

NON –COGNITIVE SKILL: A DRIVING FORCE FOR ENTREPRENEURSHIP

Prashanti Kothari

Research Scholar, Head of Department of Shayona Institute of Business Management, Ahmedabad, Gujarat, India

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ABSTRACT

Non –Cognitive Skill: A Driving Force for Entrepreneurship

Non-cognitive skills are the skills which fall outside of the traditional definitions of intelligence. They are not specifically analytical in nature, but they include a range of personality and motivational habits and attitudes like growth mindset, self-motivation, risk-taking, creativity, optimism, resiliency, adaptability, Networkability, self-efficacy, hope, and others. Non-cognitive skills can influence social and economic outcomes and, potentially, entrepreneurial performance. It is indeed commendable to see the growing importance of non-cognitive skills as they are considered to be crucial predictors of growth in numerous life domains. Researcher intends to explore the significance of non-cognitive skills acquisition and the influence of these skills on entrepreneurship.

Purpose of this paper is to map the relationship between non-cognitive skills and future growth of entrepreneurs with respect to their professional life. On the basis of non-probability judgmental sampling, the researcher has designed a questionnaire to be filled by certain entrepreneurs who have outperformed in their business against all odds. Entrepreneurs could ameliorate their life mainly because of high development of non-cognitive skills, instilled through feedback of their parents, teachers, and others. There will be a scope of future research with respect to the measurement of achievement of non-cognitive skills.

KEYWORDS: *Non-Cognitive Learning, Self-Motivation, Growth, Entrepreneurship*

INTRODUCTION

Each of us is endowed with a unique set of skills that we use in all aspects of our everyday life. If we were asked to name the skills that we thought were valuable, we would find ourselves enumerating a never-ending list of attributes, composed of cognitive as well as non-cognitive abilities.

Cognitive skills are the thinking skills we use to acquire knowledge. It includes the ability to process thoughts, speak, remember, reason, comprehend, recall, analyze and evaluate. (Doyle, 2015). In the past decades, the prediction of academic success has been considered dependent on cognitive factors such as intelligence and academic abilities. (Khine & Areepattamannil, 2016) However, in recent years' researchers have recognized that non-cognitive factors and skills play a critical role in the success and achievement of an individual. (Stankov & Lee, 2014). These cognitive skills are often listed on the resume, and are easy for an employer or recruiter to recognize. Non-cognitive skills, on the other hand, are subjective skills that are much harder to quantify. Also known as "people skills" or "interpersonal," non-cognitive skills relate to the way, we relate to and interact with other people. Certain non-cognitive skills are Communication, Flexibility, Leadership, Motivation, Patience, Persuasion, Problem Solving Abilities, Teamwork, Time Management, Work Ethic (Doyle, 2017)

Non-cognitive skills are the “patterns of thought, feelings and behavior” (Borghans, Maijers&Weel, 2008) of individuals that may continue to develop throughout their lives (Bloom 1964). Non-cognitive skills like critical thinking, problem-solving, emotional health, social skills, and work ethics should be a primary focus of education policy (Garcia, 2014). These skills include those traits that are not directly represented by cognitive skills or by formal theoretical understanding, but instead by socio-emotional or behavioral characteristics that are not fixed traits of the personality, and that are linked to the holistic development, either by being nurtured in the early years or by contributing to the development of cognitive skills in those years or both.

Researchers firmly believe that non-cognitive factors and skills are equally or even more important than cognitive aspects in employment potential. When identifying the personal qualities that require functioning well in life, the role of non-cognitive factors is often highlighted in the discourse (Khine, Ping, Cunningham,2016). Focusing on non-cognitive skills may improve cognitive skills with respect to academic performance like reading, writing etc. which shows interdependence between cognitive and non-cognitive skills. (Masten, 2001) It indicates that we may fail to boost cognitive skills unless we pay closer attention to non-cognitive skills. It has been observed that non-cognitive skills are being caught by students either by some teachers or parents or role models in India, but considering their importance, developing them should be an explicit goal of education. (Dukeworth & Seligman, 2005) Non-cognitive traits, skills, and characteristics even include grit, tenacity, curiosity, attitudes, self-concept, self-efficacy, anxiety, coping strategies, motivation, perseverance, confidence and other aspects of conscientiousness. (Gutmen & Schoon, 2013) They include a range of personality and motivational habits and attitudes that facilitate functioning well in all aspects of life.

An entrepreneur is an individual who, rather than working as an employee, runs a business and assumes all the risks and rewards of a given business venture, idea, or good or service offered for sale. The entrepreneur is commonly seen as a business leader and innovator of new ideas and business processes.

LITERATURE REVIEW

The number of studies documenting the importance of non-cognitive skills for a range of outcomes has developed significantly in recent years. Here, I provide a short summary of some of the papers on this topic. As per these literature studies, non-cognitive skills are found to be very important. They are strong determinants of academic achievement, employment status, social behavior, and work experience.

As per (Keyllonen, 2013), traditionally placement selection has been highly dependent on cognitive skills like mathematics test. Students who do not clear cut-offs are rejected. But the use of non-cognitive skills like motivation and determination can compensate to some extent for deficient of mathematics skills. A determined student is likely to do what it takes to pass an entry-level course. He has mentioned different assessment method in his research paper like self-rating scale. When an applicant applies for admissions or job, there are high chances that he/she will rate himself/herself very high. A meta-analysis by Connelly and Ones (2010) showed that compared to self-ratings, ratings by others were more accurate, less biased, and more predictive of future outcomes. Letters of recommendation, forced choice method, normative, situational judgment test, Behavioral interviews which are again very expensive. There is considerable interest in the idea of implementing a standardized non-cognitive skill assessment test. And it requires sufficient research in developing new education, training, and intervention methods and new assessments in recognition of the importance of non-cognitive skills.

According to (Jayram & Engmann, 2014), employers are looking for three basic skills: Cognitive, Non-cognitive and

technical. While technical and basic cognitive skills are still important in the workplace, transferrable and non-cognitive skills such as communication, problem-solving, punctuality, and flexibility are increasingly important, particularly for the informal economy. The research paper describes several innovative and effective models for skills development at the secondary level, and core principles for their success. according to them, particular focus on three core areas could help skill development programme. 1). Create a streamlined policy environment. Policies must be written so that it can be implemented to all the relevant levels. 2). Foster targeted partnership among key stakeholders. Partnership particularly those between educators, employers, and policymakers are critical. They can increase scale, make the curriculum more relevant, and smooth the transition between education and employment. 3). Explore opportunities for scale and replication. Every region must seize the opportunity to scale up successful interventions and adapt programmes that have succeeded in one region to another region or country.

As per (Kristin Holmberg) the current study only added to the multitude of research that has identified a gap between the skills of current college graduates and the skills identified and sought by employers. What has become apparent is that the hard or technical skills are an expectation of graduates. What employers are now seeking and on which they are making employment decisions is the soft or people skills. Institutions of higher education can no longer afford to ignore the importance of these skills. Students must be shown evidence of the need to develop the soft skills, not just during their college experience, but throughout their work life. Mastering soft skills is an ongoing journey.

As per (Doyle, 2017) certain cognitive skills are necessary for any position, employers increasingly look for job applicants with particular soft skills. This is because, while it is easy for an employer to train a new employee in a particular skill like how to use a certain computer program, it is much more difficult to train an employee in a non-cognitive skill as patience.

According to (Heckman &Rubinstien, 2001) intelligence quotient is one of the important factors to become successful. But high IQ people have also failed in achieving success because of lack of self- discipline and there are other examples that low IQ people have achieved success because of their non-cognitive skills like persistence, reliability, and self-discipline. As per their view, ignorance of non-cognitive skills is because of lack of reliable measures and tests.

As per (Carneiro, Crawford &Goodman, 2007) both cognitive and non-cognitive skills are strongly dependent on family background and other characteristics of the home learning environment. They suggest that social skills may be more malleable than cognitive skills, which – if true – suggests that there may be more important to develop non-cognitive skills rather than cognitive skills. They find that non-cognitive skills are very important for a host of outcomes, including social behaviors, and labor market success.

(Heckman, Urzua&Sixtrud, 2006) show that non-cognitive variables strongly affect employment status, work experience, occupational choice, and wages. In their paper, if one moves an individual from the 25th to the 75th percentile of the non-cognitive skill distribution, wages improve by about 10 percent for males, and 40 percent for females. As a comparison, a similar movement in the cognitive skill distribution leads to a wage increase of about 20 percent for males and 30 percent for females. Once they condition on schooling, the authors generally find that wages exhibit a stronger gradient with non-cognitive skills than with cognitive skills.

(Gutman, &Schoon, 2013) identified the causal evidence linking non-cognitive skills to later outcomes in adolescents. The authors noted that non-cognitive skills are an umbrella term and generally refer to attitudes, behaviors, and

strategies that can lead to success at work. These skills include motivation, perseverance, and self-control. They examined the experimental evidence on the set of non-cognitive skills including self-perception and self-concept of ability, motivation, perseverance, engagement, grit, and self-control. The authors concluded that many of the non-cognitive skills are interlinked and the enhancement of one of the skills without improvement of the others may not lead to lasting changes in employees' lives.

According to (Garcia, 2014) Non -cognitive learning should be incorporated as an explicit part of the educational policy. It is very important for the overall development of an individual and can be nurtured from early years. These skills include critical thinking skills, problem-solving skills, confidence, persistence, communication, self-control etc. as per his view, non-cognitive and cognitive skills are interdependent and improvement in non-cognitive skills support the development of cognitive skills as well.

Another paper, by (Kuhn & Weinberger, 2005, p. 395), finds that males who occupied leadership positions in high school earn between 4 percent and 33 percent higher wages as adults; numerous measures of motivational characteristics are superior predictors of wages, while (Osborne & Groves, 2005) shows that personality measures predict labor market outcomes. (Bowles, Gintis & Osborne, 2001) provide a comprehensive survey of the literature, discussing several studies that find large effects of what they call "psychological" variables on earnings.

As per (Cunha and Heckman), parents and family background plays important role in the development of non-cognitive skills. Parental inputs have different effects at different stages of the life cycle with respect to cognitive skills and non-cognitive skills affected throughout life.

According to (Holbein, 2016) children who develop non-cognitive skills like the ability to self-regulate and integrate with a social setting are more likely to vote in adulthood and become more responsible citizens with respect to their professional commitment as well.

(Brunello, & Schlotter, 2011) argue that high cognitive test scores are likely to result not only from high cognitive skills but also from high motivation and adequate personality traits. Non-cognitive skills formation concerns early educational level. These skills are the essential ingredient in the concept of emotional intelligence.

(Blanden, Gregg & MacMillan, 2006) state that non-cognitive variables are significant determinants of the degree of intergenerational transmission of income, but much of this consequence can be attributed to the effect of non-cognitive skills on schooling, rather than to their direct effect on earnings.

(Rosen, Glennie, Dalton, Lennon and Bozick, 2010) state that some attributes, such as motivation and self-efficacy, consistently find associations between certain attributes and various academic outcomes. According to them intrinsically motivated individuals, individuals with high expectations of success and interest in subject matter or tasks, and individuals trying to master material are all more likely to achieve something than individuals with alternate motivations. Self-efficacy has been found to be developed through feedback, a determinant of professional performance and importantly, is malleable. Self-concept describes an individual's self-beliefs about his or her overall ability in professional achievements.

Identification of Gap and Evolution of Research

According to the current Indian scenario, it has been observed that Cognitive skills are being highly focused with respect to professional growth and achievement, as it is easily measurable. But very high academic score also doesn't justify

superior performance in professional career and stress handling capacity in personal life. Dr. Brian Davidson, founder, and president of Intrinsic Institute, has developed Intrinsic Leadership development programme, which was an effort to develop non-cognitive skills in students and measure the difference if any, in their overall performance. The result of this programme was positive. (Davidson, 2015) Many studies have been done showing the importance of non-cognitive skills in foreign countries. In India, there have been hardly any studies carried out for the same subject. The research will be carried out to identify differences between cognitive skills and non-cognitive skills and the role of non-cognitive skills in shaping entrepreneurs.

Scope of Research

The scope of the study will be limited to entrepreneurs of Ahmedabad currently running a business startup.

An entity shall be considered a “Startup” –

- Running from minimum 3 years and maximum 5 years from the date of its incorporation/ registration, and
- If its turnover for any of the financial years has not exceeded INR 25 crore

OBJECTIVE OF THE STUDY

- To identify differences between cognitive skills and non-cognitive skills
- To identify the role of non-cognitive skills in shaping entrepreneurs
- To identify the importance of non-cognitive skills in professional performance

Type of Research: The research design combines both exploratory and descriptive components. Under the exploratory design, literature survey through physical resources and electronic media will be carried out. For the descriptive research design, sample surveys of different eminent entrepreneurs running a start-up will be carried out.

Population

The population of the present study consists of the entrepreneurs having startups running from minimum 3 years and maximum 5 years and having turn over less than 25 crores in Ahmedabad city.

Sample

To select the sample for the study, non-probability convenience sampling technique will be used. Approximately, 30 entrepreneurs having startups running from minimum 3 years and maximum 5 years and having turn over less than 25 crores in Ahmedabad city will be considered.

Data Collection Tools

The data for fulfilling the objectives of the study have been collected from both secondary and primary sources:

Secondary Data

The secondary data for understanding the development, role, and importance of non-cognitive and cognitive skills, have been collected from various sources such as books, journals, periodicals, magazines, newsletters, research reports of

previously conducted studies in this direction and the internet. These sources will be listed in the bibliography at the end of the research thesis. The APA style of referencing will be used in the research.

Primary Data

Structured questionnaires will be prepared and administered to the respondents. A combination of multiple choice questions, dichotomous questions, and open-ended questions will be used in the questionnaires depending upon the objective of questions. Data with respect to the importance of non-cognitive skills will be collected from evidence-based finding data collection process. (Garcia, 2014). In this process Personal interview of entrepreneur running startups with semi-structured questions, will be conducted to map the importance of non-cognitive skills in their success journey.

Analysis & Interpretation

A process of cognitive & Non- cognitive skills

Cognitive Skills

- It is related to mind, thinking, logic, analysis, and intelligence
- These skills can be developed and learned as part of the educational process or books etc.
- Process: Gathering information- Rationalization- Internalization

Non-Cognitive Skills

- It is related to observation, feeling, environment.
- These skills can be developed through sensory learning from early childhood, by parents, teachers, mentors, hobbies, friends, values, school etc.
- Process:
- Sensing-Perceiving- Habitualizing

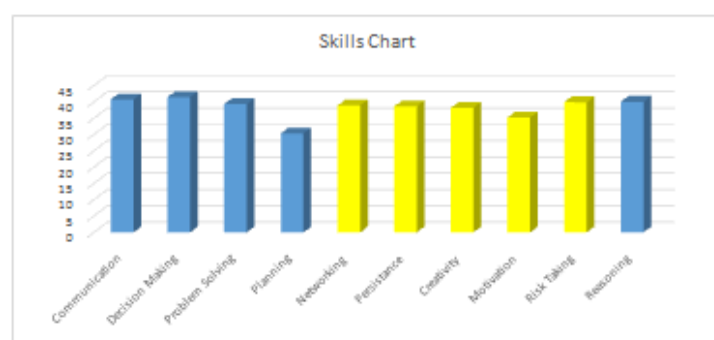


Figure 1

Above table shows that non-cognitive skills are equally important as cognitive skills. From the response of entrepreneurs, we can derive that communication, risk-taking, networking, and reasoning is very important skills to run a business.



Figure 2

Above graph shows that planning as a skill has maximum variance, followed by motivation. Communication, Decision making, Networking, creativity, and persistence shows consistency in answers.

Above correlation table shows a majority of the skills are independent. There is not a very strong correlation between the two skills. Highest correlation is between risk-taking and reasoning, followed by the correlation between decision making and problem-solving, networking and persistence, and between planning and creativity. There is a negative correlation between planning and motivation.

Table 1

	Communication	Decision Making	Problem Solving	Planning	Networking	Persistence	Creativity	Motivation	Risk Taking	Reasoning
Communication	1.000									
Decision Making	0.387	1.000								
Problem solving	-0.006	0.416	1.000							
Planning	-0.272	-0.090	0.364	1.000						
Networking	0.039	-0.198	0.101	0.138	1.000					
Persistence	0.273	0.045	0.306	-0.099	0.405	1.000				
Creativity	-0.358	-0.213	0.202	0.403	0.256	0.365	1.000			
Motivation	0.131	-0.041	-0.034	-0.421	0.068	0.325	-0.159	1.000		
Risk taking	0.164	-0.214	-0.097	-0.196	0.361	0.240	0.080	0.391	1.000	
Reasoning	-0.006	-0.200	0.186	0.122	0.291	0.396	0.277	0.341	0.623	1.000

CONCLUSIONS

Researchers firmly believe that non-cognitive factors and skills are equally important than cognitive aspects in employment potential. It has that all cognitive, as well as non-cognitive skills, are majorly independent and equally important to become an entrepreneur. When identifying the personal qualities that require functioning well in life, the role of non-cognitive factors is often highlighted in the discourse (Khine, Ping, Cunningham,2016). Focusing on non-cognitive skills may improve cognitive skills with respect to academic performance like reading, writing etc. which shows interdependence between cognitive and non-cognitive skills. (Masten, 2001) It indicates that we may fail to boost cognitive skills unless we pay closer attention to non-cognitive skills. It has been observed that non-cognitive skills are being caught by students either by some teachers or parents or role models in India, but considering their importance, developing them should be an explicit goal of education. (Dukeworth& Seligman, 2005)

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