Journal of Social & Organizational Matters

Vol 4 No 1 (2025): 136-177

An Empirical Study on the Effects of Entrepreneurial Orientation Dimensions on Entrepreneurial Success: The Role of Environmental Turbulence

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Keywords: *Entrepreneurship, Entrepreneurial Success, Environmental Turbulence, Entrepreneurial Orientation, Proactiveness, Risk-Taking, Innovativeness*

DOI No: https://doi.org/10.56976/jsom.v4i1.177

Every entrepreneurship is focused on achieving success. Previous studies have looked at the effects of dimensions of entrepreneurial orientation including innovativeness, proactiveness and risk-taking on entrepreneurial success. There was still a gap in-terms of studying the effect of environmental turbulence on the above stated mechanism. A quantitative study was formulated with data collected from entrepreneurs who are currently running entrepreneurships or have at least one year experience of establishing entrepreneurial firms in the past. Data was collected from 422 respondents using simple random sampling. Hypothesis testing was done using linear regression and moderation analysis using Hayes (2017) method. Analysis was conducted through JASP software. Results indicate that there is a significant positive effect of entrepreneurial orientation dimensions innovativeness, proactiveness and risk-taking on entrepreneurial success. Environmental turbulence is also found to have a strong moderating role on these relationships. For innovativeness it was found that as environmental turbulence increases, the effect of innovativeness on entrepreneurial success becomes stronger. For proactiveness and risk-taking at low levels of turbulence both variables have a significant effect on success, but at high levels of turbulence the effect for both of these variables becomes insignificant. Future studies can look at the influence of environmental turbulence of other constructs of entrepreneurial orientation on entrepreneurial success.

1. Introduction

Entrepreneurial success is a panacea coveted by entrepreneurs and economies as well. But success cannot be achieved without facing challenges. In entrepreneurship studies, a topic which is garnering attention is how entrepreneurial ventures address grand challenges (Keim et al., 2024). Entrepreneurial Orientation has a significant effect on success of small and medium enterprises (Amin et al., 2016; Zehir et al., 2015). The effect of separate dimensions on firm success have also been studied (Bernoster et al., 2018; Zhang & Zhang, 2012; Lumpkin & Dess, 1996). The significant interaction of environmental turbulence on entrepreneurial success is a complex and multifaceted issue that encompasses various factors. Environmental turbulence can be defined as "the degree of unpredictability, instability, and rapid change within the external environment". All entrepreneurs operate in an environment in which levels of turbulence vary. This environment includes factors such as market dynamics, regulatory changes, technological advancements, economic conditions, and socio-cultural trends. There are many ways in which environmental turbulence may impact entrepreneurial success. High levels of turbulence can create opportunities for entrepreneurs to leverage business growth and innovation and identify unmet needs, gaps in the market. However, excessive turbulence can also make it challenging to accurately assess market demand and develop effective strategies for exploiting these opportunities. It is important for entrepreneurs to be cognizant of the turbulence in the environment. Turbulence can lead to increased uncertainty and resource constraints, making it difficult for entrepreneurs to secure funding, attract talent, or access necessary resources for business operations and growth. Successful entrepreneurs must effectively manage risks, anticipate potential threats, and build resilience to withstand market shocks and disruptions. This may involve diversifying revenue streams, building robust networks, or investing in contingency planning.

Pakistan is the fifth largest country in the world in terms of population and the thirty third largest in terms of land mass (Asad, n.d). The total size of the economy is estimated to be $457 billion (nominal GDP), of which the informal economy is 40% of the GDP (Ayaz, 2023). According to Zafar and Mustafa (2017) most of the non-rural population is employed by a large number of small and medium enterprises. Afraz et al. (2014) in their study presented that 90 percent of all economic establishments in Pakistan can be categorized in small and medium enterprises (SMEs) in Pakistan constitute, and this warrants special attention. In the same satudy, Afraz et al. (2014) highlighted the fact that the stagnation of the manufacturing sector, low levels of productivity, and stunted firm growth are the major challenges facing SMEs in Pakistan. In their study, Munir & Khan (2011) summarize the major reasons for the inhibited growth of the economy. Which include, political instability macroeconomic instability, insufficient judicial system, corruption, low levels of skilled labor, inadequate business management and strategy, credit market failures, weak institutions, infrastructural constraints and the shortage and high cost of energy. All of these factors create a lot turbulence in the environment for all enterprises including entrepreneurships.

1.1 Research Questions

1) Is there a positive effect of entrepreneurial orientation dimensions on entrepreneurial success?

2) Does environmental turbulence effect the relationship between entrepreneurial orientation dimensions on entrepreneurial success?

2. Literature Review

Every entrepreneurship desire to achieve success at all points of its existence. In the journey to that end, it is surely encountered by times where the environment becomes turbulent presenting many challenges to success and even survival. The source of the turbulence in the environment may be from the political and economic realms, market competition or even turbulence caused by change in technology.

2.1 Entrepreneurial Success

Entrepreneurial success is a multifaceted concept that encompasses both quantitative and qualitative aspects of business performance and personal fulfillment. It extends beyond the mere formation of a new venture to include sustainability and long-term viability (Tang, 2020). Entrepreneurial Success includes potential in sales growth, market share, profit growth, and perceived survival of the business (Masuo et al., 2001). There are different perspectives of measuring entrepreneurial success. The most prevalent ones are economic perspective, financial perspective and psychological perspective (Dej, 2010). The first set of researchers used any or a combination of measures like sales growth, leverage ratio, net profit margin, earnings before tax-to-equity ratio to measure entrepreneurial success (Hornaday & Wheatley, 1986; Storey et al., 1987; Dursun et al., 2013).

The second set of researchers believed that both non-financial and financial ratios provide a better sense of actual performance (Buttner & Moore, 1997; Wiklund, 1999; Powell & Eddleston, 2013). This argument matches with the argument given by Reguig et al. (2015), and Masuo et al. (2001) and Ahmad et al. (2011). A study by Staniewski and Awruk (2018) presents subjective and objective indicators of entrepreneurial success. In this author's opinion economic and financial measures as well as non-financial measure give a more realistic assessment of entrepreneurial success.

2.1 Entrepreneurial Orientation and Entrepreneurial Success

Entrepreneurial orientation is a core construct of entrepreneurship and has been used in this context in most of literature. There are some core points of difference between entrepreneurship and entrepreneurial orientation. entrepreneurial orientation has been used as an ability or skill leading to enhancement in different aspects of firm performance while entrepreneurship still retains its original conceptualization based on the concept of startup. According to Anderson et al. (2015) based on the conceptualizations of Miller (1983); Covin and Slevin (1991), entrepreneurial orientation is defined as the joint exhibition of observed entrepreneurial behaviors and a managerial inclination at the strategic decision-making level favoring actions with uncertain

outcomes. This concept has gained credence with its own identity and is applied to entrepreneurships as well as other types of organizations.

Entrepreneurial orientation is a widely studied conceptualization and has been aptly applied in the entrepreneurial context. Some of the landmark studies on entrepreneurial orientation over the years have taken entrepreneurial orientation as a contingency in supporting organizations. Though the key emphasis has been on entrepreneurial orientation as a core element driving performance of organizations (Wales et al., 2021).

The landmark study by Wang (2008) focused on the relationship between entrepreneurial orientation and performance. It identified learning orientation as a variable than contribute in enhancing the effect of entrepreneurial orientation on performance. A landmark study by Rauch et al. (2009) conducted a meta-analysis on relationship between entrepreneurial orientation and performance. They explored the magnitude of the relationship between entrepreneurial orientation and performance and observed a moderately large correlation. They reported that the relationship is robust to different operationalization of entrepreneurial orientation and performance, and different cultural contexts. The landmark research by Dess and Lumpkin (2005) is a conceptual study aimed at practitioners which reveals the role of entrepreneurial orientation (as management style and organizational processes spanning the five dimensions of EO in stimulating effective corporate entrepreneurship.

2.2 Dimensions of Entrepreneurial Orientation and Entrepreneurial Success

Proactiveness has been found to have a generally positive effect on entrepreneurial success, although the relationship is complex and influenced by various factors. Several studies indicate that proactiveness is positively associated with entrepreneurial orientation and success. Bernoster et al. (2018) reports that positive affect, which includes proactiveness, is positively associated with entrepreneurial orientation for sole proprietors and small business owners. Yeniaras and Unver (2016) examines the mediating role of exploratory and exploitative innovation in the proactiveness-new product performance relationship, suggesting that proactiveness contributes to entrepreneurial success through innovation. However, the effect of proactiveness on entrepreneurial success is not always direct or straightforward. Kumar and Shukla (2022); Luo et al. (2022) show that the relationship between proactive personality and entrepreneurial intentions is mediated by factors such as entrepreneurial self-efficacy, social capital, and human capital. This suggests that proactiveness may influence entrepreneurial success indirectly by enhancing these mediating factors (Kumar & Shukla, 2022; Luo et al., 2022). In conclusion, while proactiveness generally has a positive impact on entrepreneurial success, its effect can be moderated or mediated by various factors. The relationship between proactiveness and entrepreneurial success appears to be complex, involving multiple pathways and interactions with other variables such as innovation, self-efficacy, and social and human capital (Bernoster et al., 2018; Kumar & Shukla, 2022; Luo et al., 2022; Yeniaras & Unver, 2016).

H1: Proactiveness has a positive impact on entrepreneurial success

Innovation plays a crucial role in entrepreneurial success, as evidenced by several studies. Entrepreneurial innovation behavior is recognized as a driving force for obtaining competitive advantages (Wei et al., 2020). The implementation of efficient, innovative plans and policies is vital for organizations to consistently develop novel innovations and achieve success (Bhatta et al., 2024). Research findings reveal that entrepreneurial education, entrepreneurial mindset, and technological knowledge positively and significantly affect entrepreneurial intention, with innovative work behavior mediating these relationships (Bhatta et al., 2024). Additionally, entrepreneurial orientation, particularly proactive orientation, is associated with entrepreneurs' satisfaction with their activity, life, organization, and company growth (Manzano-García & Ayala-Calvo, 2020). Interestingly, while innovation is crucial, some studies found mixed results regarding its direct impact on business performance. For instance, in the agricultural context, innovation outcome was not significantly linked to farm business performance (Gellynck et al., 2014). In conclusion, innovation is a key factor in entrepreneurial success, but its effects may be moderated by various factors. Entrepreneurial competencies, information technology capabilities (Marei et al., 2023), and psychological traits such as optimism and overconfidence (Fatima et al., 2020) also contribute to venture success. Furthermore, entrepreneurial alertness facilitates business model innovation through explorative and exploitative learning, with risk perception moderating these relationships (Zhao et al., 2020). These findings highlight the complex interplay between innovation, entrepreneurial characteristics, and contextual factors in determining entrepreneurial success.

H2: Innovation has a positive impact on entrepreneurial success

Risk-taking plays a complex role in entrepreneurial success, with research revealing both positive and negative effects depending on various factors. Studies indicate that risk-taking propensity can contribute to entrepreneurial success in certain contexts. For instance, entrepreneurs tend to use biases and heuristics more in decision-making, leading them to perceive less risk in given situations (Busenitz, 1999). This cognitive approach may enable entrepreneurs to navigate the inherent risks of starting new ventures. Additionally, entrepreneurs produce more vivid and positive mental images of business risks compared to non-entrepreneurs, which may influence their willingness to take business risks (Zaleskiewicz et al., 2019). However, the relationship between risk-taking and entrepreneurial success is not straightforward. Some research finds that founder risk-taking is not significantly related to the success of e-commerce entrepreneurial ventures (Sebora et al., 2008).

Moreover, empirical evidence shows no sign of a positive risk premium for entrepreneurs, suggesting that self-financed entrepreneurs may find it optimal to invest in risky projects offering no risk premium (Vereshchagina & Hopenhayn, 2009). Interestingly, poorer entrepreneurs are more likely to undertake risky projects, which may not always lead to success. In conclusion, while risk-taking is often associated with entrepreneurship, its effect on success varies. Factors such as cognitive biases, mental imagery, financial status, and context all play roles in determining how risk-taking impacts entrepreneurial outcomes. The mixed findings suggest that risk-taking alone

may not be a distinguishing factor for entrepreneurial success, and other elements like achievement orientation, locus of control, and e-service quality may be equally or more important (Ndofirepi, 2020; Sebora et al., 2008). Future research should explore the nuanced relationship between risk-taking and success, considering various contextual and individual factors.

H3: Risk taking has a positive impact on entrepreneurial success

2.3 Environmental Turbulence

Environment in itself in a universal construct that has a lot of influence during the formation as well as throughout the life cycle of an entrepreneurship. A particular state of the environment which is environmental turbulence also carries the same influence in the formation stage of an entrepreneurship as well as throughout its life cycle. Environmental turbulence is found to have a significant causal impact on the level of entrepreneurship and the marketing orientation of the firm (Davis et al., 1991). The effect of environmental turbulence has also been studied in conjunction with entrepreneurial orientation in many entrepreneurship studies. Environmental turbulence strongly effects all three dimensions of entrepreneurial orientation (innovativeness, proactiveness and risk taking) (Wong, 2014). There are multiple studies that confirm this effect. Recent studies focus on the application of environmental turbulence as an element in the system achieve sustainable competitive advantage (Shalender & Sharma, 2022); corporate social responsibility and disruptive innovation (Wang, Qureshi, Guo & Zhang, 2022); Eco-innovation and sustainable business (Larbi-Siaw et al., 2022). Whichever industry shows a good potential for growth becomes the focus of entrepreneurs and studies on entrepreneurs.

Most of the studies in recent times on the variable of environmental turbulence in entrepreneurship has been on the micro and small and medium enterprises (MSME's) and SMEs. The range of industries in which studies have been used ranges from IT industry (Kuankuan & Zhang, 2022) to culinary industry (Waty et al., 2022). Febriyantoro et al. (2022) have studied the moderating effect of environmental turbulence on the relationship between entrepreneurial marketing and business performance for MSMEs in Batam city Malaysia. Environmental turbulence is also something that has gained some attention in the context of entrepreneurship in Pakistan. Sajjad et al. (2022) found in their study that environmental turbulence plays an important role in translating learning orientation into performance of SMEs in the manufacturing sector of Pakistan. Mokhtarzadeh et al. (2022) investigated the role of environmental turbulence on firm innovation in the context of car OEMs in Iran. The results indicate that environmental turbulence improves firm innovation performance. Stock, McDermott and McDermott (2022) studied the effect of environmental turbulence, strategic blur and strategic focus on performance in nascent entrepreneurial performance. Results suggest that interaction between environmental turbulence and strategic blur have a significant effect on firm performance. A study by Omar (2022) reconfirms that environmental turbulence has a strong effect on entrepreneurial orientation in the context of firms in Bahrain.

There appears to be a gap in studying the specific moderating role of environmental turbulence in the relationship between proactiveness and entrepreneurial success. While several

papers touch on related concepts, none directly address this particular relationship. The existing research examines various aspects of environmental turbulence, entrepreneurial orientation, and firm performance. Yasir and Majid (2017) looked at how environmental turbulence affects alertness to business ideas and entrepreneurial opportunities, which in turn influence entrepreneurial intentions. Zhang and Duan (2010) investigated the moderating effect of environmental turbulence on market orientation and product innovation performance. Wong (2014) explores how environmental turbulence induces entrepreneurial orientation behaviors, including proactiveness, and their impact on new product success. Interestingly, Turulja and Bajgoric (2018) found that environmental turbulence does not moderate the relationship between innovation and business performance, but rather boosts innovation directly. This contradicts some of the other findings and suggests that the role of environmental turbulence may be more complex than initially thought. While proactiveness is mentioned as a component of entrepreneurial orientation in several papers (Furyanah et al., 2024; Wong, 2014), its specific relationship with entrepreneurial success under varying levels of environmental turbulence is not directly addressed. Furyanah et al. (2024) did examine the moderating effect of market turbulence on the relationship between proactiveness and marketing performance in used car showroom SMEs, but this is a narrow context and does not fully address the broader concept of entrepreneurial success. In conclusion, there appears to be a gap in specifically studying how environmental turbulence moderates the relationship between proactiveness and overall entrepreneurial success across various industries and contexts.

H4: Environmental turbulence moderates the relationship between Innovativeness and Entrepreneurial Success

The existing research examines various aspects of environmental turbulence, entrepreneurial orientation, and firm performance. Yasir and Majid (2017) look at how environmental turbulence affects alertness to business ideas and entrepreneurial opportunities, which in turn influence entrepreneurial intentions (Yasir & Majid, 2017). Wong (2014) explores how environmental turbulence induces entrepreneurial orientation behaviors, including proactiveness, and their impact on new product success (Wong, 2014). While proactiveness is mentioned as a component of entrepreneurial orientation in several papers (Furyanah et al., 2024; Wong, 2014), its specific relationship with entrepreneurial success under varying levels of environmental turbulence is not directly addressed.

H5: Environmental turbulence moderates the relationship between proactiveness and Entrepreneurial Success.

The existing research explores various aspects of environmental turbulence, risk-taking, and entrepreneurial outcomes. Zhuang and Sun (2024) investigate the relationship between the perception of the in institutional environment, risk-taking propensity, and start-up readiness. He and Li (2023) looks at how environmental uncertainty moderates the relationship between affordable loss and entrepreneurial actions. Interestingly, Gartner and Liao (2011) find that an entrepreneur's risk-taking propensity has no relationship to the likelihood of successfully starting

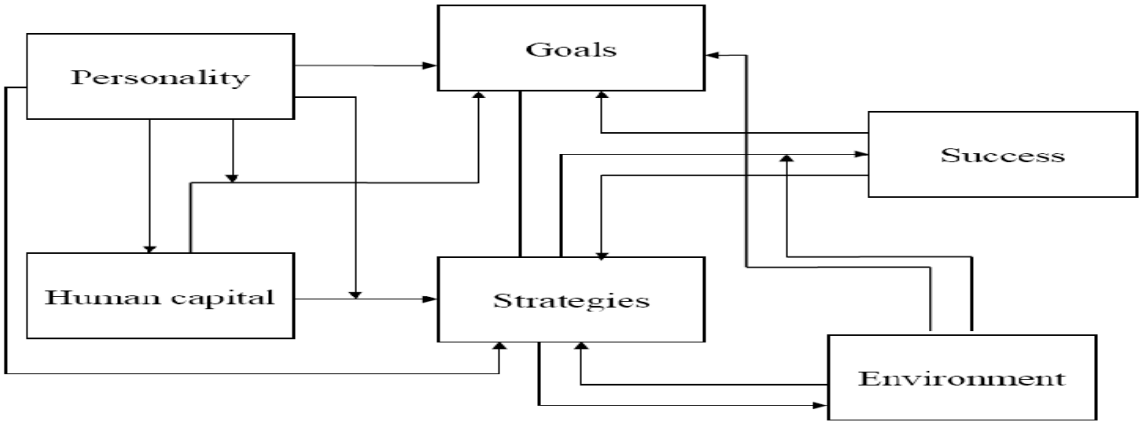
a business, and that environmental uncertainty does not significantly affect venture creation success. This contradicts some assumptions about the importance of risk-taking in entrepreneurship. While these studies provide valuable insights into related areas, none specifically examine how environmental turbulence moderates the relationship between risk-taking and entrepreneurial success.

H6: Environmental turbulence moderates the relationship between risk-taking and Entrepreneurial Success.

2.4 Giessen Amsterdam Model (GAM)

This Giessen-Amsterdam model was developed by Rauch and Frese (2000) and incorporates all the discussed conceptualizations of entrepreneurial success of small business owners, detailing the interconnections between the elements and paths that would lead to success.

Figure No 1: Giessen Amsterdam Model of Entrepreneurship- Rausch & Frese (2000)

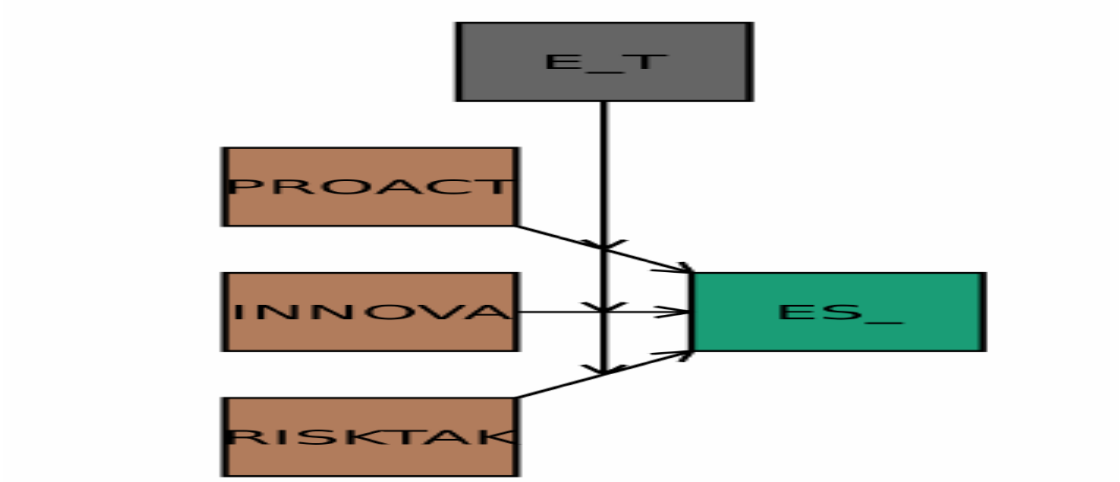


This model explains the path from personality to success for an entrepreneur. It presents the elements that are encountered in the path to success and the interconnections between the elements as well. Success is achieved through strategies, which are in turn developed by using the inputs of goals, environment, personality and human capital. Goals are developed through the inputs of personality, human capital and environment. Human capital is triggered by personality. More so there are catalytic effects of personality on the human capital on strategies; as well as environment on the link between strategies and success. Then there is a feedback loop with success feeding back to goals and strategies and it becomes a self-sustaining mechanism. Environment is also an important element in this model which is exerting its influence on success through its effects on strategies and goals. The independent variables in this study innovativeness, proactiveness and risk-taking are personality characteristics in the GAM which do have an effect on success through goals and strategies which are akin to actions.

2.4 Research Framework

Based on preceding literature review, a research framework was developed. Variables representing the dimensions of entrepreneurial orientation, including proactiveness, innovation and risk-taking, entrepreneurial success and environmental turbulence are presented with the hypothesized relationships. The research framework for this investigation is displayed in Figure 2.

Figure No 2: Research Framework



3. Research Methodology

3.1 Research Design

Research design is a plan that outlines the processes that should be used in order to collect data, analyze it, develop results and draw conclusions from the data. This study used quantitative research design. In quantitative research design, the hypothesis developed for the study are tested with quantitative analysis through the data collected. A structured questionnaire-based survey can help decrease errors during the process (Hair, Black, Babin, and Anderson, 2014). A study using a quantitative design is more structured and more standardized as compared to a study based on qualitative design. A lot of conjecture and interpretation is required in a qualitative design. Descriptive quantitative research was the core research design. The focus of this research is on entrepreneurs. The researchers planned to contact entrepreneurs belonging to different fields to garner their opinion about orientation of their firms, turbulence in their environment and the success they have achieved.

3.2 Scales & Data Collection

A structured questionnaire was developed based on standardized questions, extracted and adapted from established scales. For Market Orientation eleven-item construct developed and assessed by Farooq and Vij (2021) advancing the scales developed by Jaworski and Kohli (1996) will be used for the variable of Market orientation. The 9-item ENTRESCALE for measuring the dimensions of Entrepreneurial Orientation construct modified by Covin and Slevin (1989) will be used for entrepreneurial orientation. Environmental turbulence (ET) was measured using an eight items scale for the second-order reflective measurement model of ET consisting of three first-order models, namely market turbulence, technological turbulence and competitive intensity adopted from Turulja and Bajgoric (2018). For measuring Entrepreneurial Success, the scale developed by Ahmed et al. (2011) is adapted.

3.2 Sampling Method

A sample is a collection of respondents drawn from a population. This term "population" refers to the broad category of people, events, or objects the researcher has chosen to examine and draw conclusions about to conduct research. In statistics jargon, the entire collection of the statistical sample is called population (Sekaran & Bougie, 2016). The population of this study consisted of entrepreneurs who are currently engaged in their entrepreneurships or have had the experience of establishing and running a business for at least one year in the past. Probability sampling was employed as it was deemed appropriate based on the design of the study. Simple random sampling is a probability sampling technique that involves selecting a respondent to fill the survey questionnaire. But the complexity was that the population for the study are spread all over Pakistan. So the researchers applied simple random sampling to acquire the sampling frame through their available contacts. With these efforts, a sample was 432 correctly filled questionnaires was obtained from the population.

3.3 Method of Analysis

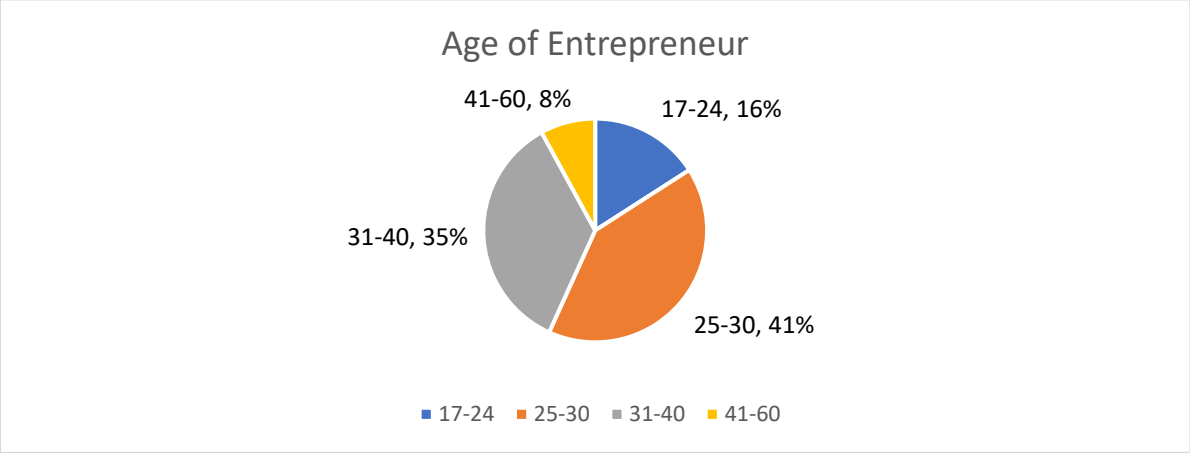
Jeffrey's Amazing Statistical Program (JASP) version 9, a statistical package developed by researchers in the University of Amsterdam was used to perform statistical analysis. The data was available in the form of physical questionnaires and online response sheet from Google forms. For analyzing the data obtained, descriptive statistics of the sample, Pearson's correlation, regression analysis and moderation analysis are used to analyze the data and test the developed hypothesis.

4. Analysis, Results and Discussion

4.1 Descriptive Analysis

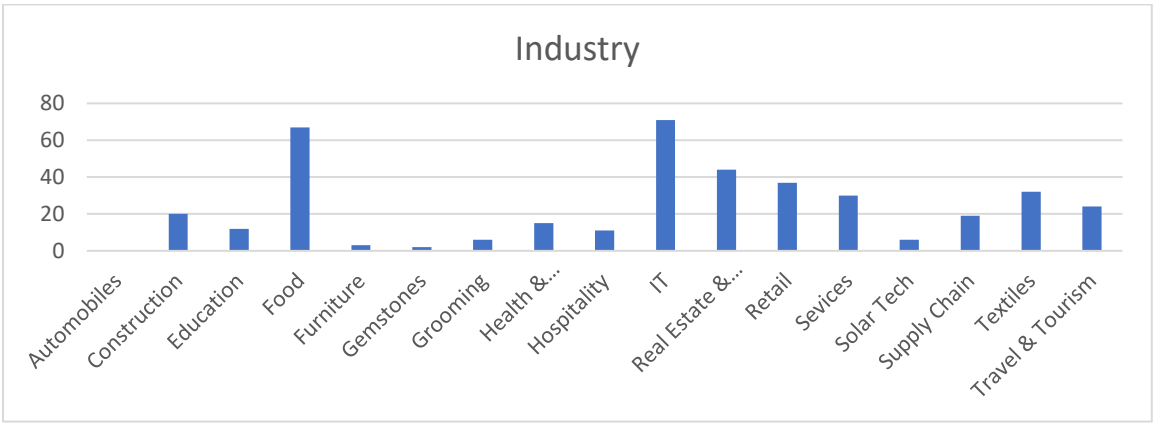
Data was correctly obtained from 432 respondents through physical questionnaire and through Google form online. Two major questions in the demographic profile were the age of the entrepreneur as well as the industry that they are operating their businesses in. These questions are available in section A of the survey form.

Figure No 3: Summary of the Respondents' Age Profile



The results from Figure 3 has shown that the most respondent are in the 25-30 age range, making approximately 41% of the sample. Followed by 31-40 age bracket, comprising 35% of the sample. The very young section is of the range is in the age range of 17-24, which make up 16% of the sample. The oldest age range is from 41-60 which makes only 8% of the total sample.

Figure No 4: Industries covered in sample



The analysis given in figure 3 represents the frequency of particular industries that the respondents operate in. The highest responses are coming from the IT industry, followed by Food, Real Estate & Construction, Retail, Services, Textiles and Travel & Tourism. Responses below 20 each are obtained from all the remaining industries.

4.2 Reliability & Validity

Given in Table 1 are mean, standard deviation, correlations and Cronbach alpha values. According to George and Mallery (2001) a Cronbach alpha value of above 0.7 is considered acceptable, while higher values indicate stronger reliability. The scale for innovation had a

Cronbach alpha value of 0.823, proactiveness 0.782, risk-taking 0.746, environmental turbulence 0.903 and entrepreneurial success had a value of 0.932.

Table No 1: Mean, Standard deviation, Correlations

	Mean	Std. Dev	Innov	PA	RT	ET	Ent
Innov	3.736	0.749	0.823				
PROACT	3.580	0.700	0.549	0.782			
RISKTAK	3.732	0.615	0.492	0.573	0.746		
ET	3.762	0.610	0.446	0.492	0.519	0.903	
EntS	3.927	0.652	0.349	0.361	0.357	0.393	0.932

Values in table 1 represent the mean, standard deviation, correlations between the variable and Cronbach alpha values of reliability. All the mean values for all the variables are above 3.5 which suggest that most of the responses are inclined towards agreement with the items. Entrepreneurial Success (EntS) has the highest mean value showing that a larger number of respondents indicate that they have achieved some success through their entrepreneurship. The standard deviation value for innovation is higher than the other variables. Indicating a stronger change in opinion in the scale measures. The correlations of all the variables are significant at the 95% level of confidence. All the values are within acceptable ranges and suggest significant levels of correlations between the variables. The values given in bold diagonally represent the Cronbach alpha values of reliability. All of the values are above the threshold of 0.7.

Table No 2: Validity of Constructs

	CR	AVE	INNOV	PROACT	RISKTAK	ET	EntS
INNOV	0.825	0.486	-				
PROACT	0.802	0.459	0.685	-			
RISKTAK	0.759	0.378	0.619	0.753	-		
ET	0.902	0.372	0.517	0.583	0.633	-	
EntS	0.932	0.505	0.384	0.403	0.418	0.425	-

The numbers given in Table 2 represent the CR, AVE and HTMT values of the dimensions of Entrepreneurial Orientation, including innovativeness (INNOV), proactiveness (PROACT) and risk taking (RISKTAKT). The CR values are above 0.7 which indicates good composite reliability

. The AVE values of all variables other than Entrepreneurial Succes (EntS) are below 0.5. The AVE values are used to measure the overall amount of variance in the latent construct. In such a case if CR values are above AVE, provided that CR values are above 0.7, then convergent validity is still considered acceptable (Bougie & Sekaran, 2019). All the HTMT values are below 0.85, which shows a good level of discriminant validity.

4.3 Linear Regression

After reliability and validity results, regression analysis was used to determine the impact of each relationship given in the research framework. The main results are presented in table 5. The relationship between the dimensions of entrepreneurial orientation and entrepreneurial success are presented.

Table No 3: Regression Results

Path coefficients

							95% Confidence Interval		
			Estimate	Std. Error	z-value	p	Lower	Upper	Std. Estimate
INNOVA	→	ES_S	0.168	0.071	2.383	0.017	0.030	0.307	0.130
Env_Tur	→	ES_S	0.323	0.087	3.735	< .001	0.154	0.493	0.204
INNOVA:Env_Tur	→	ES_S	0.053	0.108	0.495	0.621	−0.158	0.265	0.025
PROACT	→	ES_S	0.175	0.081	2.159	0.031	0.016	0.333	0.126
PROACT:Env_Tur	→	ES_S	−0.092	0.117	−0.788	0.431	−0.322	0.137	−0.041
RISKTAK	→	ES_S	0.184	0.090	2.049	0.040	0.008	0.361	0.117
RISKTAK:Env_Tur	→	ES_S	−0.066	0.122	−0.544	0.586	−0.304	0.172	−0.026

Note. Moderation effect estimates are based on mean-centered variables.

As the path coefficients represents the relationships of hypothesis. As the table displays, innovation has a statistically significant effect on entrepreneurial success with an estimate value of 0.168 which is significant at $p<0.05$. While proactiveness has an estimate value of 0.175 which is significant at the $p<0.05$ level of testing. Further, risk taking also has a significant relationship with entrepreneurial success as the estimate value is 0.184 which is again significant $p<0.05$. This indicates that entrepreneurial dimensions of innovation, proactiveness and risk taking do have an effect on success. On the other side, environmental turbulence also has a significant impact directly on entrepreneurial success. The estimate value is 0.702 which is significant at $p<0.05$.

4.4 Moderation Analysis

To test the effect of environmental turbulence on the relationship between the dimensions of entrepreneurial orientation namely, innovation, orientations and entrepreneurial success, moderation analysis using the Hayes (2017) moderation analysis method. Table 4 indicates the

results. The R^2 for the statistical model is 0.218 which suggests that 21.8% of the variation in entrepreneurial success can be explained with the effects of innovation, proactiveness and risk taking moderated by environmental turbulence. The estimates given in table 4 indicate the impact of dimensions of entrepreneurial orientation on entrepreneurial success at different level of environmental turbulence.

Table No 4: Total effects of Moderation of Environmental Turbulence between Entrepreneurial Orientation Dimensions & Entrepreneurial Success

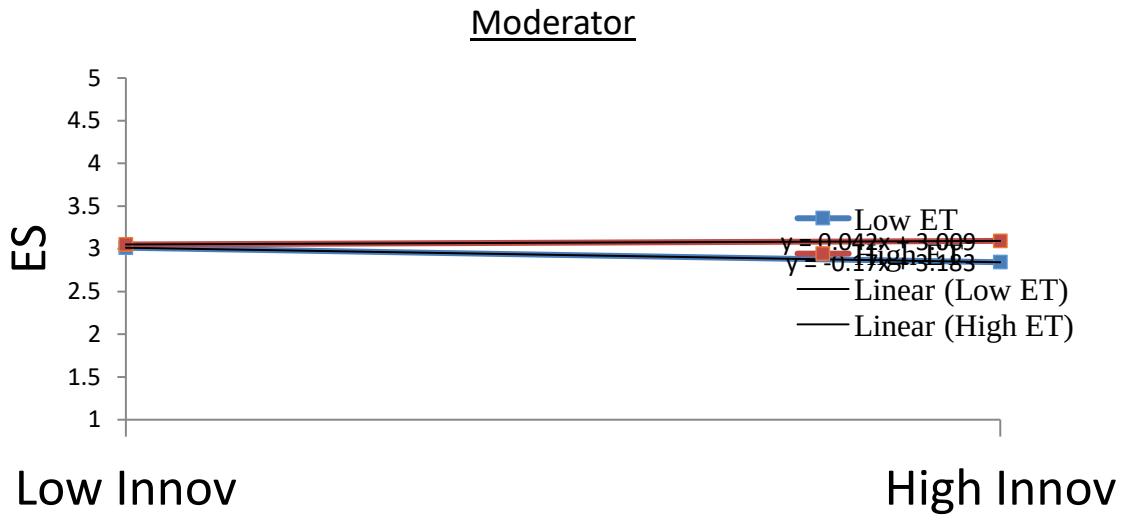
Total effects

									95% Confidence Interval	
				Env_Tur	Estimate	Std. Error	z-value	p	Lower	Upper
Total	INNOVA	→	ES_S	16	0.138	0.087	1.582	0.114	−0.033	0.309
	INNOVA	→	ES_S	50	0.175	0.074	2.376	0.017	0.031	0.319
	INNOVA	→	ES_S	84	0.194	0.094	2.075	0.038	0.011	0.378
	PROACT	→	ES_S	16	0.228	0.104	2.199	0.028	0.025	0.430
	PROACT	→	ES_S	50	0.164	0.083	1.985	0.047	0.002	0.326
	PROACT	→	ES_S	84	0.130	0.101	1.289	0.197	−0.067	0.327
	RISKTAK	→	ES_S	16	0.222	0.113	1.973	0.048	0.001	0.443
	RISKTAK	→	ES_S	50	0.177	0.091	1.932	0.053	−0.003	0.356
	RISKTAK	→	ES_S	84	0.152	0.109	1.398	0.162	−0.061	0.365

The results reveal some interesting pattern. Innovation has an increasing effect on entrepreneurial success at increasing levels of environmental turbulence. At lower level of environmental turbulence, the estimate value is 0.138 which is insignificant at $p<0.05$. As turbulence increases the estimate value increases to 0.175 and the relationship turns significant at $p<0.05$. As turbulence increases even more the estimate increases to 0.194 but the significance level decreases to $p=0.038$. For proactiveness, the estimate value at low level of turbulence is 0.228, which has $p<0.05$. As turbulence increases, the value decreases to 0.164 at $p=0.047$. At high levels of turbulence, the relationship between proactiveness and entrepreneurial success becomes insignificant. The same case is repeated with risk taking. At low levels of turbulence, the estimate value is 0.222 at $p<0.05$. As the turbulence increases, the estimate value decreases to 0.177 which is insignificant at $p<0.05$. At very high levels of turbulence, the estimate drops further and the p-value also becomes more insignificant at $p<0.05$.

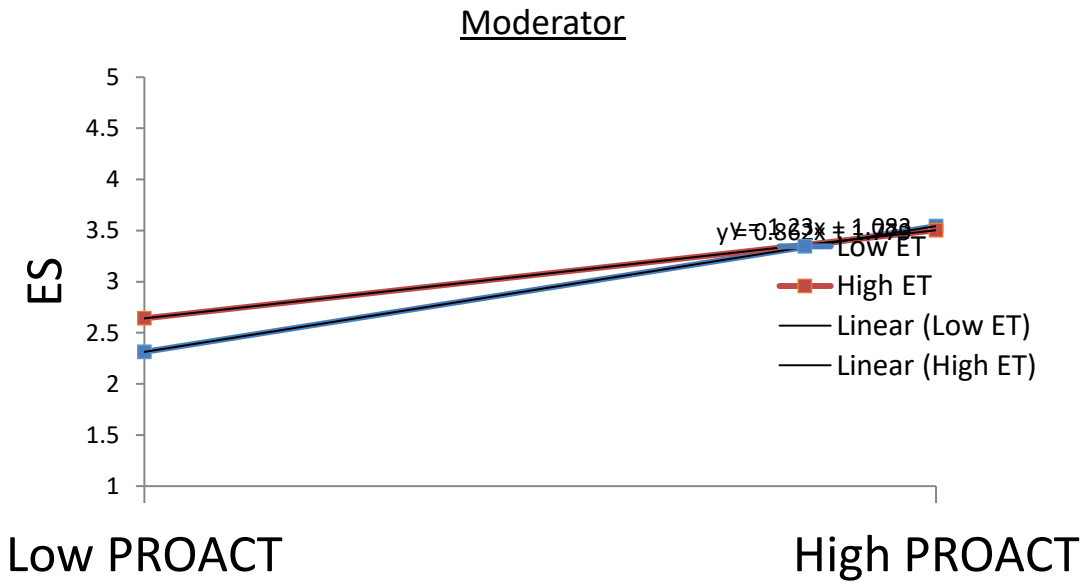
The moderating effect of environmental turbulence on the relationships between innovation, proactiveness and risk taking on entrepreneurial success can be visualized in figure 5

Figure No 5: Moderation of Environmental Turbulence - Innovation



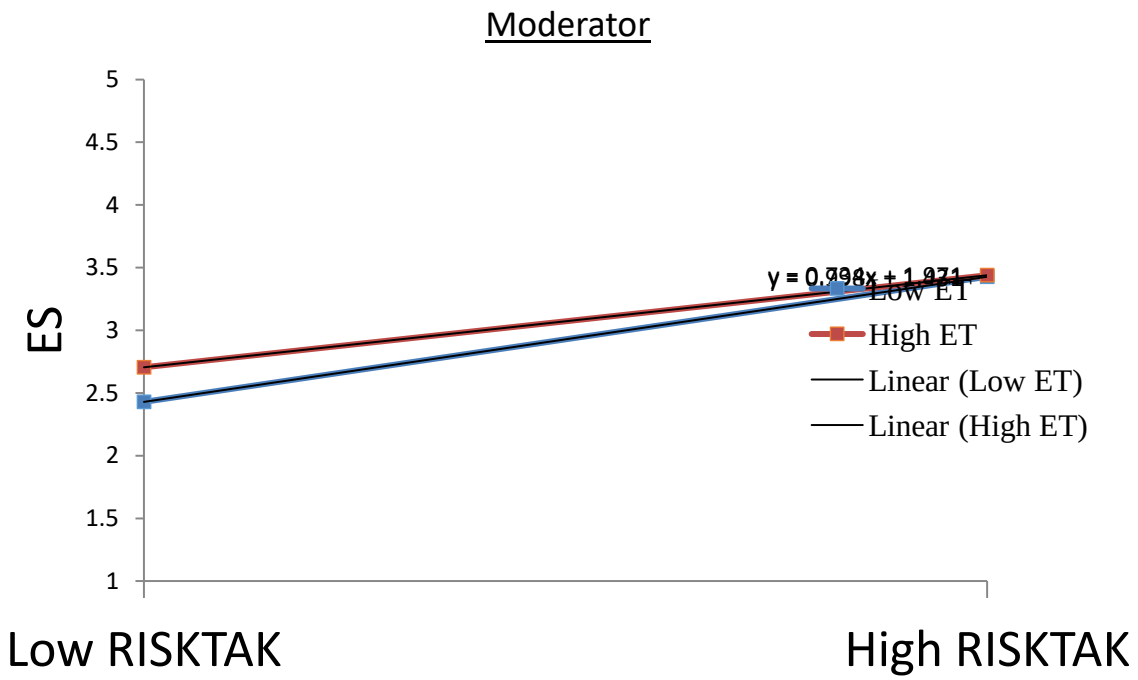
As figure 5. displays, at low levels of environmental turbulence, success is approximately the same regardless of the level of innovation. At higher levels of environmental turbulence the chances of success are increasing as it may induce a higher level of innovation.

Figure No 6: Moderation of Environmental Turbulence - Proactiveness



Given visualization in figure 6, shows that at low levels of environmental turbulence, entrepreneurial success is increasing as the level of proactiveness increases. For high levels of environmental turbulence, entrepreneurial success is increasing at a lower rate for all levels of proactiveness.

Figure No 7: Moderation Analysis for Entrepreneurial Orientation - Risk-taking



The results depicted in figure 3 indicate that in times of low environmental turbulence, more risk-taking lead to higher levels of entrepreneurial success. At high levels of environment turbulence, the instances of risk taking do not result in as much entrepreneurial success as in times of low environmental turbulence. The next inquiry was to develop a combined moderation model with both market orientation and entrepreneurial orientation tested together for their impact on success. Environmental turbulence was the moderator. The results given in table 5 are quite interesting.

The major objective of the study was to see the effects of environmental turbulence in attaining entrepreneurial success. The mechanism of orientations was extracted from literature review and a research framework was developed which is presented through the hypothesis. It is quite clear from the results summarized in table 8 that there is a strong effect of environmental turbulence on the relation of dimensions of entrepreneurial orientation with entrepreneurial success. Preceding this, it is quite clear form the results that the dimensions of entrepreneurial

orientation proactiveness, innovativeness and risk taking have significant and positive effects on entrepreneurial success.

Table No 6: Results of Hypotheses Testing

Hypothesis	Results	Findings
H1: Innovativeness has a positive impact on entrepreneurial success	Std. β = 0.130 p<0.05	Supported
H2: Proactiveness has a positive impact on entrepreneurial success	UnStd. β = 0.126 p<0.05	Supported
H3: Risk-taking has a positive impact on entrepreneurial success	UnStd. β = 0.117 p<0.05	Supported
H4: Environmental turbulence moderates the relationship between innovativeness and entrepreneurial success	UnStd. β=0.138 p= 0.114, β=0.175 p= 0.017, β=0.194 p= 0.038	Supported
H5: Environmental turbulence moderates the relationship between proactiveness and entrepreneurial success	UnStd. β=0.228 p =0.028, β=0.164 p= 0.047, β= 0.130 p =0.197	Supported
H6: Environmental turbulence moderates the relationship between risk-taking and entrepreneurial success	Std. B=0.222 p =0.048, β =0.177 p = 0.053, β =0.052 p = 0.162	Supported

4.5 Discussion

The primary objective of this study was to study the influence of the dimensions of entrepreneurial orientation, proactiveness, innovativeness and risk-taking, on entrepreneurial success. Another objective was to study the effects of environmental turbulence in effecting the relationships between the above-mentioned variables. When looking at the result of the effect of innovativeness on entrepreneurial success, it is clear that there is a moderately strong effect of innovativeness on entrepreneurial success. Under the effect of environmental turbulence, in times of low turbulence, the effect is moderately strong. As turbulence increases, the effect of

innovativeness on entrepreneurial success increases. This means entrepreneurships that have innovativeness ingrained in their orientation and processes gain a higher level of success. Proactiveness on the other hand also has a moderately strong effect on entrepreneurial success on its own. Under the influence of environmental turbulence proactiveness shows an opposite pattern as compared to innovativeness. When turbulence is low, proactiveness has a positive effect on entrepreneurial success. As turbulence increases, the effect of proactiveness decreases and then becomes insignificant. This means that entrepreneurships are unable to maintain a proactive attitude in times of high environmental turbulence. As for risk taking, there is a relatively significant effect of risk taking on entrepreneurial success. In the case of environmental turbulence, a similar pattern as proactiveness is observed. At low levels of turbulence risk taking does pay off and have a positive effect on entrepreneurial success. But, as turbulence increases, the relationship between risk taking and success becomes weaker and eventually becomes insignificant.

It is clear from the results, that all the dimensions of entrepreneurial success do have a significant and positive effect on entrepreneurial success. As for the effect of turbulence, it is reasonable to state that environmental turbulence has a significant moderating effect on the relationship between the dimensions of entrepreneurial orientation and entrepreneurial success. In times of low environmental turbulence proactiveness and risk-taking have a significant effect on success, while innovativeness does not have a significant effect. On the contrary, as turbulence increases, the effects of proactiveness and turbulence tapers off while the effect of innovativeness increases on entrepreneurial success. This study addresses the gap in studying the role of environmental turbulence on the relationship between the dimensions of entrepreneurial success innovativeness, proactiveness and risk-taking and entrepreneurial success. Which contributes to the study by Furyanah et al. (2024).

5. Conclusion

Achieving success for entrepreneurships is a key mission. In this respect entrepreneurial orientation is considered a key construct that leads to entrepreneurial success. There have been studies that have looked at the effects of dimensions of entrepreneurial orientation including innovativeness, proactiveness and risk-taking on success in the entrepreneurial context. There was still a gap in-terms of studying the effect of environmental turbulence on the above stated mechanism. A quantitative study was formulated with data collected from entrepreneurs who have are currently running entrepreneurships or have at least one year experience of establishing entrepreneurial firms in the past. Data was collected from 432 respondents using simple random sampling. Hypothesis testing was done using linear regression and moderation analysis using Hayes (2017) method. Analysis was conducted through JASP software. Results indicate that there is a significant positive effect of entrepreneurial orientation dimension innovativeness, proactiveness and risk-taking on entrepreneurial success. Environmental turbulence is also found to have a strong moderating role on these relationships. For innovativeness it was found that as environmental turbulence increases, the effect of innovativeness on entrepreneurial success becomes stronger. In case of proactiveness, at lower levels of environmental turbulence,

proactiveness has a significant effect on entrepreneurial success. As turbulence increases, the relationship between proactiveness and entrepreneurial success decreases and high levels of turbulence, the relationship becomes insignificant. For the effect of proactiveness, at lower levels of environmental turbulence there is a significant effect of risk-taking on entrepreneurial success. As the levels of turbulence become moderate, the effect of risk-taking becomes insignificant and becomes even more insignificant as turbulence becomes stronger. Future studies can replicate the study in different contexts, as well as look at the effects of dimensions of market orientation on entrepreneurial success under the influence of environmental turbulence. Moreover, the effect of other constructs of entrepreneurial orientation on entrepreneurial success can also be studied.

5.1 Limitations and Future Research

Every study is a small step in the path of developing a comprehensive understanding of any phenomenon. There are limitations to every study that lead to future research options and the cause of research moves forward in this way. This study although discusses universal variables but is done in a limited context. Future researches may replicate this study in different geographical and industrial contexts. Even in the given context the sample size was determined in a way that most segments of the population are covered in the study. Still, future studies may use other probabilistic statistical techniques like quota sampling to create a sample which is a closer representative of the population. Other orientations like market orientation and its dimensions may be studied for their impact on entrepreneurial success. The effect of environmental turbulence may be studied on the relation between dimensions of market orientation and entrepreneurial success. Moreover, other constructs of entrepreneurial orientation may also be studied for their impact on entrepreneurial success.

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