. Y. (2019). The role of inspiring role models in enhancing entrepreneurial intention. *Journal of Business Research,* 96, 183–193. https://doi.org/10.1016/j.jbusres.2018.11.005

O'Gorman, C. (2019). Entrepreneurial intentions and entrepreneurial behavior. In M. McAdam, & J. A. Cunningham (Eds.), *Entrepreneurial Behavior.* Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-030-04402-2_2

Ooi, Y. K., Selvarajah, C., & Meyer, D. (2011). Inclination towards entrepreneurship among university students: An empirical study of Malaysian university students. *International Journal of Business and Social Science,* 2(4), 206–220. https://www.researchgate.net/publication/228417374_Inclination_towards_entrepreneurship_among_university_students_An_empirical_study_of_Malaysian_university_students

Otache, I., Oluwade, D.O., & Idoko, E.O.J. (2020). Entrepreneurship education and undergraduate students' self-employment intentions: Do paid employment intentions matter? *Education + Training,* 62(7/8), 741–757. https://doi.org/10.1108/ET-02-2020-0032

Padi, A., Dzisi, S., & Eshun, J. F. (2022). Entrepreneurship education in TVET institutions and entrepreneurial intentions of female students in Ghana: The social support factor. *Cogent Business & Management,* 9(1), Article 2137954. https://doi.org/10.1080/23311975.2022.2137954

Passavanti, C., Primario, S., & Rippa, P. (2024). How entrepreneurial role models impact on entrepreneurial outcomes: A gender perspective. *The International Journal of Management Education,* 22(3), Article 101011. https://doi.org/10.1016/j.ijme.2024.101011

Patel, J., Vannai, S., Dasani, V., & Sharma, M. (2024). Does my school teach me entrepreneurship? School entrepreneurship curriculum and students' entrepreneurial intention: A serial mediation–moderation analysis. *International Journal of Social Economics, 51*(12), 1629–1645. https://doi.org/10.1108/IJSE-05-2023-0350

Peterman, N.E., & Kennedy, J. (2003). Enterprise education: Influencing students' perceptions of entrepreneurship. *Entrepreneurship Theory and Practice, 28*(2), 129–144. https://doi.org/10.1046/j.1540-6520.2003.00035.x

Peterson, R. A. (2000). A meta-analysis of variance accounted for and factor loadings in exploratory factor analysis. *Marketing Letters, 11*(3), 261–275. https://doi.org/10.1023/A:1008191211004

Purwanti, S., Handayani, P., & Kusdiyanti, H. (2024). The effect of entrepreneurship education and curriculum on student entrepreneurial intention moderated by student entrepreneurial mindset. *Asian Journal of Agricultural Extension, Economics and Sociology, 42*(5), 68–81. https://doi.org/10.9734/ajaees/2024/v42i52415

Radzi, K. M., Nor, N. M., & Ali, S. M. (2017). The impact of internal factors on small business success: A case of small enterprises under the FELDA scheme. *Asian Academy of Management Journal,* 22(1), 27–55. https://doi.org/10.21315/aamj2017.22.1.2

Rauch, A., Wiklund, J., Lumpkin, G. T., & Frese, M.

(2005). Entrepreneurial orientation and business performance: An assessment of past research and suggestions for the future. *Entrepreneurship Theory and Practice, 29*(1), 1–31. https://doi.org/10.1111/j.1540-6520.2009.00308.x

Reddy, P., Sharma, B., & Chaudhary, K. (2020). Digital literacy: A review of literature. *International Journal of Technoethics, 11*(2), 65–94. https://doi.org/10.4018/IJT.20200701.oa1

Reddy, P., Chaudhary, K., & Hussein, S. (2023). A digital literacy model to narrow the digital literacy skills gap. *Heliyon, 9*(4), Article e14878. https://doi.org/10.1016/j.heliyon.2023.e14878

Rofa, N., & Ngah, R. (2024). Exploring the nexus of entrepreneurial potential and entrepreneurial mentoring among TVET program students. *Issues and Perspectives in Business and Social Sciences, 2*, 94–107. https://doi.org/10.33093/ipbss.2024.4.1.7

Rogers, E. M. (2003). *Diffusion of Innovations* (5th ed.). Free Press. https://books.google.com.my/books/about/Diffusion_of_Innovations_5th_Edition.html?id=9U1K5LjUOwEC&redir_esc=y

Roslan, R., Misnan, N.I., & Musa, D. (2020). The influence of higher learning environment and role model towards an entrepreneurial intention among TVET students. *Jurnal Intelek, 15*(1), 133–142. https://doi.org/10.24191/ji.v15i1.276

Rusu, V.D., Roman, A., & Tudose, M.B. (2022). Determinants of entrepreneurial intentions of youth: The role of access to finance. *Inzinerine Ekonomika-Engineering Economics, 33*(1), 86–102. https://doi.org/10.5755/j01.ee.33.1.28716

Sahut, J. M., Iandoli, L., & Teulon, F. (2021). The age of digital entrepreneurship. *Small Business Economics, 56*(3), 1159–1169. https://doi.org/10.1007/s11187-019-00260-8

Saoula, O., Abid, M.F., Ahmad, M.J., & Shamim, A. (2025). What drives entrepreneurial intentions? Interplay between entrepreneurial education, financial support, role models and attitude towards entrepreneurship. *Asia Pacific Journal of Innovation and Entrepreneurship, 19*(2), 128–148. https://doi.org/10.1108/APJIE-10-2023-0189

Setiawati, R., Adriani, Z., & Wediawati, B. (2022). Entrepreneurial interest in startup business based on entrepreneurial literacy and digital literacy. Jurnal Perspektif Pembiayaan dan Pembangunan Daerah, 10(4), 235–250. https://doi.org/10.22437/ppd.v10i4.18819

Shahriar, M.S., Hasan, M.S., Islam, M.A., Sobhani, F.A., & Islam, M.T. (2024). Entrepreneurial intention among university students of a developing economy: The mediating role of access to finance and entrepreneurship program. *Cogent Business & Management, 11*(1), https://doi.org/10.1080/23311975.2024.2322021

Shinnar, R. S., Giacomin, O., & Janssen, F. (2012). Entrepreneurial perceptions and intentions: The role of gender and culture. *Entrepreneurship Theory and Practice, 36*(3), 465–493. https://doi.org/10.1111/j.1540-6520.2012.00509.x

Shinnar, R.S., Hsu, D.K., & Powell, B.C. (2014). Self-efficacy, entrepreneurial intentions, and gender: Assessing the impact of entrepreneurship education longitudinally. *The International Journal of Management Education, 12*(3), 561–570. https://doi.org/10.1016/j.ijme.2014.09.005

Sisu, J. A., Tirnovanu, A. C., Patriche, C.-C., Nastase, M., Schin, G.C. (2024). Enablers of students' entrepreneurial intentions: findings from PLS-SEM and fsQCA. *International Journal of Entrepreneurial Behavior & Research, 30*(4), 856–884. https://doi.org/10.1108/ijebr-07-2023-0689

Sitaridis, I., & Kitsios, F. (2017). Entrepreneurial intentions of information technology students: The theory of planned behaviour, the role of gender and education. *Journal for International Business and Entrepreneurship Development, 10*(3), 316–335. https://www.inderscienceonline.com/doi/abs/10.1504/JIBED.2017.085508

Souitaris, V., Zerbinati, S., & Al-Laham, A. (2007). Do entrepreneurship programs raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration, and resources. *Journal of Business Venturing, 22*(4), 566–591. https://doi.org/10.1016/j.jbusvent.2006.05.002

Staniewski, M.W., & Awruk, K. (2021). Parental attitudes and entrepreneurial success. *Journal of Business Research, 123*, 538–546. https://doi.org/10.1016/j.jbusres.2020.10.039

Stel, J.C.A.V. (2017). Explaining university students' career path intentions from their current entrepreneurial exposure. *Journal of Small Business and Enterprise Development, 24*(2), 313–332. https://doi.org/10.1108/JSBED-09-2016-0143

St-Jean, E., & Audet, J. (2012). The role of mentoring in the learning development of the novice entrepreneur. *International Entrepreneurship and Management Journal, 8*(1), 119–140. https://doi.org/10.1007/s11365-009-0130-7

St-Jean, E., Radu-Lefebvre, M., & Mathieu, C. (2018). Can less be more? Mentoring functions, learning goal orientation, and novice entrepreneurs' self-efficacy. *International Journal of Entrepreneurial Behavior and Research, 24*(1), 2–21. https://doi.org/10.1108/IJEBR-09-2016-0299

Sullivan, R. (2000). Entrepreneurial learning and mentoring. *International Journal of Entrepreneurial Behaviour & Research, 6*(3), 160–175. https://doi.org/10.1108/13552550010346587

Sutiman, S., Sofyan, H., Soenarto, S., Mutohhari, F., & Nurtanto, M. (2022). Students' career decision-making during online learning: the mediating roles of self-efficacy in vocational education. *European Journal of Educational Research, 11*(3), 1669–1682. https://doi.org/10.12973/eu-jer.11.3.1669

Suryani, S., & Chaniago, H. (2023). Digital literacy and its impact on entrepreneurial intentions: Studies on vocational students. *International Journal of Administration, Business and Organization, 4*(2),16–22. https://doi.org/10.61242/ijabo.23.261

Tarling, C., Jones, P., & Murphy, L. (2016). Influence of early exposure to family business experience on developing entrepreneurs. *Education + Training, 58*(7/8), 733–750. https://doi.org/10.1108/ET-03-2016-0050

Teoh, W.M.Y., & Chong, S.C. (2007). Theorising a framework of factors influencing performance of women entrepreneurs in Malaysia. *Journal of Asia Entrepreneurship and Sustainability, 3*(2), 1–17. https://www.proquest.com/openview/f45372e13663efa6458d1e5501d29649/1?pq-origsite=gscholar&cbl=38850

Teoh, W.M.Y., Yuen, Y.Y., Chong, S.C., Tee, W.N. & Teoh, M.L. (2023). Perspectives of employers on graduate employability skills: A case of Malaysia. *Asian Development Policy Review, 11*(4), 229–243. https://doi.org/10.55493/5008.v11i4.4946

Teoh, W.M.Y., Yuen, Y.Y., & Loh, J. (2024). Fostering future-ready female TVETpreneur talent framework. *Journal of Infrastructure, Policy and Development, 8*(11), Article 8177. https://doi.org/10.24294/jipd.v8i11.8177

Tomy, S., & Pardede, E. (2020). An entrepreneurial intention model focusing on higher education. *International Journal of Entrepreneurial Behavior and Research, 26*(7), 1423–1447. https://doi.org/10.1108/IJEBR-06-2019-0370

Tshehla, S. S., Chodokufa, K., & Costa, K. (2021, May 7). *Entrepreneurship education's influence on learner's entrepreneurship intention in South African schools* [Unpublished manuscript]. OSF. https://ideas.repec.org/p/osf/africa/gpn98.html

UNESCO-UNEVOC (2024). *Entrepreneurship in TVET. Bringing innovation and learning in TVET*. https://unevoc.unesco.org/home/Learning+Lab+series+on+ Entrepreneurial+Learning+in+TVET

Van Laar, E., van Deursen, A., van Dijk, J., & de Haan, J. (2017). The relation between 21st-century skills and digital skills: A systematic literature review. *Computers in Human Behavior, 72*, 577–588. https://doi.org/10.1016/j.chb.2017.03.010

VSDaily. (2025). *Women entrepreneurs lead the way in Malaysia's digital economy*. https://vsdaily.com/women-entrepreneurs-lead-the-way-in-malaysias-digital-economy/

Wang, R., & Liu, R. (2024). Factors influencing female students' entrepreneurial intention in vocational colleges: A multi-group analysis based on household income. *PLoS ONE, 19*(5), Article e0304232. https://doi.org/10.1371/journal.pone.0304232

Wilbanks, J. E. (2013). Mentoring and Entrepreneurship: Examining the Potential for Entrepreneurship Education and for Aspiring New Entrepreneurs. *Journal of Small Business Strategy, 23*(1), 93–101. https://libjournals.mtsu.edu/index.php/jsbs/article/view/171

Wilson, F., Kickul, J., & Marlino, D. (2007). Gender, entrepreneurial self-efficacy, and entrepreneurial career intentions: Implications for entrepreneurship education. *Entrepreneurship Theory and Practice, 31*(3), 387–406. https://doi.org/10.1111/j.1540-6520.2007.00179.x

World Bank. (2023). Malaysia – *Ratio of female to male youth unemployment rate (%) (National estimate)*. https://knoema.com/WBGS2019/gender-statistics?tsId=1048990

Wu, X., & Tian, Y. (2022). Predictors of entrepreneurship intention among students in vocational colleges: A structural equation modeling approach. *Frontiers in Psychology, 12*, Article 797790. https://doi.org/10.3389/fpsyg.2021.797790

Xiao, L., & North, D. (2017). The graduation performance of technology business incubators in China's three-tier cities: The role of incubator funding, technical support, and entrepreneurial mentoring. *Journal of Technology Transfer, 42*(3), 615–634. https://doi.org/10.1007/s10961-016-9493-4

Yang, J.H., & Kim, C. (2020). The effect of entrepreneurship education on entrepreneurial intention. *The Korean Academic Association of Business Administration, 33*(3), 443–461. https://doi.org/10.18032/kaaba.2020.33.3.443

Zapkau, F.B., Schwens, C., & Kabst, R. (2017). The role of prior entrepreneurial exposure in the entrepreneurial process: A review and future research implications. *Journal of Small Business Management, 55*(1), 56–86. https://doi.org/10.1111/jsbm.12232

Zapkau, F.B., Schwens, C., Steinmetz, H., & Kabst, R. (2015). Disentangling the effect of prior entrepreneurial exposure on entrepreneurial intention. *Journal of Business Research, 68*(3), 639–653. https://doi.org/10.1016/j.jbusres.2014.08.007

Zenebe, A., Alsaaty, F. M., & Anyiwo, D. (2017). Relationship between individual's entrepreneurship intention, and adoption and knowledge of information technology and its applications: An empirical study. *Journal of Small Business & Entrepreneurship, 30*(3), 215–232. https://doi.org/10.1080/08276331.2017.1397441

Zhang, P.Y., Wang, D.D., & Owen, C.L. (2015). A study of entrepreneurial intention of university students. *Entrepreneurship Research Journal, 5*(1), 61–82. https://doi.org/10.1515/erj-2014-0004

Zhao, H., Hills, G.E., & Seibert, S.E. (2005). The mediating role of self-efficacy in the development of entrepreneurial intentions. *Journal of Applied Psychology, 90*(6), 1265–1272. https://doi.org/10.1037/0021-9010.90.6.1265

Appendix

Questionnaire Items

Variables	Variable Code	Items
Entrepreneurial Exposure	EX1	My parents currently own or have owned a business.
	EX2	A family member/s other than my parents currently own or have owned a business.
	EX3	I have worked in a family business before.
	EX6	I have engaged in self-employment or side business activities.
Mentorship	M1	I have been encouraged to pursue a career in self-employment.
	M2	I have discussed my ability to succeed in self-employment with a mentor.
	M3	I have been provided guidance on business planning.
	M4	I have been encouraged to make well-informed career choices.
	M5	I have received support in mapping out a step-by-step strategy for business success.
	M6	I have had successful mentoring meetings for business development.
	M7	I have received practical advice on becoming self-employed.
Role Models	RM1	I have sought business advice from my friends/lecturers.
	RM2	My lecturers play a role in encouraging me toward entrepreneurship.
	RM3	I follow and learn from successful entrepreneurs online or in person.
	RM4	I am influenced by stories of successful entrepreneurs in my field.
	RM5	My friends and network provide business-related guidance.
	RM6	I aspire to become like my entrepreneurial role models.
Digital Literacy	DL1	I can troubleshoot and solve technical problems related to business tools.
	DL2	I can quickly learn and adapt to new digital business technologies.
	DL3	I stay updated on e-commerce platforms and digital marketing tools.
	DL4	I actively seek online opportunities to generate business ideas.
	DL5	I understand key digital security concerns related to online business.
	DL6	I am confident in using digital platforms for online business transactions.
Curriculum Design	CD1	The course helped me develop practical business skills.
	CD2	My interest in entrepreneurship increased after taking this course.
	CD3	The course included hands-on experience in business planning.
	CD4	The course provided knowledge relevant to the real world.
	CD5	The course encouraged innovative thinking in business.
	CD6	The course allowed me to connect with real entrepreneurs.
Technology Adoption	TA1	I plan to use digital platforms (e-commerce, social media) for my future business.
	TA2	I use the internet to stay updated on business trends.
	TA3	I intend to use online systems for financial transactions and licensing.
Access to Resources	ATR1	My immediate family would financially support me in starting a business.
	ATR2	I am aware of government financial assistance for young entrepreneurs.
	ATR3	I have accessed startup support from government or university incubators.
	ATR4	My education has provided me with the skills to start a business.
	ATR5	I have received training on entrepreneurship outside my institution.
	ATR6	I have networks that can help me secure financial or human capital for a business.
Entrepreneurial Intention	EI1	I am willing to take calculated risks to start my own business.
	EI2	I have seriously considered entrepreneurship as a career path.
	EI3	I intend to start a business within five years after graduation.
	EI4	I see entrepreneurship as a viable career option.
	EI5	I have already taken steps toward launching a business.
	EI6	I plan to seek further entrepreneurial training and mentorship.