

Entrepreneurial Characteristics of Undergraduate Students in Deteriorated Economies (the case of Gaza Strip)

*Khalid Abed Dahleez and Mohammed Ibrahim Migdad **

ABSTRACT

This research aims at identifying the entrepreneurial characteristics of university students in Gaza Strip using Exploratory Factor Analysis EFA. It also aims at testing the relationship between their entrepreneurial characteristics and entrepreneurial inclination using two multivariate techniques (discriminant and logistic analyses). Respondents were classified as entrepreneurially inclined and non-entrepreneurially inclined based on their desire to establish their own business after graduation from university. The population of the study is the students in their final year of bachelor education in selected faculties and specializations in engineering, commerce, and information technology at the Islamic University of Gaza (IUG). The research adopted the stratified random sampling technique and there were 451 usable questionnaires which represent the sample of the study with a response rate of 82%. This research is considered to be the first to examine the entrepreneurial characteristic of Palestinian University students. It is also among the few to present a complete image of entrepreneurial characteristics of university students in politically and economically deteriorated areas. It may serve as a reference for successive studies in the area and as a tool for comparison in similar areas around the world. New managerial and policy implications may also be inferred on the effect of socioeconomic deterioration and entrepreneurial inclination. Descriptive analysis shows that entrepreneurially inclined students, who prefer to establish their own business after graduation, represent (24.1%) of the sample. The results of EFA classified six characteristics of university entrepreneurs in Gaza Strip: Independence, Internal Locus of Control, Self-Confidence, Need for Achievement, Propensity to take risk, and Communication Skills. The results of the multivariate techniques showed that out of the six characteristics, Independence and Internal Locus of Control are the most influential indicators of entrepreneurial inclination of university entrepreneurs in Gaza Strip.

Keywords: Entrepreneurship, Entrepreneur, Entrepreneurial Inclination, Entrepreneurial Characteristics

INTRODUCTION

A great deal of the efforts in Palestine concentrates on university students and graduates and tries to reduce unemployment rates among graduates and assure an easy access to local and regional markets. These efforts try to mitigate the effects of the narrow labor market and the limited employment opportunities. Reports of Labors and Graduates Surveys of the Palestinian Central Bureau of Statistics - PCBS (2005) reveal that the excess supply of graduates has become more numerous and there is a clear inconsistency between the supply of and demand for

graduates in the local market. They also show that, between 1995 and 2005, educated unemployment rates rose from 21% in 1995 to 32% in 2005 and hence the number of unemployed graduates doubled four times during that period, increasing from 20,000 in 1995 to 80,000 in 2005. Same reports also focus on the limited mobility in the Palestinian territories and the massive destruction of the industrial area in Gaza Strip which decrease the absorptive capacity of the private and public sectors. The Palestinian National Early Recovery and Reconstruction Plan for Gaza 2009/ 2010 issued by the Palestinian National Authority (2009) shows that extensive damage to Palestinian lives and livelihoods was a direct result of Israel's bombardment and invasion of the Gaza Strip. It also shows that the negative effect of strict blockade on Gaza and the unprecedented scale of destruction caused by Israeli offensive against Gaza's economy make 80% of its inhabitants dependent on assistance.

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The main goal of the research study is to examine the entrepreneurial characteristics and entrepreneurial inclination among fresh graduates in Gaza Strip. It also aims at fulfilling the following objectives:

1. Examine the level of entrepreneurial knowledge and skills among entrepreneurs in the Gaza Strip.
2. Examine the entrepreneurial characteristics prevalent among university students in the Gaza Strip.
3. Identify the most influential entrepreneurial characteristics which can predict the entrepreneurial inclination of university students in Gaza Strip.

LITERATURE REVIEW

Entrepreneurship Definition: Entrepreneurship is one of the most challenging fields. It needs more and more research to clarify and define its main components. Even the efforts of previous research don't demonstrate satisfactory results. For instance, Matlay (2005:668), Bulu et al. (2005:1), and Baran and Veličkait (2008:21) suggested that there is small consensus and a lot of contradictions in the literature about the concepts and context of entrepreneurship research regarding its origins, definition, and impact. So, there is no agreement on definition and nature of entrepreneurial activities and entrepreneurs which is very divergent.

The definition of entrepreneurship is not unique and doesn't refer to the same concepts and notions. Some scholars stressed on the individual and his behavior and traits. Others tried to define entrepreneurship in light of the business environment. For instance, Low and MacMillan (1988) tried to explain entrepreneurship by demonstrating the degree of its expansion across different topics and disciplines such as change and small business management and innovation or by reflecting the ambiguity in contextual variables such as adopted technology unstable environment, individualism and industry evolution. On the other hand, Kaufmann and Dant (1998:7) classified the definitions of entrepreneurship based on different viewpoints and cited three main trends: first is entrepreneurs oriented which

stresses on their characteristic, traits, or qualities. Second is the entrepreneurial process oriented definition which presented entrepreneurship as a process. Third is entrepreneurial activities oriented definition which focuses on the activities performed by the entrepreneurs. Moreover, Carton et al. (1998:2) argued that there are two distinctly different approaches to defining entrepreneurship. The first is inductive which defines entrepreneurship based on characteristics and an activity performed by entrepreneurs while second is deductive which uses priori constructs to define entrepreneurs as those who engage in entrepreneurial activity. Shapero (1975:187) argued that "In almost all of the definitions of entrepreneurship, there is agreement that we are talking about a kind of behavior that includes: (1) imitative taking, (2) the organizing and reorganizing of social and economic mechanisms to turn resources and situations to practical account, (3) the acceptance of risk and failure".

Ma and Tan (2006:704-705) focused on the characteristics and traits of entrepreneurs: "Entrepreneurship is a particular type of mindset, a unique way of looking at the world, a creative kind of adventure, and the ultimate instrument toward self-realization and fulfillment. At the heart of entrepreneurship lies the desire to achieve, the passion to create, the yearning for freedom, the drive for independence, and the embodiment of entrepreneurial visions and dreams through tireless hard work, calculated risk-taking, continuous innovation, and undying perseverance. People who dare such dreams and commit their spirit, soul, and entire life's work to realize their dreams are the privileged bunch that we call entrepreneurs".

Galloway and Wilson (2003:16) presented entrepreneurship as a robust and concise process: "Entrepreneurship is about identifying and realizing opportunities to create change, through the exploitation and application of innovative products and processes; entrepreneurship also encompasses calculated risk taking". Table 1 includes different definitions based on the former discussion:

Table 1. Definitions of entrepreneurship

| # | Definition | Citation |
|----|---|------------------|
| 1. | Entrepreneurship is the process of identifying, developing, and bringing a vision to life. The vision may be an innovative idea, an opportunity, or simply a better way to do something. The result of this process is the creation of a new venture, formed under conditions of risk and considerable uncertainty. | Gartner (1989) |
| 2. | Entrepreneurship: The process of identifying opportunities for which marketable needs exist and assuming the risk of creating an organization to satisfy them. | hatten (2006:32) |

| # | Definition | Citation |
|----|---|-------------------------------|
| 3. | Entrepreneurship is the dynamic process of creating incremental wealth. The wealth is created by individuals who assume the major risks in terms of equity, time, and/or career commitment or provide value for some product or service. The product or service may or may not be new or unique, but value must somehow be infused by the entrepreneur by receiving and locating the necessary skills and resources. | Ronstadt (1984:28) |
| 4. | Entrepreneurship means different things to different people and can be viewed from different conceptual perspectives. However, in spite of the differences, there are some common aspects: risk taking, creativity, independence, and rewards. | Hisrich and Michael (2002:23) |
| 5. | Entrepreneurship is the process of creating something new with value by devoting the necessary time and effort, assuming the accompanying financial, psychic, and social risks, and receiving the resulting rewards of monetary and personal satisfaction and independence. | Hisrich and Brush (1986:18) |
| 6. | Entrepreneurship is the pursuit of a discontinuous opportunity involving the creation of an organization (or sub-organization) with the expectation of value creation to the participants..... Therefore, entrepreneurship is the means by which new organizations are formed with their resultant job and wealth creation. A critical component of the proposed definition is the necessary condition that the organization created actually provides goods and/or services to society, not merely for internal consumption. Clearly this definition favors the behavioral school of thought on entrepreneurship, but it should not be taken to discount the importance of the traits and characteristics of the entrepreneur from the perspective of their propensity to act. | Carton et al. (1998:1) |

Entrepreneur Definition: The existed ambiguity of the definition of entrepreneurship is applicable when discussing relevant literature about entrepreneurs.

Bulu et al. (2005: 1) argued that "The definition of an entrepreneur has changed over time and become more complex. During the beginning of middle Ages, entrepreneur was used in relation to specific occupations, but today the notion of the entrepreneur has been refined and broadened to include concepts that are related to the

person rather than the occupation". Hisrich and Michael (2002:66) presented the different sources of entrepreneurs and argued that entrepreneur could be anyone regardless of profession, race, gender, or origin. Larson and Ehrenworth, (1993:1) highlighted the importance of the motivators and stimulators of entrepreneurial activities as a tool to define entrepreneurs. Table 2 lists other definitions for more insight and details:

Table 2. Definitions of entrepreneur

| # | Definition | Citation |
|----|--|---------------------------------|
| 1. | The entrepreneur is the individual (or team) that identifies the opportunity, gathers the necessary resources, creates and is ultimately responsible for the performance of the organization. | Carton et al. (1998:1) |
| 2. | Entrepreneurs are the driving force behind the creation of any new venture and their actions create jobs, stimulate economic growth, and are frequently the source of technological and management innovation. | Larson and Ehrenworth. (1993:1) |
| 3. | Entrepreneur is the innovator who implements change within markets through carrying out new combinations, and assumes entrepreneurship as the concept of innovation applied to a business context | Schumpeter (1934) |
| 4. | An entrepreneur is one engaged in the act of identification and realization of opportunity to create; one who is seeking to create change through innovative products and processes; one who understands and minimizes the associated risks. No-one is an ‘entrepreneur’ all of the time, but everyone may have the potential to demonstrate entrepreneurial acts. | Galloway and Wilson (2003:16) |
| 5. | An entrepreneur is a person who takes advantage of a business opportunity by assuming the financial, material, and psychological risks of starting or running a company. | Hatten (2006:32) |
| 6. | An entrepreneur is generally the type of person who needs to do things in his or her own way and has a difficult time working for someone else. | Hisrich and Michael (2002:67) |

| # | Definition | Citation |
|----|---|-------------------------|
| 7. | An Entrepreneur is any person who possesses the qualities and uses them in setting up and running an enterprise. Entrepreneurs are enterprise builders, they perceive new business opportunities, organize business where none existed before, direct these businesses by using their own and borrowed capital, take the associated risks, and enjoy profit as rewards for their efforts. | Nimalathanan (2008:351) |

Gartner (1988) cited thirty-two different definitions for the purpose of showing that: many studies presented vague or no definitions of the entrepreneur; few studies employ the same definition; selection of heterogeneous samples based on inconsistent definitions; and a startling number of traits and characteristics have been attributed to the entrepreneur based on psychological profile. He then drew a direct connection between entrepreneurs and business creation. So, entrepreneurs are the individuals who can develop new businesses.

Entrepreneurship as a process: Hatten (2006:35) mentioned that "the entrepreneurship process begins with an innovative idea for a new product, process, or service, which is refined as you think it through"; While Shane et al. (2003:259) drew a connection between entrepreneurship and human agency by arguing that the differences between people in scanning the environment, recognizing opportunities, and personal competencies and abilities affect directly the entrepreneurial process.

As shown in figure 1, Shane et al. (2003:275) presented a complete and comprehensive model of the entrepreneurial process. This model starts by opportunity availability and recognition which will lead to applicable idea if it is find the suitable person with the required motivation, interest, knowledge, abilities, and skills. These factors are the cornerstone upon which entrepreneurs build a viable vision and strategy for establishing their new business. So, entrepreneurship is a process that begins with the recognition of an entrepreneurial opportunity and is followed by the development of an idea for how to pursue that opportunity, the evaluation of the feasibility of the opportunity, the development of the product or service that will be provided to customers, assembly of human and financial resources, organizational design, and the pursuit of customers. This process grows in light of environmental conditions and factors such as legal system, nature of industry, availability of fund, capital market, and the macro economy.

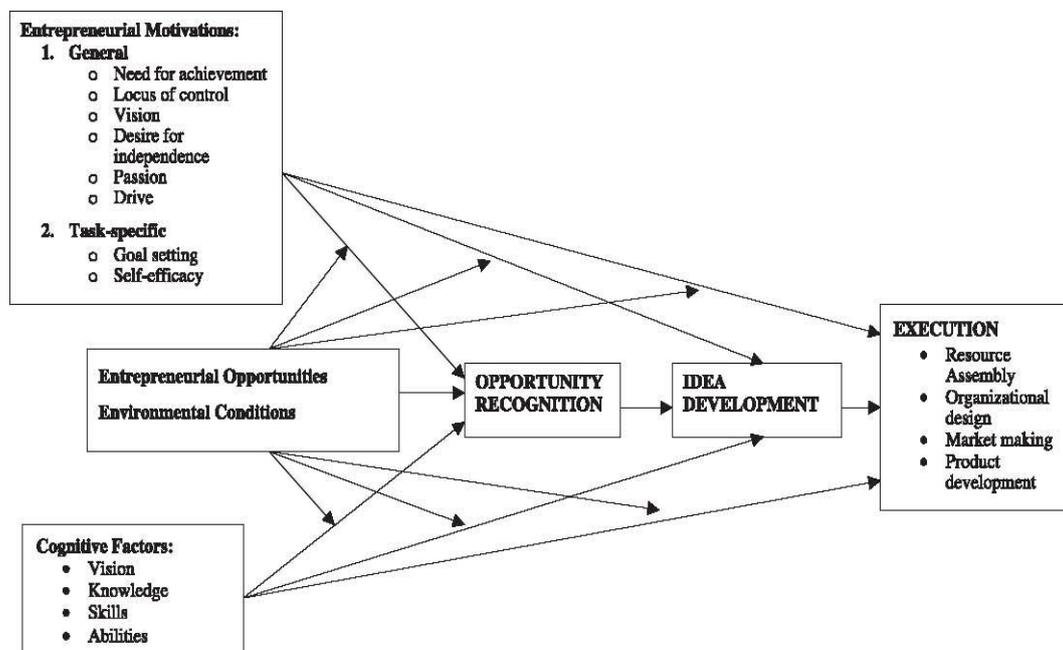


FIGURE 1. Model of entrepreneurial motivation and the entrepreneurship process
(Source: Shane et al., 2003)

In line with this, Hisrich and Michael (2002:39) argued that "an entrepreneur must find, evaluate, and develop an opportunity by overcoming the forces that resist the creation of the something new. The process has four distinct phases: (1) identification and evaluation of the opportunity, (2) development of the business plan, (3) determination of the required resources, and (4) management of the resulting enterprise. Although these phases proceed progressively, none is dealt with in isolation or is totally completed before factors are being dealt with in a sequential phase".

Approaches and Schools of Entrepreneurship:

Based on different viewpoints between scholars and researchers in analyzing the entrepreneurial phenomena, there are many schools in identifying and discussing entrepreneurship and entrepreneurs. Bulu et al. (2005:1) argued that "a consistent universal definition of entrepreneurship does not exist; however, entrepreneurship consists of several different approaches including psychology, sociology, anthropology, management, and economics". Relevant literature reveals that entrepreneurship research focus on two basic approaches: individual or trait approach and process or behavioral approach. The following sections shed light on

the differences between the two approaches.

Individual (trait) approach: The modern concept of entrepreneurship was introduced by Schumpeter (1934) who divided individuals based on specific set of personal characteristics or traits. Gartner (1988), Carton et al. (1998:P7), and Baran and Veličkait (2008:23) argued that the efforts for many decades were about identifying the characteristics and traits which distinct entrepreneurs from others. So the focus of research was on entrepreneurs and their personal characteristics. This approach was in line with the development of management science in which the trait approach reflected by sociology and psychology were in primary interest for many years. Larson and Ehrenworth (1993:3) were in line with this argument and cited four traits: risk taking, need for achievement, locus of control, and tolerance of ambiguity; But their research and the one of Baran and Veličkait (2008:24) reflected the inconsistency and lack in agreement on the entrepreneurial traits due to the ambiguity associated with the definition of entrepreneurship and entrepreneurs.

Carland et al. (1984) cited the historical appearance of these characteristics in the literature as presented in table 3.

Table 3. Entrepreneurial characteristics

| Date | Author(s) | Characteristics |
|------|-------------------|---|
| 1954 | Sutton | Desire for responsibility |
| 1959 | Hartman | Source of formal authority |
| 1961 | McClelland | Need for achievement |
| 1963 | Dauids | Ambition, independence, self-confidence |
| 1964 | Pickle | Drive, human relations skills |
| 1971 | Palmer | Risk |
| 1973 | Winter | Need for power |
| 1974 | Borland | Internal locus of control |
| 1974 | Liles | Need for achievement |
| 1977 | Gasse | Personal value orientation |
| 1978 | Timmons | Drive, moderate risk taker |
| 1980 | Sexton | Energetic |

Source: Carland et al. (1984)

Table 4 contains the characteristics cited by different researchers after 1980. The table contains the most common, other may be found.

This approach was criticized from Hatten (2006:40) who argued that "the conclusion of 30 years of research indicate that there are no personality characteristics that

predict who will be a successful entrepreneur before entering business and that personal characteristics or traits are not useful in predicting who will be a successful entrepreneur, but they do affect our motivations, actions, and effectiveness in running a small business".

Table 4. List of traits and characteristics

| # | Characteristics, Traits, qualities | Citation |
|----|--|-------------------------------|
| 1. | Innovation, risk-taking, growth, need to control, need for achievement, and a desire to be independent as entrepreneurial characteristics. | Carland et al. (1984) |
| 2. | Possessing innovation and independence. | Hisrich (1992) |
| 3. | Having perseverance, the technical skills to run a business and belief in your self are more important than any specific psychological trait you could exhibit. | Byrne (1993:14) |
| 4. | need for achievement, locus of control, propensity to take risk, tolerance of ambiguity, self-confidence and innovativeness | Koh, H. C. (1996:13) |
| 5. | Cited some examples stressed by previous research: such factors as "the need for achievement (McClelland, 1961), risk-taking propensity (Brockhaus, 1980), locus of control (Brockhaus, 1982), tolerance of ambiguity (Schere, 1982), and desire for personal control (Greenberger and Sexton, 1988). | Mazzarol et al. (1999:P49) |
| 6. | Risk taking-whether financial, social, or psychological-is part of the entrepreneurial process. | Hisrich and Michael (2002:68) |
| 7. | Entrepreneurs have greater need for achievement, more internal locus of control, higher propensity to take risk, greater tolerance of ambiguity, more self-confidence and greater innovativeness. | Ethem (2008:5-6) |
| 8. | Timmons (1978), in a review of literature, has identified 14 characteristics of an entrepreneur. These are :(1) drive and energy, (2) self – confidence (3) long – term involvement, (4) money as a setting, (7) moderate risk- taker, (8) dealing with failure, (9) use of feed – back, (10) taking initiative and seeking personal responsibilities, (11) use of resources, (12) competing against self imposed standards, (13) internal locus of control, and (14) tolerance of ambiguity and uncertainty. | Nimalathasan (2008) |

Organizational (behavioral) approach: this approach represents a shift in the entrepreneurship research from focusing on the characteristics and traits prevailed among entrepreneurs to the nature of behavior associated with entrepreneurial activities and processes. Baran and Veličkait (2008:24) argued that the behavioral approach came as a result of the weaknesses of the trait approach; and this approach focuses on the entrepreneurial process containing a set of steps and actions reflected by human behavior in pursue to create new business. This approach doesn't ignore the effect of traits and characteristics but minimizes it in light of other factors such as environment, skills, knowledge, among others. Larson and Ehrenworth (1993:5) presented the methodological shift in the entrepreneurial research reflected by enquiring the behavior instead of asking about who the entrepreneurs are. They also stressed the importance on examining and studying many variables other than the traits and characteristics of entrepreneurs. This viewpoint crowned by the efforts and dominated the research of Gartner (1989), a leading behavioral researcher, who argued that "entrepreneurship is something one does, not something one is". He constructed a four dimension framework (characteristics of the entrepreneur, the organization, the environment,

and the process and studied the interaction between these dimensions.

Schools of Entrepreneurship: Cunningham and Lischeron (1991) have identified six different major schools of thought.

- The Great Person School of entrepreneurship takes the approach that entrepreneurs are born with abilities to recognize opportunities.
- The Psychological characteristics school argues that certain traits, needs, values, and drives cause individuals to behave entrepreneurially and that these entrepreneurial traits cannot be learned.
- The Classical School regards entrepreneurs as innovators. Schumpeter, believing that the entrepreneur has the ability to recognize or create opportunities, falls into this school of study.
- The Management School perceives the entrepreneur as one who can “manage” a venture to success. The entrepreneur is seen as having technical skills that can be learned and developed.
- The Leadership School, classify the entrepreneur as a person with the ability to lead other people through the entrepreneurial process because of his or her ability to motivate others through communicating a vision.

- The intrapreneurship school which deals with individuals who exhibit entrepreneurial behavior within a corporate environment.

DATA AND METHODOLOGY

Population and Sample: The study population consists of the students in their last year of bachelor education of selected faculties. These faculties are limited to Commerce, English program in business and accounting, Information Technology, and Engineering. Students from these fields show a great potential to meet the requirements of entrepreneurship in comparison with graduates from other fields. They have above average results in their secondary education and supposed to have strong analytical and practical attributes.

Table 5 shows the number of students meeting the study criteria which was taking from the academic affairs at IUG. The total population was 721 students. The study was conducted over a period of 10 months. The researcher used a stratified random sampling technique to select a sample from the population. Stratified random sampling is used primarily for the purpose of convenience and simplicity. The study sample was 550 students selected randomly from the

population. A total number of 451 usable questionnaires were collected which represents a response rate of 82% as shown in Table 5. The response rates for every group of the selected departments are also shown in the same table.

Questionnaire Development: the questionnaire was developed based on the main traits and entrepreneurial characteristics of the entrepreneurs found in the literature. The items of the questionnaire cover the following entrepreneurial dimensions.

Need for achievement: Larson and Ehrenworth, (1993:3) mentioned that "the value an individual places on achievement has also been an important area of study in understanding the entrepreneur". Koh, H. C. (1996:14) stressed on the same idea by arguing that "it is believed that individuals with a high need for achievement have a strong desire to be successful and are consequently more likely to behave entrepreneurially". Oosterbeek et al. (2008:7) were in line with the other two by arguing that "successful entrepreneurs score high on need for achievement by striving for performance adequately and competing, if necessary. They build their company with their professional goals in mind. They set high target levels and put in much effort to reach them".

Table 5. Study population and sample

| Faculty | Specialization | Total Population | Total Sample | Respondents | Response Rate |
|--|---------------------------|------------------|--------------|-------------|---------------|
| 1. Engineering | Computer | 69 | 50 | 40 | 80.00% |
| | Civil | 133 | 90 | 69 | 76.67% |
| | Communication and Control | 64 | 40 | 21 | 52.50% |
| | Industrial | 58 | 50 | 48 | 96.00% |
| Subtotal of Engineering Students | | 324 | 230 | 178 | 77.39% |
| 2. Information Technology | Information Systems | 60 | 40 | 34 | 85.00% |
| | Software Development | 34 | 30 | 24 | 80.00% |
| Subtotal of IT Students | | 94 | 70 | 58 | 82.86% |
| 3. Commerce | Finance | 58 | 50 | 48 | 96.00% |
| | Business Administration | 61 | 55 | 55 | 100.00% |
| | Accounting | 78 | 60 | 34 | 56.67% |
| Subtotal of Commerce Students | | 197 | 165 | 137 | 83.03% |
| 4. Commerce / English Program | Accounting | 53 | 40 | 36 | 90.00% |
| | Business Administration | 53 | 45 | 42 | 93.33% |
| Subtotal of Commerce Students / English program | | 106 | 85 | 78 | 91.76% |
| Total | | 721 | 550 | 451 | 82.00% |

Internal locus of control: many researchers stressed on the importance of this characteristic. Pervin (1980) defines it as a representation of an individual's

perceptions about the rewards and punishments in his/her life; While Koh, H. C. (1996:14) argued that "individuals with an internal locus of control believe that they are able

to control life's events, individuals with an external locus of control believe that life's events are the result of external factors, such as chance, luck or fate". Mitton (1989) also mentioned that "generally, it is believed that entrepreneurs prefer to take and hold unmistakable command instead of leaving things to external factors". Larson and Ehrenworth (1993:4) argued that "people with a higher internal locus of control believe that they influence the outcomes of their lives. They believe that they have more control over life events, including their own success or failure. Locus of control refers to the amount of control one has over one's destiny. A strong internal locus of control translates into the belief that one can control one's fate. Researchers studying this characteristic in relation to entrepreneurs have reached conflicting results".

Propensity to take risk: Koh, H. C. (1996:15) argued that "A person's risk-taking propensity can be defined as his/her orientation towards taking chances in uncertain decision-making contexts. So, risk taking propensity has been identified as a characteristic of entrepreneurs and entrepreneurial behavior. It is believed that entrepreneurs prefer to take moderate risks in situations where they have some degree of control or skill in realizing a profit". Oosterbeek et al. (2008:8) defined it as a trait which "reflects both the ability to deal with uncertainty and the willingness of risking to take a loss". Hatten (2006:33) argued that "The owner of the business bears the risk of potential loss or failure of the business". Same thing was mentioned by Larson and Ehrenworth (1993:3) who argued that "In studying risk-taking propensity as a characteristic of entrepreneurs, researchers believed entrepreneurs would be moderate risk takers. Thus, Successful entrepreneurs attempt to minimize their risk exposure whenever appropriate. They do this by carefully assessing the risk/reward relationship of their actions".

Tolerance of ambiguity: Koh, H. C. (1996:15) argued that "When there is insufficient information to structure a situation, an ambiguous situation is said to exist. The manner in which a person perceives an ambiguous situation and organizes the available information to approach it reflects his/her tolerance of ambiguity. A person who has a high tolerance of ambiguity is one who finds ambiguous situations challenging and who strives to overcome unstable and unpredictable situations in order to perform well". Larson and Ehrenworth (1993:4) argued that "Entrepreneurs are

more capable of tolerating ambiguity and, in fact, enjoy it. This characteristic is important to an entrepreneur because new ventures are typically planned and established under highly uncertain conditions".

Independence and Self Confidence: Oosterbeek et al. (2008:7-8) cited many other characteristics: "Need for autonomy is often the (sub) conscious reason for choosing entrepreneurship. Successful entrepreneurs score high on this competency that reflects independent decision making, the ability to resolve their problems and to bring activities to a successful end on their own. The need for power is the need to have control over others, to influence their behavior. Successful entrepreneurs score high on this competency indicating that they know what they want and how to influence others to achieve their own goals. Social orientation reflects the understanding (of successful entrepreneurs) that connections with others are required to realize their ideas. They make these connections easily and are driven by professional considerations in their social activities. They set their social needs aside and focus on their business. Self efficacy reflects the belief in one's own ability, i.e., self-confidence".

Piloting: It is also worth mentioning the usefulness of piloting in estimating the time consumed in filling the questionnaire. The questionnaire consumed 15 – 20 minutes in this pilot study. The pilot study was conducted by distributing the prepared questionnaire to a sample of 40 students from the potential respondents. As a result of this pilot, the researcher found some statements which need rephrasing and reformulating. Some minor changes, modifications and reformulations were introduced to the questions and a modified version of the questionnaire was produced.

Table 6 depicts the items (indicators) developed by the researcher based on the literature in previous sections and in light of the Palestinian context.

Validity: The validity of instrument is always stressed by researchers and regarded as one of the most important factors which give indications for acceptance of the research. The researcher uses the Pearson correlation method for testing the construct validity of each of entrepreneurial dimensions. The correlation of all items is significant at 0.01 levels. The content validity was conducted by distributing the prepared questionnaire to seven experts having wide experience relevant to business development, entrepreneurship, and statistical analysis in order to get their comments and criteria of

80% acceptance among experts were used. So, the agreement of six out of seven was adopted.

Reliability: The reliability tests the consistency and stability of an instrument. In other words, it tests the degree of consistency which measures the attribute. Other researchers argue that, a measure is reliable if it gives the same results each time the situation or the factor is

measured. Two tests can be used to measure the consistency of the questionnaire. The first test is the Half Split Method and the second is Cronbach's Coefficient Alpha. All collected questionnaires were coded onto the computer. It is worth mentioning the use of ordinal scale which is a tool to rank and rate data by using integers in ascending or descending order.

Table 6. Entrepreneurial indicators

| # | Item |
|-----|---|
| 1. | I tend to start business because the family wants that. |
| 2. | I tend to start my own business regardless of results |
| 3. | Often, I wait to take the agreement of Family and friends to do something important |
| 4. | I rely on my father's decision to attend social events |
| 5. | I hate go shopping for clothes alone |
| 6. | I am afraid to disagree with others while debating |
| 7. | I tend to business ideas tried by others |
| 8. | I feel everything goes well and I can't make changes |
| 9. | Luck plays the major role in projects success |
| 10. | I feel, I won't find a suitable job after graduation |
| 11. | I can effectively communicate with others |
| 12. | I always listen, analyze phrases and ideas, then responding logically |
| 13. | I don't find it difficult to deal with people who have different opinions and viewpoints. |
| 14. | I can keep good relations and gain respect of people with different opinions and viewpoints |
| 15. | I initiate the speech with people I don't know before |
| 16. | I like working in teams. |
| 17. | I like sharing opinions with other people to find solutions for problems. |
| 18. | My colleagues and friends consult me in solving their own problems |
| 19. | I can give people reasonable and logical solutions for solving their problems |
| 20. | I always feel, people trust me and respect my opinions |
| 21. | I feel that others understand my opinions and ideas. |
| 22. | I find myself very committed and work hard to achieve my goals. |
| 23. | I can overcome obstacles and difficulties of life |
| 24. | I feel very committed when working with others to achieve tasks and play a positive role. |
| 25. | I am a risk taker and can take hard decisions |
| 26. | I always develop my skills and feel responsible. |
| 27. | I am very responsible toward family and community |
| 28. | I tend to venturing in business and taking risk even when future is ambiguous |
| 29. | I tend to conquer fear and go forward |
| 30. | I like trying new varieties of foods and experience. |
| 31. | Often, I feel satisfied about myself after finishing my current task |
| 32. | I don't mind working long hours to achieve goals. |
| 33. | I have the ability to expect problems before they happen. |
| 34. | I always prefer to look in details |
| 35. | I need to know the answer before asking the question |
| 36. | When given a task, I do the right thing even when others don't agree |

FINDINGS

Analysis Techniques

The researcher will analyze the data by using **factor analysis** in order to examine the general themes (entrepreneurial dimensions) and multivariate tests and techniques. At the multivariate level, **discriminant and logistic analysis** are performed to test the association between the examined themes (which represent psychological characteristics) and entrepreneurial inclination simultaneously. These analyses will reveal the differences between entrepreneurially and non-entrepreneurially inclined students (two categories of students) and also try to determine which of the independent variables most account for the differences between the two groups. All the analysis in this research is based on Hair et al. (2010).

Dependent and Independent Variables

The dependent variable aims at testing job preference of students after graduation. It is a categorical variable which basically contains five categories namely: work with the government or any official entity, establish own business, work with a private company, work outside Palestinian Territories, or others. To measure entrepreneurial inclination, students were asked to indicate their occupational preference after graduation. Students who preferred to establish their own business are classified as entrepreneurially inclined. Other students who selected not to start their own business (i.e. prefer to be employed by others) are classified as non-

entrepreneurially inclined. This measurement is consistent with previous literature which defines an entrepreneur as the one who favor to be self-employed or going into his/her own business (Hisrich and Michael 2002), (Koh 1996). So, the dependent variable was recoded into two categories only, which satisfies the requirements of the discriminant analysis. The independent variables represent six entrepreneurial characteristics of students (each with specific set of items) as indicated in table 13 after the factor analysis. Descriptive analysis shows that entrepreneurially inclined students, who prefer to establish their own business after graduation, represent (24.1%) of the sample. This result is in line with Teixeira and Portela (2009) who found that 26.4% of inquired students would like to be exclusively self-employed. Similarly, Nishantha (2008) found that out of the respondents 76% of the respondent was expecting to work under someone else (Salaried employment) after their graduation. Gurol and Atsan, (2006) found a similar result while, Koh (1996) found that 40.74% of MBA students are entrepreneurially inclined.

Sample Size and Division

The sample size was 451 observations which give a 12:1 ratio that exceeds the minimum required ratio of 5:1 (Hair et al. 2010). For validation purposes, the researcher will divides the sample based on males and females. Table 7 shows the distribution of sample in males and females of the respondents. The males represent 52.5% of the total sample, while the females represent 47.5%.

Table 7. Sample distribution: Original, after outliers and missing value analysis

| | Category Original | | Univariate | | | Multivariate | | | |
|--------|-------------------|-------|-----------------|-----|-------|-----------------|-----|-------|-----------------|
| | # | % | Cases/Variables | # | % | Cases/Variables | # | % | Cases/Variables |
| male | 237 | 52.5 | 47 | 223 | 51.9 | 37.17 | 222 | 51.9 | 37 |
| female | 214 | 47.5 | 43 | 207 | 48.1 | 34.5 | 206 | 48.1 | 34.3 |
| Total | 451 | 100.0 | 90 | 430 | 100.0 | 71.67 | 428 | 100.0 | 71.33 |

Analysis of Missing Values and Outliers

In the classification phase of discriminant analysis, each case will be predicted to be a member of one of the groups defined by the dependent variable. All cases with

more than ten percents (10 %) of missing values were removed as indicated in table 8. the missing values in other cases were replaced for all variables based on the median of all nearby cases.

Table 8. Cases with missing values over 10%

| | | | | | | | | | | | | | | | |
|------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|
| Case No | 441 | 294 | 204 | 54 | 117 | 181 | 145 | 69 | 40 | 70 | 411 | 43 | 55 | 63 | 209 |
| # missing | 7 | 10 | 11 | 17 | 22 | 23 | 25 | 31 | 26 | 27 | 35 | 35 | 42 | 40 | 57 |
| % | 12.3 | 17.5 | 19.3 | 29.8 | 38.6 | 40.4 | 43.9 | 54.4 | 45.6 | 47.4 | 61.4 | 61.4 | 73.7 | 70.2 | 100.0 |

For outliers, we use z-scores to measure the location of a case in a distribution with a given mean and standard deviation. After examining outliers and missing values, 21 cases were deleted as depicted in table 7.

Factor Analysis

It is recommended that there is no missing data or outliers for a robust factor analysis which was done in the previous steps. All indicators (36 questions) are metric and the ratio of the sample size (cases for each indicator) is 12: 1(430/36) which exceeds the minimum of 5:1 suggested by Hair et al. (2010).

Measures of Appropriateness of Factor Analysis:

The value of the KMO Measure of Sampling Adequacy for this set of variables is .833 as indicated in table 9,

which would be labeled as 'very good'. Since the KMO Measure of Sampling Adequacy meets the minimum criteria (greater than 0.5) suggested by Hair et al. (2010), there is no need to examine the Anti-Image Correlation Matrix.

Table 9 also shows the Bartlett's test of sphericity which tests the hypothesis that the correlation matrix is an identity matrix; i.e. all diagonal elements are 1 and all off-diagonal elements are 0, implying that all of the variables are uncorrelated. If the Sig value for this test is less than our alpha level, we reject the null hypothesis that the population matrix is an identity matrix. The Sig. value for this analysis leads us to reject the null hypothesis and conclude that there are correlations in the data set that are appropriate for factor analysis. This analysis meets this requirement.

Table 9. KMO and Bartlett's test

| | | |
|--|--------------------|----------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .833 |
| | Approx. Chi-Square | 3304.802 |
| Bartlett's Test of Sphericity | df | 465 |
| | Sig. | .000 |

Table of Communalities: Once the extraction of factors has been completed, we examine the table of 'Communalities' which tells us how much of the variance in each of the original variables is explained by the extracted factors. Higher communalities are desirable. If the communality for an indicator is less than 50%, it is a candidate for exclusion from the analysis because the factor solution contains less than half of the variance in the original

variable, and the explanatory power of that variable might be better represented by the individual variable.

Indicators with communalities less than 0.5 were removed starting with the lowest. After each removal, the factor analysis is redone and the table of communalities is reexamined. Table 10 shows the final set of indicators with the associated communalities. So, 31 indicators are candidates to be selected for further analysis.

Table 10. Communalities

| Variable | Initial | Extraction | Variable | Initial | Extraction |
|----------|---------|------------|----------|---------|------------|
| SEC6_1 | 1.000 | .570 | SEC7_11 | 1.000 | .605 |
| SEC6_2 | 1.000 | .580 | SEC8_1 | 1.000 | .649 |
| SEC6_3 | 1.000 | .665 | SEC8_2 | 1.000 | .700 |
| SEC6_4 | 1.000 | .614 | SEC8_3 | 1.000 | .555 |
| SEC6_6 | 1.000 | .593 | SEC8_4 | 1.000 | .612 |
| SEC6_7 | 1.000 | .563 | SEC8_5 | 1.000 | .576 |
| SEC6_8 | 1.000 | .593 | SEC8_6 | 1.000 | .555 |
| EC6_9 | 1.000 | .548 | SEC8_7 | 1.000 | .632 |
| SEC6_10 | 1.000 | .574 | SEC8_8 | 1.000 | .585 |
| SEC7_2 | 1.000 | .617 | SEC8_9 | 1.000 | .682 |
| SEC7_3 | 1.000 | .607 | SEC8_10 | 1.000 | .608 |

| Variable | Initial | Extraction | Variable | Initial | Extraction |
|----------|---------|------------|----------|---------|------------|
| SEC7_4 | 1.000 | .631 | SEC8_13 | 1.000 | .737 |
| SEC7_5 | 1.000 | .553 | SEC8_14 | 1.000 | .634 |
| SEC7_8 | 1.000 | .624 | SEC8_15 | 1.000 | .611 |
| SEC7_9 | 1.000 | .660 | SEC7_1 | 1.000 | .545 |
| SEC7_10 | 1.000 | .702 | | | |

Deriving Factors and Assessing Overall Fit: One of the most commonly used criteria for determining the number of factors or components to include is the latent root criterion, also known as the eigenvalue-one criterion or the Kaiser criterion in which, we retain and interpret any component that has an eigenvalue greater than 1.0.

The rationale for this criterion is straightforward. Each observed indicator contributes one unit of variance to the total variance in the data set (the 1.0 on the diagonal of the correlation matrix). Any component that displays an eigenvalue greater than 1.0 is accounting for a greater amount of variance than was contributed by one indicator. Such a component is therefore accounting for a meaningful amount of variance and is worthy of being retained. On the other hand, a component with an eigenvalue less than 1.0 is accounting for less variance than had been contributed by one indicator.

Table 11 shows the explanation of total variance. 10 components (factors) met the requirements of "greater than one" eigenvalue and explain more than 60% of the cumulative variance. This number of components will be

approved or reexamined based on the criteria to be discussed in the successive sections.

Factors Interpretation: Table 12 shows the rotated component matrix with the main components. The extraction method is the Principal Component Analysis and rotation method is Varimax with Kaiser Normalization converged in 17 iterations.

For the purpose of this analysis, we will define the number of components based on: interpretability criterion, in which we interpret the substantive meaning of the retained components and verify that this interpretation makes sense in terms of what is known about the constructs under investigation. The interpretability of a component is improved if it is measured by at least three indicators (questions), when all of the variables that load on the component have the same conceptual meaning, when the conceptual meaning of other components appear to be measuring other constructs, and when the rotated factor pattern shows simple structure, i.e. each indicator loads significantly on only one component with greater than 0.40 of loading.

Table 11. Total variance explained

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
|-----------|---------------------|---------------|--------------|-------------------------------------|---------------|--------------|-----------------------------------|---------------|--------------|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 5.876 | 18.954 | 18.954 | 5.876 | 18.954 | 18.954 | 2.684 | 8.657 | 8.657 |
| 2 | 2.883 | 9.299 | 28.253 | 2.883 | 9.299 | 28.253 | 2.319 | 7.479 | 16.137 |
| 3 | 1.756 | 5.664 | 33.917 | 1.756 | 5.664 | 33.917 | 2.298 | 7.412 | 23.549 |
| 4 | 1.568 | 5.057 | 38.974 | 1.568 | 5.057 | 38.974 | 2.156 | 6.954 | 30.503 |
| 5 | 1.364 | 4.400 | 43.374 | 1.364 | 4.400 | 43.374 | 1.851 | 5.972 | 36.474 |
| 6 | 1.248 | 4.024 | 47.399 | 1.248 | 4.024 | 47.399 | 1.704 | 5.497 | 41.971 |
| 7 | 1.117 | 3.603 | 51.002 | 1.117 | 3.603 | 51.002 | 1.679 | 5.417 | 47.388 |
| 8 | 1.103 | 3.557 | 54.559 | 1.103 | 3.557 | 54.559 | 1.606 | 5.179 | 52.567 |
| 9 | 1.051 | 3.391 | 57.950 | 1.051 | 3.391 | 57.950 | 1.404 | 4.528 | 57.095 |
| 10 | 1.015 | 3.273 | 61.223 | 1.015 | 3.273 | 61.223 | 1.280 | 4.128 | 61.223 |

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
|-----------|---------------------|---------------|--------------|-------------------------------------|---------------|--------------|-----------------------------------|---------------|--------------|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 11 | .883 | 2.847 | 64.070 | | | | | | |
| 12 | .850 | 2.743 | 66.813 | | | | | | |
| 13 | .790 | 2.548 | 69.362 | | | | | | |
| 14 | .759 | 2.447 | 71.809 | | | | | | |
| 15 | .726 | 2.340 | 74.149 | | | | | | |
| 16 | .670 | 2.161 | 76.310 | | | | | | |
| 17 | .658 | 2.123 | 78.433 | | | | | | |
| 18 | .626 | 2.018 | 80.450 | | | | | | |
| 19 | .590 | 1.902 | 82.352 | | | | | | |
| 20 | .559 | 1.802 | 84.154 | | | | | | |
| 21 | .549 | 1.770 | 85.924 | | | | | | |
| 22 | .537 | 1.733 | 87.658 | | | | | | |
| 23 | .519 | 1.676 | 89.333 | | | | | | |
| 24 | .505 | 1.630 | 90.963 | | | | | | |
| 25 | .474 | 1.527 | 92.490 | | | | | | |
| 26 | .446 | 1.438 | 93.928 | | | | | | |
| 27 | .436 | 1.406 | 95.334 | | | | | | |
| 28 | .410 | 1.324 | 96.658 | | | | | | |
| 29 | .379 | 1.223 | 97.881 | | | | | | |
| 30 | .351 | 1.131 | 99.012 | | | | | | |
| 31 | .306 | .988 | 100.000 | | | | | | |

Based on the previous criteria, factors 7, 8, 9, 10 will be discarded because the number of indicators (items) is less than three each. Other factors are shown in table 13 with their conceptual meaning which conforms to the literature.

Multivariate Outliers: The outliers associated with

the new components (factors) are examined to prepare the components for further statistical analysis. Table 8 shows that two additional cases were removed after examining the outliers associated with the six dimensions (component) of the multivariate analysis.

Table 12. Rotated component matrix

| Indicator | Components (factors) | | | | | | | | | |
|-----------|----------------------|-------|-------------|-------------|-------|-------|-------|-------------|-------|-------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| SEC6_1 | 0.10 | 0.13 | 0.20 | 0.62 | 0.11 | -0.09 | -0.04 | 0.31 | -0.09 | -0.02 |
| SEC6_2 | 0.03 | 0.05 | -0.03 | 0.61 | 0.39 | 0.03 | -0.17 | 0.13 | 0.08 | 0.01 |
| SEC6_3 | -0.03 | -0.07 | 0.32 | 0.05 | -0.15 | 0.11 | 0.04 | 0.71 | -0.11 | 0.02 |
| SEC6_4 | 0.10 | 0.01 | 0.11 | 0.04 | 0.05 | -0.05 | 0.00 | 0.76 | 0.04 | 0.08 |
| SEC6_6 | -0.02 | 0.14 | 0.69 | -0.01 | -0.05 | -0.07 | 0.01 | 0.25 | -0.14 | 0.07 |
| SEC6_7 | -0.01 | 0.09 | 0.71 | 0.05 | -0.12 | 0.01 | 0.11 | 0.05 | -0.08 | -0.08 |
| SEC6_8 | -0.04 | 0.03 | 0.66 | 0.06 | 0.23 | 0.09 | -0.15 | 0.21 | 0.07 | -0.14 |
| SEC6_9 | 0.02 | -0.23 | 0.61 | 0.20 | 0.14 | 0.08 | -0.13 | -0.09 | 0.14 | 0.10 |
| SEC6_10 | -0.02 | -0.27 | 0.53 | -0.04 | 0.03 | -0.20 | 0.03 | 0.10 | 0.30 | 0.27 |

| Indicator | Components (factors) | | | | | | | | | |
|-----------|----------------------|-------------|-------|-------------|-------------|-------------|-------------|-------|-------------|-------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| SEC7_2 | 0.20 | 0.08 | 0.02 | 0.55 | -0.04 | 0.28 | 0.33 | -0.15 | 0.24 | -0.03 |
| SEC7_3 | 0.17 | 0.10 | 0.00 | 0.36 | 0.06 | 0.56 | 0.08 | -0.12 | -0.07 | 0.29 |
| SEC7_4 | 0.29 | 0.03 | 0.11 | 0.16 | 0.01 | 0.66 | 0.18 | -0.13 | -0.09 | 0.10 |
| SEC7_5 | 0.37 | 0.06 | 0.08 | 0.38 | 0.16 | 0.02 | 0.09 | -0.11 | -0.15 | 0.44 |
| SEC7_8 | 0.76 | 0.13 | 0.02 | 0.04 | 0.10 | 0.00 | 0.06 | 0.06 | -0.01 | 0.12 |
| SEC7_9 | 0.75 | 0.13 | -0.03 | 0.14 | 0.09 | -0.03 | 0.06 | -0.02 | 0.17 | 0.14 |
| SEC7_10 | 0.76 | 0.10 | -0.05 | 0.17 | 0.00 | 0.22 | 0.04 | 0.00 | 0.13 | -0.15 |
| SEC7_11 | 0.61 | 0.21 | -0.06 | 0.10 | -0.02 | 0.37 | 0.05 | 0.12 | 0.13 | -0.11 |
| SEC8_1 | 0.09 | 0.75 | -0.01 | 0.24 | 0.14 | 0.02 | -0.01 | 0.06 | 0.01 | 0.00 |
| SEC8_2 | 0.17 | 0.76 | 0.00 | 0.02 | 0.29 | 0.04 | -0.01 | 0.02 | 0.08 | -0.06 |
| SEC8_3 | 0.18 | 0.66 | 0.04 | -0.03 | -0.07 | 0.13 | 0.17 | -0.11 | 0.05 | 0.13 |
| SEC8_4 | 0.22 | 0.27 | 0.04 | 0.03 | 0.56 | 0.19 | 0.21 | -0.21 | 0.15 | 0.15 |
| SEC8_5 | 0.13 | 0.50 | -0.05 | 0.27 | 0.07 | -0.04 | 0.32 | 0.00 | 0.33 | 0.14 |
| SEC8_6 | 0.20 | 0.26 | 0.01 | 0.23 | -0.04 | -0.02 | 0.39 | 0.06 | 0.46 | 0.17 |
| SEC8_7 | 0.01 | 0.06 | 0.10 | 0.21 | 0.73 | -0.06 | 0.06 | 0.09 | -0.08 | 0.16 |
| SEC8_8 | 0.09 | 0.16 | -0.04 | 0.06 | 0.65 | 0.12 | 0.27 | -0.09 | 0.16 | -0.07 |
| SEC8_9 | -0.04 | -0.01 | 0.00 | 0.07 | 0.33 | 0.07 | 0.72 | 0.14 | -0.16 | -0.04 |
| SEC8_10 | 0.17 | 0.15 | -0.06 | 0.00 | 0.09 | 0.10 | 0.70 | -0.08 | 0.19 | 0.06 |
| SEC8_13 | -0.01 | 0.08 | -0.02 | 0.03 | 0.09 | 0.20 | 0.01 | 0.14 | 0.08 | 0.81 |
| SEC8_14 | -0.02 | 0.06 | -0.08 | -0.13 | 0.12 | 0.67 | -0.02 | 0.24 | 0.28 | 0.04 |
| SEC8_15 | 0.18 | 0.10 | 0.03 | 0.06 | 0.10 | 0.11 | 0.01 | -0.07 | 0.73 | -0.02 |
| SEC7_1 | 0.18 | 0.11 | 0.09 | 0.65 | 0.03 | 0.13 | 0.15 | -0.07 | 0.11 | 0.11 |

Entrepreneurial Inclination

The researcher will use two different multivariate techniques, stepwise Discriminant and Logistic analysis, in order to detect the relationship between entrepreneurial characteristics of respondents and their entrepreneurial inclination in a multivariate context. These techniques will predict the entrepreneurial intention (tendency) based on specific characteristics represented by main components of the factor analysis done in the previous

section. Both techniques make use of one dependent non-metric (categorical) variable with multiple metric independent variables.

Stepwise Discriminant Analysis

The ability of discriminant analysis to extract discriminant functions that are capable of producing accurate classifications is enhanced when the assumptions of normality, linearity, and homogeneity of variance are satisfied.

Table 13. Final factors with associated indicators

| Factor | Items | Conceptual Interpretation |
|--------|---|---------------------------|
| 1 | My colleagues and friends consult me in solving their own problems | Self-Confidence |
| | I can give people reasonable and logical solutions for solving their problems | |
| | I always feel, people trust me and respect my opinions | |
| | I feel that others understand my opinions and ideas. | |
| | I find myself very committed and work hard to achieve my goals. | |
| 2 | I can overcome obstacles and difficulties of life | Need for Achievement |
| | I feel very committed when working with others to achieve my tasks and play my role positively. | |
| | I always develop my skills and feel responsible. | |

| Factor | Items | Conceptual Interpretation |
|--------|---|---------------------------|
| 3 | I am afraid to disagree with others while debating | Internal Locus of Control |
| | I tend to business ideas tried by others | |
| | I feel everything goes well and I can't make changes | |
| | Luck plays the major role in projects success | |
| | I feel, I won't find a suitable job after graduation | |
| 4 | I tend to start business because the family wants that. | Independence |
| | I tend to start my own business regardless of results | |
| | I can effectively communicate with others | |
| | I always listen, analyze phrases and ideas, then responding logically | |
| 5 | I am a risk taker and can take hard decisions | Propensity to take risk |
| | I tend to conquer fear and go forward | |
| | I like trying new varieties of foods and experience. | |
| 6 | I don't find it difficult to deal with people who have different opinions and viewpoints. | Communication Skills |
| | I can keep good relations and gain respect of people with different opinions and viewpoints | |
| | I need to know the answer before asking the question | |

Normality and Linearity: In discriminant analysis, the assumption of linearity applies to the relationships between pairs of independent variables. To identify violations of linearity, each metric independent variable would have to be tested against all others. Table 14 shows the independent variables before and after transformation.

Homogeneity of Variance: The assumption of homogeneity of variance is particular important in the classification stage of discriminant analysis. If one the groups defined by the dependent variable has greater

dispersion than others, cases will tend to be over classified in it. Homogeneity of variance is tested with Box's M test, which tests the null hypotheses that the group variance-covariance matrices are equal. If we fail to reject this null hypothesis and conclude that the variances are equal, we use the SPSS default of using a pooled covariance matrix in classification.

If we reject the null hypothesis and conclude that the variances are heterogeneous, we substitute separate covariance matrices in the classification, and evaluate whether or not our classification accuracy is improved.

Table 14. Testing normality of independent variables

| Before transformation with 1.96 (5%) threshold Z score | | | | | | | Problems Found |
|--|------------|-----------|------------|------------|-----------|------------|----------------|
| Factor | Statistics | Std error | Z Skewness | Statistics | Std error | Z kurtosis | |
| 1 | -0.1739 | 0.1180 | -1.4736 | -0.2928 | 0.2354 | -1.2436 | Non |
| 2 | -0.4760 | 0.1180 | -4.0343 | 0.4252 | 0.2354 | 1.8061 | Skewness |
| 3 | 0.3483 | 0.1180 | 2.9521 | 0.4012 | 0.2354 | 1.7039 | Skewness |
| 4 | -0.0899 | 0.1180 | -0.7620 | -0.5854 | 0.2354 | -2.4864 | Kurtosis |
| 5 | -0.2765 | 0.1180 | -2.3431 | 0.2450 | 0.2354 | 1.0404 | Skewness |
| 6 | -0.1769 | 0.1180 | -1.4993 | -0.0831 | 0.2354 | -0.3530 | Non |
| New Combinations | | | | | | | |
| 2 | -0.0292 | 0.1180 | -0.2472 | -0.1912 | 0.2354 | -0.8123 | Squared |
| 3 | -0.1148 | 0.1180 | -0.9727 | 0.3634 | 0.2354 | 1.5435 | Square root |
| 4 | -0.0899 | 0.1180 | -0.7620 | -0.5854 | 0.2354 | -2.4864 | Kurtosis |
| 5 | 0.0613 | 0.1180 | 0.5198 | -0.2259 | 0.2354 | -0.9596 | multiple |

Sample Size: The minimum ratio of valid cases to indicators in discriminant analysis is 5 to 1, with a recommended ratio of 10 to 1. In this analysis, when referring to table 7, there are 428 valid cases and 23 indicators. The ratio of cases to indicators is 18 to 1, which satisfies the minimum requirement. In addition, this ratio exceeds the recommended ratio of 10 to 1.

Number of Canonical Discriminant Functions: The maximum possible number of discriminant functions is the smaller of one less than the number of groups defined by the dependent variable and the number of independent variables. In this analysis there were 2 groups defined by entrepreneurial inclination variable and 6 independent variables, so the maximum possible number of discriminant functions was 1. This is supported by the test as indicated in table 15-A.

In table 15-B which tested functions for statistical significance, the stepwise analysis identified one discriminant function that was statistically significant. The Wilks' lambda statistic for the test of function 1 (chi-square=13.693) had a probability of 0.001 which was less than or equal to the level of significance of 0.05. The significance of the maximum possible number of discriminant functions supports the interpretation of a solution using 1 discriminant function.

**Independent variables and group membership:
(relationship of functions to groups)**

In order to specify the role that each independent variable plays in predicting group membership on the dependent variable, we must link together the relationship between the discriminant functions and the groups defined by the dependent variable, the role of the significant independent variables in the discriminant functions, and the differences in group means for each of the variables.

Each function divides the groups into two subgroups by assigning negative values to one subgroup and positive values to the other subgroup. Based on table 15-C, Function 1 separates respondents who prefer to establish their own business (entrepreneurially inclined) (0.317) from respondents who prefer other types of employment (non-entrepreneurially inclined) (-0.103).

**Independent variables and group membership:
(which predictors to interpret)**

When we use the stepwise method of variable inclusion, we limit our interpretation of independent variable predictors to those listed as statistically significant in the table of Variables Entered/Removed (table 15-D). So, we will interpret the impact on membership in groups defined by the dependent variable by two independent variables: Independence and Internal Locus of Control. Maximum number of steps is 12 with significance level between 0.05 as maximum and 0.01 as minimum.

Table 15. Discriminant analysis

| A. Eigenvalues | | | | |
|-----------------------|-------------------|---------------|--------------|-----------------------|
| Function | Eigenvalue | % of Variance | Cumulative % | Canonical Correlation |
| 1 | .033 ^a | 100.0 | 100.0 | .178 |

a. First 1 canonical discriminant functions were used in the analysis.

| B. Wilks' Lambda | | | | |
|-------------------------|---------------|------------|----|------|
| Test of Function(s) | Wilks' Lambda | Chi-square | df | Sig. |
| 1 | .968 | 13.693 | 2 | .001 |

| C. Functions at Group Centroids | |
|---|--------------|
| Entrepreneurial Inclination of Students | Function (1) |
| 0 | -.103- |
| 1 | .317 |

D. Variables Entered/Removed^{a,b,c,d}

| Step | Entered | Min. D Squared | | | | | |
|------|---------------------------|----------------|----------------|-------------------|-----|---------|------|
| | | Statistic | Between Groups | Exact F Statistic | df1 | df2 | Sig. |
| 1 | Independence | .101 | .00 and 1.00 | 7.964 | 1 | 426.000 | .005 |
| 2 | Internal Locus of Control | .176 | .00 and 1.00 | 6.958 | 2 | 425.000 | .001 |

E. Structure Matrix

| Independent Variable | Function (1) |
|---------------------------|---------------|
| Independence | .756 |
| Internal Locus of Control | -.488- |
| Self-Confidence | .337 |
| Need for Achievement | .313 |
| Propensity to take risk | .278 |
| Communication Skills | .247 |

Independent variables and group membership: (predictor loadings on functions)

We do not interpret loadings in the structure matrix unless they are 0.40 or higher. Based on the structure matrix (table 15-E), the predictor variables strongly associated with discriminant function 1 which distinguished between respondents who are entrepreneurially inclined and non-entrepreneurially inclined were Independence ($r=0.756$) and Internal Locus of Control ($r=-0.488$).

Stepwise Logistic Regression Analysis

Logistic regression is used to analyze relationships between a dichotomous dependent variable and metric or dichotomous independent variables. Logistic regression combines the independent variables to estimate the probability that a particular event will occur, i.e. a subject will be a member of one of the groups defined by the dichotomous dependent variable. The following are some important points about logistic regression:

- The variate or value produced by logistic regression is a probability value between 0.0 and 1.0.
- If the probability for group membership in the modeled category is above some cut point (the default is 0.50), the subject is predicted to be a member of the modeled group. If the probability is below the cut point, the subject is predicted to be a member of the other group.
- For any given case, logistic regression computes the

probability that a case with a particular set of values for the independent variable is a member of the modeled category.

- Logistic regression does not make any assumptions of normality, linearity, and homogeneity of variance for the independent variables. So, it is preferred to discriminant analysis when the data does not satisfy these assumptions.
- The minimum number of cases per independent variable is 10. For preferred case-to-variable ratios, we will use 20 to 1 for simultaneous and hierarchical logistic regression and 50 to 1 for stepwise logistic regression.

Sample size -ratio of cases to variables: The minimum ratio of valid cases to independent variables for stepwise logistic regression is 10 to 1, with a preferred ratio of 50 to 1. In this analysis, referring to table 7, there are 428 valid cases and 6 independent variables. The ratio of cases to independent variables is 71.33 to 1, which satisfies both the minimum and preferred requirement.

Overall relationship between dependent and independent variables: The presence of a relationship between the dependent variable and combination of independent variables is based on the statistical significance of the model chi-square. In this analysis, when examining table 16-A, the probability of the model chi-square (13.471) was 0.001, less than or equal to the level of significance of 0.05. The null hypothesis that

there is no difference between the model with only a constant and the model with independent variables was rejected. The existence of a relationship between the independent variables and the dependent variable was supported.

Multicollinearity: A standard error larger than 2.0 indicates numerical problems, such as multicollinearity among the independent variables. By examining table 16-B, none of the independent variables in this analysis had a standard error larger than 2.0.

Individual relationship between each independent

variable with the dependent: as indicated in table 16-B, The probability of the Wald statistic for the variable "Internal Locus of Control" and the variable "Independence" were 0.02 and 0.002 respectively, less than or equal to the level of significance of 0.05. The null hypothesis that the b coefficient for each of these variables was equal to zero was rejected. This supports the relationship that "respondents who are entrepreneurially inclined have higher levels of Internal Locus of Control and Independence than those are non-entrepreneurially inclined."

Table 16. Stepwise logistic regression

| A. Omnibus Tests of Model Coefficients | | | | | | | | |
|---|---------------------------|------------|------|------------|----|------|-----------------|---------------------------|
| | | Chi-square | df | Sig. | | | | |
| Step 3 | Step | 5.509 | 1 | .019 | | | | |
| | Block | 13.471 | 2 | .001 | | | | |
| | Model | 13.471 | 2 | .001 | | | | |
| B. Variables in the Equation | | | | | | | | |
| | | B | S.E. | Wald | Df | Sig. | Exp(B) | |
| Step 3 ^a | Internal Locus of Control | -.354- | .153 | 5.374 | 1 | .020 | .702 | |
| | Independence | .579 | .183 | 10.074 | 1 | .002 | 1.785 | |
| | Constant | -2.258- | .741 | 9.301 | 1 | .002 | .105 | |
| a. Variable(s) entered on step 2: Internal Locus of Control | | | | | | | | |
| C. Step Summary^{a,b} | | | | | | | | |
| Step | Improvement | | | Model | | | Correct Class % | Variable |
| | Chi-square | df | Sig. | Chi-square | df | Sig. | | |
| 1 | 7.962 | 1 | .005 | 7.962 | 1 | .005 | 75.5% | Independence |
| 2 | 5.509 | 1 | .019 | 13.471 | 2 | .001 | 75.5% | Internal Locus of Control |
| a. No more variables can be deleted from or added to the current model. | | | | | | | | |
| b. End block: 1 | | | | | | | | |

Order of Importance: The order of importance is based on the entry order of the variables included in the stepwise logistic regression. The entry order is summarized in the Step Summary (table 16-C), in which we see which variable was added or removed at each step. As seen in the table both variables are of equal importance (75.5%).

Comparing Results of Discriminant and Logistic Analysis

Both methods give the same output regarding the independent variables which can explain (predict) the dependent variable. Both of the techniques indicate

"Internal Locus of Control" and "Independence" as indicators for entrepreneurial inclination of students with slight differences in the coefficient.

CONCLUSION

The importance of the research stems from its aim in identifying the entrepreneurial characteristics of bachelor degree university students. It also aims at finding the most influential entrepreneurial dimension characteristics which affect their entrepreneurial inclination represented by their intention to establish their own business after

graduation. It was also implemented in a devastated environment from economical, political, social, and psychosocial perspectives which add more to its importance.

On the other hand, the research presents an overall collective image about entrepreneurial inclination of Palestinian students represented by several entrepreneurial dimensions. Most of the previous research focus on the effect of entrepreneurial dimensions on entrepreneurial inclination individually, while this research studies the collective effect of six entrepreneurial dimensions (independent variables) on the entrepreneurial inclination (dependent variable) of students and examines the most influential independent variable/s which can interpret (explain) the dependent variable.

The research also makes use of the factor analysis to categorize the indicators found in the literature into major components or factors. This step was of great importance because of the high instability of the Palestinian environment in different perspectives as mentioned before. The results of factor analysis revealed six entrepreneurial dimensions (factors): Independence, Internal Locus of Control, Self-Confidence, Need for Achievement, Propensity to take risk, and Communication Skills. These results are in line with Gurol and Atsan, (2006), who identified six personality characteristics which are used to define the entrepreneurial profile of students. "These are need for achievement, locus of control, risk taking propensity, tolerance for ambiguity, innovativeness and self-confidence".

The research uses two famous multivariate techniques: discriminant regression analysis and logistic regression analysis, both of which examine the relationship between single categorical dependent variable and multi metric independent variables. These techniques predict the behavior of the groups (categories) of dependent variable as a result of changes in the independent variables in a multivariate statistical context. They also predict the most influential independent variable/s which affect (predict) the dependent variable

(difference between groups). Researchers prefer logistic regression over discriminant regression most apparently because of the procedural easiness of the former over the latter especially in cases which don't conform to assumptions such as normality, linearity, multicollinearity, and homoscedasticity (Hair et al. 2010).

Both techniques reflect closer outputs regarding the independent variables which can explain (predict) the dependent variable. Both of the techniques indicate "Internal Locus of Control" and "Independence" as indicators for entrepreneurial inclination of students with slight differences in the coefficient. These results are partially in line with Koh, H. C., (1996) who used logistic analysis and found significant statistical levels regarding innovativeness, tolerance of ambiguity, and propensity to take risk.

In summary, Descriptive analysis shows that entrepreneurially inclined students, who prefer to establish their own business after graduation, represent (24.1%) of the sample. It also identified six entrepreneurial characteristics of Palestinian university students: Independence, Internal Locus of Control, Self-Confidence, Need for Achievement, Propensity to take risk, and Communication Skills. It also found that "Internal Locus of Control" and "Independence" are the two influential indicators for entrepreneurial inclination of the students.

Recommendations

It is recommended to extend this research by targeting other students from other faculties and other academic institutions in order to reach a national consensus about the exact number of entrepreneurially inclined university students. It is also recommended to organize training courses to nurture entrepreneurial intention of university students and graduates. Universities are advised to modify bachelor and postgraduate curricula in order to discover and nurture entrepreneurial inclination of their graduates. On the other hand, Palestinian government is required to facilitate the actualization of entrepreneurial ideas by establishing industrial areas, maintaining intellectual property rights, encouraging local products, and the likes.

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الخصائص الريادية لطلبة البكالوريوس في الاقتصاديات المتدهورة (دراسة حالة - قطاع غزة)

خالد عابد دهليز ومحمد مقداد *

ملخص

يهدف هذا البحث إلى دراسة الميول الريادية لدى طلبة مرحلة البكالوريوس في قطاع غزة الذي يعاني من تدهور اقتصادي كبير جدا. كما يهدف البحث إلى تحديد الخصائص الريادية للطلبة المذكورين باستخدام "EFA" وكذلك دراسة العلاقة بين هذه الخصائص وميول الطلبة نحو سلوك طريق الريادية باستخدام طرق التحليل المتزامن للعلاقة بين متغيرات عديدة "multivariate analysis". يتكون مجتمع الدراسة من الطلبة في الجامعة الإسلامية بغزة الذين يدرسون في المستوى الدراسي الأخير من مرحلة البكالوريوس في كليات الهندسة والتجارة وتكنولوجيا المعلومات بشتى التخصصات الدراسية في تلك الكليات. اعتمدت الدراسة العينة العشوائية التطبيقية كأسلوب معاينة حيث تتكون عينة الدراسة من 451 استبانة صالحة للتحليل بمعدل استجابة 82%. ولقد تم تصنيف الطلبة إلى ذوي ميول ريادية "يرغبون في إنشاء الأعمال الخاصة بهم بعد تخرجهم" وطلبة من غير ذوي الميول الريادية. تتبع أهمية البحث من كونه يتطرق إلى الخصائص الريادية لطلبة الجامعات الفلسطينية ويدرس العلاقة بين هذه الخصائص وميولهم الريادية المستقبلية بعد التخرج. كما ويمكن للبحث أن يسهم في فتح المجال لدراسات مشابهة محليا ودوليا ويتوقع أن يكون له انعكاسات إيجابية على مستوى السياسات والتطبيقات الإدارية ذات العلاقة.

أظهرت نتائج التحليل أن 24.1% من الطلبة لديهم ميول ريادية ويرغبون بإنشاء عمل خاص بهم بعد التخرج. كما أظهرت النتائج وجود ست خصائص ريادية وأن من بين الخصائص الست يوجد خاصتان اثنتان لهما تأثير واضح على توجهات الطلبة نحو الريادية وهما الاستقلالية "Independence" والشعور بالقدرة على التحكم في الأمور وتوجيهها "Internal Locus of Control".

الكلمات الدالة: الريادية، الريادة، الريادي، خصائص الرياديين، الميول الريادية.

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