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Psychological Factors and Entrepreneurial Orientation: Could Education and Supportive Environment Moderate this Relationship?

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Abstract

The purpose of this study is to find out the role of individual's psychological factors in determining entrepreneurial orientation and to examine if the relationship could be moderated by non-psychological factors? Reflecting on competency theory as a specific theoretical foundation and resource based theory as an overarching theory, impact of four psychological factors i.e. self-confidence, internal locus of control, tolerance of ambiguity, and propensity to take risk and two non-psychological factors i.e. role of education and role of supportive environment were studied in relationship to their impact on entrepreneurial orientation. Unit of analysis of this cross sectional study was individual entrepreneurs operating their food-related business (retail outlets) at micro level. The results of survey explain that psychological factors affect entrepreneurial orientation and non-psychological factors moderate this relationship. Findings of this study can be adopted by high risk ventures capitalists to assess entrepreneurial capabilities to improve return on investment as well as by managers in the new employees hiring process.

Keywords: entrepreneurial orientation, psychological factors, role of education, supportive environment.

1. Introduction

Entrepreneurship is driving force of modern economies and it plays a vital role in country economic development. According to Ali et al. (2011), the world is viewing entrepreneurship as a tool of sustainable development. Entrepreneurship has not only played significant role in the success of developed countries but it has also been highly influential in the development of emerging economies. The success of Air blue, the first airline without paper work in the world which is growing rapidly is an example of

entrepreneurial achievements in the developing countries. The force behind these achievements is the entrepreneurs who pursue profit opportunities and therefore introduce 'new combinations' or innovative products in the market (Van Praag, 1999). Entrepreneurial initiatives cause creative destruction, shifting the equilibrium in the economy, and creating new equilibrium. Within the new economic equilibrium, enterprises create jobs for young generation, facilitate faster economic growth, and bring new technology to market that fills the technology and market gap. Thus entrepreneurial activities have ability to build industries and businesses which provide corporations and countries with strong economic power (Naqi, 2003). Moreover, existing firms are also becoming more entrepreneurial to capture any market gap.

The concept of entrepreneurship is rooted in psychology, sociology, anthropology and economics (Frese & Gielnik, 2014). As entrepreneur creates opportunities, these could be exploited to create new enterprises as well as to enhance the value of existing enterprises. So entrepreneurship not only creates new job openings but also enhances the pace of economic development (Branstetter et al., 2014). Those enterprises having capability to produce and launch new products and technologies can show astonishing economic performance and also boost overall economic growth (Eisenhardt & Brown, 1998). Furthermore, entrepreneurship has a proven potential to boost economic development not only in developed countries but also in developing countries. In line with Smith's invisible hand theory (Smith, 1776), an entrepreneur not only earns profit but also creates new jobs opportunities and brings innovation to market which fills the gap between market place and technology. According to Covin and Lumpkin (2011), entrepreneurial orientation is a component of firm strategic planning process Gloss et al. (2017) "entrepreneurial orientation is a cornerstone of the field of entrepreneurship". To increase the pace of entrepreneurship, entrepreneurial orientation needed to be enhanced and the factors affecting entrepreneurial orientation needed to be studied. Different studies demonstrated that entrepreneurial orientation is important for firm high performance and survival and hence needed to be studied (Covin et al., 2006). Psychological and non-psychological factors are important variables that affect entrepreneurial orientation. Prior researches indicated that psychological and non-psychological factors can affect entrepreneurial orientation. Studying the link between psychological factors, non-psychological factors, and entrepreneurial orientation is important for theoretical as well as empirical reasons as entrepreneurs with different psychological factors and non-psychological factors may exhibit different levels of entrepreneurial orientation. Different level of entrepreneurial orientation can provide different levels of benefit to the organization. This paper is based on the hypothesis that if psychological factors explain entrepreneurial orientation; would there be a moderating role of non-psychological factors in explaining the phenomenon in existing businesses?

Similar to a rising trend all around the globe, Pakistan is also witnessing raising interest in the field of entrepreneurship in her government policies, academic research, as well as amongst business leaders. So, it is important to study the entrepreneurial orientation in Pakistani context. There are many studies explaining the impact of psychological factors on entrepreneurial orientation (Chatterjee & Das, 2015; Frese & Gielnik, 2014, Obschonka & Stuetzer, 2017; Przepiorka, 2017). Similarly, many qualitative and quantitative studies established the relationship of non-psychological factors on entrepreneurial orientation (Goktan & Gupta, 2015; Ullah et al., 2012) and even some

studies used both the psychological factors and non-psychological factors and determined their direct effect on entrepreneurial orientation (Farooq & Vij, 2018; Ullah et al., 2012). However, the missing link from existing literature is the moderating role of non-psychological factors (role of education and role of supportive environment) in the relationship of psychological factors (self-confidence, internal locus of control, tolerance of ambiguity, and propensity to take risk) and entrepreneurial orientation. Therefore, this study uses the resource based theory and competency theory to test and explain the different psychological factors that affect the entrepreneurial orientation in Hazara Division, Pakistan and how this relationship is moderated by non-psychological factors. This study can be utilized by developing and developed nations to promote the entrepreneurial culture which will results in job creation, enhancement in per capital income and ultimately development of the economy.

The paper starts with introduction followed by theoretical foundations, literature review defining and explaining different concepts used in the research and coming up with theoretical frame work and hypotheses. This is followed by research methodology section. Results of empirical testing is given in analysis section which is followed by conclusion and recommendations section.

2. Theoretical Foundations

In order to understand the impact of non-psychological factors in the relationship of psychological factors and entrepreneurial orientation, it is important to understand the theoretical foundations this relationship is based on. Resource-Based Theory (RBT) and Competency Theory (CT) are used as foundation theories for this research. Detail is given below.

2.1 Resource-Based Theory (RBT)

RBT is based on the principle that firm's sustainable competitive advantage is dependent on capabilities and resources (Barney, 1991). However, those resources should be unique and inimitable (Rivard et al., 2006), and can be internal or external (Meyskens et al., 2010). According to Melville et al., (2004) inputs, assets, competencies, and capabilities are included in resources. Firm resources can also be conceptualized as management and owner capabilities and characteristics (Caldeira & Ward, 2003). So, intellectual capital is a resource and can be used to create and sustain competitive advantage. Entrepreneurial orientation is also considered as an intellectual capital that results in creation of sustainable competitive advantage and superior organizational performance. For small and micro enterprises (population of this study), firm's internal resources provide bases for sustainable competitive advantage (Tovstiga & Tulugurova, 2009). Furthermore, entrepreneurial behavior of the employees and owner of the firm also determines the firm success in long term (Wiklund & Shepherd, 2003). There are large number of studies that used RBT for studying entrepreneurial orientation. Lonial and Carter (2015), Wiklund and Shepherd (2003), Alvarez and Busenitz (2001), Newbert (2007) etc used RBT to study the entrepreneurial orientation and firm performance. Ngugi et al. (2012) also used the RBT to evaluate the relationship between entrepreneurial orientation and business environment and firm performance. Therefore, this theory is applicable to study the entrepreneurial orientation.

2.2 Competency Theory (CT)

Competency includes personal capabilities that result in productive employee's performance for the organization (Boyatzis, 2008). Knowledge, skills and abilities are the

basic building blocks of competency. Competency helps employees in performing their job and proving desirable results for the organization. However, the business environment is becoming more complex (Cavusgil & Knight, 2015) and entrepreneur has to interact with environment (York et al., 2016) and hence needed to be highly competent to be succeeded (Ljungquist & Ghannad, 2015). According to Boyatzis (2008), entrepreneurial competency includes all those characteristics which are necessary for identifying opportunity, establishing enterprise, and growing it. These characteristics include knowledge, traits, motives, Social roles, self-images, and skills (Boyatzis, 2008). Competency can be inborn like attitude, behavior, traits etc. (Ghoshal & Bartlett, 1990) or acquired like skills, experience etc. (Baron et al., 2016). In the context of small business entrepreneurs, competency is the ability to build and sustain enterprise. In the context of current study, entrepreneurial competencies can be conceptualized as entrepreneurial orientation which is considered as a vital component that can be used for creation of sustainable competitive advantage and superior organizational performance. When entrepreneurs possess high competency, he/she can easily establish, grow and sustain his/her enterprise. Different studies like Wickramaratne et al. (2014) and Fernández-Mesa and Alegre (2015) used the lens of competency theory to investigate the entrepreneurial orientation. Similarly, the psychological and non-psychological factors are also the individual's competencies which can result in creating and sustaining an enterprise with sustainable competitive advantage.

3. Literature Review

Austrian economists first recognized entrepreneurs as financial and profitable performer and an important force for the development of economy ((Kirzner, 1997; Schumpeter, 1934). According to Josef Schumpeter's (1934) approach to entrepreneurship, at individual level entrepreneurs were considered as 'innovators of the economy', whose economic function is the "realization of new combinations in the course of which they are the active element". Entrepreneurship can be defined as the process of creating something new by combining unique package to earn profit (Stevenson et al., 1989). In literature, different factors affecting entrepreneurial behavior have been studied. They can be categorized as environmental, social and individual factors. The environmental factor model examines the contextual factors which include personal value creation, tax rebates and other benefits (Alstete, 2002) and social change sand support from society (Green, David et al., 1996). In social factors, personal and family background, career stage etc. are examined (Alstete, 2002). Individual factors include attitudes, values and some unique characteristics that push individuals to become entrepreneurs (Mueller & Thomas, 2000).

3.1 Psychological Factors

Prior studies demonstrated that psychological factors are important determinants of entrepreneurial orientation (Palmer et al., 2017). Bygrave (1989) proposed that propensity to take risk, internal locus of control, and tolerance for ambiguity are important psychological entrepreneurial characteristics. Robinson, Stimpson, Huefner, and Hunt (1991) listed self-confidence and locus of control as vital psychological entrepreneurial characteristics. Propensity to take risk, internal locus of control, tolerance for ambiguity, and self-confidence are important characteristics that have received most attention in the entrepreneurship literature.

Propensity to take risk is a person's ability defining his/her ability to take decision in uncertain environment (Chye-Koh, 1996). Mill (1983) argues that risk taking is the key element in differentiating entrepreneurs from managers. Some other researchers like Liles (1976) and Palmer (1971) suggested that the primary function of entrepreneurship involves risk taking and risk measurement. According to Chye-Koh (1996), entrepreneurs fancy taking enough risks in circumstances where they have some degree of control or skill in realizing a profit. In much of the entrepreneurship research, risk taking is considered as the most important characteristic of entrepreneurship e.g. Cunningham and Lischeron (1991), Ho and Koh (1992) etc. According to Oosterbeek et al. (2010), risk taking propensity reflects a person's ability to take risk and deal with uncertainty. To creating sustainable competitive advantage, manager and owners take risk (Hoskisson et al., 2017). Risk taking individuals are better able to perceive and act upon new opportunities (Bello et al., 2016). Naldi et al. (2007), Gürol and Atsan (2006), and Rauch et al. (2009) found positive relationship between propensity to take risk and entrepreneurial orientation.

Given the common view of an entrepreneur as one who chooses to start his/her own business, it can be said about the entrepreneur that he or she believes that he/she is talented enough to attain the goals that are set. Thus, it could be argued that an entrepreneur is likely to have a perceived sense of self-esteem and competence in performing his/her business affairs (Robinson et al., 1991). Ho and Koh (1992) maintained that believing on your-self is an essential characteristic of entrepreneurship and it is a part of psychological characteristics of entrepreneurs. Results of empirical research as available in the literature reveal that entrepreneurs have higher degree of self-confidence as compared to non-entrepreneurs (Bygrave, 1989 & Robinson et al., 1991). Self-confidence reflects the belief in one's own ability and successful entrepreneurs are usually convinced that they can bring every activity to a successful end (Oosterbeek et al., 2010). Different studies like Simsek et al. (2010), Chaston and Sadler-Smith (2012) etc empirically proved that self-confidence is positively associated with entrepreneurial orientation.

Another vital psychological factor affecting entrepreneurial orientation is locus of control. It is concerned with awareness of an individual whether he or she has the abilities and skills to control the events in his/her life (Leone & Burns, 2000). Rotter (1966) argues that locus of control is a person's own thoughts about the main reasons behind different events in his/her life. According to Ullah et al. (2012), locus of control can be defined as individual's faith about the things guiding his/her behaviorism: his own personal decisions and efforts (internal); or the fate and luck, or other external circumstances (external). People with internal locus of control can easily control events that happen in their lives. Whereas, people with external locus of control consider that most of the events in their lives come as a result of some external sources like luck, fate, or individual with power etc. that affect their performance in life (Chye-Koh, 1996; Barney,1986). Entrepreneurs always think about opportunities available before them, take innovative initiatives, and also have ability to control events in their lives; hence, have internal locus of control (Mueller & Thomas, 2000). As compared to individuals with external locus of control, individuals with internal locus of control are more likely to make struggle for achievement (Rotter, 1966). This entrepreneurial characteristic (internal locus of control) has been discussed by various researchers (Ho and Koh, 1992;

Kundu and Rani, 2016; Mueller and Thomas, 2001). Business owner and employee with internal locus of control belief to have control over their life and decisions. This kind of people is more active in their daily work and thus more successful. Different studies like Göbel and Frese (1999), Mueller and Thomas (2001) and Ullah et al. (2012) and have found a positive and significant relationship between inner locus of control and entrepreneurial orientation.

Tolerance for ambiguity is another psychological trait related to entrepreneurial orientation. According to Budner (1962) "if individuals perceive ambiguous situation as opportunity or desirable that is tolerance for ambiguity whereas if perceive ambiguous situation as threat then it is considered as intolerance for ambiguity". Chye-Koh (1996) argues that a person with high tolerance of ambiguity if confronted with ambiguous situations, he/she strives to overcome it and takes it as a challenge. Teoh and Foo (1997) found that entrepreneurs have more skill and capabilities to tolerate ambiguity. Thus entrepreneur reacts confidently to unclear and vague situations as compared to others who have low level of tolerance for ambiguity, feel uncomfortable in unclear and uncertain situations and hence make effort to keep themselves away from such ambiguous or uncertain situations (Busenitz et al., (1997). It is believed that managers with entrepreneurial skills show more tolerance for ambiguity than traditional managers because entrepreneurs have to work more with less structured possibilities, have to cope mostly with uncertain situations (Bearse, 1982), and essentially accept the ultimate responsibility for the decisions. Entrepreneurs, who look for increasing market shares, face more uncertain situations as compared to those seeking to increase profitability. It is due to the fact that increasing market share strategy is purely based on conditions of uncertainty and it requires greater tolerance for ambiguity. Dollinger (1983) found that entrepreneurs scored high in the tolerance for ambiguity scale. Hence tolerance for ambiguity is a characteristic positively correlated to entrepreneurial activity.

3.2. Non-Psychological Factors

Focus of the most of the previous studies was trait related psychological factors only. However, the aim of this research is not to only focus on psychological factors but also to study the moderating impact of education and supportive environment in the relationship of psychological factors and entrepreneurial orientation.

Historically, education has been considered as an important element for entrepreneurs' development which creates positive effect on their entrepreneurial orientation (Bruderl et al., 1992). According to Miller (1983), the entrepreneur and his/her education have important effect on entrepreneurial orientation especially for new ventures at small or medium scale. Educated entrepreneurs are more likely to manage their ventures with higher entrepreneurial orientation, in contrast to those having lesser or no education (Storey & Wynarczyk, 1996). According to Gustafsson (2006), individual has cognitive processes that can be changed by education, that play a vital role for the skills development and are also useful for problem solving. Thus entrepreneur's education positively affects entrepreneurial orientation. However, the moderating role of education in the relationship of different psychological factors and entrepreneurial orientation has not been empirically tested.

The other none-psychological factor studied is supportive environment which encompasses all the factors in the environment that are associated with the growth or

promotion of entrepreneurship (Okhomina, 2010). Research on entrepreneurial environments proposes that cultures that have minimum laws, gives tax incentives, offer support and guidance and counseling services to start-up entrepreneurs have higher rates of success of new ventures (Dana, 1987). Factors including easy availability of funds, good location, and opportunities of training and research also play a vital role in the development of new ventures (Pennings, 1982). It is also proposed that entrepreneurs require support services in organizing business plans and receiving loans (Hoy et al., 1991). Aldrich and Wiedenmayer (1993) propose that the socio-political environment may be responsible for the success and failure of entrepreneurship in a country. Covin and Slevin (1989) found that environmental factors are very important and should be assessed before starting up entrepreneurship. Covin and Slevin (1989) also identified that the external environment can be operationally defined by numerous forces or elements to integrate into a particular logic in a single model.

3.3. Entrepreneurial Orientation (EO)

According to Bakar et al. (2012), an important success factor for any business is to be proactive, innovative and flexible. Businesses are continuously searching for new opportunities to grow their market share (Shirokova & Puffer, 2016). At the same time business environment is changing rapidly and to cope with this dynamic environment, businesses are becoming more innovative and entrepreneurial which is resulting in creation of sustainable competitive advantage (Rothaermel, 2008). Business aims to achieve two basic goals; strategic renewal and to create a new venture (Guth & Ginsberg, 1990). Business can achieve internal venture development which is termed as "intrapreneuring" (Dess & Lumpkin, 2005). However, intrapreneurship should results in creating sustainable competitive advantage (Pinchot, 1985).When business's intrapreneurship animates all parts of the business, its effect on business strategic success is stronger (Dess & Lumpkin, 2005). "It is found in companies where the strategic leaders and the culture together generate a strong impetus to innovate, take risks, and aggressively pursue new venture opportunities and these ideas are captured by the concept known as entrepreneurial orientation" (Dess & Lumpkin, 2005). Entrepreneurial orientation is a strategy making process which helps business to engage in the process of innovation, adopting proactive approach and taking risk to gain sustainable advantage (Stam & Elfring, 2008). According to Kumar (2013), entrepreneurial orientation is the willingness to create new venture. Entrepreneurial orientation covers all the processes, methods, practices, and decision-making styles managers use to establish new ventures. Entrepreneurial orientation involves certain characteristics including propensity to act autonomously, willingness for creating something new (innovate) and risk taking, tendency to be aggressive toward competitors, and pro-activeness in response to market opportunity (Lumpkin & Dess, 1996).On organizational level, entrepreneurial orientation is referred as attitudes (risk-taking) and behaviors (pro-activeness and innovativeness) of its employees (Andersén, 2017; Rutherford & Holt, 2007). Entrepreneurial orientation is a strategic resource (Miller, 1983). EO characterizes the practice of entrepreneurship in the organization (Martens et al., 2016). Entrepreneurial orientation is often regarded from dynamic capabilities view (Teece, 2007) or from resource-based view of the firm (Grant, 1991) and it is found to have positive and significant relationship with business performance (Campbell et al., 2011).

Individuals that act independently (autonomously), encourage experimentation (innovativeness), take risks while taking initiative (pro-activeness), and aggressively compete within their markets have strong entrepreneurial orientation; whereas, lacking of some or all of these characteristics symbolize a weak entrepreneurial orientation. If individual has strong entrepreneurial orientation then he/she is willing to take on high-risk projects because risk is taken to expect high returns. These individuals are also bold and aggressive to grab the opportunities and take creativity actions and other individuals in the market follow them.

Therefore, hypotheses of the study are:

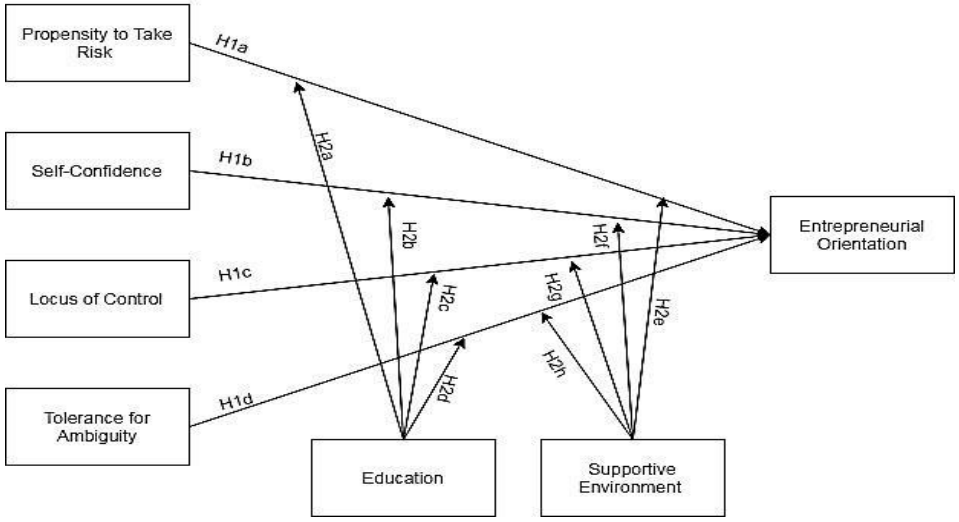
- **H_1:** Psychological Factors affect entrepreneurial orientation.
- **H_{1a}:** Propensity to take risk affects the entrepreneurial orientation
- **H_{1b}:** Self-confidence affects the entrepreneurial orientation.
- **H_{1c}:** Locus of control affects the entrepreneurial orientation.
- **H_{1d}:** Tolerance for ambiguity affects the entrepreneurial orientation.

According to Cunningham and Lischeron (1991), Gustafsson (2009), and Ullah at al. (2012) psychological factors affect the entrepreneurial orientation. Different studies also consider the impact of non-psychological factors on entrepreneurial orientation. Researchers like Dahl and Reichstein (2007), Nieman (2001), Shane (2000), Ullah et al. (2013), and Kollmann et al. (2007) explained the direct effect of non-psychological factors on entrepreneurial orientation. However, no study evaluated the moderating role of non-psychological factors in the relationship of psychological factors and entrepreneurial orientation. In this study, moderating role of non-psychological factors has been studied in the relationship of psychological factors and entrepreneurial orientation. The hypotheses for the study are:

- **H_2:** Non-Psychological Factors are related to entrepreneurial orientation
- **H_{2a}:** The relationship between propensity to take risk and entrepreneurial orientation is moderated by education.
- **H_{2b}:** The relationship between self-confidence and entrepreneurial orientation is moderated by education.
- **H_{2c}:** The relationship between locus of control and entrepreneurial orientation is moderated by education.
- **H_{2d}:** The relationship between tolerance for ambiguity and entrepreneurial orientation is moderated by education.
- **H_{2e}:** The relationship between propensity to take risk and entrepreneurial orientation is moderated by supportive environment.
- **H_{2f}:** The relationship between self-confidence and entrepreneurial orientation is moderated by supportive environment.
- **H_{2g}:** The relationship between locus of control and entrepreneurial orientation is moderated by supportive environment.
- **H_{2h}:** The relationship between tolerance for ambiguity and entrepreneurial orientation is moderated by supportive environment.

Based on the literature review, theoretical model for this research is shown in the figure No. 1:

Figure 1: Theoretical Model



4. Research Methodology

This cross sectional study was quantitative in nature. Unit of analysis for this cross sectional studies were the entrepreneurs operating their business (retail stores) at micro level in Hazara Division, Pakistan. To gather data, technique of survey through structured questionnaires was adopted. Researchers prefer survey approach in social sciences because it is excellent approach in measuring attitude and orientation in large population (Ullah et al., 2012). Researcher administered survey technique was used as most of the respondents were unaware of Likert scale and surveys. To measure psychological factors, questionnaire was adapted from the study of Chye-Koh (1996). Non psychological factors were measured using six question adapted from the research of Ullah et al., (2013), 3 questions were asked about role of supportive environment and role of education. Entrepreneurial orientation questions were adapted from Kreiser et al. (2002) who used aggregate construct that includes innovativeness, pro-activeness and risk-taking. Respondents had to choose from five choices starting from Strongly Disagree (1) and ending at Strongly Agree (5). Content validity of the scale was established by getting opinion of subject-matter experts on scale before data collection.

As stated earlier, questionnaire was adopted from previous studies. Still it needed to be checked as the population changes from study to study and it was important to make sour that it will work with our study. Therefore, pilot test was conducted from 20 individual entrepreneurs operating micro level retail outlets of food products in Mansehra. Validity analysis was conducted which shows positive results. It also helped in correcting the sequence of variables and making correction in wording of questionnaire. To ensure the internal reliability, Cronbach's alpha values were calculated for each variable. Malhotra and Birks (2007) suggested that in exploratory study, the value above 0.70 is accepted as satisfactory internal consistency. Cronbach's alpha was calculated for all the variables using SPSS version 20.0 and the results show that all the variables were meeting the criteria of internal consistency. Results of Cronbach's alpha are shown in table below:

Table 1: Reliability and Validity Measures

	Factor Loadings	α	AVE	CR
Propensity to Take Risk (PTR)				
PTR-1	0.77	0.779	0.803	0.916
PTR-2	0.85			
PTR-3	0.79			
PTR-4	0.83			
PTR-5	0.77			
PTR-6	0.81			
Self Confidence (SC)				
SC-1	0.81	0.824	0.859	0.944
SC-2	0.82			
SC-3	0.91			
SC-4	0.87			
SC-5	0.89			
SC-6	0.85			
Locus of control (LoC)				
LoC-1	0.75	0.806	0.823	0.936
LoC-2	0.77			
LoC-3	0.81			
LoC-4	0.8			
LoC-5	0.91			
LoC-6	0.87			
LoC-7	0.84			
Tolerance of Ambiguity (TA)				
TA-1	0.92	0.917	0.872	0.950
TA-2	0.97			
TA-3	0.81			
TA-4	0.78			
TA-5	0.89			
TA-6	0.85			
Entrepreneurial Orientation (EO)				
EO-1	0.83	0.830	0.884	0.966
EO-2	0.85			
EO-3	0.91			
EO-4	0.94			
EO-5	0.89			
EO-6	0.81			
EO-7	0.85			
EO-8	0.98			
Role of Supportive Environment (RSE)				
RSE-1	0.82	0.921	0.764	0.807
RSE-2	0.72			
RSE-3	0.75			
Role of Education (RoE)				
RoE-1	0.85	0.830	0.797	0.839
RoE-2	0.80			
RoE-3	0.74			

Extraction Method: Principal Component Analysis. Rotation Method: Promax with Kaiser Normalization

Another concern was to minimize the possibility of respondent errors due to long length

of questionnaire. This issue was resolved by dividing the questions into 3 sections, each with its own heading and instructions so that the questionnaire would not be overly monotonous. First section was regarding psychological factors, second section contained questions about non-psychological factors and last section's questions were measuring entrepreneurial orientation.

Moreover, Fornell and Larcker (1981) method was used to test the discriminant validity of construct. The comparison between shared-variance of constructs and average variance explained (AVE) by construct reveled that AVE for each construct was greater than shared-variance value. So, the discriminant validity of construct was verified. Convergence validity was established by examining the values of factor loading, AVE and the values of CR. As shown in table 1, all the values of factor loadings are greater than 0.4 which is standard value as explained by by Hair et al. (2013). CR and value of α values are also greater than 0.7 and AVE is greater than 0.5 which are greater that the threshold values proposed by Hair et al. (2014) which conformed the convergence validity. Detail is shown in Table 1. Face validity was confirmed from expert opinion of three professors having expertise in the research area.

Table 2: Summary of Model Fit Indexes

Model	χ^2	Df	RMSEA	CFI	GFI	SRMR
Three Factor Model	135	565	0.04	0.98	0.91	0.05
RMSEA = root mean square error of approximation; CFI = comparative fit index; GFI = goodness-of-fit index; TLI = Tucker–Lewis index; For all $\chi 2$, $p < 0.01$						

Confirmatory factor analysis (CFA) was conducted to check hypothesized model fitness. The model fitness was measured using different fit indicators like chi-square, GFI, CFI, and RMSEA. The value of chi-square is used for evaluating overall model fitness and its threshold value is 0.05 (Barrett, 2007). RMSEA tells us how well the model, with unknown but optimally chosen parameter estimates would fit the population's covariance matrix. Its value should be between 0.06 (Hu & Bentler, 1999) and 0.07 (Steiger, 2007). CFI is used to compare the fit model and null model- a model where variables are assumed to be uncorrelated. It actually shows the improvement in model fit as compare to null model. GFI calculates the proportion of variance that is accounted for by the estimated population covariance. Its value ranges from 0 to 1 with 0.9 or above is considered as acceptable vale for model fitness. The study compared proposed three factor model with other substitute models i.e. M1 and M2. Results proved that 3-factor model was best fit to the data and had acceptable values of $\chi 2$=135, DF=565, CFI=0.98, SRMR=0.05, and RMSEA=0.04.

Population of this study consisted of 3400 entrepreneurs operating micro level retail outlets of food products and registered with District Food Offices of the cities of Mansehra (N=797), Abbottabad (N=1165) and Haripur (N=1438) (As per data gathered from district food offices in Mansehra, Abbottabad and Haripur). Sample size from population was calculated using Krejcie and Morgan (1970) formula which yielded the result of 346 as sample size at 99% confidence level. So data was collected through questionnaire from sample of 346 respondent selected using simple random sampling method.

5. Analysis and Results

Descriptive analysis were performed and shown in table 3. Mean value of 346 responses for propensity to take risk is 3.41; mean value of self-confidence is 3.36 whereas mean value for locus of control is 3.63. Tolerance of ambiguity shows lowest mean value of 3.00.All the values greater than or equal to three on 5-point Likert scale show that respondents are optimistic about the role of these psychological variables in the entrepreneurial orientation enhancement. The mean value of entrepreneurial orientation for micro level businesses is 3.83, which shows that, on the aggregate, small level businesses owners are entrepreneurial as entrepreneurial orientation was measured with construct that includes innovativeness, pro-activeness and risk-taking. So all the persons operating micro level retail outlets of food products are innovators in their own capacity, proactive and risk taking individuals as entrepreneurial orientation was measured using these three variables. Similar results were found by Chadwick (1998), Knight (1997), and Ullah et al. (2012).

Table 3: Descriptive Analysis

S. No.	Variable	Min. Value	Max. Value	Mean	SD
1	Propensity to take risk	1.3	4.7	3.4	.56
2	Self-confidence	1.2	5.0	3.3	.48
3	Locus of Control (Internal)	1.0	4.4	3.6	.71
4	Tolerance of Ambiguity	1.0	5.0	3.0	.68
5	Entrepreneurial Orientation	1.25	4.8	3.8	.55

Correlation between entrepreneurial orientation and psychological factors was calculated using SPSS version 20.0. Results demonstrate that there exists a strong relationship between entrepreneurial orientation and all psychological factors. Value of Correlation coefficient "R" between propensity to take risk and entrepreneurial orientation is 0.284; value of R between entrepreneurial orientation and self-confidence is 0.393; value of R between entrepreneurial orientation and inner internal locus of control is 0.346; and value or R between entrepreneurial orientation and tolerance of ambiguity is 0.374. All these values are significant, positive and show moderate relationship of different psychological factors with entrepreneurial orientation. This shows that if entrepreneurial orientation is to be increased, all these four psychological factors needed to be enhanced as all the psychological factors are positively associated with entrepreneurial orientation. In other words, if the pro-activeness, risk taking and innovativeness of the employees are to be increased, psychological factors can be playing an important role. Similar results were found by Okhomina (2010) and Ullah et al. (2012). Table 4 shows the values of correlation analysis.

Table 4: Correlation Values

Variables	Propensity to Take Risk	Self Confidence	Inner Locus of Control	Tolerance of Ambiguity
Entrepreneurial Orientation	0.284**	0.393**	0.346**	0.374**

* $p<0.05$; ** $p<0.01$

To test the hypotheses, regression analysis was performed. Table 5 shows the result of regression analysis.

Table 5: Model Summary of Regression Analysis

Mode l	R	R Square	F	Sig.	Durbin-Watson
1	.501a	.251	28.682	.000	1.755

As evident from table 5, the value of R Square is 0.251i.e.25.1% variation in EO is due to independent variables used in this study. The value of p is 0.000 and value of F is 28.682. Hence, it can be concluded that all independents variables i.e. self-confidence, internal locus of control, tolerance of ambiguity, and propensity to take risk show significant relationship with the dependent variable (entrepreneurial orientation). So, we can conclude that the model is significant and it has explanatory power. Value of Durbin-Watson is 1.755 which shows that there is ignorable autocorrelation.

Table 6: Coefficients of Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.183	.839		1.411	.159
	Propensity to take risk	.265	.039	.364	6.848	.000
	Self-confidence	.084	.015	.284	5.491	.000
	Inner Locus of Control	.242	.023	.501	10.739	.000
	Tolerance of Ambiguity	.329	.048	.346	6.832	.000

a. Dependent Variable: Entrepreneurial Orientation

Table 6 shows coefficients of regression analysis. All the results are highly significant ($p<0.001$). Results show that one unit change in propensity to take risk will bring 0.364 units change in entrepreneurial orientation keeping all the other independent variables constant. For each unit increase in self-confidence, entrepreneurial orientation is increased by 0.284 units. Similarly, each additional unit of internal locus of control, entrepreneurial orientation is enhanced by 0.501 units. Further, there will be a change of 0.346 units in entrepreneurial orientation when one unit of tolerance of ambiguity is increased. All these independent variables bring significant and positive change (when manipulated) on entrepreneurial orientation. We can conclude that all these psychological factors significantly explain the variation in entrepreneurial orientation. Hence all the sub-hypotheses of H_1 are accepted which could explain the acceptance of H_1.

Table 7 and 8 report a series of hierarchical models used to test hypothesis 2 and its sub-hypotheses. In each regression model, interdependence was entered in step 1, and interaction term was entered in step 2. A significant change in R^2 and value of coefficients in step 2 indicate the existence of moderation effect.

Table 7: Moderating Effect of Education

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Entrepreneurial Orientation *(DV)*								
Propensity to take risk (IV1)	.067	.043						
Role of Education (MV1)	.476**	.656**						
IV1 x MV1		.209**						
Entrepreneurial Orientation *(DV)*								
Self Confidence (IV2)			.091*	.014*				
Role of Education (MV1)			.455**	0.633**				
IV2 x MV1				.161*				
Entrepreneurial Orientation *(DV)*								
Locus of control (IV3)					.036	.083**		
Role of Education (MV1)					.541**	.516**		
IV3 x MV1						.201**		
Entrepreneurial Orientation (*DV*)								
Tolerance of Ambiguity (IV4)							.020*	.039*
Role of Education (MV1)							.505**	.601**
IV4x MV1								.186**
R^2	.269**	.291**	.270**	.278**	.266**	.296**	.266**	.262**
Adjusted R^2	.264**	.285**	.266**	.272**	.263**	.290**	.294**	.287**
ΔR^2	---	.023**	---	.008*	---	.03*	---	.028**
ΔF	---	10.86**	---	3.840**	---	14.50**	---	13.41**
N	346	346	346	346	346	346	346	346

* p<.05; ** p <.01

Model-1 in table 7 shows the coefficient of base model while model-2 captures the moderating effects of education (moderating variable named as MV1 for creating

moderation term) on the relationship between propensity to take risk (IV) and entrepreneurial orientation (DV). The coefficient of the interaction term IV1xMV1 presented in Table 7 indicate that education has positive impact on the relationship of propensity to take risk and entrepreneurial orientation (β = .209, $p < .01$). Education strengthens the relationship between propensity to take risk (IV) and entrepreneurial orientation (DV). The value of R^2-change is also significant (ΔR^2 = 0.023, $p < .01$). Model-4 indicates that the relationship between self-confidence and entrepreneurial orientation is strengthened by the introduction of education as moderating variable in the relationship (β = .161, ΔR^2 = 0.008, $p < .01$). The beta-value and R^2-change in model-6 also shows that education strengthens the relationship between internal locus of control and entrepreneurial orientation (β = .201, ΔR^2 = 0.03, $p < .01$). Similar results can also be concluded from model-7 and model-8 which show that education moderates the relationship between tolerance of ambiguity and entrepreneurial orientation. Value of coefficient β (with interaction term) is 0.186 with $p<0.01$ whereas, R^2-change for the model-8 is 0.028 ($p<0.01$). All the positive and significant R^2-change and significant β change due to moderation term of education indicate that

In table 8, model-10 captures the moderating effect of supportive environment on the relationship between propensity to take risk and entrepreneurial orientation. The coefficient of the interaction term IV1xMV2 in Table 8 shows that supportive environment has positive impact on the relationship of propensity to take risk and entrepreneurial orientation(β = .24, ΔR^2 = 0.043, $p < .01$). Supportive environment also moderates the relationship between propensity to take risk and entrepreneurial orientation. When supportive environment was introduced as moderating variable in the relationship of self-confidence and entrepreneurial orientation, results demonstrated that it strengthen the relationship (β = .338, ΔR^2 = 0.08, $p < .01$) as shown in model-12. Similar types of results were found when the relationship of self-confidence and entrepreneurial orientation was moderated with supportive environment. As explained in Model-14. Both the values of coefficient for interaction term as well as R-square change are significant with p value < 0.01. Model-16 shows the results of moderation of supportive environment on tolerance of ambiguity – entrepreneurial orientation relationship. Bothe beta value and R-square change indicates strengthening of relationship by supportive environment (β = .261, ΔR^2 = 0.046, $p < .01$). It can be concluded that to enhance the entrepreneurial orientation, supportive environment plays important role. As all the sub-hypotheses of H_2 are proved, so H_2 is also accepted that non-psychological factors moderate the relationship between psychological factors and entrepreneurial orientation.

Table 8: Moderating Effect of Supportive Environment

	Model 9	Model 10	Model 11	Model 12	Model13	Model 14	Model15	Model 16
Entrepreneurial Orientation *(DV)*								
Propensity to take risk (IV1)	. 027*	.25*						
Role of Supportive Environment (MV2)	. 484**	.47**						
IV1x MV2		.24**						
Entrepreneurial Orientation *(DV)*								
Self Confidence (IV2)			.060*	.237*				
Role of Supportive Environment (MV2)			.457**	.882**				
IV2x MV2				.335**				
Entrepreneurial Orientation *(DV)*								
Locus of control (IV3)					.123*	.022*		
Role of Supportive Environment (MV2)					.597**	.624**		
IV3 x MV2						.243**		
Entrepreneurial Orientation *(DV)*								
Tolerance of Ambiguity (IV4)							.031*	.159*
Role of Supportive Environment (MV2)							.520**	.704**
IV4x MV2								.261**
R^2	251**	.295**	.253**	.280**	.257**	.301**	.251**	.247**
Adjusted R^2	.247**	.289**	.248**	.274**	.253**	.294**	.298**	.292**
ΔR^2	---	.043**	---	.028**	---	.044**	---	.046**
ΔF	---	21.02**	---	13.11**	---	21.36**	---	22.50**
N	346	346	346	346	346	346	346	346

* p<.05; ** p <.01

As all the hypotheses are accepted on the basis of empirical data analysis, it could rightly be concluded that psychological factors i.e. propensity to take risk, internal locus of

control, tolerance for ambiguity, and self-confidence affect the entrepreneurial intentions and non-psychological factors i.e. education and supportive environment, moderate this relationship.

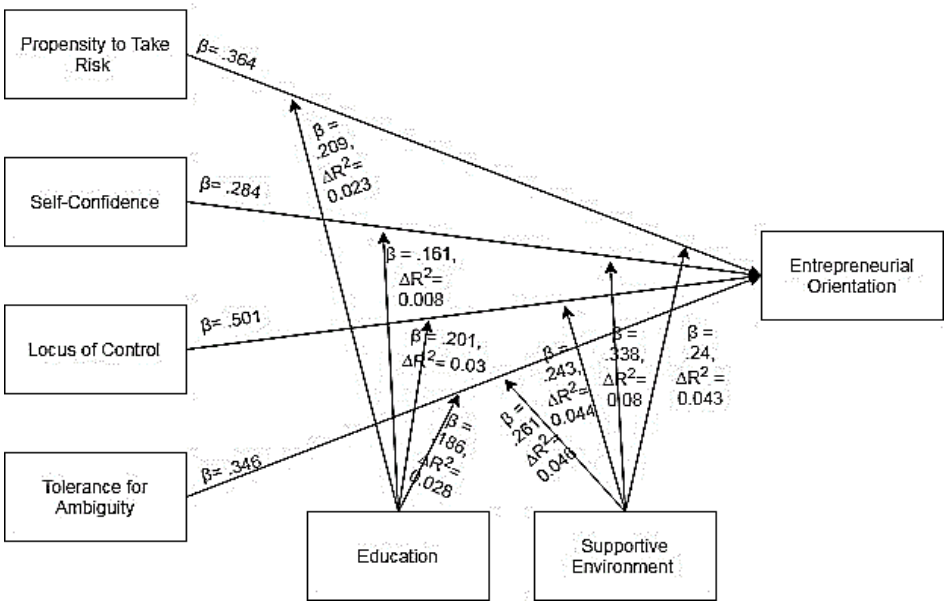


Figure 2: Beta and ΔR^2 Values

6. Conclusions and Discussion

This study used the lens of RBT and CT to find out the relationship between psychological factors, non-psychological factors and EO. Unlike the earlier studies (Begley & Boyd, 1987; Nwachukwu, 1995; Ullah et al., 2012) where psychological and non-psychological factors are studied as predictors, this study provided significant insight into the influence of non-psychological factors as moderating variables. Results explain that micro level retail outlets owner's psychological factors are significant predictors of entrepreneurial orientation and they affect the entrepreneurial orientation positively and non-psychological factors moderate this relationship and goes on to further strengthen the relationship. Study found that mean values value of all the variables on 5-point Likert scale was greater than or equal to three which shows that respondents are confident about the role of these psychological variables in the entrepreneurial orientation boost. The mean value of entrepreneurial orientation was 3.83, which shows that on the aggregate, micro level retail outlets owners are entrepreneurial as entrepreneurial orientation was measured with construct that includes innovativeness, pro-activeness and risk-taking. So, all the micro level retail outlets owners are innovators in their own capacity, proactive and risk taking individuals. Results of correlation analysis show that there is a strong relationship between entrepreneurial orientation and all psychological factors. These findings add to RBT and CT by proving that psychological factors are the predictors of entrepreneurial orientation with determinants of pro-activeness, innovation and risk taking, and non-psychological factors moderate the relationship. This proves that

psychological factors and non-psychological factors are valuable individual competencies that can be used as a resource to establish, grow and sustain an enterprise at micro level.

Path analysis shows that psychological factors affect entrepreneurial orientation of micro level retail outlets owner. Psychological factors significantly explain 25.1% variation in entrepreneurial orientation. Results show that psychological factors are significant predictors of entrepreneurial orientation and have a positive impact on it. According to this study, most important predictor of entrepreneurial orientation is inner locus of control with beta value of 0.501 ($p < 0.01$) followed by propensity to take risk ($\beta = 0.364$), tolerance of ambiguity ($\beta = 0.346$), and last effected by self-confidence ($\beta = 0.284$). The results of moderated multiple regression analysis show that non-psychological factors moderate the relationship between psychological factors and entrepreneurial orientation. Both education and supportive environment moderate the relationship between different psychological factors and entrepreneurial orientation. With introduction of non-psychological factors as moderating variables, the model becomes more robust for predicting entrepreneurial orientation. Therefore, for enhancing the entrepreneurial orientation, both psychological factors and non-psychological factors can be used in combination as higher entrepreneurial orientation results in higher sales (Harms, Reschke, Kraus, & Fink, 2010), enhances the rate of innovation (Palmer et al., 2017) and ultimately improves the organizational performance (Rauch & Frese, 2000).

Overall this research has significant theoretical and managerial implications. This study adds to theory by proving that psychological and non-psychological factors are important competencies of an entrepreneur which can lead to creation, growth and sustainability of a micro level enterprise in particular and any enterprise in general. At the same time this study also proved that entrepreneurial orientation is a unique and inimitable resource that can be utilized by entrepreneurs for sustainable competitive advantage. In addition, this study also proposed a model for entrepreneurial orientation for micro level entrepreneurs in which psychological factors (propensity to take risk, internal locus of control, tolerance for ambiguity, and self-confidence) and non-psychological factors (education and supportive environment) are important components. Development of this model contributes to the theory by providing suggestion to enhance the entrepreneurial orientations of micro level entrepreneurs. Furthermore, there are numerous studies that used the psychological and/or non-psychological factors to study entrepreneurial orientation; however no study evaluated the moderating role non-psychological factors in the relationship of psychological factors and entrepreneurial orientation which is a unique contribution of this study. The study attempted to fill the gap by providing empirical evidence that psychological factors are important indicators of entrepreneurial orientation and non-psychological factors moderates this relationship and goes on to further strengthening the relationship which is an important contribution to theory. Furthermore, the study provides in-depth knowledge of different psychological factors, non-psychological factors, and entrepreneurial orientation. Therefore, the study contributes to existing body of knowledge by focusing on entrepreneurial orientation as major outcome of psychological factors and non-psychological factors. Entrepreneurial orientation is an important resource that results in creation of sustainable competitive advantage. So, RBT is proving the basis for the study. Alvarez and Busenitz (2001), Lonial and Carter (2015), Newbert (2007), and Wiklund and Shepherd (2003) etc. used RBT to study the entrepreneurial orientation, however no study of entrepreneurial orientation using

competency theory. This study empirically proves that the psychological factors and non-psychological factors enhance the entrepreneurial orientation which is actually improving the capabilities of micro level entrepreneurs. Entrepreneurial competency includes all those characteristics which are necessary for identifying opportunity, establishing enterprise, and growing it and entrepreneurial orientation encompasses all these things. Similarly, competencies include attitude, behavior, traits, skills, and experiences which are also covered under the umbrella of entrepreneurial orientation. So, this study is ultimately adding to competency theory.

In terms of managerial implications, this study has scope for micro level retail outlets owner in particular and all firms in general. This is particularly significant for developing country like Pakistan where collateral securities are virtually non-existent however; local business development is vital for sustainable economic development, employment generation, and societal prosperity. The model of this study can be adopted by high risk ventures capitalists to assess entrepreneurial capabilities to improve return on investment. This model can also be adopted during the new employees selecting process in order to select more entrepreneurial oriented persons. Results of this study can also be adopted by managers and owners to improve the return on investment related to human capital by knowing and improving employee's entrepreneurial capabilities and managerial tendencies.

As evidenced from current study that education (formal as well as entrepreneurial) boosts the entrepreneurial orientation so, education should be promoted. Lack of sound education is an obstacle in creating entrepreneurial culture in the country. According to Fellnhofer et al. (2016), promoting education encourages the EO and it improves work performance. This study can also be used for preparing different programmes for students as well as for developing general entrepreneurship development programs as different previous studies suggested that entrepreneurs are made and different characteristics can be learnt or changed. This will result in decrease of unemployment in the country and will increase of per capital income in the country. Like all the other developing countries, Pakistan is also in the efficiency driven stage (where countries strives to be more efficient). This can only be achieved by educating the workforce. So the role of education for Pakistan and other developing countries is vital. Supportive entrepreneurial environment affect the entrepreneurial culture in the country (Acs et al., 2008) and for developing economies like Pakistan, where the environment is not much supportive and access to resources is limited with limited control of government and its agencies over the situation, all these factors are effecting the EO in the country. To enhance the rate of EO, creation of supportive environment is vital factor for developing countries like Pakistan. This study can also be helpful for banks especially for micro-finance banks. Before giving loans to individuals, banks can use this study to know the entrepreneurial behavior of individual. If the behavior is positive, they can finance that individual. This will enhance the recovery rate (receivable turnover ratio) of banks.

In future, studies with added number of psychological and non-psychological factors can be conducted to capture more information. This study was based on single set of independent and moderating variable and their impact on dependent variable. In future, different other variables like motivational variables, demographic variables, environmental factors, business performance, organizational structure etc. can also be

added to the model. Similar cross industry and cross cultural studies can also be conducted to generalize the results.

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