



# EXPLORATORY FACTOR ANALYSIS AFFECTING OF ENTREPRENEURSHIP CHARACTERISTIC FOR UNDERGRADUATE STUDENTS

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**Abstract-** Being a business entrepreneur means being a part of the economic development of the nation. This is because the resulting businesses are employed, producing goods and services leading to the creation of a national gross domestic product. However, if students develop entrepreneurial skills early in their school years, it is inevitable that it is best to prepare qualified citizens of the state. Therefore, the purpose of this study was analysis the exploratory factor analysis affecting entrepreneurship characteristics for undergraduate students. The sample group was 1,000 students in Year 1-4 in Northeastern higher education institutions. Data is collected by multi-stage random sampling. The research instrument was the Student Entrepreneurship Qualification Questionnaire, which was a 5-level estimate of 69 items, with a confidence of 0.98 reliability. The statistics used for data analysis were descriptive statistics and Exploratory factory analysis by component extraction using principal component analysis (PCA) method, and modify orthogonal Components with Varimax Method. The results of the research were as follows: Survey Components: Student Entrepreneurial Characteristics consist of 6 main components as follows: Risk Taking, Innovativeness, Proactiveness, Autonomy, Need for Achievement, and self-confidence, which every Component has an Eigen Value greater than 1.00, all Component can describe the cumulative variance at 38.07%. and the results of the research show that the components influencing student entrepreneurship traits.

**Keywords:** Exploratory Factor Analysis, Entrepreneurship Characteristic, Undergraduate Students

## I. INTRODUCTION

The 21<sup>st</sup> century a Globalization that is changing and advancing rapidly, whether it is the advancement of Information Technology, which allows people in all regions to communicate and receive information quickly through modern technology, including changes in the information-driven economy, knowledge, and innovation, where technology has replaced traditional work. As a result of these changing global circumstances, students need to adapt to new situations and cope with the changes that occur. The students are the age of learning, are always seeking goals that they enjoy and want to do, are creative, and try things to assess their abilities and express themselves. It is also the age that prepares to enter the world of work by choosing and considering making a career decision (Super, 1957: 99-188). However, although students are prepared to pursue a career, there are still graduates who suffer from unemployment, which is a national problem that continues every year. According to the Office of the Higher Education Commission, 1.8 million graduates are expected to be more unemployed by 2020. (National Statistical Office, 2019) which was consistent with the report of World Employment and Social Outlook: Trends in 2015 found that youth aged 15 -24-year-old 75 million people worldwide have an unemployment rate of 13 percent, which is about three times the number of adults unemployed (International Labor Office, 2015: 1-93). It is also estimated that more than 60 percent of youth in underdeveloped and developing countries will suffer from unemployment, including the problem of not being able to create new jobs to support this youth group. Besides, the rapid growth of technology and innovation has resulted in a decrease in the number of private-sector job creation. Nowadays, technology plays an important role in business and it is forecast that in the next 10 years, 50 percent of human labor jobs will be replaced by machines (World Economic Forum, 2014: 1-595).

Today, Thai youths, teenagers, and early working age groups have a greater desire to be entrepreneurs who have a positive view of the entrepreneurial profession such as it is seen as being independent, honorable, and able to generate income and wealth faster in life than any other career (Thadathibesra Phuthong, 2019: 99-117). Being youth entrepreneurship is a new topic that has attracted attention from academic circles, in line with the occupation trends of the working-age population around the world in the 21<sup>st</sup> century which had the highest growth rate in entrepreneurship since the inception of the Industrial revolution causing The Global Entrepreneurship Monitor (GEM) to see

that the current interest in Entrepreneurship has become the World-wide phenomenon in the 21<sup>st</sup> century. And also dubbed the labor force in the 21<sup>st</sup> century as “Generation E (Generation Entrepreneurs)”, or a group of entrepreneurial generation (Nipa OupparaJaradat (Sriwarom), 2015: 119-121). This is in line with Thailand, where the government has received policy and vision from Prime Minister General Prayut Chan-o-cha to develop startups into the New Economic Warrior by announcing a policy on April 28, 2016, that “We are planting new trees under the next generation of startups in the future, where we need to get them to thrive and bear fruit within 2 years” (Suvit Maesincee, 2018: 10-13). Besides, the government provides full support to startups, aiming to upgrade them as a new economic foundation for Thailand. The new generation is the initiator of creativity, combined with the use of new technologies and innovations as an important tool and mechanism for the strong development of the Thai economy. This is the main strategy and policy of the government in driving the economic growth of Thailand (Krittaya Sangkasem, 2017: 1-3). Besides, also in line with the concept of developing a country that is stable, wealthy, and sustainable under the Thailand 4.0 model to transform Thai society into a manufacturing economy to add a value of resources and knowledge-based products and services to create innovative research that extends to commercialization in response to the 20-year National Strategy (2017-2036), and the 12th edition of the National Economic and Social Development Plan focused on strengthening the economy. Therefore, entrepreneurs play a vital role in economic growth and development, especially for developing countries, it is the driving force for economic growth, job creation, and social adaptation (Anong Rungsuk, 2016: 1). Entrepreneurship is therefore an important driver of the 21<sup>st</sup>-century economy and a vital skill in the 21<sup>st</sup> century, a fundamental competence of the new generation that must be developed which can lead to success in life (Obschonka, 2013: 293-306).

In the study of the entrepreneurial character composition of students, the academics focused on a psychological perspective because psychological concepts were clearly linked to entrepreneurship (Rauch and Frese, 2000: 101). The scholars have explained that the entrepreneurial character component should consist of six components: (1) Internal locus of Control where success or failure is believed to be the result of one's ability and actions, not external factors. (2) The Need for Achievement is the driving force of an enthusiastic person who wants to succeed (McClelland, 1961). (3) Risk-Taking A risk-taking person calculates the risk of action before making a decision, assessing the pros and cons of risk at every step, besides, being an entrepreneur has to tolerate risks, make decisions in uncertain situations, and accept risks that may arise (Rauch and Frese, 2007: 359-360). (4) Innovativeness, which is positively influenced by creativity. (5) Proactiveness It is a behavior that focuses on positive change and is highly competitive (Searle, 2011: 3). And (6) Autonomy in which a person can make decisions for himself independently, and being independent of himself is also an important requirement that most people seek in their work (Otto et al., 2013: 261-275).

For this reason, the researcher is interested in studying the survey Components of student entrepreneurship traits. The researcher hopes that the results will be used as data to determine as a component for the development of the training program, the entrepreneurial characteristics of the students in the next stage, and for the students to have the following characteristics. Said and ready to be the driving force for Thailand 4.0 gracefully.

## Research Objective

This research aimed to analyze the analysis exploratory factor analysis affecting entrepreneurship characteristics for undergraduate students in higher education institutions in the Northeast of Thailand.

## II. RESEARCH METHODOLOGY

The population of this research is students studying in the first-4th year of undergraduate studies, the academic year 2019 in higher education institutions under the Ministry of Higher Education, Science, Research and Innovation in the Northeastern region. Which are 5 public universities, 2 autonomous universities, 11 Rajabhat universities, and 5 private universities, a total of 24 institutes, and has 382,519 students (Office of the Permanent Secretary for Higher Education, Science, Research and Innovation, 2019)

An example is 1,000 students studying in the 1-4 year of the 2019 academic year, which was obtained by Multi-stage random sampling, to determine the sample size used in the composition analysis, the researcher determined the sample size based on the concept of Comrey and Lee (1992) suggested that a sample of 1,000 people would be very good in the analysis of the composition.

Research instruments: The research instrument was a measure of student entrepreneurial characteristics, consisting of (1) general information of respondents. And (2) is a 5-level estimation scale model of 69 items with the confidence of the whole questionnaire at the level of 0.98

**Building data collection instruments:** The instrument used to analyze student entrepreneurial character composition was a measure of student entrepreneurship traits. The researcher has created a model to measure the entrepreneurial characteristics of students as follows. (1) Study documents and research related to students' entrepreneurship traits to get ideas, theories, definitions, and components of student entrepreneurship traits. (2) The results from the study of components and indicators of student entrepreneurship traits were used in part 1 of the research by In-depth Interviews, the main informant, which resulted in the definition and composition of the student's entrepreneurial characteristics as well as the empirical data obtained from the study of documents and research related to student's entrepreneurial traits to summarize the components of student entrepreneurship traits which are (A) Risk-taking, (B) Innovativeness, (C) Proactiveness, (D) Autonomy, (E) Need for Achievement, and (F) Internal locus of control. (3) Write a research conceptual framework for the component analysis of student entrepreneurship traits. The researcher then wrote a definition of the terms, characteristics of student entrepreneurship, to cover the variables studied. (4) Create a question for the Entrepreneurship Qualification of students, which is a rating scale of 5 levels. (5) Take the completed student entrepreneurship qualification test and propose to five experts to examine the quality of content validity. And the index of consistency between the question and the specific objective by Index of Item-Objective Congruence (IOC) And revise it according to the advice of experts, the researcher has set the criteria for expert consideration as follows; (A) Holds a doctorate in psychology and/or, (B) holds a doctorate in research and educational evaluation, (C) have post-graduate teaching experience at a public university, (D) have knowledge and experience in psychological examination instruments. (6) The researcher used the Entrepreneurship Characteristics measure of students who had obtained the revised expert consistency index to test it on the 1st - 4th-year students who were not the sample used in the actual study, and is similar to the sample to study 100 people. To determine the tool quality by analyzing the discriminant power of each question, and the Reliability of the Student Entrepreneurial Characteristics Survey using Cronbach's Alpha Coefficient which found that the entire questionnaire had the confidence value of the whole questionnaire at the .98 of reliability. (7) The researcher selects the questions that meet the criteria for finding the quality of the tools to publish as a complete measure of the entrepreneurial characteristics of the students.

**Data collection:** (1) The researcher brought a complete measure of the entrepreneurial characteristics of student students to 1,000 students in Northeastern higher education institutions to answer 1,000 questionnaires and receive them back, representing 100 percent. (2) in this study, 1,000 questionnaires were filled into the computer program to analyze the Exploratory Factor Analysis (EFA), to classify the Components and indicators of student entrepreneurship traits.

**Data analysis by exploratory factor analysis** as follows (1) Prepare data and perform data analysis by examining the basic terms of the exploratory factor analysis based on the KMO value greater than .05. And Bartlett's Test statistic was sig less than the preset significance shows that the variables are properly related to each other for further analysis of the Components. (2) The exploratory factor analysis by Principal Component Analysis and using the spindle rotation method by Varimax method using the following criteria for determining Components (SombatThairueakham, 2012: 137-152); (A) Selecting a variable into a Component, if any Component or question or less than 3 variables will omit the Component because it is considered ambiguous. (B) The value of the variable is observed in each Component, and for each indicator, the factor loading must not be less than 0.30. (C) The Component must have a variance of 1 or more. (3) Identify the component names following the common questionnaires of student entrepreneurship attributes.

Statistics used in data analysis; (1) The basic statistics are Mean, Standard Deviation. (2) The statistics used are Exploratory Factor Analysis (EFA) with the following 4 steps of analysis (SombatThairueakham, 2012: 135); (A) Correlation matrix preparation to examine the relationship between variables. (B) Preliminary extraction to explore how many Components are required. (C) Rotating the axis to check the variables attached to each Component. (D) Creating Component variables and Component scale. (SombatThairueakham, 2012: 112)

### III. RESULTS

1. The results of the suitability test from the preliminary examination of the entrepreneurial qualification question of the students found that the student's entrepreneurial qualification question is not a unit matrix, indicating that the student's entrepreneurial characteristics were correlated enough to be able to analyze the components further (Bartlett's Test:  $\chi^2=27836.69$  df=2346 p=.00). When considering each item there was Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) was 0.91, and Measure of

Sampling Adequacy: MSA is between 0.64-0.97 demonstrated that the student's entrepreneurial characteristics question was relevant enough to be used in the exploratory factor analysis further.

2. Extract the composition of the question, the characteristics of entrepreneurship found that The composition of the questions on the entrepreneurial characteristics of the student body is shown in Table 1.

**Table 1:**The extraction of the question Components, the entrepreneurial characteristics of the students.(n=1,000)

Communality			Communality		
Question	Initial	Extraction	Question	Initial	Extraction
Item 1	1.00	0.21	Item 21	1.00	0.50
Item 2	1.00	0.35	Item 22	1.00	0.31
Item 3	1.00	0.22	Item 23	1.00	0.39
Item 4	1.00	0.24	Item 24	1.00	0.55
Item 5	1.00	0.29	Item 25	1.00	0.36
Item 6	1.00	0.53	Item 26	1.00	0.36
Item 7	1.00	0.36	Item 27	1.00	0.34
Item 8	1.00	0.24	Item 28	1.00	0.31
Item 9	1.00	0.34	Item 29	1.00	0.51
Item 10	1.00	0.31	Item 30	1.00	0.26
Item 11	1.00	0.31	Item 31	1.00	0.31
Item 12	1.00	0.27	Item 32	1.00	0.33
Item 13	1.00	0.29	Item 33	1.00	0.51
Item 14	1.00	0.31	Item 34	1.00	0.38
Item 15	1.00	0.82	Item 35	1.00	0.22
Item 16	1.00	0.41	Item 36	1.00	0.24
Item 17	1.00	0.82	Item 37	1.00	0.42
Item 18	1.00	0.35	Item 38	1.00	0.21
Item 19	1.00	0.46	Item 39	1.00	0.32
Item 20	1.00	0.37	Item 40	1.00	0.47
Item 41	1.00	0.43	Item 56	1.00	0.49
Item 42	1.00	0.29	Item 57	1.00	0.43
Item 43	1.00	0.40	Item 58	1.00	0.11
Item 44	1.00	0.37	Item 59	1.00	0.31
Item 45	1.00	0.35	Item 60	1.00	0.43
Item 46	1.00	0.28	Item 61	1.00	0.31
Item 47	1.00	0.54	Item 62	1.00	0.48
Item 48	1.00	0.49	Item 63	1.00	0.23
Item 49	1.00	0.30	Item 64	1.00	0.32
Item 50	1.00	0.61	Item 65	1.00	0.44
Item 51	1.00	0.40	Item 66	1.00	0.42
Item 52	1.00	0.45	Item 67	1.00	0.31
Item 53	1.00	0.53	Item 68	1.00	0.61
Item 54	1.00	0.33	Item 69	1.00	0.47
Item 55	1.00	0.28			

From Table 1, it was found thatThe student's entrepreneurial characteristics are at a level where all variations can be explained.Item no. 15, I am interested in new ways to improve the efficiency of the work, and item no. 17 I am confident that new developments must be realized with the same maximum Component extraction value equal to 0.82. Item no. 58 I took failure to train myself to be successful, with a minimum extraction factor of 0.11.

3. Eigen Value Analysis Result of Component, Percentage of Variance, Cumulative Percentage variance of Student Entrepreneurship Qualifications, as shown in Table 2

**Table 2:** Eigen Value of Components, Percentage of Variance, Percentage of Cumulative Variance of Questions, Entrepreneurship Characteristics of Student Students. (n=1,000)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	12.62	18.29	18.29	12.62	18.29	18.29	11.32	16.41	16.41
2	6.34	9.18	27.47	6.34	9.18	27.47	4.32	6.26	22.67
3	2.30	3.34	30.81	2.30	3.34	30.81	3.36	4.86	27.53
4	1.80	2.61	33.42	1.80	2.61	33.42	2.65	3.84	31.37
5	1.71	2.48	35.90	1.71	2.48	35.90	2.44	3.54	34.91
6	1.50	2.17	38.07	1.50	2.17	38.07	2.18	3.16	38.07

From Table 2, it was found that the question of the entrepreneurial characteristics of students has six Components, of which component 1 can describe the cumulative variance as much as 16.41%. Next, Component 2 describes the variance at 6.26%. Component 3 describes the variance of 4.86%. Component 4 can describe the variance of 3.84%. Component 5 describes the variance of 3.54%. And Component 6 describes the variance of 3.16%. However, every component can describe cumulative variance was 38.07%.

4. The exploratory factor analysis of Student Entrepreneurship Qualifications: Data analysis: At this stage, the researcher takes the entrepreneurial character question of the student body to analyze the component using the Principal Component Analysis (PCA) technique, by using the orthogonal rotation of Varimax Method as table 3

**Table 3:** Component weight value of Questions about entrepreneurship characteristics of students (n=1,000)

Question	Component					
	1	2	3	4	5	6
Item 50 I will try to find new ways to work until the job is done.	0.71	-0.19	0.14	0.11	0.03	0.18
Item 24 I give up if the problem is too difficult.	0.71	-0.17	0.11	0.02	-0.08	0.00
Item 53 I felt that working I had never done before was tiring.	0.71	-0.05	0.10	-0.04	-0.02	0.10
Item 29 I will let others take the initiative.	0.68	-0.14	0.07	0.10	-0.02	-0.10
Item 48 I am not satisfied if I need to correct the work resulting from my mistake.	0.68	0.02	0.09	-0.06	-0.04	0.11
Item 47 I have a plan before work.	0.66	-0.24	0.11	0.14	0.00	0.12
Item 21 I feel pressured if I have to do things myself.	0.66	-0.07	0.03	0.10	0.05	-0.23
Item 62 I am afraid to express my opinion when I disagree with the majority.	0.66	-0.17	-0.06	-0.12	0.02	0.02
Item 68 I think that work does not need to be researched on new topics.	0.65	-0.29	0.19	0.08	0.00	0.24
Item 56 I am ready to seek new information in my work.	0.65	0.12	0.04	-0.11	-0.07	0.20
Item 37 I dare not deny my best friend, even though I disagree with that.	0.65	-0.03	-0.03	0.04	0.02	0.06
Item 19 I believe that if you take action first, it will easily make mistakes.	0.64	-0.16	0.10	0.13	0.03	-0.01
Item 51 I think it is difficult to keep track of jobs that have been submitted.	0.61	-0.03	0.06	-0.02	-0.07	0.13
Item 60 It was difficult for me to join the group with strangers.	0.61	-0.10	-0.16	-0.07	0.02	0.15
Item 6 I cannot accept the mistakes made by the decisions.	0.61	-0.28	0.28	0.08	-0.01	0.05
Item 66 I cannot deny my friends, although I	0.61	-0.18	0.01	0.08	0.05	0.11

Question	Component					
	1	2	3	4	5	6
strongly disagree.						
Item 16 I think it is difficult to change and do new things.	0.59	-0.08	0.09	0.17	0.00	-0.12
Item 44 I think that getting assigned to work that is not right will easily be damaged.	0.59	0.08	-0.03	-0.06	0.08	0.07
Item 25 I don't like the change from before.	0.58	-0.08	-0.02	-0.01	-0.03	-0.11
Item 7 I wouldn't take action if I wasn't sure I would be successful.	0.56	-0.16	0.10	0.10	0.00	0.03
Item 32 I am considerate to accept the opinions of others, even if there is not enough reason.	0.55	0.00	0.03	0.14	0.05	0.08
Item 69 I will react if someone wants to change my thinking.	0.54	-0.20	0.20	0.09	0.01	0.30
Item 59 I cannot make decisions about work if I feel stressed.	0.51	0.09	-0.04	-0.17	0.08	-0.02
Item 46 I like to continue working when the deadline is near.	0.47	0.23	-0.03	-0.05	-0.04	0.02
Item 14 I use my friends' ideas to work better than I think.	0.46	-0.09	0.20	0.16	-0.06	-0.14
Item 64 I think that in order to work successfully, it requires some admiration.	0.46	-0.09	0.30	0.00	0.08	0.06
Item 57 I prefer to work on my own without asking anyone for help.	0.45	-0.15	0.20	0.21	0.16	0.31
Item 28 When I have to make a decision, I will first ask the other person so that I do not go wrong.	0.39	0.12	0.05	0.13	-0.01	-0.36
Item 35 I am confident that I can explain the reasons for others to understand why they disagree on the matter.	0.36	0.02	0.17	0.22	-0.08	0.04
Item 41 I believe that enthusiasm is the path to success.	-0.15	0.64	0.02	-0.06	-0.01	0.03
Item 43 I will be responsible for the work that I am involved in.	-0.21	0.57	-0.02	0.11	0.11	0.00
Item 45 I am devoted to the work that I receive until I am done.	-0.11	0.56	0.09	0.06	0.14	-0.04
Item 52 I do periodic audits of my work to know the consequences.	-0.18	0.56	0.16	-0.19	0.13	-0.16
Item 54 I believe that planning will lead to success.	-0.17	0.53	-0.04	-0.02	0.13	-0.06
Item 39 I am free to work and set goals myself.	-0.06	0.49	0.13	0.00	0.05	0.23
Item 5 I will think carefully in all aspects before making a decision.	-0.04	0.47	0.16	0.15	-0.10	-0.11
Item 49 I will increase my efforts if the assignments are not good at.	-0.04	0.44	0.03	0.11	0.29	-0.08
Item 36 I can explain to others what makes others misunderstand.	-0.04	0.41	0.12	0.21	-0.07	0.09
Item 42 I cannot start over to make the job successful.	0.02	0.40	0.15	0.16	0.29	0.04
Item 55 I feel dissatisfied if I received a job I don't want to do.	-0.01	0.38	0.20	0.08	0.26	0.14
Item 65 I have the skills to communicate with others until I have a good relationship.	0.01	0.14	0.64	-0.09	0.09	-0.01
Item 18 I looked for opportunities to make people know me better.	0.12	0.11	0.57	0.07	-0.01	0.05
Item 27 If I have confidence in anything, I can make it a reality.	0.03	0.26	0.51	-0.02	0.00	0.10
Item 20 I will offer myself to my university activities as an experience and benefit for myself.	0.17	-0.07	0.48	0.29	0.10	-0.06

Question	Component					
	1	2	3	4	5	6
Item 23 I often see good opportunities before everyone else.	0.21	-0.04	0.45	0.30	0.14	0.19
Item 26 Even with little benefit, I will quickly change the way I work.	0.01	0.26	0.42	0.09	-0.03	0.34
Item 13 I love to think of new ways to do things.	-0.02	0.16	0.40	0.30	0.11	-0.10
Item 67 I like to plan how to solve problems in my work step by step.	0.01	0.21	0.38	0.19	0.29	-0.03
Item 63 I don't feel pressured when others disagree with ours.	0.22	0.00	0.35	0.10	-0.13	0.20
Item 22 I will enjoy overcoming obstacles to my work with my own mind.	-0.08	0.27	0.34	0.31	0.10	0.05
Item 38 I am confident that I can resolve conflicts with my friends by myself.	0.21	0.18	0.31	0.09	0.06	0.18
Item 9 No matter how much the risk is, if I decide, I will immediately take action.	0.17	0.11	-0.01	0.53	-0.05	0.13
Item 2 I can accept the mistakes made by my own decisions.	-0.18	0.16	-0.19	0.48	0.09	0.13
Item 10 I love to seek new ways of working.	-0.04	0.06	0.21	0.47	0.20	-0.03
Item 4 I can do some work even though I'm not sure I will be successful.	0.16	0.00	0.06	0.46	0.02	0.05
Item 11 I will analyze the possibility before deciding to act.	0.07	0.01	0.19	0.41	0.05	0.01
Item 12 I like to improve my work to be more efficient.	-0.11	0.33	0.08	0.36	0.10	-0.08
Item 30 I have a way to adjust the work before the problem occurs in time.	0.27	0.11	0.20	0.34	0.15	-0.04
Item 8 I think the courage to make decisions is the path to success.	-0.08	0.32	0.07	0.30	-0.04	0.18
Item 17 I am confident that new developments must come true.	-0.01	0.22	0.05	0.07	0.87	0.08
Item 15 I am interested in new ways to improve the efficiency of the work.	-0.01	0.22	0.05	0.07	0.87	0.08
Item 61 I believe that having a good relationship with others will help make the job more successful.	0.19	0.11	0.29	0.22	0.35	-0.01
Item 11 I view researching new topics as difficult and time consuming.	0.03	0.36	0.17	0.17	0.34	-0.08
Item 34 I am not anxious to make my own decisions, even if they are important.	0.12	0.08	0.32	0.13	0.05	0.49
Item 33 I am confident in my thinking, even if others disagree.	0.41	0.07	0.13	0.29	-0.04	0.49
Item 40 I hold my thoughts, even if others disagree.	0.46	0.00	0.17	0.10	0.04	0.47
Item 31 I will not pay attention to the criticism of others.	0.26	0.07	0.05	0.13	-0.01	0.46
Item 3 When making important decisions, I first consult with another person.	0.14	0.23	0.14	0.09	-0.09	-0.33
Item 58 I put failure to train myself to be successful.	-0.17	0.13	-0.14	0.11	-0.08	-0.16

From Table 3, it was found that the exploratory factor analysis, Questions about entrepreneurship characteristics of students, the researcher used the criteria for selecting questions consisting of an Eigen Value of more than 2.00. The component weights are over 0.30 or more. And the questions are consistent with the Component, so there are 35 items left, which student entrepreneurship traits have 6 Components.

#### IV. DISCUSSION

The exploratory factor analysis of student entrepreneurial characteristics questions. The researcher-led students' entrepreneurial characteristics questionnaires to analyze the components using Principal Component Analysis (PCA) technique by using Orthogonal Rotation of Varimax Method. Student Entrepreneurship features have 6 components as follows:

1. Component 1 Internal locus of Control has 9 questions, with component weights between 0.45-0.66 consisting of Item 62 I am afraid to express my opinion when I disagree with the majority. Item 68 I think that work does not need to be researched on new topics. Item 56 I am ready to seek new information in my work. Item 60 It was difficult for me to join the group with strangers. Item 66 I cannot deny my friends, although I strongly disagree. Item 69 I will react if someone wants to change my thinking. Item 59 I cannot make decisions about work if I feel stressed. Item 64 I think that to work successfully, it requires some admiration. And Item 57 I prefer to work on my own without asking anyone for help.

2. Component 2 Need for Achievement has 8 questions, the component weight is between 0.38-0.64, consisting of Item 41 I believe that enthusiasm is the path to success. Item 43 I will be responsible for the work that I am involved in. Item 45 I am devoted to the work that I receive until I am done. Item 52 I do periodic audits of my work to know the consequences. Item 54 I believe that planning will lead to success. Item 49 I will increase my efforts if the assignments are not good at. Item 42 I cannot start over to make the job successful. And Item 55 I feel dissatisfied if I received a job I don't want to do.

3. Component at 3 Proactiveness, there are 6 questions in question, the component weight is between 0.34-0.57, consisting of Item 18 I looked for opportunities to make people know me better. Item 27 If I have confidence in anything, I can make it a reality. Item 20 I will offer myself to my university activities as an experience and benefit for myself. Item 23 I often see good opportunities before everyone else. Item 26 Even with little benefit, I will quickly change the way I work. And Item 22 I will enjoy overcoming obstacles to my work with my own mind.

4. Component 4 Risk Taking has 5 questions with the component weight between 0.30-0.53, consisting of Item 9 No matter how much the risk is, if I decide, I will immediately take action. Item 2 I can accept the mistakes made by my own decisions. Item 4 I can do some work even though I'm not sure I will be successful. Item 11 will analyze the possibility before deciding to act. And Item 8 I think the courage to make decisions is the path to success.

5. Component at 5 Innovativeness, there are 3 questions with the component weight value between 0.34-0.87, consisting of Item 17 I am confident that new developments must come true. Item 15 I am interested in new ways to improve the efficiency of the work. And Item 11 I view researching new topics as difficult and time-consuming.

6. Component 6 Autonomy has 4 questions, the component weight is between 0.46-0.49, consisting of Item 34 I am not anxious to make my own decisions, even if they are important. Item 33 I am confident in my thinking, even if others disagree. Item 40 I hold my thoughts, even if others disagree. And Item 31 I will not pay attention to the criticism of others.

In summary, in the overall picture obtained from this study, a explore component of the entrepreneurial characteristics of students in the Northeast region of 6 components was obtained, Each component has many identifiers to better understand that component; (1) Internal locus of Control, indicators of resistance and tolerance to social influences, information search and work, interpersonal behavior, and success and competence behaviors. (2) Need for Achievements are indicators of enthusiasm, self-responsibility, the need to know the outcome of decisions and anticipate. (3) Proactiveness Indicators are self-paced, self-assured, and self-initiated. (4) Risk-Taking has an indicator that is bold to make decisions and dare to face failure. (5) Innovativeness is an indicator of creativity. And (6) Autonomy has an indicator, namely freedom to make decisions.

#### V. RESEARCH SUGGESTION

1. A Confirmation Factoring Analysis (CFA) should be performed to further expand the data into the entrepreneurial attributes of students in the Northeast region.

2. Further studies on student entrepreneurship traits should be undertaken in order to develop them to effectively achieve the goals they have set.



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