

# Influence of Personality Traits on Innovative Behaviour of Techno-Entrepreneurs

Sridevi Chennamsetti<sup>1</sup>, Dr.Shagufta Sayyed<sup>2</sup>

<sup>1</sup> MBA Department, MCE Society's Allana Institute of Management Sciences, Pune,

Maharashtra, India.

<sup>2</sup> MBA Department, MCE Society's Allana Institute of Management Sciences, Pune, Maharashtra,

India.

## **Abstract:**

Entrepreneurs contribute to economy of any country. Entrepreneurs not only make money, but they also create jobs for a large number of people. Entrepreneurs play a critical part in any country's development. There can be many types of entrepreneurs but here we study techno entrepreneurs. Techno entrepreneurs are playing crucial role in terms of technological development and finding new ways of doing business. In this paper the topic that is considered is techno entrepreneur's personality traits and innovative behaviour. While doing business what are the important aspects and how they behave in certain way and what are various aspects of their behaviour is covered in previous studies would be discussed and understood in this paper. The study further concentrates on what are the areas which are not covered and whether there is a scope for further study would be highlighted.

**Keywords: Techno-Entrepreneur, Need for Achievement, Tolerance of Ambiguity, Self-Efficacy, Innovative behaviour.**

## **Introduction**

### **Technology Entrepreneurs**

Entrepreneurs are wealth creators. Entrepreneurs with their vision, thought and innovative ways of doing things in terms of developing new product or service or better way of doing things for people. A technical entrepreneur is someone who employs technology for business objectives, whether it's an app or software. Consolidator is an example of a technological entrepreneur who connects technical and business concerns.

“Techno-entrepreneurship” refers to businesses/companies that rely on technology and the internet to operate. Many research has been conducted on entrepreneur personality characteristics. The big five personality characteristics, as well as specific personality traits relevant to entrepreneurs, have been highlighted in studies. Some studies concentrated on venture start-ups, mind-set of aspiring entrepreneurs, venture success. Very few studies have paid attention to behavioural aspects of entrepreneurs. Apart from technical capabilities techno entrepreneurs need to have managerial skills for managing environmental risks (Harms & Walsh, 2015). Techno-entrepreneurs make difference by create new products through collaborative experimentation. These products enable firm’s asset by expanding their knowledge in terms of science and technology (Bailetti, T. 2012). Use of technology like social media by entrepreneurs change the business process and become more interactive with their customers. According to study on Indian entrepreneurs by Sangeeta Gupta, technology has positive impact on innovative performance of entrepreneurs and their firm’s performance. (Sangeeta Gupta, Raiswa Saha et. al ,2020). Very Few studies are conducted on behavioural aspects of techno entrepreneurs in India.

## **Literature Review**

### **Personality Traits and Innovative Behaviour**

Characteristic patterns of thoughts, feelings, and behaviours are reflected in personality traits. Personality traits are frequently discussed in the context of organisational behaviour. The relationship between behaviour and personality traits is derived from organizational behaviour literature and suggest that there is lot of scope for future research. Many studies attempted to find out right set of entrepreneurial traits of entrepreneurs. Big five personality factors are used to understand the psychological determinants of entrepreneurial start up decisions and their intention to start a business. While analysing Romanian students Popescu et al. found that need for achievement represents an important personality trait that significantly influence the probability of opening a business in future. (Cristian Popescu, 2016). According to study by Chaudhary, Richa (2017) on Indian students’ personality traits locus of control, tolerance for ambiguity and innovativeness were found to be more relevant to entrepreneurs. Another study by Nor Azizan Che Embi et al (2019). mentioned that personality traits like leadership skill, need for achievement, tolerance for ambiguity, risk propensity are positively significantly associated to students’ intention to initiate entrepreneurial activities in Malaysia. One specific study has given

clear association of personality characteristic and entrepreneurial behaviour (Bostjan Antoncic, Tina Bratkovic Kregar, Gangaram Singh, and Alex F. DeNoble). Charoensukmongkol, P. (2022) specified in his study that there is a positive relationship between the improvisational behaviour of entrepreneurs and firm performance during crisis . In their meta-analysis of the association between company owner personality traits, business development, and success, Rauch and Freese focus on specific traits like achievement motive rather than broad categories of traits like the Big Five to predict entrepreneurial behaviour. In order to be successful, the study revealed that it is critical to examine the personality traits of business owners. In his study, Rauch (2010) explored firm-level innovation as well as owner-level innovation. He also argued that studying innovative behaviour, personality traits, and firm success is beneficial. An attempt has been made to comprehend entrepreneur's innovative behaviour.

There are two objectives of the study.

1. To understand specific personality traits of techno entrepreneurs.
2. To see if there is any a relation between personality traits and innovative behaviour of techno entrepreneurs.

Based on the literature review, three main personality traits are considered for the study. These personality traits are more relevant to entrepreneurs.

1. Need for Achievement (NA)
2. Tolerance of Ambiguity(TA)
3. Self- Efficacy (SE)

Based on the objectives of the study following hypotheses are drawn.

**Hypothesis 1:** There is an effect of Personality trait - **Need for Achievement (NA)** on innovative behaviour of techno entrepreneurs.

**Hypothesis 2:** There is an effect of Personality trait - **Tolerance of Ambiguity (TA)** on innovative behaviour of techno entrepreneurs.

**Hypothesis 3:** There is an effect of Personality trait - **Self Efficacy (SE)** on innovative behaviour of techno entrepreneurs.

## **Research Method**

The study is based on qualitative research and in depth interviews were conducted with 36 entrepreneurs based in Pune. Pune being the upcoming hub for entrepreneurs'. Primary data was collected from techno-entrepreneurs. Majority of these entrepreneurs are doing business using internet or other technology. Personality traits (need for achievement, tolerance of ambiguity, self-efficacy) are the independent variables, while techno entrepreneurs' innovative behaviour is the

dependent variable. All the entrepreneurs in the study are techno entrepreneurs having varied businesses.

**Sample Method**

Inferences are made through secondary data while selecting personality traits and innovative behaviour of techno-entrepreneur. For quantitative analysis data collected from entrepreneurs is used. Hypotheses were tested using the information acquired from entrepreneurs. A Semi structures interview contained questions related to personality traits and innovative behaviour were included while interacting with these entrepreneurs. Three personality traits were chosen for this study: Need for Achievement (NA), Tolerance of Ambiguity (TA), and Self-Efficacy (SE). NA (Need for Achievement): The respondents' need for achievement was assessed using five items from the Jackson personality inventory pool. The questions have five items related to TA (Tolerance of Ambiguity). We used four items from the general self-efficacy scale for SE(Self-Efficacy). Innovative Behaviour(IB): Seven items from Martin Lukes' Innovative Behaviour Inventory (IBI) and Innovation Support Inventory (IS) integrated scales, as well as Scott & Bruce's Ute Stephan scale.

Normality of the data is essential to apply this test. To verify the normality of the data. The data set three statistical tools have been used.

<b>Descriptive Statistics</b>					
	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
NA Score	36	-.304	.393	-.516	.768
TA Score	36	.028	.393	-1.266	.768
SE Score	36	.085	.393	-1.423	.768
IB Score	36	-.754	.393	1.212	.768
Valid N (list wise)	36				

**Table1. Skewness and Kurtosis**

**Skewness & Kurtosis calculation**

(1994). All of the elements are reframed to fit the study's needs.

Data for the study is derived from survey. Five-point Linkert scale ranging from one (Strongly disagree) to five (Strongly agree) were used for all survey items. Well established scales with documented reliability and validity were utilised whenever possible.

**Testing the hypothesis:** The test statistics used is Pearson’s correlation coefficient & it’s significance is tested by t test for significance of correlation coefficient.

If the skewness is between -0.8 and 0.8, and the kurtosis is between -3.0 and 3.0, we can infer normality.

All of the variables, including Need for Achievement (NA), Tolerance of Ambiguity (TA), Self-efficacy (SE), and Innovative Behaviour (IB), have a normal distribution, with skewness values between -0.8 and 0.8 and kurtosis values between -3.0 and 3.0.

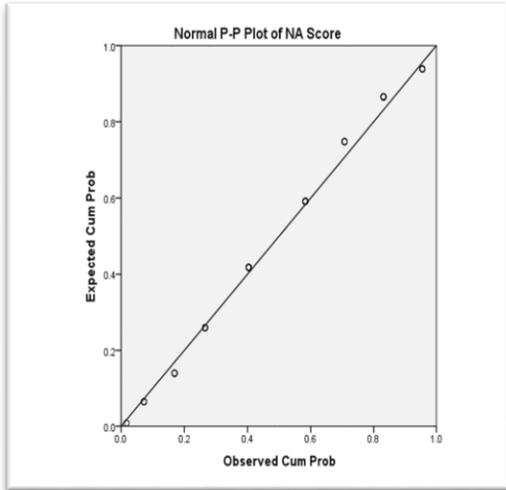


Fig (1) PP Plot of NA

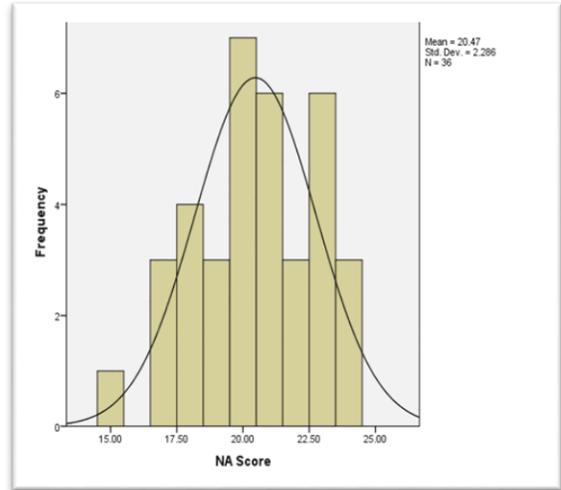


Fig (2) Histogram of NA

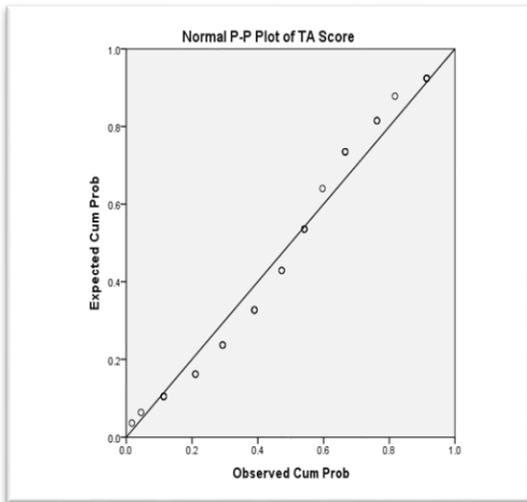


Fig (3) PP Plot of TA

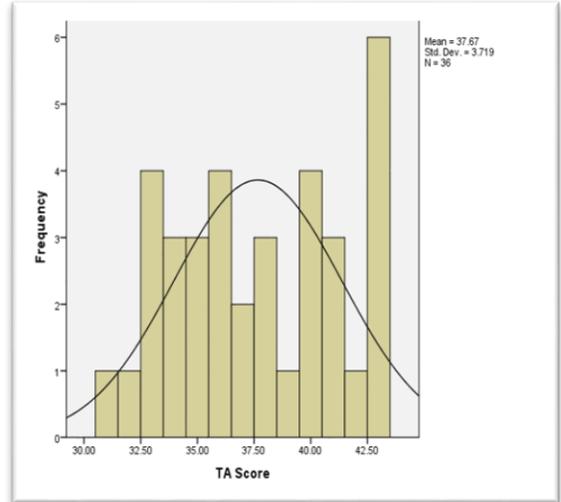


Fig (4) Histogram of TA

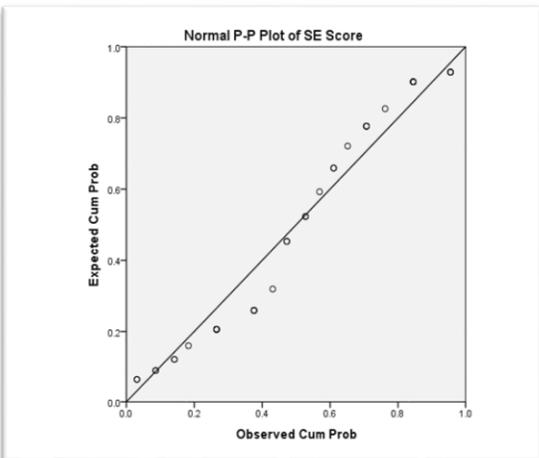


Fig (5) PP Plot of SE

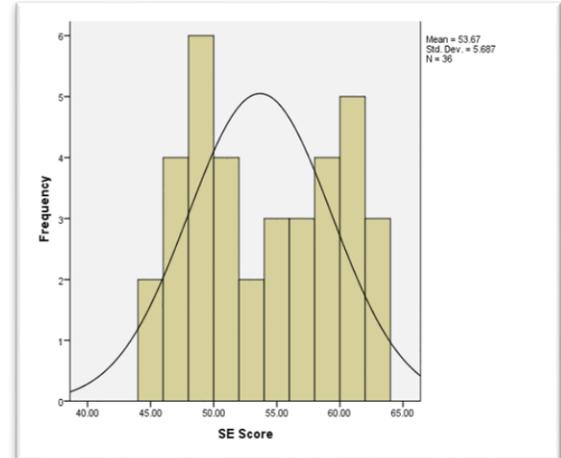


Fig (6) Histogram of SE

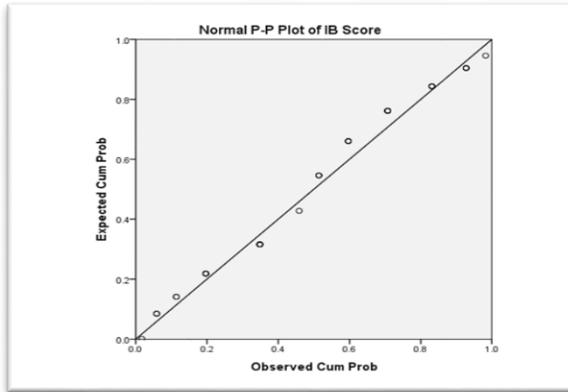


Fig (7) PP Plot of IB

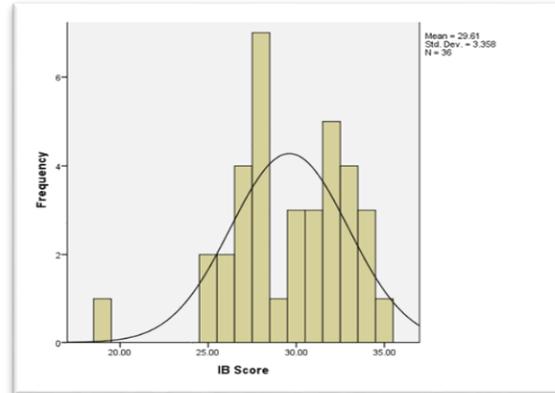


Fig (8) Histogram of IB

The smaller deviation of the data from normality is shown by the PP plot of Need for Achievement, Tolerance of Ambiguity, Self-Efficacy, and Innovative Behaviour. The normality of the data for Need for Achievement, Tolerance of Ambiguity, Self-Efficacy, and Innovative Behaviour in Histogram is confirmed by the 'bell' shaped curve fit.

Hence the normality for Need for achievement (NA), Tolerance of ambiguity (TA), Self-efficacy (SE) & Innovative behaviour (IB) is assumed & t-test for correlation is carried out below.

As per assumptions we consider that there is an effect of all the above mentioned Personality traits on innovative behaviour of techno entrepreneurs.

### **Need for Achievement (NA)**

**Hypothesis 1:** There is effect of Personality trait - **Need for Achievement (NA)** on innovative Behaviour of techno entrepreneurs.

The test statistics used is Pearson's correlation coefficient & it's significance is tested by t test for significance of correlation coefficient.

The Pearson's correlation coefficient between Need for Achievement & Innovative Behaviour of techno entrepreneurs is as given below.

<b>Correlations</b>			
		NA Score	IB Score
NA Score	Pearson Correlation	1	.538**
	Pvalue(2-tailed)		.001
	N	36	36
IB Score	Pearson Correlation	.538**	1
	Pvalue(2-tailed)	.001	
	N	36	36
**. Correlation is significant at the 0.01 level (2-tailed).			

**Table 2. Pearson Correlation coefficient**

There is strong evidence to reject the null hypothesis, with a p value of 0.001 and a threshold of significance of 0.05. There is a link between techno entrepreneurs' "need for achievement" and their "innovative behaviour." The positive correlation coefficient ( $r = 0.538$ ) indicates that as one variable rises, the other rises with it.

### **Tolerance of Ambiguity (TA)**

**Hypothesis 2:** There is effect of Personality trait - **Tolerance of Ambiguity (TA)** on innovative Behaviour of techno entrepreneurs.

The test statistics used is Pearson's correlation coefficient & it's significance is tested by t test for significance of correlation coefficient. The Pearson's correlation coefficient between 'Tolerance of Ambiguity' & 'Innovative Behaviour' of techno entrepreneurs is as given below.

<b>Correlations</b>			
		TA Score	IB Score
TA Score	Pearson Correlation	1	.669**
	Pvalue(2-tailed)		.000
	N	36	36
IB Score	Pearson Correlation	.669**	1
	P value (2-tailed)	.000	
	N	36	36
**. Correlation is significant at the 0.01 level (2-tailed).			

**Table 3. Pearson Correlation coefficient**

Since  $p \text{ value} = 0.000 < \text{level of significance} = 0.05$ , there is strong evidence to reject the null hypothesis. There is significant relationship between Tolerance of Ambiguity & Innovative Behaviour of techno entrepreneurs. The positive correlation coefficient ( $r = 0.669$ ) shows that as the one variable increases with the other.

### **Self-Efficacy (SE)**

**Hypothesis 3:** There is effect of Personality trait - **Self Efficacy (SE)** on innovative Behaviour of techno entrepreneurs.

To prove that there **is significant effect** of 'Self-Efficacy' on 'Innovative Behaviour' of techno entrepreneurs. The test statistics used is Pearson's correlation coefficient & it's significance is tested by t test for significance of correlation coefficient.

The Pearson's correlation coefficient between 'Self-Efficacy' & 'Innovative Behaviour' of techno entrepreneurs is as given below.

<b>Correlations</b>			
		SE Score	IB Score
SE Score	Pearson Correlation	1	.725**
	P value (2-tailed)		.000
	N	36	36
IB Score	Pearson Correlation	.725**	1
	P value (2-tailed)	.000	
	N	36	36
**. Correlation is significant at the 0.01 level (2-tailed).			

**Table 4 Pearson Correlation coefficient**

Since  $p \text{ value} = 0.000 < \text{level of significance} = 0.05$ , there is strong evidence to reject the null hypothesis.

The positive correlation coefficient ( $r = 0.725$ ) shows that as the one variable increases with the other. It clearly indicates how personality traits and innovative behaviour are linked.

**Conclusion:**

Secondary information available from literature review helped to choose right personality traits for the study and primary data helped to relate personality traits and innovative behaviour of techno entrepreneurs. The data is less deviated from normality in the PP plot of all personality traits and innovative behaviour. The normality of the data for 'Need for achievement' , 'Tolerance of ambiguity' and Self-efficacy. Normality of Data is confirmed by the bell-shaped curve fit for all variables. There is a strong link between techno entrepreneurs' personality traits and their innovative behaviour.

Based on conclusions for Hypothesis1, Hypothesis2, Hypothesis3, the Personality traits – ‘Need for Achievement’, ‘Tolerance of Ambiguity’ & ‘Self-Efficacy’ have positive impact on Innovative Behaviour. Hence there is an effect of Personality traits on innovative behaviour of techno entrepreneurs’ is accepted.

According to the findings, there is a link between techno entrepreneur personality traits and innovative behaviour. It is critical for a business owner to be innovative. When an entrepreneur uses technology in his firm, he should be more innovative, and his personality traits can help him be more effective and direct him in the proper way to achieve the goals he has set for himself. Researchers who are intended to do research on entrepreneurs can test how other personality traits related to entrepreneurs behaviour. As the sample size is small similar study could be conducted with large population.

## References

**Bostjan Antoncic, Tina Bratkovic Kregar, Gangaram Singh, and Alex F. DeNoble(2015),** The Big Five Personality- Entrepreneurship Relationship : Evidence from Slovenia, *Journal of Small Business Management*, Vol.53 pp. 819-841.

**Brandstatter, H.(2011),** Personality aspects of entrepreneurship: A look at five meta-analyses. *Personality and Individual Differences*,5193,222-230.

**Chen, C.C.,P.G.Greene, and A.Crick.1998,** “ Does entrepreneurial self-efficacy distinguish entrepreneurs from managers?” *Journal of Business Venturing*. 13: 295-316.

**Lukes, M** “Entrepreneurs as Innovators : A Multi-Country Study on Entrepreneurs’ Innovative Behaviour(2013), *Article in Prague Economic Papers*.

**Lukes M.,Stephan,U.,Cernikova A.(2009),**“Measuring Innovative Behaviour and Innovation support.” Paper presented at the 2<sup>nd</sup> ISPM Innovation Symposium, New York.

**McAdam,R. and McClellanf, J.(2002),** “Individual and team-based idea generation within innovation management : organizational and research agendas”, *European Journal of Innovation Management*, Vol.5 No.2 pp. 86-97.

**Mueller, S.L.,Thomas, A.S. (2000),** “Culture and Entrepreneurial Potential: A Nine Country Study of Locus of Control and Innovativeness. “ *Journal of Business Venturing*, Vol. 16, pp.51-75.

**Rainer Harms & Steven T.Walsh(2015),** An Introduction to the Field of Technology Entrepreneurship: Editorial to the Special Issue, *Creativity and Innovation Management*, Vol. 24, pp. 552-557.

**Rauch,A.,Frese, M.(2007),** “let’s Put the Person Back into Entrepreneurship Research : A Meta-Analysis on the Relationship Between Business Owners’ Personality Traits, Business Creation and Success “*European Journal of Work and Organizational Psychology*, Vol. 16, pp.353-385.

**Rauch, A.(2010),** “Dispositions of Entrepreneurs: Exploring Entrepreneurs’ Personality Characteristics.”In M. Lukes, M. Laguna(Eds.), *Entrepreneurship: A Psychological Approach* (pp. 37-54), Prague: Oeconomica.

**Rauch, A., J. Wiklund, G.T. Lumpkin & M.Frese. (2009).** Entrepreneurial orientation and business performance : An assessment of past research and suggestions for the future *Entrepreneurship Theory and Practice*, 33,761-787.

**Shane, S., Venkataraman, S., MacMillan, I. (1995),** “Cultural differences in Innovation Championing Strategies. “*Journal of Management*, Vol.21, pp.931-952.

**Shane, S.A., Kolvereid, L., Westhead, P.(1991)**, “An Exploratory Examination of the Reasons Leading to New Firm Formation across Country and Gender. “*Journal of Business Venturing*. Vol 6, pp.431-446.

**Schumpeter, J. (1934)**, “ *The Theory of Economic Development.*” Cambridge, MA: Harvard University Press. (Translation of the original German work titled *Theorie der Wirtschaftlichen Entwicklung*)

**Tuunanen, M., Hyrsky, K, (1997)**, “Innovation Preferences Among Finnish and U.S Entrepreneurs.” *Academy of Entrepreneurship Journal*, Vol.3, No. 1, pp. 1-11.

**Utsch, A., Rauch, A., Rothfuss, R., Frese, M.(1999)**, “Who Becomes a Small-Scale Entrepreneur in A Post-socialist Environment: On the Differences between Entrepreneurs and Managers in East Germany.” *Journal of Small Business Management*, Vol. 37, No.3, pp. 31-42.

**Zhao, H. & S.E.Seibert.(2006)**. The big five personality dimensions and entrepreneurial status: A meta-analytical review. *Journal of Applied Psychology*, 91, 259-271.

**Zhao, H., S.E. Seibert & G. E. Hills. (2005)**. The mediating role of self-efficacy in the development of entrepreneurial intentions. *Journal of Applied Psychology*, 90, 1265-1272.

**Zhao, H., S.E. Seibert & G.T Lumpkin. (2010)**. The relationship of personality to entrepreneurial intentions and performance : A meta-analytic review. *Journal of Management*, 36, 381-404.

**Cristian C. Popescu, Ioan Bogdan Robu, Andrei Maxim,Bostan Lonel, Laura Maxim,(2016)**, An Analysis of the Determinants of Entrepreneurial Intentions among Students: A Romanian Case Study, *www.mdpi.com/journal/sustainability, Sustainability 2016,8, 771*.

**Richa Chaudhary(2017)**, Demographic factors, personality and entrepreneurial inclination A study among Indian university students, *Education + Training, Vol. 59 Iss 2 pp. 171 – 187*

**Che Embi, N.A., Jaiyeoba, H.B. and Yussof, S.A. (2019)**, "The effects of students' entrepreneurial characteristics on their propensity to become entrepreneurs in Malaysia", *Education + Training, Vol. 61 No. 7/8, pp. 1020-1037. <https://doi.org/10.1108/ET-11-2018-0229>*

**Charoensukmongkol, P. (2022)**, "Does entrepreneurs' improvisational behavior improve firm performance in time of crisis?", *Management Research Review, Vol. 45 No. 1, pp. 26-46. <https://doi.org/10.1108/MRR-12-2020-0738>*