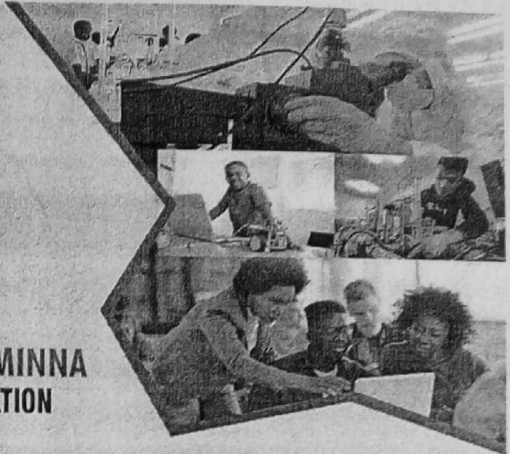


9<sup>th</sup> Hybrid International Conference of School of Science and Technology Education (SSTE)



FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA  
SCHOOL OF SCIENCE AND TECHNOLOGY EDUCATION

# 9<sup>TH</sup> SSTE HYBRID International Conference

— THEME: —

RE-THINKING THE FUTURE THROUGH  
**STEM AND TVET**  
FOR ACHIEVING SUSTAINABLE  
DEVELOPMENT GOALS

## Conference PROCEEDINGS

Monday, 2<sup>nd</sup> to Friday, 6<sup>th</sup> October, 2023

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA

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## **RISK-TAKING PROPENSITY AS PREDICTOR OF PRE-SERVICE UNIVERSITY SCIENCE TEACHERS ENTREPRENEURIAL INTENTION IN NIGER STATE.**

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### **Abstract**

*The study investigated risk-taking propensity as a predictor of pre-service university science teachers toward entrepreneurial intention in the Federal University of Technology, Minna, Niger State. Three research objectives, three research questions and one corresponding hypothesis guided the study. A correlational research design was adopted for this study. The population of the study comprised of three hundred and seventy-four (1,820) pre-service university science teachers out of which one hundred and eighty-one (90) pre-service university science teachers were selected and participated in the study. A fifteen (15) items Risk-Taking Propensity Questionnaire (RTPQ) and Entrepreneurial Intention Questionnaire (EIQ) were used to collect data. The two instruments were validated by experts. The internal consistency reliability of the two instruments were established and the reliability indices were calculated using Cronbach Alpha formula using SPSS version 26 and the reliability indices were found to be 0.84 and 0.888. The data collected were analyzed using mean, SD, scattered plot and regression analysis. The hypothesis was tested at 0.05 level of significance. The findings of the study revealed that the risk-taking propensity of pre-service university science teachers had significant moderate positive relationships with their entrepreneurial intention. Hence, the researchers therefore concluded that risk-taking propensity is major predictors of pre-service university science teacher's entrepreneurial intention. It was recommended among other that, policymakers should pay attention to risk-taking propensity as important factors in stimulating and entrenching entrepreneurship among the undergraduates and developing policies and programmes that would further ingrain entrepreneurship spirit in students is also an important plausible option. The existing compulsory entrepreneurship education strengthened with practical contents could thereby create opportunities for students to pitch business ideas and access start-up grants.*

**Keywords:** Entrepreneurial Intention, Pre-service University Science Teachers and Risk-Taking Propensity.

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### **Introduction**

In recent times, entrepreneurship has become a budding area of interest to both researchers as well as policymakers and governments across the globe (Do Paço *et al.*, 2015). The major reason for this development is that entrepreneurship has been perceived to be a key solution to socio-economic growth and development challenges confronting many nations, including Nigeria (Adelowo *et al.*, 2018). Recent study, through the collaborative effort of Small and Medium Enterprise Development Agency (SMEDAN) and National Bureau of Statistics (NBS), has demonstrated that micro, small and medium enterprises (MSMEs) contribute to employment and gross domestic product more than any other sector of the economy (SMEDAN-NBS, 2019). In fact, entrepreneurship has been argued to promote rapid economic growth as well as reduce the rate of unemployment (Adelowo *et al.*, 2021; Ezeh *et al.*, 2020). Unemployment is a major problem in Nigeria. The current figure shows that over 33% of Nigerians are unemployed (Statista, 2022). The more worrisome situation is the huge number of youth who are without a job, creating a breeding ground for social vices such as kidnapping, banditry, internet frauds and insurgency (Ezeh *et al.*, 2020; Adelowo *et al.*, 2021a). Nigerian population structure has shown that the country has the largest youth population in the world with a median age of 18.1 years while about 70% of the population are actually under 30 years of age (Akinyemi & Mobalaji, 2022). Thus, with a huge population and fewer institutions to absorb them in full-time employment, the government need to change its strategy and approach to education for national development. Adelowo *et al.* (2015) and Olofinyehun *et al.* (2022) have clearly identified the need to bolster existing entrepreneurship education programs in the country to stimulate job and wealth creation among the youth. For instance, from 2017 to date, the national budget has consistently placed emphasis on creating an enabling environment for businesses to thrive while also improving existing infrastructure to guarantee new business

development. One of these strategies as earlier noted is the need to promote entrepreneurship culture among youth, particularly from the undergraduate levels.

The entrepreneurship education was introduced to grow a critical mass of entrepreneurs among undergrads such that they become job creators rather than job seekers after graduation (Adelowo *et al.*, 2021a). However, Entrepreneurship education is understood as a key competence for students (including pre-service university science teachers) whose development, as well as that of the series of sub-competences that comprise it, will contribute to their personal and professional development as active citizens in a society in constant change; specifically, as facilitators of the comprehensive training of these citizens, especially undergraduates. Entrepreneurial intention is considered the best predictor for entrepreneurial behavior that translates into entrepreneurial action and without it, any further entrepreneurial steps will not exist (Akinwale *et al.*, 2019). It is pertinent to find out if changing the orientation of students from seeking employment to becoming self-employed could help in addressing the problem of unemployment in Nigeria. Therefore, eliciting their entrepreneurship intention in the first place is paramount.

Entrepreneurial intention is a relevant subject of study, as it defines the intention that individuals have to initiate their business (Lopes *et al.*, 2020). Entrepreneurial intention reflects the person's degree of willingness, desire, and readiness to pursue entrepreneurship as a career choice and to get involved in entrepreneurial activities (Alammari *et al.*, 2019). Hence, entrepreneurial intention has received considerable attention from scholars to investigate the factors that can trigger a person's intention to start an entrepreneurial venture (Ali *et al.*, 2019), and many factors have been examined. Entrepreneurial intention among pre-service university science teachers is another factor that would influence them to apply the skills after graduation. Despite the career guidance through entrepreneurial courses and seminars for undergraduates, it is not clear whether some of them will engage in entrepreneurship after graduation. Therefore, the study of entrepreneurial intention is a rapidly developing area of research (Liñán & Fayolle, 2015) and research suggests that entrepreneurial intention is an important precursor to becoming an entrepreneur (Zhao *et al.*, 2010). The intention is a key antecedent of action, and the study of entrepreneurial intention can deepen people's understanding of entrepreneurial cognition and behavior patterns. The formation of entrepreneurial intention is the product of the interaction between individuals and the environment. Consequently, there several factors that could influence entrepreneurship; some of the factors could include: cognitive environment, psychological and psycho-social among others. Some scholars apply the decision-making model to the study of entrepreneurial intention. However, for pre-service university science teachers to venture into a business must be ready to accept risk. A risk-taking propensity is an individual's personality trait which is considered to be important in selecting the project and the decision-making involved in the entrepreneurship profession (Sharaf *et al.*, 2018). The risk-taking ability helps pre-service university science teachers sustain an open innovation journey and foster competitiveness. Entrepreneurs know how to react in uncertain situations when he/she incorrectly evaluates the risks that were associated with certain operations. The accurate assessment of the risk-taking return leads to reduced errors and improves business strategies to achieve the goal confidentially (Butt *et al.*, 2015). Therefore, this study examined entrepreneurial intention and risk-taking propensity available for venture creation among pre-service university science teachers in Niger state, Nigeria.

### **Statement of the Research Problem**

The essence of education is to produce human resource that is self-reliant and employed to contribute positively to the socio-economic development of the society. However, Nigeria is plagued with high levels of unemployment and underemployment which could have resulted to banditry, kidnapping, and all forms of social vices. To address the problem of unemployment's, government of several countries in the world have turn to entrepreneurship and this can be seen in the introduction of entrepreneurship in the university. This innovation probably seeks to stimulate entrepreneurship intention among graduates of university. Nonetheless, other factors could also influence entrepreneurial intention such as creativity, government support, attitudes, risk taking propensity, perceive behavioral control and family background, among others. A study by Hunjra *et al.*, (2011) has shown that many factors that can influence entrepreneurial intentions. Include entrepreneurial attraction, networking support, capabilities, self-independence, self-reliance, age, gender, experience, family background, creativity,

perception of risk, government support, perceived behavior control and administrative difficulties among others.

Research has been conducted on the determinants of entrepreneurial intentions, a study by Margret (2021), aimed at assessing the psychosocial determinants of entrepreneurial intention among final-year students of the Faculty of Education, University of Calabar which the findings showed that their propensity to take risks influenced significantly the students' entrepreneurial intention. However, family background and locus of control did not have any significant influence on their entrepreneurial intention. George (2017) investigates and explains factors that influence entrepreneurial intentions among university students in Kenya which the findings of the study concluded that among the three factors of social norms, perceived barriers, and risk-taking, it is only the propensity to take risks that significantly influenced entrepreneurial intentions among students. The other two did not determine the entrepreneurial intentions of the students.

There seems to be scarcity of evidence that shows that pre-service university science teachers in Nigeria and particularly in Niger state possess entrepreneurial skills and the intention to become entrepreneurs and self-reliant. If this gap is not bridged, the Nigerian quest for sustainable economic development and graduates becoming self-employed and self-reliant could be a mirage. Therefore, this study seeks to determine factors influencing entrepreneurial intention among pre-service university science teachers.

### **Objectives of the Study**

The main aim of the study is to assess whether risk-taking propensity predicts entrepreneurship intentions among pre-services university science teachers of some selected tertiary institutions in Niger state. The specific objectives were to:

1. Determine the level of entrepreneurial intention of pre-service university science teachers
2. Determine the level of risk-taking propensity of pre-service university science teachers
3. Determine the relationship between the risk-taking propensity and entrepreneurial intention of pre-service university science teachers

### **Research Questions**

The following research questions were raised to guide the study:

1. What is the level of entrepreneurial intention of pre-service university science teachers?
2. What is the level of risk-taking propensity of pre-service university science teachers?
3. What is the relationship between risk-taking propensity and entrepreneurial intention of pre-service university science teachers?

### **Research hypotheses**

The following null hypotheses were formulated and tested at a 0.05 level of significance.

HO<sub>1</sub> There is no significant relationship between the risk-taking propensity and entrepreneurial intention of pre-service university science teachers.

### **Research Methodology**

A correlational research design was adopted for this study to determine the relationship between entrepreneurial intention and risk-taking propensity among pre-service university science teachers in Niger State, Nigeria. The population of the study comprises 1,820 pre-service university science teachers in the Federal Universities of Technology, Minna in Niger State.

A simple random sampling was adopted in selecting respondents from three universities that were used for the study. The sample size was determined using a guidelines given by krejcie and Morgan (1970), which proposed that Three hundred and fifty-one (351) participants are considered for a population of 4500 to 4999 in a research. A well-structured questionnaire based on individual student entrepreneurial perceptions. The instrument is named the Determinant of Entrepreneurial Intention Questionnaire (DEIQ). The instrument is divided into three (3) sections which are as follows: Demographic Data/information section (A), section (B) is Entrepreneurial Intentions (EI) with fifteen (15) items and section (C), Risk Taking Propensity with fifteen items (15). The questionnaire was developed on a five-



point Likert scale questions ranging from strongly agree, undecided to strongly disagree will be adopted (strongly agree = 5, Agree = 4, undecided =3, Disagree = 2, strongly disagree=1).

The instrument was given to three (3) experts, one from the Department of Science Education and two (2) from the Department of Industrial and Technology Education, School of Science and Technology Education, the Federal University of Technology Minna who after going through the instrument made some observations and corrections which includes; modified some items, added some items and removes some items from the instrument. A pilot study was conducted using the designed instrument to establish its reliability as well as the internal consistency index of the instrument. The pilot test was carried out on forty-four (44) pre-service university science teachers selected from Usman Danfodio Federal University affiliated with College of Education, Minna and the reliability of 0.880 and 0.712 for EI and RTP were found respectively. This result is supported by Sekaran and Bougie (2010) who reported that the reliability coefficient of 0.6 is considered as poor, 0.7 is considered acceptable and 0.8 is considered as good.

First week, an introductory letter was collected from the head of the department (H.O.D) which was used to obtain permission from the various institutions. The second week, the researcher visited all the three (3) institutions for briefing on the study. Third week, the researcher administered the questionnaire with the help of a research assistant. The copies of the questionnaire were administered and collected from the respondents through direct delivery and recovery method to achieve a high rate of return. The data collected were analyzed using scattered plots to answer research question and linear regression analysis to test research hypotheses.

### Analysis of Result

**Research Question One:** What is the level of entrepreneurial intention of pre-service university science teachers?

**Table 1: Mean and SD of Entrepreneurial Intention of Pre-Service University Science Teachers**

S/N	Items	N	Mean	SD	Decision
1	Starting a business is much more desirable to me than Agree other career opportunities I have	91	4.31	.915	
2	I would rather have many businesses than pursue Agree another promising career	91	3.95	1.159	
3	There is no limit as to how long I would give maximum Agree effort to establish my own business	91	4.24	.935	
4	my philosophy is to do whatever it takes to establish Agree my own business	91	4.42	.857	
5	Having my own business would entail great Agree satisfaction for me	91	4.41	.869	
6	I have confidence that my family member would approve Agree of my decision to start my own business	91	4.43	.701	
7	I am planning to start a business after acquiring the Agree theory of entrepreneurship courses through the program	91	4.38	.840	
8	Choosing a career as an entrepreneur is better than the Agree labor force in others.	91	4.19	.977	
9	I would want to have full control of my business Agree	91	4.43	.979	

10	I would be more respected if I had my own business than Agree if I were employed	91	4.35	.947
11	My skills and abilities will help me start a business Agree	91	4.27	.920
12	My experience will be very valuable in starting a business Agree	91	4.24	1.036
13	I have confidence that I can put in the effort needed to start a business Agree	91	4.23	1.096
14	If I try to start with a firm, I would have a high chance of succeeding Agree	91	4.07	1.063
15	Starting a firm and keeping it working would be easy for me Agree	91	4.00	1.011
16	My professional goal is to establish my own business Agree	91	4.29	.873
17	I will make an effort to start and run my own business in the future Agree	91	4.37	.902
18	I have seriously thought about starting a business someday Agree	91	4.29	.946
19	There is a strong probability that I will start my own business in the next 3 years Agree	91	4.23	.831

Table 1 shows the analysis of Mean and SD of Entrepreneurial Intention of Pre-Service University Science Teachers in Federal University of Technology Minna. The result revealed that respondent agree with statements for all item (one to nineteen) on entrepreneurial intention of pre-service university science teachers (N=91, Mean  $\geq$  3.95, SD  $\geq$  0.701) with a decision Mean of 3.0. Thus, pre-service undergraduate university students possess high level of entrepreneurial intention.

**Research Question Two:** What is the level of risk-taking propensity of pre-service university science teachers?

To answer research question two mean and SD was used and presented in table 2.

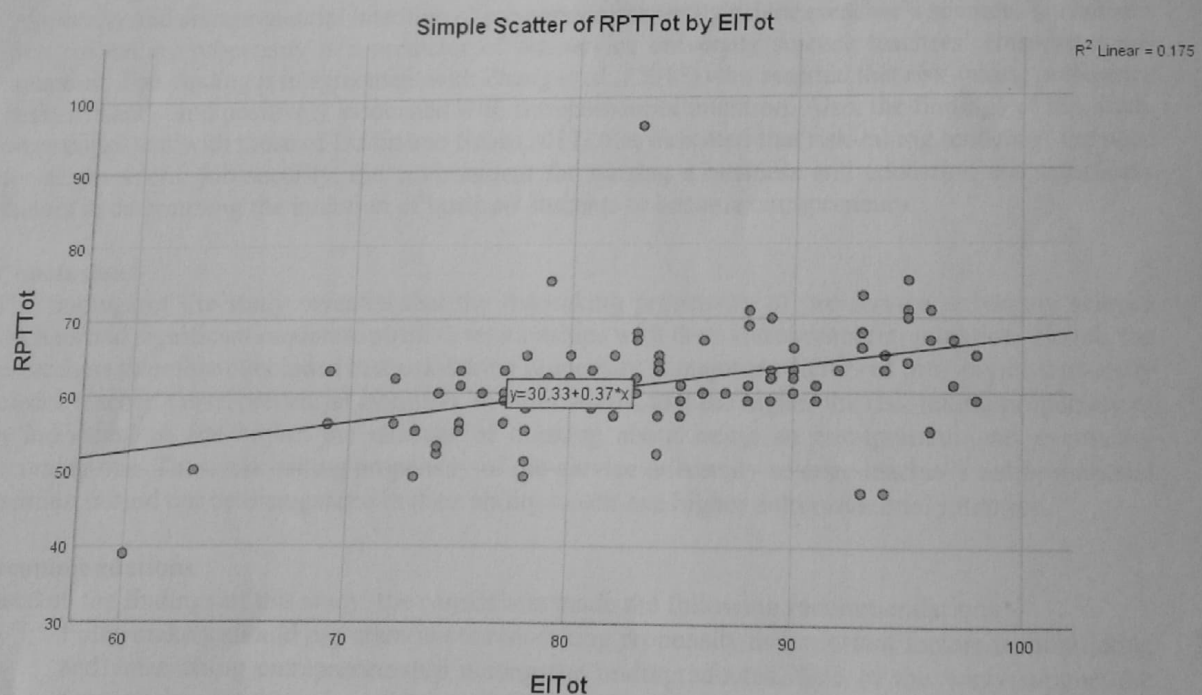
**Table 2: Mean and SD of Risk-Taking Propensity of Pre-Service University Science Teachers**

S/N	Items	N	Mean	SD	Decision
1.	I am open to new experiences and challenges Agree	91	4.43	.519	
2.	I am ready to accept the entrepreneurial risk Agree	91	4.34	.542	
3.	I enjoy taking daring actions by doing precarious activities Agree	91	4.13	.819	
4.	I enjoy taking daring actions by doing precarious activities Agree	91	3.63	1.267	
5.	I can look out for every possible risk Agree	91	4.05	1.047	
6.	I like to invest money and time in projects that might provide a higher return Agree	91	4.23	.804	
7.	I have confidence in my ability to recover from mistakes when venturing into business Agree	91	4.30	1.005	
8.	I tend to tolerate ambiguity and unpredictability in establishing Business Agree	91	4.00	1.000	

9. I can take bold steps in risky conditions when establishing a business Agree	91	4.40	4.219
10. I can go for new and uncommon businesses which are not certainly risky Agree	91	3.93	.998
11. I am cautious about unpredictable situations Agree	91	3.98	1.064
12. I accept whatever situations involving personal risk that will yield great rewards Agree	91	3.96	1.074
13. I am ready to take chances regardless of the risk Agree	91	4.02	.856
14. I view risk in a business as a situation to be avoided at all cost Agree	91	3.99	.983
15. I would never make a high-risk investment Agree	91	4.13	.957

Table 2 shows the analysis of Mean and SD of Risk-Taking Propensity of Pre-Service University Science Teachers in Federal University of Technology Minna. The result revealed that respondent agree with statements for all item (one to nineteen) on entrepreneurial intention of pre-service university science teachers (N=91, Mean  $\geq$  3.63, SD  $\geq$  0.542) with a decision Mean of 3.0. Thus, pre-service undergraduate university students possess high level of entrepreneurial intention.

**Research Question Three:** What is the relationship between risk-taking propensity and entrepreneurial intention of pre-service university science teachers?



**Figure 1: Scattered Plot of Risk-Taking Propensity and Entrepreneurial Intention of Pre-Service University Science Teachers**

Figure 1 shows the graph of simple scattered plot of risk-taking propensity and entrepreneurial intention of pre-service university science teachers. From the graph above, it was revealed that there was a moderate positive relationship between risk-taking propensity and entrepreneurial intention of pre-

service university science teachers with a coefficient of determination of 0.175 indicating 17.5% of variation in pre-service university science teacher's entrepreneurial intention is predicted by their risk-taking propensity. This means that there was a positive relationship between risk-taking propensity and their entrepreneurial intention. Hence, the more students developed positive risk-taking propensity, the better they will perform in establishing a business.

#### Null Hypothesis Testing

HO<sub>1</sub> There is no significant relationship between the risk-taking propensity and entrepreneurial intention of pre-service university science teachers.

**Table 3: Linear Regression Analysis of Students' risk-taking propensity and entrepreneurial intention of pre-service university science teachers**

Model	R	R Square	df	P-value
Risk-Taking Propensity	0.419	0.175	89	0.000

Dependent Variable: Entrepreneurial Intention

Predictors: (Constant), Risk-Taking Propensity

Table 3 shows Linear Regression Analysis of students' risk-taking propensity and entrepreneurial intention of pre-service university science teachers. The result revealed that there is significant a strong positive relationship between risk-taking propensity and entrepreneurial intention of pre-service university science teachers (N=89, R = 0.419, R<sup>2</sup> = 0.175, p<0.05). Thus, null hypothesis 1 is hereby rejected at  $p < 0.05$  and concluded that there is significant relationship between risk-taking propensity and entrepreneurial intention of pre-service university science teacher's science. Hence, risk-taking propensity is a predictor of pre-service university science teachers' entrepreneurial intention.

#### Discussion of the Result

The finding of this study revealed that there was a significant positive relationship between risk-taking propensity and entrepreneurial intention of pre-service university science teacher's science. This means that risk-taking propensity is a predictor of pre-service university science teachers' entrepreneurial intention. This finding is in agreement with Zhang *et al.*, (2015) who asserted that risk-taking preference is significantly and positively associated with entrepreneurial intention. Also, the findings of this study were consistent with those of Uddin and Bose (2012) that indicated that risk-taking tendency, the need for achievement, job security, the environment for starting a business and education are significant factors in determining the intention of business students to become entrepreneurs.

#### Conclusion

The findings of the study revealed that the risk-taking propensity of pre-service university science teachers had significant moderate positive relationships with their entrepreneurial intention. Hence, the researchers therefore concluded that risk-taking propensity is major predictors of pre-service university science teacher's entrepreneurial intention. In other words, that the higher the risk-taking propensity of an individual is, the higher the chances of thinking about being an entrepreneur and eventually becoming one. Thus, risk-taking propensity of pre-service university science teacher's entrepreneurial intention should not be disregarded in their ability to achieve higher entrepreneurial intention.

#### Recommendations

Based on the findings of this study, the researchers made the following recommendations.

1. Policymakers should pay attention to risk-taking propensity as important factors in stimulating and entrenching entrepreneurship among the undergraduates. One of the ways support the entrepreneurship behavior of the students is to familiarize parents and stakeholders with the overall goals of entrepreneurship education and solicit their support. This support could help deepen students' commitment to the course and enhance their readiness for venture creation after graduation.
2. Developing policies and programs that would further ingrain entrepreneurship spirit in students is also an important plausible option. The existing compulsory entrepreneurship education

strengthened with practical contents could thereby create opportunities for students to pitch business ideas and access start-up grants.

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