

Metacognition and opportunity recognition: Evidence from Emerging Economy of Pakistan

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Abstract

Entrepreneurship research so far has investigated the role of demographics, the role of innovation, and networks, or prescriptive approaches in dealing with barriers and risks involved in entrepreneurship. The impact of process-oriented approaches and cognition is lacking in emerging economies. This paper empirically investigates the impact of process-oriented approach of Metacognition to opportunity recognition. This research empirically answers the call to explore the direct and mediation effects of Metacognition on opportunity recognition. The sample was selected from enrolled students in the entrepreneurship program of a leading university in Balochistan. Findings reveal that among five Metacognition dimensions; Metacognition knowledge and choice are significantly related to opportunity recognition. Metacognition choice mediates the relationship between experience and opportunity recognition. The results present useful implications for practitioners and policy makers.

Keywords: *Entrepreneurship; Emerging Economy (EE); Metacognition; Opportunity Recognition (OR).*

1. Introduction

Entrepreneurship research has focused on the question of how individuals recognize and exploit opportunities for new venture creation (Shabbir & Di Gregorio, 1996; Shane & Venkataraman, 2000). The literature explains the entrepreneurial task and the environment surrounding the tasks are inherently dynamic, risky, and uncertain (Early & Mosakowski, 2004). The capabilities or more specifically the entrepreneurial capabilities that enable an entrepreneur to act entrepreneurially are the prerequisites for exploration and exploitation of such opportunities (Haynie, Shepherd, Mosakowski, & Earley, 2010). The research to date has focused on the role of individual prior knowledge (Autio, Sapienza, & Almeida, 2000; Shane & Venkataraman, 2000), the role of innovation and networks (Anokhin & Wincent, 2012; Arenius & Clercq, 2005) and drivers and barrier to entrepreneurship (Leonidou, Katsikeas, Palihawadana, & Spyropoulou, 2007; Van Praag, 1999).

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The entrepreneurship research central question is to explore, why some individuals not the others exploit entrepreneurial opportunity? (Baron, 2004; Shane & Venkataraman, 2000). To date literature is lacking to answer many research questions, such as; whether cognition, task environment or individual capabilities are more motivating to encourage entrepreneurs in exploiting the entrepreneurial opportunity? What contextual or personal ability antecedents are significant to creating a successful new venture? So far the demographic research has failed to pinpoint the complexities in the entrepreneurial process. Mitchell, et al.,(2007) pinpointed that Growing facts obtained by recent studies conducted in the field of entrepreneurship suggests that for becoming an entrepreneur the cognitive systems play a vital role for opportunity recognition and new venture creation. Lumpkin and Lichtenstein, (2005 p.457) concurred that opportunity recognition entails, the intention to generate profits by transformation of entrepreneurial ideas into business concepts. The objective of this research is to: (1) unfold the relationship between process-oriented approaches to Metacognition on opportunity recognition; (2) This research empirically answers the call to explore the direct and mediation effects of Metacognition on opportunity recognition.

The reasons for starting a business are inevitably personal, reflecting character and ambition as well as circumstances (Bosma, 2021). Bosma (2021) reported that lower income economies and youth is facing difficult time in pandemic COVID². Bearing in mind the new forms of entrepreneurial risk, and the rules of success and failure in business are predominantly new in nature. Due to these challenges, the youth are facing considerable threats and the ways to deal with these threats are also complex in nature (Salahuddin, Mahmood, & Ahmad, 2021; Tunio, Chaudhry, Shaikh, Jariko, & Brahmi, 2021). Above mentioned studies conducted in Pakistan, found that both male and female graduates, in terms of weak labor market situation, unemployment, uncertainty and unpredictability; are forced to choose their own business.

Haynie and Shepherd, (2009) identified that cognition research can play an important role in examining the people side of entrepreneurship with the help of studying the memory, problem identification, the learning process, and the abilities of making decisions as entrepreneurs (Mitchell, et al., 2002). In this study, we suggest that the role of Metacognition also referred as cognitive adoptability and or flexibility is an essential factor which can play an important role to provide a path to think and act wisely as a successful entrepreneur and opportunity recognition. Only a couple of studies have explored the role of personality traits and/or entrepreneurial education in opportunity recognition (Cui, Sun, & Bell, 2021; Palladan & Adamu, 2021). There is

² Global Entrepreneurship Survey (GEM) survey evidence overwhelmingly indicates, of 43 economies that carried out GEM's Adult Population Survey, there are only six, all European, where less than one in three adults reported a decrease in household income due to the pandemic (Bosma, 2021).

limited evidence and the role of Metacognition in opportunity recognition is ignored in literature (Parahiyanti & Prameka, 2021). Our study is unique in its nature that explores the role of Metacognition in opportunity recognition.

In addition, in this research we propose that the cognitive adoptability is a road map for the provision of idea generation and its implementation. Therefore, this study adds many contributions to current literature. By exploring how individuals' Metacognition influences the opportunity recognition, this study contributes to introduce a new area of research in cognitive adoptability and flexibility. Second, this study aims to find out such dimensions through the development appropriate factors, ignored in previous literature that help recognize the individual differences in a cognitive and entrepreneurial context. Third: emerging economies are unique; that represents a specific challenge to entrepreneurial world. This study addresses the Metacognitive process not addressed before as a dynamic challenge surrounding the entrepreneurs in emerging economies. This study proceeds by introducing Metacognition and cognitive adoptability as a process-oriented approach. We then describe the hypothesis related with Metacognition and opportunity recognition. Third section describes the methodology used in this study and finally we conclude with discussion and future research and practical implications.

2. Literature Review

Metacognition theory incorporates a process based approach and advances this concept for nascent entrepreneurs in emerging economies so that they develop their sense making structure to address properly the complexities of emerging context (Botha & Bignotti, 2017; Flavell, 1979). Metacognitively aware individual will be in strong position to capture the complexities of task environment in selection of proper alternative which maximizes the utility of final choice (Flavell, 1979; Haynie & Shepherd, 2009). In an emerging economy the entrepreneurial task needs high order sense making to enable an entrepreneur not only to take a directional risk that responds to feedback from complex environment, but it should also provide a sustainable development in his current endeavours. In other case the emerging economy firm can face undesirable losses and failure of firm leads to an example that discourages potential entrepreneurs to take further risks.

Metacognition theory defines Cognitive Adaptability (CA) as the ability to effectively and appropriately change decision policies (i.e., to learn) given feedback (inputs) from environmental context in which the cognitive processing is embedded (Haynie & Shepherd, 2009: 695). To be specific, Metacognition comprises of five dimensions: Goal orientation; metacognitive knowledge (the knowledge that an individual has about himself and others), metacognitive experience (the experiences that deals with

current endeavours), metacognitive control (the functions which monitor sensory signals), and monitoring (Flavell, 1979; Haynie & Shepherd, 2009). Limited evidence arose in this area of research (Palladan & Adamu, 2021) and ignites a unique research paradigm in which we do not see enough contribution that explores the link between cognition and new venture creation process. Therefore, this research is unique that addresses this gap in emerging economy of Pakistan.

3. Conceptual Modal and Hypothesis

3.1 Goal orientation

Haynie and Shepherd,(2009: 699) defines goal orientation as '*the extent to which the individual interprets environmental variations in light of a wide variety of personal, social, and organizational goals*' The motives of new venture creation depends on self-inspiration and social goals are influenced by the context and the personal abilities of the individuals (Haynie & Shepherd, 2009). A personal ability varies from individual to individual. Personal goals include the independence and self-determination principle of life. To become the master of his own desires and motivations and rely on self-initiatives rather than to become a slave in employed jobs. Social goals are dependent on normative principals. The Americans are described as more influenced with independent life and western society in general enjoys higher number of entrepreneurs in the entire world. In contrast the developing countries being slaves from many centuries are in the phase of transition to create an entrepreneurial mindset in society.

Limited research in this area is striking. In the Indonesian context the studies have found a positive relationship between Metacognitive knowledge and entrepreneurial intentions (Botha & Bignotti, 2017). Other studies from South African context also found a positive relationship between cognitive adoptability dimensions; namely goal orientation, Metacognitive experience, Metacognitive choice and entrepreneurial intention (Parahiyanti & Prameka, 2021). The goals should be objective, measurable, and challenging. Entrepreneurial aims and objective are measurable in terms of monetary and financial benefits; however personal inspirations have no limits that can be achieved or measured. An objectivity in terms of economic benefits is in the control of entrepreneur however social benefits provided by entrepreneur is not measurable; and admiration from society lead to successful new venture creation. Thus

H1: *Higher the goals orientation higher will be the probability of successful opportunity recognition.*

3.2 Metacognition knowledge

Literature evidence supports two forms of knowledge: Explicit knowledge is pro-

cess based and formally documented evidence of knowledge. For this reason, this type of knowledge is very common in organization and is transferable. Tacit knowledge is highly codified, and this entails personal interpretations, intuitions and gut feeling of individuals. It is the informal source of knowledge and, therefore, is complex in nature and difficult to transfer to others (Hansen, Nohria, & Tierney, 1999; Herschel, Nemati, & Steiger, 2001; Nonaka & Takeuchi, 2007). Metacognition is a process-based approach therefore this approach covers both type of knowledge and is least explored in entrepreneurial domain.

Metacognitive knowledge refers to one's conscious understanding of cognitive matters as they relate to people, tasks, and strategy (Flavell, 1979; Haynie & Shepherd, 2009). Further the Metacognition knowledge is the analysis of both the internal and external barriers to entrepreneurial development. As the opportunity recognition is related with better dealing with hard numbers (codified knowledge) than the people issues (personal knowledge). It is important that the entrepreneur be able to related the self-reflection and rationality with customers, competitors and networking with potential investors (Flavell, 1979; Haynie & Shepherd, 2009).

Research in opportunity recognition found that prior knowledge and cognitive personality of entrepreneurial vigilance and knowledge had positive impact on entrepreneurial opportunities identification process. It is also confirmed that prior knowledge has significant impact on entrepreneurial alertness and learning (Hajizadeh & Zali, 2016). Entrepreneurial education is another source of entrepreneurial knowledge creation and exploitation. Based on 1428 valid samples from higher education students in China, the results revealed that the impact of entrepreneurial education (EE) on entrepreneurial mindset (EM) is complex. EE significantly enhanced students' entrepreneurial inspiration, which, in turn, promoted formation of students' EM (Cui, et al., 2021).

This research hypothesizes a novel causal link between metacognition and opportunity evaluation in the emerging economy of Pakistan.

H2: *Metacognition knowledge is positively associated with opportunity recognition.*

3.3 Metacognitive experience

Decision makers based on bounded rationality have limited information and they are at most of the times unable to capture all the complexities associated with task and decision environment. Metacognitive experience contains previous experience, intuitions emotions that can serve as a process lens for decision making (Haynie & Shepherd, 2009). Haynie and Shepherd, (2009: 699) conceptualize metacognitive experience as 'to be the extent to which the individual relies on idiosyncratic experiences,

emotions, and intuitions when engaging in the process of generating multiple decision frameworks focused on interpreting, planning, and implementing goals to “manage” a changing environment’. Emotions and intuitions work as rule of thumb and many times the decision is not appropriate.

Knights & Murray (1994) reported in their study of Pensco (financial and pensions consultancy) that the company General Manager in an effort to boost its performance introduced a market led strategy. In a triumphant presentation the management claimed greater market prospects for strategy. The research highlighted conflicts between departments, especially sales and marketing and customer services. The strategy failed to build the goodwill of the company, as the company increased substantial costs. The management was unable to involve decision makers having cognitive experience to resolve the differences in firm’s priorities (Boddy, 2005; Kennedy, Boddy, & Paton, 2006; Knights & Murray, 1994).

Metacognitive experience makes it possible to capture all the complexities with decision environment and entrepreneur makes accurate choice for fruitful outcome Thus:

H3: Higher the metacognitive experience, higher is the probability of opportunity recognition.

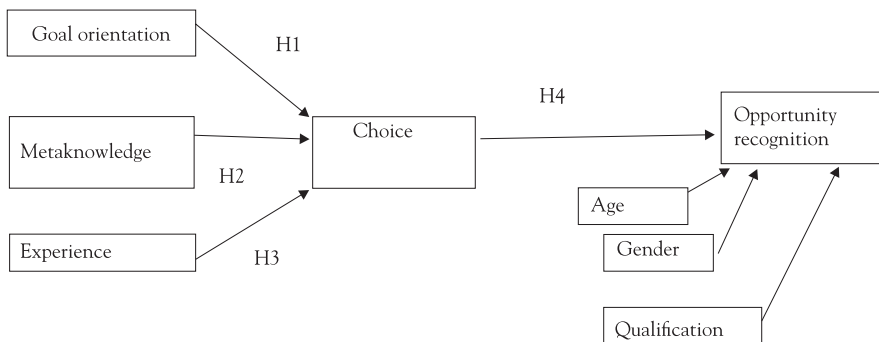


Figure 1: Conceptual Model

3.4 Metacognitive choice– direct and mediation effects

Entrepreneurship is a dynamic, uncertain and risk-oriented phenomenon. Not every entrepreneur becomes a successful entrepreneur (Anokhin & Wincent, 2012; Van Praag, 1999). Inappropriate entrepreneurial strategy causes failure, if it is not derived by the cognitive mindset (Barons, 2004). Within a few years of establishment more than 50% of small ventures fail and disappear from earth without contributing to social or economic wellbeing of the globe (Cooper, Woo, & Dunkelberg, 1989). Conflicting alternatives makes the choice ambiguous and in turbulent environment it is very difficult to arrive at “most appropriate” choice. Cognitive mindset makes it

possible to engage in appropriate processing of information in order to choose best outcome.

In general, the process of opportunity recognition does not work in isolation; this entails: Opportunity discovery and opportunity exploitation (Hajizadeh & Zali, 2016; Shane & Venkataraman, 2000). The research suggests that the opportunity discovery is a fruitful outcome after a successful orientation to risk and uncertainty (Tversky & Kahneman, 1974). Once an entrepreneur is able to identify the level of risk and uncertainty in new business startup, he is able to identify, discover, evaluate and exploit and entrepreneurial opportunity (Hajizadeh & Zali, 2016; Shane & Venkataraman, 2000). During the process of opportunity discovery, the choice also mediates the relationship between goals, knowledge, and experience and opportunity recognition. Research in this domain from Indonesian and South African context found that the cognitive adoptability have significant impact on opportunity recognition (Botha & Bignotti, 2017; Parahiyanti & Prameka, 2021) . Metacognition opportunity discovery and choice helps nascent entrepreneurs to start a viable and successful new venture Thus:

H4: Higher the Metacognitive choice higher will be the probability of opportunity recognition.

H5: Meta –choice also mediates the relationship between metacognition and opportunity recognition

3.5 Metacognition outcome – opportunity recognition

Decision analysis is a complex situation this also confirms with the intention of entrepreneur to decide about the utility of outcomes. Before reaching to a final decision, utility of outcome is influenced by: (1) *Ambiguity*; (2) *Contradictory substitutes*; (3) *Time restrictions*; and (4) *Cognitive inclination* of the decision maker about the utility of final choice (Braisby & Gellatly, 2005; Mitchell, et al., 2007; Zahra, Korri, & Yu, 2005). Metacognitive preferences serve as conduit for opportunity evaluation. In this study Metacognitive choice interpreted as opportunity recognition (new venture creation) and dependent in nature as outcome variable in casual relationship.

In this research we exclude monitoring of choice and outcome as the new venture choice by new graduating students is not of interest as they want to start a viable business and are not in the position to express their view about the final monitoring or evaluation of any business.

4. Methodology

In this study deductive approach is used and stratified random sampling of final year MBA and four years bachelors 'entrepreneurship degree students justifies the ontology and epistemological assumptions of the study. Hypothesis is tested from a sample taken from the population of a university working in the region of Quetta (Balochistan)Pakistan. A population of 500 university students (MBA and final year entrepreneurship graduation degree) was invited to fill out the questionnaire. Sample size was 159 in order to test the proposed hypothesis Response rate is 32%. This sampling technique and response rate is common in entrepreneurship studies in other context (Palladan & Adamu, 2021). However, in many studies where sample size is small, bootstrap method of analysis ensure generalizability. Therefore, bootstrap resampling and analysis method is used in this study.

4.1 Instruments and measures

Entrepreneurship research in general adopts a psychological lenses for testing the risk perception or cognition domain to measure a specific characteristics of entrepreneurs (Acedo & Florin, 2006; Acedo & Jones, 2007). However, a process-based metacognition scale is lacking in the uncertain context. Haynie and Shepherd,(2009) argued that entrepreneurship—different from other contexts—represents a situation that is defined by a myriad of tasks and potential outcomes. Haynie and Shepherd proposed a generalized measure adopted from other disciplines of education and recommended that in the opportunity recognition task environment measures should have the ability to capture cognitive adaptability in the entrepreneurial process along with dynamic context. They initially proposed a pool included 54 questions. The scale was adapted from their pioneering contributions (Haynie & Shepherd, 2009) as an 11-point, semantic differential measure (Saunders, Lewis, & Thornhill, 2007; Zikmund, 2000).

Past research is using different measures for opportunity recognition. Hajizadeh and Zali, (2016) argued that the types of opportunity could include new products or services, new markets, new materials, new production processes and methods and new ways of organizing. As this research is using a sample from post-graduate students, Thus, an item has been specified for each type of opportunity for starting a new business or having a good knowledge to start a new business. Four items are used for this purpose. In line with previous research, demographic of the respondents (namely age, gender and education) were used as control variables (Hajizadeh & Zali, 2016).Such variables reflect impact on overall sampling strategy and model presented in this research.

5. Results

5.1 Descriptive statistics

Table 1 presents the demographic data of the respondents. From the table it is evident that the majority of respondents are male and age of respondents in their final year MBA and entrepreneurship degree is between 20-25 years. This is an ideal age to learn and start their entrepreneurship career after qualifying their four years degree. Education, age and gender of respondents are control variables; they might have an effect on overall results. Majority of the respondents are unmarried and residing in urban areas of Balochistan.

Table 1: Demographic Data of the Respondents

Demographic properties	Category	Frequency	Percentage
Gender	Male	101	64%
	Female	58	36%
Age	20-25	131	18%
	26-35	24	52%
	36-45	1	22%
	46 and above	3	7%
Marital status	Unmarried	133	16%
	Married	26	84%
Education	Graduation	75	48%
	Masters	77	47%
	M.Phil.	03	5%
	Ph.D.	0	0.0%
Residential location	Rural	28	18%
	Urban	131	82%

5.2 Normality

Kolmogorov-Smirnov and Shapiro-Wilk test was used to assess the normality of

the data. The skewness and kurtosis values were also examined to assess the normality of the data. Majority of the variables reflected positive kurtosis which shows the data is normally distributed; goal orientation (.363); metacognition knowledge (.726); metacognition experience (1.034). With reasonable samples the skewness will not make a substantial difference in analysis (Pallant, 2005; Tabachnick & Fidell, 2007). Histogram and Normal-Q-Q plots were also observed; majority of the variables (goal orientation, metacognition experience and metacognition knowledge) reflected a straight line in Q-Q plots; which reflected normal distribution.

5.3 Reliability analysis

Reliability is the degree of accuracy of measures as a true value. This also measures the consistency of measure over time and reflects that the measures are error free (Hair, Anderson, Tatham, & Black, 2010; Zikmund, 2000). Cronbach's alpha value of .6 is considered reliable. However in psychological research domain the value less than .6 is can also be expected (Hair, et al., 2010). In this study the scales, such as goal orientation (.729), meta-knowledge (.707), meta-experience (.778) and choice (.665) had a Cronbach's alpha values of greater than .60.

The mean, standard deviation and bivariate correlations are shown in Table 2. Overall respondents experienced moderate levels of metacognition i.e. knowledge, experience, and choice. They also reported moderate level of Goal orientation and low level of opportunity recognition and negative level of age and gender differences in opportunity recognition. The correlation table also reflects that there is no evidence of multicollinearity among independent variables.

Table 2: Mean, Standard Deviation and Correlation

	Mean	SD	1	2	3	4	5	6	7	8
Goal orientation	7.55	2.11	1							
Meta-knowledge	7.84	2.26	.238**	1						
Experience	7.62	2.24	.290**	.383**	1					
Choice	7.09	2.30	.205**	.366**	.228**	1				
Opportunity	1.47	.51	-.088	-.096	-.095	-.140	1			
Age	1.22	.54	-.029	-.014	.068	-.017	.029	1		
Gender	1.36	.48	.067	.051	.029	.157*	.058	-.186*	1	
EDUCATION	1.57	.57	.014	.013	.090	-.107	.096	-.201*	-.072	1

** . Correlation is significant at the 0.01 level (2-tailed). N=159

* . Correlation is significant at the 0.05 level (2-tailed). Age gender and education is reported in ranges.

Path analysis is shown in figure 1. AMOS 21 is used to test the hypothesis and overall model fit. In the model fit measure all the default, independent and saturated models are used to see the model summary. From figure 1 and table 3 (which displays regression weights), it is evident that the goal orientation and metacognition choice are positively related, but their relationship is not significant hence rejecting hypothesis 1. Metacognitive knowledge is positively associates with opportunity choice and opportunity recognition ($p < .01$); accepting hypothesis 2. Meta-experience has a positive relationship with metacognition choice but is not significantly related with it, thus rejecting hypothesis 3. Further metacognition choice is also significantly related with opportunity recognition ($p = .065$). This relationship is partially significant, accepting hypothesis 4.

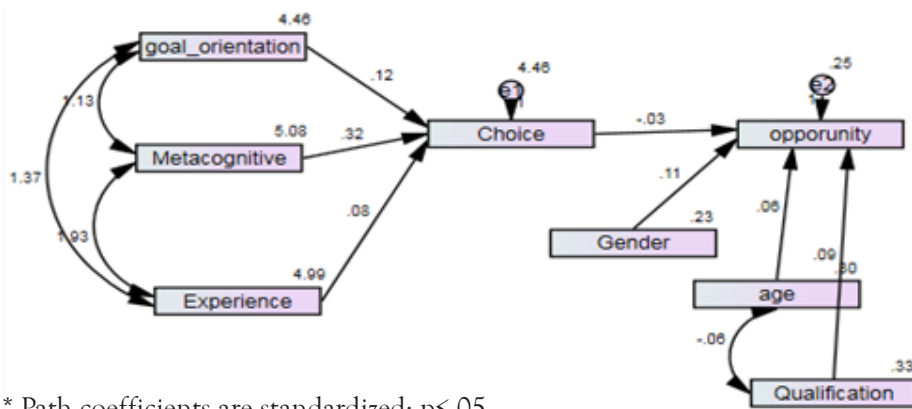


Figure 1: Initial Path-analytic Framework of Opportunity Recognition

Table 3: Regression Weights: (Group number 1 - Default model)

		Estimate	S.E.	C.R.	P	Label
Choice	←	goal orientation	.118	.084	1.401	.161
Choice	←	Metacognitive	.316	.082	3.880	***
Choice	←	Experience	.079	.083	.952	.341
opportunity	←	Choice	-.032	.017	-1.843	.065
opportunity	←	Gender	.106	.083	1.282	.200
opportunity	←	age	.061	.075	.816	.414
opportunity	←	Qualification	.089	.071	1.265	.206

Controlled variables have no significant impact on mediator and dependent variable. Age, gender, education is taken as control variables, ($P=.20$, $p=.41$, $p=.20$) respectively. The results regarding control variables are in line with (Palladan & Adamu, 2021), who found a positive moderating effect of entrepreneurial education between personality traits (innovativeness) and opportunity recognition.

Selected goodness-of-fit statistics related to the hypothesized model are presented in Table 4. CFA was carried out before hypothesized model. Factor loading on some measures were weak, however in cognition and cognitive biases literature; this can be expected (Hooper, Coughlan, & Mullen, 2008; Pallant, 2005). Model fit of CFA measures (Fit indices, NFI, CFI and RMSEA) reported in past literature particularly in cognition sciences proves the validity of the measures of metacognition (Haynie & Shepherd, 2009; Parahiyanti & Prameka, 2021; Urban, 2012). In Table 3 we observed that the overall Chi-square value, with estimated degree of freedom, is 19.20. Chi-square is non-significant, and this threshold is used as an initial step for a good model fit. Chi-square non-significant values ($p=.31$) represent no inconsistency between the models reproduced covariance matrix and the sample covariance matrix. However, Heuse of Chi-square index provides little guidance in determining the extent to which the model does not fit. We must also bear in mind other fit indices as well (Byrne, 2010; Hooper, et al., 2008).

Table 4: Model fit Measure for Default, Saturated and Independent Models

Measures	Default Model (just defined model)	Saturated model	independence Model (all correlations among variables are zero)
Fit indices			
CHI Square	.000	.000	19.20*
Df	0	0	17
NFI(normed fit index)	.80	1.000	.000
CFI(comparative fit index)	.97	1.000	.000
RMSEA	.02	-	.12
AIC (x2)	57	72	116

*Chi square is non-significant ($p=.31$)

CFI is a comparative or relative fit index, and compares the model at hand with a complete independence model based on the data (i.e., a model in which all the variables are unrelated) (Lleras, 2005). Values above .90 are considered acceptable fit for CFI. In reviewing these fit indices, we see that the hypothesized model is relatively well fitting as indicated by a CFI of .97 and a RMSEA value of .02, which is well within

the recommended range of acceptability (< .05 to .08). Overall values represented an exceptionally good fit to the data (Hooper, et al., 2008; Lleras, 2005).

5.4 Mediation analysis

Baren and Kenny states that in order to prove mediation the direct effect without mediator should be significant and direct with mediator should not be significant. The table shows that the direct effect of Goal orientation and opportunity recognition is significant and the relationship with mediator is also significant, which means that the relationship between goal orientation and opportunity recognition is not mediated by metacognition choice. Similar is the case of relationship between metacognition knowledge and opportunity recognition which is also not mediated by metacognition choice (Baron & Kenny, 1986). However, the relationship between metacognitive experience and opportunity recognition is mediated by metacognition choice; therefore we can conclude that the mediation of choice and Metacognition is partial and this relationship is complex in nature and need further future inquiry.

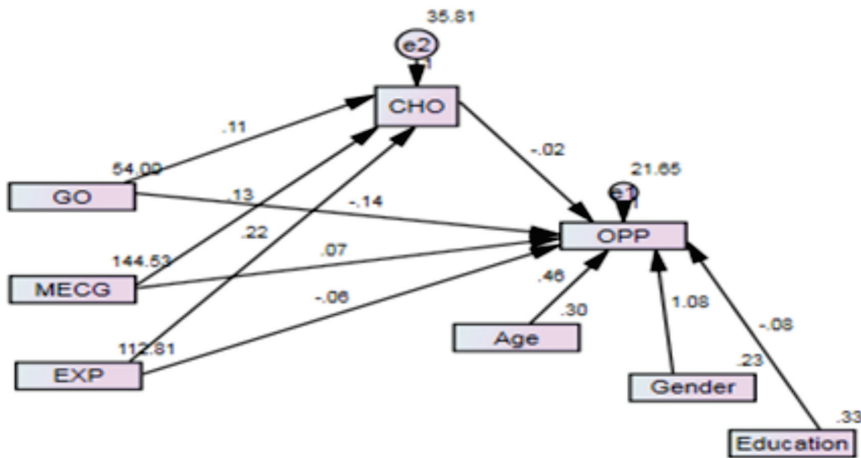


Figure 2: Path-analytic Framework of Mediation Analysis

In order to test the indirect effect Bootstrap confidence two tailed test was performed. This test reflected that the mediation effect of experience choice and opportunity recognition was not significant, which was significant when we used Baron and Kenny approach. Similar bootstrap method was used with knowledge, choice and opportunity recognition, which was also not significant. Mediation effect of goal orientation, choice and opportunity recognition was also not significant.

Table 5: Mediation Analysis

Relationship	Direct without mediator	Direct with mediator	Indirect
Goal orientation, choice and opportunity recognition	-.207(.006)	-.204(.007) Mediation not proved	(NS) no mediation
Knowledge, choice and opportunity recognition	.163(.031)	.168(.031) Mediation not proved	(NS) no mediation
Experience, choice and opportunity recognition	-.143(.058)	-.134(.099) Mediation proved	(NS) no mediation

6. Discussion

This research explores the link between goal orientation, metacognition choice, metacognition knowledge and opportunity recognition. From the path analysis it is evident that the goal orientation and metacognition choice are positively related, but their relationship is not significant hence rejecting hypothesis 1. These findings are in line with (Parahiyanti & Prameka, 2021), who found that the Metacognition knowledge of Indonesian students are positively associated with opportunity recognition. Our findings are also in line with (Botha & Bignotti, 2017; Urban, 2012). Both studies found a positive link between cognitive adoptability and opportunity recognition of South African students and entrepreneurs. In case of Metacognition choice our findings contradicts (Parahiyanti & Prameka, 2021), who found in case of Indonesia Metacognition choice does not influence intention of undergraduate students to start a business. The possible reason of difference in Indonesia and Pakistan context is the level of delivery of entrepreneurial education. The choice of new type of business in Pakistan and Indonesia varies in terms of their complexities involved in new venture creation process. Therefore, the findings of South African, Indonesian and Pakistan studies provides new insights in the entrepreneurial developments.

There are many possible reasons for his non-significant relationship. First goal orientations of many individuals vary with respect to their personal tendencies and contextual factors surrounding them. Personal tendency encourages to choose a business where a person wants that the business must have earning capacity without putting hard efforts and the context in which the entrepreneur is working might not be favouring such opportunities; thus limiting opportunity recognition. Second, entrepreneur wants ease of business without investing higher fix costs but the context presents complex factor (high initial costs without govt. support; finances etc) beyond the control of entrepreneur; this undermines the resilience capacity of entrepreneur. In this situation the entrepreneur becomes risk-averse and avoiding complex situations

thus losing comparative advantages of related business opportunities.

Metacognitive knowledge is positively associated with opportunity choice and opportunity recognition ($p < .01$); accepting hypothesis 2. Our findings are in line with (Ettl & Welter, 2010), who found that women entrepreneurs acquire the (business-related) knowledge to start and grow a venture and this impacts local, regional, family and social as well as macro environments in this regard. Meta-experience has positive relationship with metacognition choice but is not significantly related with it, thus rejecting hypothesis 3. Further opportunity choice is also significantly related with opportunity recognition ($p = .065$). This relationship is partially significant; accepting hypothesis 4. This finding is also in line with (Hajizadeh & Zali, 2016), who found that prior knowledge, cognitive characteristic and entrepreneurial alertness and learning have an impact on opportunity recognition. Hypothesis 5 is also accepted. It is pertinent to note that only one dimension of cognitive adoptability metacognition choice mediates the relationship. Mediation of experience, choice and opportunity recognition was proved, which means that cognitive adoptability of entrepreneur is also dependent on other complex contextual and social factors.

7. Conclusion

This research is unique in its nature as this research tested metacognition in an emerging economy like Pakistan. This research finds a positive link between cognitive adoptability and opportunity recognition of South African students and entrepreneurs. Metacognitive knowledge is positively associated with opportunity choice and opportunity recognition. This research adds contribution to metacognition theory. It is pertinent to note that only one dimension of cognitive adoptability metacognition choice mediates the relationship. Mediation of experience, choice and opportunity recognition was proved

The decision-making process is also affected by the cognitive biased and other proactive cognition of the entrepreneurs. So far research has highlighted the role of demographics in opportunity recognition process. Possible effects of other cognitive characteristics such as proactivity, self-efficacy, creativity, tolerance to ambiguity and innovation can be considered in the models to increase accuracy of findings (Hajizadeh & Zali, 2016).

Knowledge about environmental feedback is another potential area of enquiry in cognition research. Haynie and Shepherd (2009) recommended that environmental feedback plays an important part in the decision-making process. Little attention has been paid to the role of cognition in explicit and implicit knowledge building in entrepreneurship in general, and specifically the role of individual hunches, in-

tuitions and rule of thumbs in building this knowledge. It is recommended that the comparative case studies, simulation studies and mix-methodology approaches in various industrial regions in other location can add more rigor in cognition research.

Higher education institution and in particular secondary education institution should arrange trainings, seminars and workshops for emerging youth in Pakistan. So that they are more capable to start their own business rather than for putting untiring efforts for the jobs, unemployment warrants to start cognition-based trainings in which youth is capable to choose viable alternatives among conflicting alternatives in entrepreneurship.

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Appendix

Questionnaire Items with sources

Goal Orientation:

Please check the scale and choose the number that best describes how you feel regarding each statement.

Not very much like me-1 2 3 4 5 6 7 8 9 10- very much like me

1.	I often define goals for myself.
2.	I understand how accomplishment of a task relates to my goal.
3.	I set specific goals for I begin a task.
4.	I ask myself how I have accomplished my goals once I have finished.
5.	When performing a task frequently assess my progress against my objective.

Source: (Haynie & Shepherd, 2009)

Metacognitive knowledge:

Please check the scale and choose the number that best describes how you feel regarding each statement.

Not very much like me-1 2 3 4 5 6 7 8 9 10- very much like me

1.	I think of several ways to solve the problem and choose the best one.
2.	I challenge my own assumption about a task before I begin.
3.	I think about how others may react to my actions.
4.	I find myself automatically employing strategies that have worked in the past.
5.	I perform best when I have knowledge of the task.
6.	I create my own example to create information more meaningful.
7.	I ask myself question about the task before I begin.
8.	I try to translate new information into my own words.
9.	I try to break the problems down into smaller component.
10.	I focus on the meaning and signification of new information.

Metacognitive Experience:

Please check the scale and choose the number that best describes how you feel regarding each statement.

Not very much like me-1 2 3 4 5 6 7 8 9 10- very much like me

1.	I think about what I really need to accomplish before I begin a task.
2.	I use different strategies depending on the situation.
3.	I organize my time to best accomplish my goals.
4.	I am good at organizing information.
5.	I know what kind of information is most important to consider when faced with a problem.
6.	I consciously focus my attention on important information.
7.	My "gut" tell me when a given strategy I use will be most effective.
8.	I depend on my intuition to help me to formulate strategies.

Meta Cognitive Choice:

Please check the scale and choose the number that best describes how you feel regarding each statement.

Not very much like me-1 2 3 4 5 6 7 8 9 10- very much like me

1.	I ask myself if I have considered all the options when solving a problem.
2.	I ask myself when there was an easier way to do things after I finish a task.
3.	I ask myself if I have considered all the options after I solve a problem.
4.	I re-evaluate my assumptions when I get confused.
5.	I ask myself if have learned as much as I could have after I finished the task.

Source: (Haynie & Shepherd, 2009)

