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Entrepreneurial Intentions of Students from Rural Areas in the Midland and Mountainous Areas of Northern Vietnam

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Abstract: The Northern Midlands and Mountains region includes 14 provinces in North Vietnam, accounting for 35% of the country's natural area, with more than 30 ethnic groups. The region's population is 14.7 million people, accounting for about 15.2% of the country's population, and there are many rural young people who have become students in the country. The study analyzed factors influencing the entrepreneurial intentions of students in the northern midlands and mountainous areas, with 315 questionnaires distributed and 302 collected. The results showed five factors with 21 observed variables analyzed using confirmatory factor analysis (CFA) and structural equation modeling (SEM). This demonstrated that all five factors influence the entrepreneurial intentions of students in the northern midlands and mountainous areas of Vietnam: attitude toward entrepreneurship, financial capability, entrepreneurial experience, student capability, and entrepreneurial education. Among them, student capability, entrepreneurial education, and financial capability have the strongest impact on the entrepreneurial intentions of students in the northern midlands and mountainous areas.
Keywords: entrepreneurial intentions; northern midlands and mountainous areas; financial capability; entrepreneurial education; entrepreneurial experience

越南北部中部山区农村学生创业意向

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摘要: 北部中部山区包括越南北部的 14 个省，占该国自然面积的 35%，有 30 多个民族。该地区人口为 1470 万人，约占该国人口的 15.2%，并且有许多成为该国学生的农村年轻人。该研究分析了影响北部中部山区学生创业意向的因素，共发放问卷 315 份，回收问卷 302 份。结果显示，使用验证性因子分析（特许金融分析师）和结构方程模型（扫描电子显微镜）分析了 5 个因素，21 个观察变量。这表明，创业态度、财务能力、创业经验、学生能力和创业教育这 5 个因素都影响越南北部中部山区学生的创业意向。其中，学生能力、创业教育和财务能力对北部中部山区学生创业意向的影响最大。

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关键词：创业意向；北部中部及山区；经济能力；创业教育；创业经验

1 Introduction

In the current global business landscape, the generation and active application of new, useful ideas to specific business activities and their transformation into value-adding solutions for society are crucial for a country's development. Entrepreneurship is a common trend worldwide, including in Vietnam. With an increasingly integrated economy, people have access to diverse and continuous business opportunities. Entrepreneurship is seen as an effective way to address social issues and create new value for the economy. Entrepreneurship is currently one of the most closely watched topics, especially in the context of strong integration with the global economy. It is expected to contribute to economic growth and positively impact socioeconomic development, helping meet the increasingly diverse and growing needs of society. Entrepreneurship also creates job opportunities for the community and society as a whole.

Over the past decade, the economic development stage of Vietnam has witnessed a dynamic formation and growth of the entrepreneurship movement. Vietnam currently ranks 54th out of 100 in the global startup ecosystem, with 84 incubators, 116 granted patents, 35 business promotion organizations, and 208 venture capital funds. Additionally, the country had 857,551 active and 116,839 newly established businesses in 2021. 2016 was designated as the "National Startup Year," accompanied by a series of policies aimed at supporting entrepreneurship. This indicates that the issue of entrepreneurship is receiving special attention from the government and society. Encouraging the development of entrepreneurial ideas helps tap into labor resources, capital, technology, and markets. In particular, it provides a favorable environment to maximize the intellectual, spiritual, and aspirational potential of the young generation today.

Furthermore, entrepreneurial ideas reduce the risk of unemployment, contribute to economic structural transformation, reduce the wealth gap, and promote the scientific and technological development of the country.

Although Vietnam has achieved some encouraging initial results, due to its slower starting point, the country's startup ecosystem and innovation still lag behind some countries in the region and globally. The context of the past five years has shown that there are still many obstacles and difficulties in promoting entrepreneurship activities in Vietnam. Specifically, policies supporting entrepreneurship remain unclear, and there are challenges in implementing and transferring technology between startup enterprises, research institutes, and universities. Support for technology application and transfer has not yet been highly effective.

Additionally, financial support policies, access to credit, and infrastructure, although existent, are general regulations that lack specificity according to regions, and there is a lack of detailed guidance, leading to inconsistency in actions. Furthermore, the human capital in Vietnam remains underdeveloped and weak, primarily due to the disconnect between universities, research institutes, provincial governments, and central ministries and sectors.

In the future, for the entrepreneurial movement to develop strongly and sustainably, Vietnam should quickly establish appropriate policies and legal regulations. In addition, specific programs are needed to shape and develop new startup enterprises. One of the most important aspects is establishing financial mechanisms to encourage private investment in startups. This will help narrow the gap and propel Vietnam toward becoming a strong nation in entrepreneurship.

The challenge posed for the aforementioned goal is to promote entrepreneurship activities in general and specifically among students in the northern midlands and mountainous areas. It is necessary to pay attention to the factors influencing an individual's decision to start a business. Entrepreneurial action occurs when an individual has a positive attitude, thoughts, and intentions about that action. A strong intention will always lead to efforts to start a new business, although the actual initiation of entrepreneurship may vary in speed due to surrounding environmental conditions.

Therefore, the ability to accurately forecast entrepreneurial behavior is crucial. Research on entrepreneurial intentions can reflect entrepreneurial behavior. Thus, to promote entrepreneurship among students in the northern midlands and mountainous areas, studying the factors influencing students' entrepreneurial intentions is considered appropriate.

2 Literature Review

Lee et al. [1] emphasized that the spirit of

entrepreneurship is highlighted in many countries as a way to promote economic growth and job creation. Sobel and King [2] identified entrepreneurship as a key to economic growth; thus, promoting youth entrepreneurship is a top priority for policymakers. To foster the spirit of entrepreneurship, educational programs play a crucial role. Åstebro et al. [3] provided evidence in the US showing that entrepreneurship education is not only for business students but also important for students in natural sciences, engineering, and even arts.

Rae and Woodier-Harris [4] argued that for businesses to have a strong knowledge base and successful management, a wide-ranging entrepreneurship education program for students is necessary. It provides them with the necessary knowledge to start a successful business and guides them toward a proper career path. Huber et al. [5] analyzed the effectiveness of early entrepreneurship education for elementary school children in the Netherlands and demonstrated that investing in early entrepreneurship education for children aged 11 or 12 leads to improvements in knowledge and entrepreneurial skills.

Some studies by foreign authors on entrepreneurial intention suggest that individuals with a desire to be their own boss often realize that entrepreneurship is a suitable career path for them [6] and a way to pursue their ideas and achieve personal goals and financial success [7]. Choo and Wong [8] also argue that starting a business is not an event but a process that may take many years of thinking, learning, and building a business. One does not become an entrepreneur overnight; they become an entrepreneur because of the influence of several factors, with the most important being their entrepreneurial intention [9].

Entrepreneurial intention can be considered as the first step in the entrepreneurial process [10,11] because intention is a direct precursor to behavior [12], and entrepreneurial behavior does not occur randomly but is an intentional activity [13]. Thus, entrepreneurial intention is a direct precursor to entrepreneurial behavior.

Many authors have studied the motivations that drive young people to start their own businesses, such as:

Ajzen [12] refers to attitude toward behavior at a level where individuals evaluate it negatively or positively. Armitage and Conner [14] also stated that attitude toward behavior reflects individuals' positive or negative evaluations of performing a specific behavior. From another perspective, Li [15] defines attitude toward behavior as an attraction to entrepreneurship. According to Gasse [16] and Robinson et al. [17], attitude toward behavior can be understood when an individual's attitude forms a comprehensive and ordered model, indicating consistency in their orientation toward entrepreneurial activities. Xavier et al. [18] defined attitude toward behavior as the extent to which individuals perceive good opportunities for entrepreneurship or have a link to the high social status of entrepreneurs.

Attitude toward entrepreneurial behavior can be developed and reinforced through signals from previous experiences and role models. External signals (availability of resources) and internal signals (individual's perception of capabilities and specific task knowledge) can promote the effectiveness of entrepreneurship and vice versa, reinforcing the attitude toward entrepreneurship [19]. In line with this view, Leong [20] conducted a similar study at Open University Malaysia and found that the more students evaluate the path of entrepreneurship, the higher their intention to become entrepreneurs. Therefore, individuals with a positive attitude toward entrepreneurship, seeing it as compatible with their overall life goals and perceiving opportunities to engage in entrepreneurial action, are likely to develop an intention to start a business [21].

In addressing the role of factors influencing the entrepreneurial decision of young people, Quan [22] studied the entrepreneurial thinking of Vietnamese youth at each stage of making the decision to start a business and the fundamental factors influencing the formation and development of entrepreneurial thinking among young entrepreneurs in Vietnam. The results of the author's research showed that the decision-making stage for entrepreneurship is very important, especially for young people with entrepreneurial intentions. To reach the step of deciding to start a business, they must go through the "quiet" stage—when young people are less interested in entrepreneurship; the "positive transition" stage—after becoming aware of entrepreneurship, young people will take positive actions to seek knowledge and accumulate experience and resources for entrepreneurship.

Nguyen [23] posits that emotional environment and personal experiences play a significant role in shaping the entrepreneurial potential of young individuals. Additionally, engaging in entrepreneurial orientation activities within and outside the university training program positively impacts two aspects: self-confidence and the desire to pursue entrepreneurship among university students in Vietnam.

Tu and Tien [24] outlined the hierarchy of factors that impact students' entrepreneurial intentions. They found that the most influential

factors were attitude and effectiveness, followed by education and entrepreneurial timing, capital, subjective norms, and perceived behavioral control based on personal experiences with entrepreneurial potential. This research sheds light on the key determinants that shape students' aspirations toward entrepreneurship

Nghi et al. [25] also proposed a research model on students' entrepreneurial intentions based on seven factors: attitude, subjective norms, education, work experience, passion for business, readiness for business, and capital. Survey results from 400 business administration students at colleges and universities in Can Tho City found that four factors impact students' entrepreneurial intentions: attitude and passion, readiness for business, subjective norms, and education. Among these factors, attitude and passion are key, having the greatest influence on students' intentions to start a business.

Nguyen Hai Dang et al. [26], on the other hand, acknowledge that among the factors influencing young people's entrepreneurship, alongside subjective factors related to the individuals themselves, there are also impacts from objective factors, specifically government policies. However, this study did not deeply analyze the extent of the impact of each factor on the entrepreneurship process of rural youth.

Trang [26] applied six personal perception factors derived from Ajzen's theory of planned behavior [12] and an additional factor of personal perception (perception of luck) based on the theory of locus of control. These factors were examined in relation to the entrepreneurial landscape in Vietnam. This study was conducted to develop a model of factors influencing the creative entrepreneurial intentions of engineering students in Vietnam. Additionally, two environmental factors, demographic characteristics and entrepreneurship training programs, were included in the research model as a control variable group to examine the differences in the impact of personal perception factors on entrepreneurial intentions among different groups of engineering students and to compare the readiness for entrepreneurship among these student groups.

In Pham Tran Le's [22] study, startup enterprises are deemed to require a special environment for development. The author investigated the model of an entrepreneurial ecosystem network in which the university factor was identified as crucial in transforming technologies from ideas into reality. The research also highlighted the need for collaboration between universities and other organizations such as banks, funding institutions, support services, etc., for startup enterprises to find partners, reduce time and effort in product development, and bring products to market. Pham Tran Le [22] also affirmed that the youth entrepreneurship process needs an entrepreneurial ecosystem, where young people can receive the necessary support to turn their ideas into reality.

However, these studies did not clearly define the state's role as a crucial intermediary in connecting the components within the ecosystem and the mechanisms and forms of collaboration among the relevant parties.

3 Materials and Methods

3.1 Approach

Based on an overview of research works and theoretical foundations regarding factors influencing entrepreneurial intentions of students in the Northern Midlands and Mountainous Region of Vietnam, the research model is constructed based on the theory of planned behavior. Additionally, this study inherits some factors from other research (entrepreneurship education, entrepreneurial experience), while also adding factors related to financial capability and students' abilities. The specific model proposed is as follows:

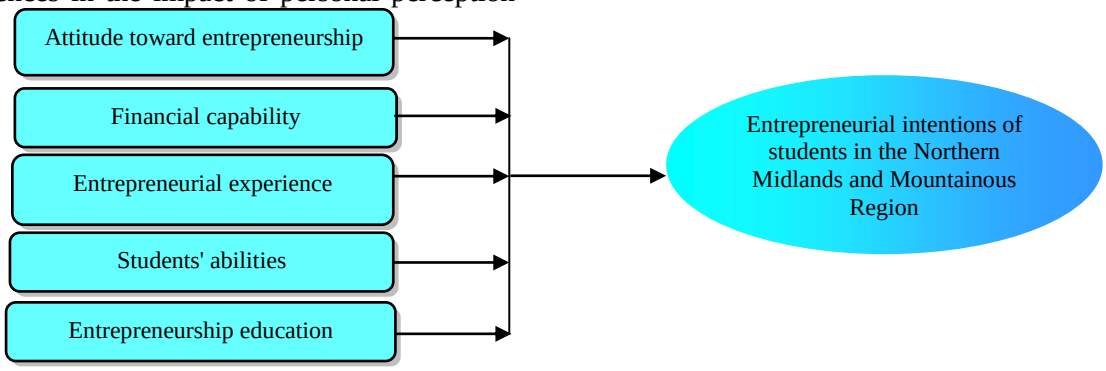

Fig. 1 Research model (The authors)

Fig. 1 represents the impact of the following factors on entrepreneurial intentions of students

in the Northern Midlands and Mountainous Region: attitude toward entrepreneurship, financial capability, entrepreneurial experience, students' abilities, and entrepreneurship education.

3.2 Sample Size for the Survey

According to Hair et al. [27], the minimum sample size recommended for using EFA is 50, preferably 100 or more.

For the minimum sample size for regression analysis, Green [28] provided two cases. In Case 1, if the purpose of the regression is to assess the overall fit of the model, such as R2 and the F-test, the minimum sample size is 50 + 8m (where m is the number of independent variables or predictors in the regression). In Case 2, if the purpose is to assess the individual factors of each independent variable, such as t-test and regression coefficients, the minimum sample size should be 104 + m (where m is the number of independent variables). For this study with five independent variables, the minimum sample size is 104 + 5 = 109.

Based on the analysis and size of the target population, which consists of students residing in the northern midlands and mountainous areas, the authors utilized a sample size of over 300 questionnaires for this study. Specifically, they intended to distribute 315 questionnaires.

The survey target: The research focused on examining the entrepreneurial intentions of fourth-year students of universities in the midland and mountainous areas of Northern Vietnam.

3.3 Analysis Method

The regression model used to analyze factors influencing entrepreneurial intention is as follows:

$Y = \beta_0 + \beta_1 X1 + \beta_2 X2 + \beta_3 X3 + \beta_4 X4 + \beta_5 X5 + \varepsilon_i$

The dependent variable (Y) is entrepreneurial intentions.

Independent variables (X) include X1 - attitude toward entrepreneurship, X2 - financial capability, X3 - entrepreneurial experience, X4 - student's capabilities, and X5 - entrepreneurship education.

Finally, based on the research findings, the study suggests several policies to strengthen the impact of the factors on entrepreneurial intention. The goal is to cultivate an entrepreneurial mindset and encourage implementation among students in the northern midlands and mountainous areas within the framework of digital transformation and the Fourth Industrial Revolution.

4 Results

4.1 Scale Testing Using Exploratory Factor Analysis (EFA)

In this analysis, the principal axis factoring method with the promax rotation was used, with stopping criteria for extracting factors with Eigenvalues ≥ 1 as they reflect the structure of the data more accurately than the principal component method with Varimax rotation. The scale was deemed acceptable when the total extracted variance ≥ 50%.

Tab. 1 Summary of the results from the EFA of the variables (Analysis of the investigation results)

Observed variables	KMO	Eigenvalue	Variance	Note
Attitude toward entrepreneurship	0,832	3,003	60,052	Accept
Financial capability	0,824	3,043	76,075	Accept
Entrepreneurial experience	0,794	2,930	73,238	Accept
Student's capabilities	0,723	2,972	74,297	Accept
Entrepreneurship education	0,802	3,062	76,542	Accept
Entrepreneurial intentions	0,834	3,172	79,301	Accept

The results show that all factors included in the analysis have factor loadings > 0.5, the KMO values range from 0 to 1, Eigenvalues are > 1, and all sig values are = 0.00 < 0.05, indicating that the factor analysis is appropriate. Additionally, all extracted variances of the factors are > 50%. Therefore, the EFA on the factors influencing entrepreneurial intention of students in the northern midlands and mountainous areas meets the requirements and has statistical significance.

Based on the preliminary evaluation of the EFA, all the measurement scales of the research concepts meet the requirements. The scales, after the preliminary factor analysis, will proceed to CFA to further confirm the factors and test the research hypotheses using a SEM linear structural model.

4.2 CFA Model for the Factors Influencing Entrepreneurial Intention of Students in the Northern Midlands and Mountainous Areas

The measurement scales for the factors influencing entrepreneurial intention of students in the northern midlands and mountainous areas include five components: attitude toward

entrepreneurship, financial capability, entrepreneurial experience, student capabilities, and entrepreneurial education. A total of 21 variables were included in the analysis. The results show that the model fits well with the data, with the following statistics: chi-square (χ^2) = 573.274, degrees of freedom (df) = 260, CMIN/df = 2.205 < 3, and p-value = 0.000. Other fit indices also meet the required criteria: the Tucker-Lewis index (TLI) = 0.928, comparative fit index (CFI) = 0.938 > 0.9, goodness-of-fit index (GFI) = 0.871 > 0.8, and root mean square error of approximation (RMSEA) = 0.063 < 0.08. All factor loadings of the variables were > 0.5, with p-values of 0.000 indicating statistical significance.

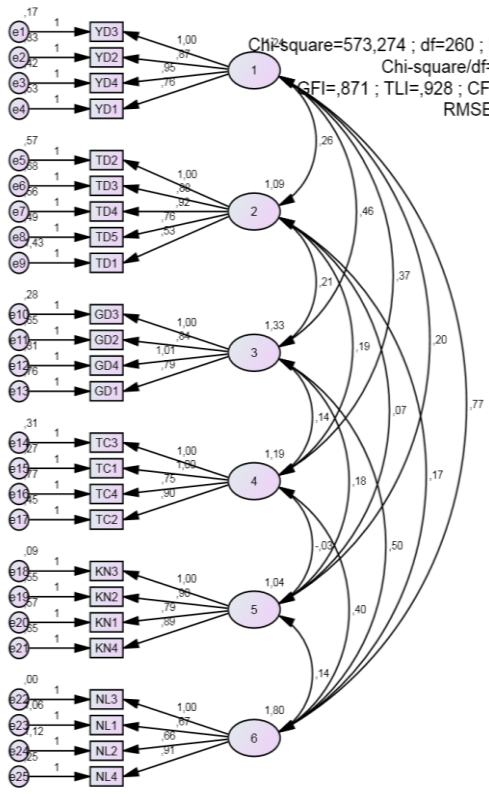

Fig. 2 CFA of the factors influencing entrepreneurial intention of students in the northern midlands and mountainous areas (Analysis of the investigation results)

Therefore, the results of the CFA for the model measuring the factors influencing entrepreneurial intention of students in the northern midlands and mountainous areas confirm the unidimensionality, convergent and discriminant validity, reliability, and alignment with the survey research data.

4.3 Testing the Theoretical Model and Research Hypotheses using SEM

The results show that the model fits well with the data, with the chi-square (χ^2) = 573.274, degrees of freedom (df) = 260, CMIN/df = 2.205 < 3, and p-value = 0.000. Other fit indices also meet the required criteria: the TLI = 0.928, CFI = 0.938 > 0.9, GFI = 0.871 > 0.8, and RMSEA = 0.063 < 0.08.

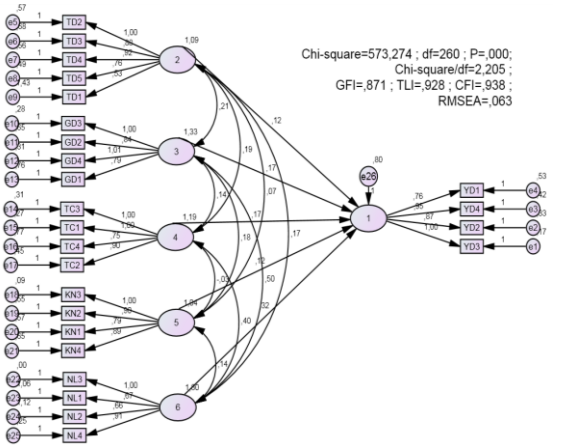

Fig. 3 Testing the theoretical model (Analysis of the investigation results)

All factor loadings of the variables were > 0.5, with p-values of 0.000 indicating statistical significance. This demonstrates that the theoretical model is appropriate for the survey research data.

The results also indicate that all relationships have a positive and direct impact on the entrepreneurial intention of students in the northern midlands and mountainous areas.

Below is a table summarizing the results of the causal relationships between the concepts in the theoretical model.

Tab. 2 Causal relationships in the theoretical model (Analysis of the investigation results)

			Estimate	S.E.	C.R.	P
Entrepreneurial intentions	<---	Attitude toward entrepreneurship	0,120	0,058	2,063	0,039
Entrepreneurial intentions	<---	Entrepreneurship education	0,171	0,054	3,179	0,001
Entrepreneurial intentions	<---	Financial capability	0,165	0,055	2,989	0,003
Entrepreneurial intentions	<---	Entrepreneurial experience	0,116	0,056	2,056	0,040
Entrepreneurial intentions	<---	Student’s capabilities	0,321	0,045	7,067	***

Tab. 2 demonstrates that all hypothesized relationships in the research model were confirmed through SEM model testing. The estimated coefficients for all paths are positive and statistically significant. This indicates that the concepts in the theoretical model, attitude

toward entrepreneurship, financial capability, entrepreneurial experience, student's capabilities, and entrepreneurship education, have a positive impact on the entrepreneurial intention of students in the northern midlands and mountainous areas.

In Tab. 3, we can see that the factor of students' capability has the strongest influence on the entrepreneurial intention of students in the North Central and Northern mountainous areas (standardized weight is 0.321), followed by the factor of education on entrepreneurship (standardized weight is 0.171), the third factor is financial capability (standardized weight is 0.165), the fourth factor is attitude toward entrepreneurship with a standardized weight of 0.120, and the fifth factor is experience in entrepreneurship (standardized weight is 0.116), all influencing the entrepreneurial intention of students in the North Central and Northern mountainous areas. Therefore, Hypotheses H1, H2, H3, H4, and H5 are accepted in the theoretical research model.

Tab. 3 Standardized regression coefficients of the theoretical model (Analysis of the investigation results)

Hypothesis		Correlation		Estimate	S.E.	C.R.	P
H1	Entrepreneurial intentions	<---	Attitude toward entrepreneurship	0,120	0,058	2,063	0,039
H2	Entrepreneurial intentions	<---	Financial capability	0,165	0,055	2,989	0,003
H3	Entrepreneurial intentions	<---	Entrepreneurial experience	0,116	0,056	2,056	0,040
H4	Entrepreneurial intentions	<---	Student's capabilities	0,321	0,045	7,067	***
H5	Entrepreneurial intentions	<---	Entrepreneurship education	0,171	0,054	3,179	0,001

5 Discussion

Hypothesis H1: There is a significant correlation between attitude toward entrepreneurship (AEE) and entrepreneurial intentions (EI) of students in the North Central and Northern Mountainous regions. The estimated results show that this hypothesis is accepted with a coefficient (β) of 0.120 and a significance level (P) of 0.039 < 0.05. This result confirms a positive relationship between attitude toward entrepreneurship and entrepreneurial intention of students in the North Central and Northern Mountainous regions, similarly to the findings by Ajzen [12], Armitage and Conner [14], Li [15], Tu and Tien [24], and Nghi et al. [25]. Thus, it can be seen that students highly value the role of this factor in their entrepreneurial intentions.

Hypothesis H2: There is a positive correlation between financial capability (FC) and entrepreneurial intentions (EI) of students in the North Central and Northern Mountainous regions. The results of the SEM analysis show a positive standardized regression coefficient, indicated by a + sign, between financial capability and entrepreneurial intention of students in the North Central and Northern Mountainous regions with a significance level of P = 0.003 < 0.05 and β = 0.165, indicating that Hypothesis H2 is accepted based on the empirical data. The results of this study align with previous research by Quan [22] and Nghi et al. [25]. This suggests that financial capability has a significant influence on the entrepreneurial intention of students in the North Central and Northern Mountainous regions.

Hypothesis H3: There is a positive correlation between entrepreneurial experience (EE) and entrepreneurial intentions (EI) of students in the North Central and Northern Mountainous regions. The results of the SEM analysis show a positive standardized regression coefficient, indicated by a + sign, between experience in entrepreneurship and entrepreneurial intention of students in the North Central and Northern Mountainous regions with a significance level of P = 0.040 < 0.05 and β = 0.116, indicating that Hypothesis H3 is accepted based on the empirical data. This is consistent with the findings by Nghi et al. [25].

Hypothesis H4: There is a positive correlation between students' capability (SC) and entrepreneurial intentions (EI) of students in the North Central and Northern Mountainous regions. The results of the SEM analysis show a positive standardized regression coefficient, indicated by a + sign, between students' capability and entrepreneurial intention of students in the North Central and Northern Mountainous regions with a significance level of P = 0.000 < 0.05 and β = 0.321, indicating that Hypothesis H4 is accepted based on the empirical data. This is a new factor introduced into the analysis, and for the target group of students in the North Central and Northern Mountainous regions, where conditions for entrepreneurial activities are limited, this is considered an important discovery. Students' capability is measured based on family background, learning conditions, and their knowledge, skills, and attitudes, which have a significant influence on their entrepreneurial intention.

Hypothesis H5: There is a positive correlation between education in entrepreneurship (EE) and entrepreneurial intentions (EI) of students in the North Central and Northern Mountainous regions. The estimated results show that this hypothesis is

accepted with a coefficient (β) of 0.171 and a significance level (P) of 0.001 < 0.05. This result affirms that in practical research conducted in the North Central and Northern Mountainous regions, students generally agree that the factor of education in entrepreneurship has a positive impact on their entrepreneurial intention. This is consistent with the findings by Åstebro et al. [3], Rae and Woodier-Harris [4], Huber et al. [5], Quan [22], Tu and Tien [24], and Nghi et al. [25]. Thus, it can be seen that students in the North Central and Northern Mountainous regions highly value the role of the education in entrepreneurship factor in their entrepreneurial intentions. In these areas, this factor is ranked second after students' capability. This indicates that education through schools and public media is particularly important, stimulating the creation of entrepreneurial intentions and spirits among Vietnamese youth in general and students in the North Central and Northern Mountainous regions in particular.

6 Conclusion

The study utilized EFA, CFA, and SEM methods to examine the relationships between factors influencing the entrepreneurial intention of students in the North Central and Northern Mountainous regions, with a sample size of 302 survey responses. The study identified a scale comprising five components with 21 observed variables that impact the entrepreneurial intention of students in the North Central and Northern Mountainous regions. These components include attitude toward entrepreneurship (TD), financial capability (TC), experience in entrepreneurship (KN), students' capability (NL), and education in entrepreneurship (GD). Among them, students' capabilities, education in entrepreneurship, and financial capacity have the strongest impact on the entrepreneurial intention of students in the North Central and Northern Mountainous regions. These research results are similar to those by Åstebro et al. [3], Rae and Woodier-Harris [4], Huber et al. [5], Ajzen [12], Armitage and Conner [14], Li [15], Quan [22], Tu and Tien [24], and Nghi et al. [25].

These results will serve as a basis for policymakers and school administrators to develop interventions aimed at fostering the entrepreneurial intentions and readiness of students in the North Central and Northern Mountainous regions specifically, and students across the country in general.

However, this study specifically examines the entrepreneurial intentions of students in rural areas of the Northern Midlands and Mountains on a small scale. As a result, the findings cannot be extrapolated to students from rural areas across the entire country. Therefore, for future research, this study proposes exploring the entrepreneurial intentions of students in other rural regions or throughout the country as a whole.

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