# Factors affecting Technopreneurship Intention among IT Students

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**This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Software Engineering**

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# APPROVAL

This Report titled **" Factors affecting Technopreneurship Intention among IT students "**, submitted by **Mohammad Mushfiqur Rahman Remans**, ID No: **121-35-255** to the Department of Software Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Software Engineering and approved as to its style and contents.

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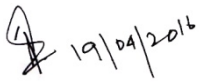

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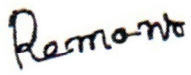

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# ABSTRACT

This thesis aims to explore whether an Integrated Conceptual Model (ICM) relating to factors drawn from Entrepreneurial Event Theory (EET) (i.e. perceived desirability and perceived feasibility) and the Theory of Planned Behaviour (TPB) (i.e. attitudes toward the behaviour, subjective norm and perceived behavioural control) explains more of the variance relating to the intention to become an entrepreneur in the context of private universities of Bangladesh. Survey information from 222 students from two universities in Bangladesh was hand collected. Structural equation modelling was used to test the hypotheses presented. Models relating to EET, the TPB and the ICM explained 40 per cent, 55 per cent and 60 per cent of the variance in the entrepreneurial intention dependent variable, respectively. Students reporting higher levels of perceived desirability, perceived feasibility, attitude toward the behaviour (i.e. enterprise) and perceived behavioural control were more likely to report the formation of entrepreneurial intentions. No significant negative interaction effect between perceived desirability and perceived feasibility was detected. The study does not evaluate the benefits of enterprise modules. The results can be generalized to the Bangladeshi and comparable transition economy contexts. The formation of entrepreneurial intentions in more students could be increased if enterprise teaching seeks to nurture higher levels of attitude toward the behaviour (i.e. enterprise), and higher levels of perceived behavioural control. Structural equation modelling was used to test the predictive accuracy of EET, TPB and ICM perspectives. Direct and indirect effects between factors and the intention to become an entrepreneur were considered.

# CHAPTER 1

## INTRODUCTION

### 1.1 Background

The entrepreneurship development has been growing progressively in Bangladesh like many other countries. It has become a national agenda into many countries because the entrepreneurial sector is most important for every Nation. It is proved that entrepreneurship is important for Bangladeshi economy because of various supporting mechanisms and policies including financial support, physical infrastructure and business monitory services in favour of entrepreneurs.

Entrepreneurs are the fuel of financial development. They have brought huge positive contributions such as innovation and job creation to a country's economic growth and social development. As entrepreneurship means self-employed, particularly among the youths, it is believed that the entrepreneurship is an effective strategy for handling the issue of employability. It is very important factor, to Understanding the guess of entrepreneurial intention because intention effects on entrepreneurial behaviour.

Though entrepreneurial intention has been broadly studied by scholars from overseas, the question of their applicability in the local setting still remains. To date, intention of young generation, specifically the millennial generation in our country to go aboard on entrepreneurship continues to be unclear. As such, this conceptual paper proposes a research framework by extending Ajzen's (1991) theory of planned behaviour (TPB) to study entrepreneurial intention among millennial generation.

Specifically, knowledge, experience and ties are the independent variables; meanwhile, attitude, social norm, perceived behavioural control and personality traits act as the mediating variables.

**1.2 Definition of Entrepreneurship**

Some scholars named entrepreneurs as “engines of economic growth” (Baron and Shane, 2008; Ethugala, 2011). In addition to their contributions towards economic growth, (Mellor et al. 2009) has stated that traditional economic system has focusing too much on price factor and has ignored the importance of invention and innovation; it is entrepreneurs who take up invention and innovation and ultimately creating something new or better to the society.

The word “entrepreneurship” has been defined in various ways and there is no single-agreed upon definition (Baron and Shane, 2008). Though it is difficult and complicated to define the word,) Koe et. al. 2012 has suggested that entrepreneurship as follow:

“A field of business seeks to understand how opportunities to create something new arise and are discovered or created by specific individuals, who then use various means to exploit or develop them, thus producing a wide range of effects” Baron and Shane (2008, pp 5)

Some scientists (Wu and Wu, (2008); Nabi, et. al. 2006; Guerrero, et. al. 2008) define entrepreneurial intention as a psychological state that people wish to create a new firm or a new value driver inside existing organizations.

Psychological research claims that intentions are a critical analyst of consequent planned behavior (Bagozzi et al. 1989). Consequently, entrepreneurial intention is an important phenomenon, and has involved important cognitive research. Krueger, Reilly and Carsrud (2000) initiate with the belief that any decision to form a new business enterprise is planned rather than being a conditioned response. They contrast a model of planned behaviour (Azjen,

1991), in which the potential entrepreneur's measurement of their own capability or self-efficacy. Bandura (1986) predicts the instigation of a new venture, with Shapero's (1982) model of the "entrepreneurial event" in which an event, such as job loss, "displaces" the inertia that dominates human behaviour and choice.

Entrepreneurship can also be defined by two lines of thought. One that focuses its definition on themes related to the characteristics of entrepreneurship, i.e., entrepreneur, innovation, growth, risk, uniqueness, etc. The other discusses issues related to the results of entrepreneurship in terms of value creation. The development of entrepreneurship has been treated by several authors, Cantillon, Jean-Baptiste Say, Knight, Leibestein and Schumpeter.

From literature found that the term Entrepreneurship, which comes from the exactly same word in French. This term was introduced in the economic literature by Cantillon to identify the person who had the responsibility to a particular project (Nueno, 1995).

Draheim (1972) and Howell (1972) the entrepreneur is the person and entrepreneurs are a small group of people who founded a new company. Begley and Boyd (1986) define the entrepreneur as a person who founded his own company.

The creation of the entrepreneur, since its genesis, is connected with its own behaviour and the factors that control their decision making. Sousa (1990) considers that the conception of Schumpeter, the entrepreneur (or company) is very abstract, based on relevant characteristics and therefore difficult to find in nature "in pure form", one might ask who it is, or who it can be, really, the entrepreneur. Thus becoming sensible an analysis of the main conceptions and models of existing entrepreneurial intentions.

It is believed by some people that entrepreneurs are by born, not made. However, after many studies done in this fable is broken in the past and have reached a compromise where entrepreneurs can be made and are not genetically inherited (Barringer and Ireland, 2010). Everyone has the potential to become entrepreneur, especially for those who have undergone the educational process in universities (Gelard and Saleh, 2011; Ooi et al. 2011).

### 1.3 Entrepreneurship Process

An understanding of the characteristics of the entrepreneurship process is required to analyse how the entrepreneurship happens. Firm creation process needs of various stages (Reynolds, Bosma, Autio, Hunt, de Bono, and Servais et al. 2005; Veciana, 1988). These stages contain gestation, creation, launch, and consolidation. Firm creation process, entrepreneurs' characteristics and the problems they face is also may point out by understanding each of these stages. To be a future entrepreneur the professional background is also an important fact in the gestation stage, which influences the decision to create a firm.

Technology-based firms are normally created by the persons who have a technical university education and previous professional experience, though they usually have less experience than non-technical entrepreneurs. Which seems to influence the decision to create a firm in this type of person is the business organization in which they work. These entrepreneurs often create their firms after a trigger event (getting fired, failing to get promoted or recognized, etc.) by using the technology or knowledge they have acquired previously. The entrepreneur's creation stage begins by identifying a business opportunity in the market. Then they create a business plan detailing all the information appropriate to the idea, the product or service, and the market. The plan must also contain an economic-financial study with planned earnings and profits for the first few years of the firm. This stage closes with the firm's integration.

Finding the right people to work in the firm, and getting the resources they will need to operate in the launch stage is most important for the entrepreneurs. Technology has a very important part in this stage, if new technologies are used effectively while fewer people may be required to work in the organization. On the other hand, it requires highly qualified technical personnel. In any case, the entrepreneur will have to assess the long-term profitability of any investment in technology very carefully. Sometimes Failure may happen if they choose the wrong technologies (problems of incompatibility or standards, obsolescence, rejection by the market, the technology is untested, etc.), or not using technologies properly (poor planning, in consist with the firm's overall plan, poor implementation, resistance and opposition to the technologies from organization members, no control over compliance with the proposed objectives, etc.).

As they are in the first stage of a learning curve of how to use the technologies effectively, due to their lack of experience, it may unavoidably suffer declines in short-term productivity. These negative short-term effects are related to the concept known as the technology productivity paradox (Bruque and Medina, 2002). Greater investment in information technology is associated, unpredictably, with lower productivity according to the productivity paradox. In consolidation, the final stage of the firm, it occurs when the market accepts the firm's products or services and the entrepreneurs have overcome any difficulties they faced in the early stages of the process.

Between the partners personal problems often may happen and in the end some may leave the firm. The entrepreneurs are then effectively starting afresh at this point, because this is when they start making decisions concerning the growth and expansion of the firm. Investments in IT are at a stage that is close to maturity. The firm has gained experience which helps it use the technology more efficiently and to fix initial errors. The entrepreneurs can realize that

there are new ways of exploiting the technology investment made and that new business opportunities are beginning to be more clearly visible.

### 1.4 Technology-based Entrepreneur

From the 1990s onward Economists and politicians began to pay more interest to creation of technology-based firms. These firms contribute to fast-growing start-ups and job creation, particularly in high-tech sectors; play a vital role in renewing the economic system. The computing industry has grown much more quickly than the economy in general in the past quarter century, although with some ups and downs. These firms, particularly those from sectors of the so-called new economy, such as software, e-commerce, and communications equipment, have competitive advantages based on innovation. In practically all firms, not just the new ones but also the already consolidated ones the Internet has become more usual.

New technology acceptance began with firms first in the United States, but it quickly reaches to Europe and the rest of the world. The firms overcome physical and managerial barriers to internationalization by the help of internet and for this the Internet is now regarded as a powerful tool. This is particularly important to the smallest entrepreneurial firms, given their well-known initial limitations in terms of financial and human resources, international experience, and knowledge of global markets (Sinkovics and Bell, 2006). Thus, small firms that use information and communications technologies (ICT) tend to be more involved in internationalization activities and tend to perform better (Nieto and Fernandez, 2006). The tendency in the current century is for information and the information technologies to continue transforming our homes and businesses, changing the way companies compete and consumers behave. The production and services will enlarge and will have a high level of innovation which based on information (Osborne, 1987), the basic philosophy of usual business is changed by ICT, but the proper uses of technologies can be a source of competitive advantage (Porter, 1985). Nieto and Fernandez (2006), in contrast, argue that

ICT on its own is not necessarily a source of competitive advantages; the technologies make balance with the firm's other strategic property. The firm's entire functional sector may alter by ICT. Specifically the Internet's important can be seen in all the organizational areas: marketing, distribution, business processes, and so forth (Loane, 2006). Distinctively, the impact of the internet is visible in all the managerial sectors like marketing, distribution, business processes, and so forth huge number of business possibility is normally visible in shortly when ICT make some impact of firm creation. In both products and services, creating shorter product life cycles, a higher level of automation and faster obsolescence happens with Information Technologies (Osborne, 1987). It is proved that the era of information is the wonderful opportunity for entrepreneurs and entrepreneurial process. The 1st part of 21st century there has not so much exception for the technology entrepreneur, because of the wonderful business chances frequently visible to technology based firms and we also have to concern that the ICT sector still travelling to be mature. The idea of e-entrepreneurship arises in this situation. This is rather more than simply applying technologies to the firm. In fact, it is the interaction between technology, business strategy, and business processes. E-entrepreneurship involves the application of ICT by entrepreneurs to create value from the entire value chain of business processes by acquiring, sustaining, and enhancing business competitiveness (Mahmood and Yu, 2005). It has examined by the Researchers, whether entrepreneurs starting up technology-based firms have different profiles from other entrepreneurs. Usually, Osborne (1987) finds that entrepreneurs are well-educated people, knowledgeable and experienced, and excellent students of human behaviour and observers of consumer habits. Entrepreneurs who starting technology-based firms tend to be younger than other entrepreneurs and tend to have a higher educational level in the case of high-tech manufacturing start-ups (Autio, Kanerva, Kaila, and Kauranen, 1989; Donckels, 1989; Jo and Lee, 1996; Licht, Nerlinger, and Berger, 1985; Westhead and Storey, 1994), but a lower

educational level in the case of start-ups directly or indirectly involving the Internet (Colombo and Delmastro, 2001). Starting up technology based firms is their first professional experience for many entrepreneurs. But this usually depends on the type of technology firm concerned. The founder's knowledge and skills are very important for High-tech start-ups, so these entrepreneurs are likely to have huge previous experience from working in technology and experience of the market relevant to their firm (Colombo and Delmastro, 2001). This is even more the case when the firm is from the ICT manufacturing sector. On the other hand, usually have less experience, technology entrepreneurs starting up firms offering Internet services.

Why entrepreneurs have different characteristics in purpose of their activity in the high-tech sector, two complementary explanations may explain (Colombo and Delmastro, 2001): first, the advent of the new Internet concept and the consequent appearance of new markets opening up new business opportunities and giving rise to many new enterprises; second, the technological and managerial knowledge and skills associated with previous work experiences quickly become obsolete, and repeating consolidated knowledge patterns may endanger the success of the business. This is why the founders of firms providing Internet services usually have lower educational levels and less previous experience than entrepreneurs from the ICT manufacturing sector. These latter firms are in the maturity stage of their life cycle and are consequently subject to less market turbulence. Previous work experience and education may create consequently critical situation to the entrepreneurs with this firm. IT-intensive firms have another characteristic that is they tend to employ fewer people than firms from other sectors. To start technology based firms the entrepreneurs usually need fewer financial resources than entrepreneurs from other sectors. Entrepreneurs who use IT without doubt have a different profile from other entrepreneurs. On the other hand to control their decision to start a business technology entrepreneur also have some

specific characteristics. The decision to start a business is conditioned to a greater or lesser extent by three factors.

The motivation is the first factor to start a business. Rather than other entrepreneur technology based entrepreneurs are more motivated when they get to start their projects and apply their innovative ideas on it. They tend to be driven by the need for achievement and self-realization and the desire to implement their projects; their motive is not purely economic.

The entrepreneur's capacity of ability to generate a business in the selected sector is the second factor. So-called Managerial capacities are required when the competencies start up a firm.

It is more necessary for technology based firms to start up with it as they are for other entrepreneurs. The new business processes or its products if needs use information technology, then the entrepreneur must have technical competencies. If entrepreneurs not have good knowledge or experience in IT then it is difficult to apply it efficiently.

The decision which contains what business to start and entrepreneur's perception of business opportunities that they can exploit is the third factor. It is clear that, how many business opportunities have is less important than the ability of entrepreneur's to see opportunities. It's a common tendency of technology entrepreneurs to have a polished diagnostic capacity developed on the base of their technical education. The possibility of applying evolution of technologies in many unexpected uses of providing business ground is exploiting the opportunities.

## 1.5 IT Entrepreneurship Development in Bangladesh

In the past decade IT Entrepreneurship in Bangladesh has gone a long way. The IT industry in Bangladesh has developed and has already joined the mainstream. It has consequently provided high quality employment to many of the country's young graduates and has been significantly contributing to the national income of the country.

The development of IT entrepreneurship in Bangladesh can be recognized to the effort of young, tech savvy entrepreneurs. In the last decade, many of the country's young graduates, some even returning after studying overseas, ventured into the IT industry. They have established their IT business ventures in the country. Despite the many challenges, both local and global, their hard work and passion have enabled them to rise up to the challenge and they are now enjoying the fruits of their labour. The enthusiasm and persistence of these young entrepreneurs are certainly key driving factors of the remarkable IT entrepreneurship development in Bangladesh.

In Bangladesh IT entrepreneurship has opened many opportunities. According to there are about 800 software and IT enabled services companies in the country. This does not yet include unregistered small and home-based IT ventures. In the IT industry Over 30,000 professionals and young graduates are employed. IT entrepreneurs enjoy a considerably good income. Average monthly compensation is at BDT 15,000. This rate is higher than many jobs in Bangladesh (Kazi Shahin, 2015).

Alongside the big boom of IT entrepreneurship in Bangladesh, recent studies have also shown that many companies in the country are involved in providing a wide range of IT enabled services to their clients. This means that IT entrepreneurship in Bangladesh is headed towards a very promising future. More and more companies have integrated IT into their

systems and processes, thus, there will definitely be a continuous demand for IT professionals in the country.

The development of the IT industry in Bangladesh has also resulted to positive changes in the country. The larger Internet-user base has propelled for better connectivity across the country. More so, to bring more convenience to consumers a significant number of companies have already provided for online payments. Many companies are also looking into diversifying on different web-based services such as listing services, online selling, e-learning, and online payments. These new business models are shaping the future of the IT industry in Bangladesh.

IT entrepreneurship in Bangladesh has indeed contributed significantly to the country's economy. With fast and positive developments in the country's IT industry, more and more of its citizens are able to enjoy a higher quality of living. Many young graduates have opted not to work abroad and explore employment opportunities in their own country instead. For our young, tech savvy graduates The IT industry has opened a whole new employment landscape. They do not need to go abroad for greener pastures. They now have the opportunity to stay in their locale and form part of the country's growing base of IT entrepreneurs. IT entrepreneurship in Bangladesh has not only become a trend; it has been one of the country's strong economic driving forces.

### 1.6 Problem Statement

Entrepreneurs play an important role in bringing in economic changes and advancements to a country's economy. The contributions of entrepreneurs towards economic development have been discussed by Baron and Shane (2008), who have named the entrepreneurs as "engines of economic growth". No doubt, entrepreneurs have contributed significantly to economy, society as well as human kind. Specifically, job creation has been regarded as one of major

contributions of entrepreneurs. As issue of graduates' employability has received much attention from Bangladeshi government lately; embarkation on entrepreneurship is believed to be a workable strategy for handling the issue. It is because entrepreneurship, self-employed and start-a-business can be regarded as synonymous (Schwarz *et al.* 2009; van Gelderen *et al.* 2008). Self-employment, or simply entrepreneurship, is becoming popular as a career choice (van Gelderen *et al.* 2008). Recently, entrepreneurship has been promoted as an attractive career alternative among students all over the world (Schwarz *et al.* 2009). The same phenomenon also takes place in Bangladesh as well. In fact, various efforts have been put forward by Bangladeshi government to encourage entrepreneurial activities, especially among the youths.

A recent financial report of the World Bank (2012) reveals that Bangladesh is the only country in South Asia where growth in labour force outpaced growth in employment during the last decade. However, unemployment rate remained remarkably low in Bangladesh, only at 4.5 percent in 2010. Unemployment Rate in Bangladesh decreased to 4.30 percent in 2013 from 4.50 percent in 2012. (Labour force Survey 2010, BBS). According to a 2010 survey by the Bangladesh Bureau of Statistics (BBS), the literacy rate of Bangladesh is 59.82 percent. The literacy rate in the country has now increased to 71 percent. Information Technologies (IT) came into prominence in the late 1990s almost coinciding with the onset of the good agenda which sought to reform the role of the people in promoting economic growth and social development.

According to a 2015 report by University Grant Commission of Bangladesh and, Bangladesh have 85 Private and 36 Public Universities. Every year, roughly 6000 IT graduates pass out from these public and private universities in the country. This large number of Bangladeshi IT Graduates always trying to grab a job.

To find the real situation we collect data about 300 alumni of Computer science Department from two private universities among them, University ‘A’ got only 5% and University ‘B’ got only 3% students who are now entrepreneur, that means they are operating their Own Technology based firms and rest of them are working as an employee.(See Appendix) Based on BASIS and other data, there are 800 to 1,000 software and ITES companies and more than 30,000 IT engineers now working in Bangladesh (JICA Report, 2015).

Bangladesh is not good for employment mentioned by Gallup, Inc., an American research-based, global performance-management consulting company (Gallup, 2015); they said 2% of Bangladeshi Employees are fully satisfied taking their Job and 10% are Overall Satisfied.

The government has taken a decision recently (February, 2016) to withdraw VAT from all computer hardware and software. (TechWorld, 2016). This has brought the prices of computers down to a level affordable by middle income households and sales of PCs have soared during the last few months. An 80-90% annual growth in the number of PCs sold is expected this year.

An Information Technology village is going to be set up very close to Dhaka. The government has already made 18 acres of land available for setting up this IT village. This would be similar to the Software Technology Parks in India. The entire infrastructure, including high-speed telecommunication facilities (2 Mbps link) would be provided. These would enable the small companies to move into buildings with readily available facilities. Since this is going to take at least two years, a decision has been taken to initially set it up in an existing building in Dhaka (ICT Division, 2014).

In June, 1996 the government decided to allow private companies to act as Internet Services Providers (ISPs) using VSATs. At present, there are about 22,000 account holders with the

ISPs (8 in Dhaka and 2 in Chittagong) and the total number of users would be around 100,000. The slow speed of access provided by VSATs (max. 128.8 kbps) is a major constraint. A number of Cybercafés providing e-mail and Internet browsing facilities have been opened in Dhaka city; these are quite popular among the young generation. Public kiosks with internet facilities are also being planned.

BTTB has already established a network for providing Internet connectivity and plans to start commercial service very soon. The proposed tariff rate should make Internet connection affordable to a larger cross-section of public. BTTB is also establishing a fibre optic backbone in the country. They also plan to offer ISDN service very soon using the facilities of the already installed digital exchanges in Dhaka and Chittagong cities.

In order to enable the young entrepreneurs in the IT field, a special fund has been created by the government to provide working capital loan without any collaterals. A venture capital fund is also being set up. The banking procedures are also being amended and simplified to reflect the different nature of software transactions.

Experience of other countries shows that it is very difficult to achieve success in exporting software unless there is a big domestic market. The government ministries and departments are being asked to computerise their activities. A domestic price preference of 15% would be given to suppliers of locally developed software. (SNDP Bangladesh, 2014). Bangladesh has earned $35 million in 2009-10 fiscal years by exporting software to 30 Countries.

According to Bangladesh Bank annual report 2014, Bangladesh Bank (BB) has created a refinancing fund of Taka 100 core for the new entrepreneurs in micro, small and medium sector (SMES). The fund has been created to ease the funding to the new enterprises in the MSEM sector who have already got training under the entrepreneurs' development programmes by the government or private organizations. The new entrepreneurs who are able

to demonstrate their self- motivation and skills in entrepreneurship would also be allowed to get the loan from this fund. Under the refinancing scheme, an entrepreneur would get highest Taka 10 lakh loan without any collateral. The amount, however, would be Taka 25 lakh in case of loan supported by collateral. The entrepreneur should invest at least 20 percent of the total cost of their new venture. The rate of interest for the loan will be 10 percent and the tenure of the loan will be one year for the current capital (current capital is the part of a company's capital that is used for day-to-day operations), and three years for mid-term and five years for long term loans. There will a three-month grace period for repayment, which can be extended to six months on the basis of the bank-client relationship. Like other refinancing schemes, the Taka-100 core fund will also be disbursed through different commercial banks. The fund would help establish new businesses by the young entrepreneurs who are being developed under a joint initiative of Dhaka Chamber of Commerce and Industry (DCCI) Bangladesh Bank. Also The DCCI has targeted developing 2,000 young entrepreneurs to build a new business arena (Bangladesh Bank 2014).

In line with Government's Vision 2021, Access to Information (A2I) an UNDP and USAID supported project (programme) having its office at the Prime Ministers' Office has been playing a critical role in revolutionizing public service delivery in Bangladesh. The programme aims to improve quality, widen access, and decentralize delivery of public services to ensure responsiveness and transparency.

A2I's Horizon Scan Report (2007) indicated insufficient understanding and low confidence among the government officials regarding ICT usage and managing ICT projects as the major obstacles, along with a lack of innovative thinking and partnership with private sector, in bringing services to citizens' doorsteps. A2I is establishing an Innovation Fund to encourage innovative service delivery ideas and endeavours for greater public good in Bangladesh. The Innovation Fund will promote home grown initiatives with localized solutions to achieve the

slogan ‘services at citizen’s doorsteps’. Government officials, development practitioners, private sector professionals, university students and citizens coming forward with out-of-the-box ideas can apply for this fund. The Innovation Fund will also groom the young generation of innovators and creators who will be able to assist the Government of Bangladesh in its endeavours in providing people-friendly public services for poverty alleviation and equitable growth.

The Innovation Fund is open for all innovators from public and private sectors with focus on:

- Pro-poor service delivery: e/m-services catering to the poor and underserved including women, elderly, ethnic minorities and people with disabilities
- Service decentralization: e/m-services benefiting or improving existing service delivery points (Union Information and Service Centres, District e-Service Centres, Urban e-Service Outlets etc)
- Gender empowerment: e/m-services proven efficient and effective in prevention (including awareness raising and advocacy) and protection (including support and services for victims/survivors) of gender rights.
- Rural Development: Innovations that directly reach the rural communities serving the underserved.
- Green Initiatives: Innovations that facilitate the innovators, entrepreneurs and new ventures and SMEs to deliver e/m-services using green technologies and renewable energy sources
- Low cost devices: Innovations that replaces expensive devices to low cost ones that are useful in large level public service delivery

• Right to Information: e/m-services that will comply with the Right to Information Act, 2009

• Bangla Language Tools: web-based and mobile enabled applications for service delivery improvement and preservation of culture and heritage through ICTs ( e.g., text to speech tools in Bangla, Bangla key-words for Search Engine Optimization etc)

The Innovation Fund will also consider initiatives that fall under the broader Digital Bangladesh strategic areas.

Therefore why new IT graduates are looking for employment, why they are not starting their own business?

Despite Many universities are trying to introduce "entrepreneurship course" for business discipline, but in case of engineering this idea is still falling behind. Very limited Universities paid attention to introduce entrepreneurship course in their curriculum.

The abundance of the research on the factors of technopreneurial intention propose that this field is important to both the politicians, scientists, researchers and lecturers whose aim to strengthen the disposition of young people to the one of the forms of employment – business start-up - through education. Individuals entrepreneurial Intention is one of the major factors to start up a new business. (Rita and Grazina, 2013)

As a result, there is a need to measure technopreurship intention among IT students (as Solsevik, 2012)

**1.7 Research Questions**

a. Is there any relation between Theory of Planed Behaviour (TPB) and Entrepreneurship Event Model (EEM)?
b. Is there any impact of integrated TPB-EEM on intention to become entrepreneur?

## 1.8 Research Objectives

a. To measure students' intention to become entrepreneur.

b. To investigate any relation between attitude, subjective norm and Perceived behaviour control on Entrepreneurship Event Model.

c. To identify any relation between desirability and feasibility on intention.

# CHAPTER 2

## LITERATURE REVIEW

### 2.1. Integrated Conceptual Model

#### 2.1.1 Theory of Planned Behaviour

Theory of planned behaviour (TPB) was developed by Ajzen (1991) as an extension to theory of reasoned action (TRA) by Fishbein and Ajzen (1975). The Theory of Planned Behaviour (TPB) has become one of the most utilized theories in terms of explaining and predicting behaviours of individuals. The TPB has been cited over 5000 times according to the Web of Science since Icek Ajzen originally published it in book (1988) and article (1991) form. Krueger *et al*. (2000) point out that entrepreneurship is a result of intentional and planned behaviour. Thus, using TPB to investigate entrepreneurial intention is considered viable. In fact, TPB has been found to be an effective and influential model for studying and understanding entrepreneurial intention (Moriano *et al.* 2011; Shook and Bratianu, 2010; van Gelderen *et al.* 2008). The Theory of Planned Behaviour (AjzenandFishbein, 1980; Ajzen, 1987; Ajzen, 1991), states that any behaviour requires some planning, the act of creating a new business can be predicted according to the intention adopted by a given individual. Although TPB has proven as an effective tool in entrepreneurial intention research, it is important to integrate other relevant variable into TPB model to increase its ability to explain and predict intention (Koe, et. al. 2012). According to Engle *et al.* (2010), TPB model does come into view to be an important cognitive process model for the evaluation of entrepreneurial intention. The model explains the complexity of relationship between human behaviour and its relevant determinants. Most importantly, it identifies that human behaviour

is a cause of intention. According to Ajzen (1991), intention is directly affected by three antecedents, The first variable is the attitude toward the behaviour, i.e., to determine the opportune moment for a particular behaviour. The second variable corresponds to subjective norms, which means the very perception that an individual has on the surrounding community, perception of individual control, leading the individual to also have a certain behaviour. The perception of control reflects the experience, impediments and obstacles faced by the individual previously. The more favourable is the attitude and subjective norm and the greater the perception of individual control, the stronger should be the intention to perform a particular behaviour. which precede the formation of the intention and that in turn predict behaviour. In other words, the three factors mentioned above directly affect a person's intention to perform behaviour.

The author further explains that TPB can be applied in many areas of interests, specifically in understanding certain behaviours, such as purchasing behaviours, leisure behaviour, drinking behaviour etc. The TPB's main assentation's are that behaviour is preceded by one's intentions to perform the behaviour and perceived control over the behaviour (Ajzen 1991). Further, individuals' intentions are determined by their attitudes toward the behaviour, subjective norms, and perceived control over the behaviour. The TPB has been used to explain and predict intentions and behaviours in all types of research fields, such as health sciences (Godin and Kok 1996), leisure studies (Hagger et al. 2003), psychology (Austin and Vancouver 1996), and marketing (Pavlou and Fygenson 2006). The TPB has been used to explain and predict planned behaviours in entrepreneurship as well. Almost all entrepreneurship scholars that have incorporated the TPB into their research establish the foundation that starting and growing a business (and various other behaviours related to entrepreneurship) are planned behaviours (Kolvereid and Isaksen 2006; Krueger and Reilly 2000; Krueger et al. 2000; Shook et al. 2003). As Krueger et al. (2000, p. 414) explained, BIn

general, much of human behaviour is planned; it is difficult to envision starting a business where the nascent firm is launched simply as a conditioned response to a stimulus^. Entrepreneurship is an intentional process in which individuals cognitively plan to carry out the behaviours of opportunity recognition, venture creation, and venture development.

Due to the applicability of the TPB, a large amount of entrepreneurship research has used parts of Ajzen's (1991) model. Also, because the TPB is an established theory, its use in the entrepreneurship literature has followed certain themes. These lines of research have grown substantially since the TPB was first published. The use of the TPB is on the rise in the entrepreneurship literature, however, there seem to be a lack of understanding between the many different ways that the TPB has been used. In many cases, the TPB has been cut-up and compartmentalized for authors' individual uses and therefore the results across the literature are fragmented in terms of what the TPB actually says in the context of entrepreneurship.

Besides, the intention based models have proven the assessment of entrepreneurial intention. (Singh, Prasad, and Raut, 2012). as a remedy, number of studies have emerged addressing individual's personal characteristics and their entrepreneurial intention, (Boyd and Vozikis, 1994), (Krueger and Carsrud, 1993) etc. these models are largely based and influenced from two basic theories, which are namely, The Entrepreneurial Event Model, (Shapero, and Sokol, 1982) and The Theory of Planned Action, (Ajzen, 1991).

The Theory of Reasoned Action (Fishbein and Ajzen, 1975) has led the basis for the development of the Theory of Planned Behaviour (Ajzen, 1991). According to the figure one, it can be postulated that behavioural intentions are formed by one's attitude toward that behaviour and one's subjective norms – (i.e. influence by significant others - e.g. parents, peers, role models). In turn, both attitudes and subjective norm are influenced by evaluations, beliefs, and motivation formed through one's unique individual environments.

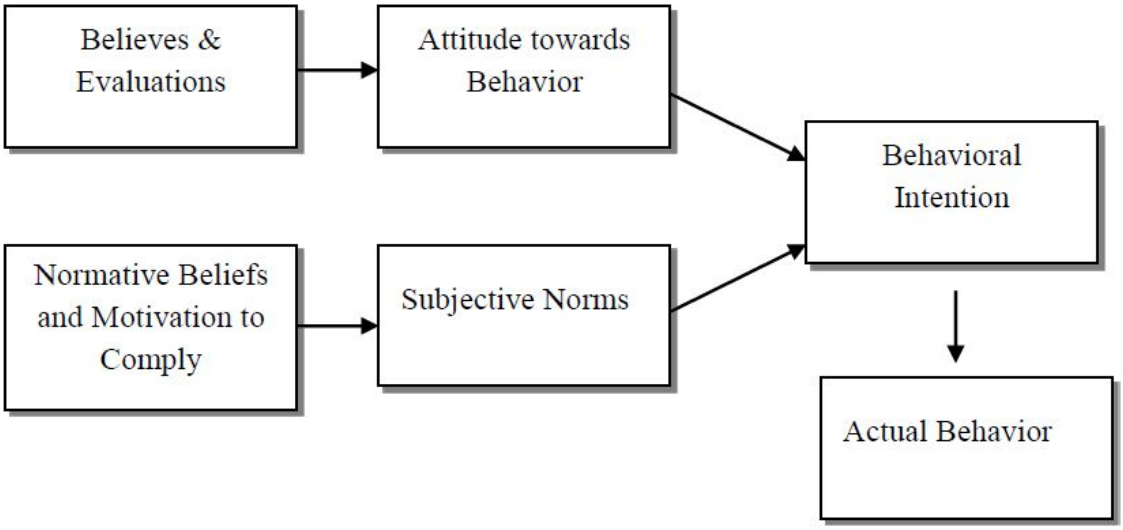


**Figure 2.1: Ajzen's Theory of Planned Behaviour Model (1975)**

As Kolvereid (1996) explained, attitudes or beliefs do not directly predict behaviors; instead, these factors are either fully or partially captured by intentions. This mediated relationship between intentions, attitudes, subjective norms, and perceived behavioral control is displayed in Figure 2.2

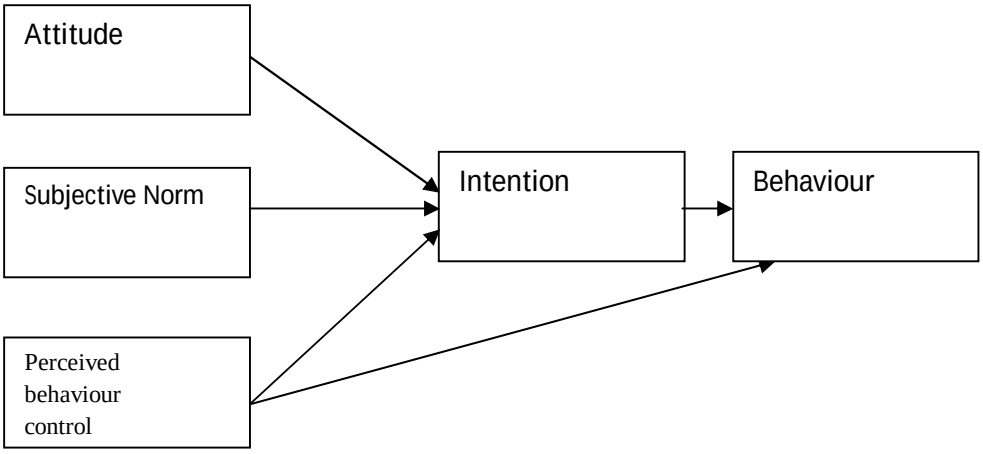


**Figure 2.2: Ajzen's Theory of Planned Behavior Model (1991)**

Ajzen (1991, p. 188) described the attitude one holds towards a behaviour as, By the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour

in question. Depending on how favourable individuals evaluate behaviours, their subsequent intentions will be formed. The attitude construct was originally based on Fishbein and Ajzen's (1975) Expectancy- Value Model which explained that the subjective value of a given outcome affects the attitude in direct proportion to the strength of the belief (Armitage and Conner 2001).

Subjective norms refer to the perceived social pressure to perform or not perform the behaviour in question. Subjective norms are the attitude that an individual holds about how important referent others or groups approve or disapprove of performing a given behaviour (Ajzen 1991). Important referent others normally refers to family members, significant others, and friends that one is close to. One's attitudes about the subjective norms that exist for a given behaviour reflect the perceptions that person has about how positively or negatively others view the behaviour in question. Subjective norms are largely function of salient normative beliefs (Armitage and Conner 2001).

The Theory of Planned Behaviour is an extension of Ajzen's earlier work named the Theory of Reasoned Action (Ajzen and Fishbein 1980). In fact, the two theories are very similar in that the TPB only differs from the Theory of Reasoned Action in the addition of the construct of perceived behavioural control (PBC). PBC refers to the perceived ease or difficulty of performing the behaviour by the individual. Not only does one's attitude towards the PBC refer to past experiences, but it also refers to anticipated obstacles and other factors impeding the performance of the behaviour (Ajzen 1991). Individuals who believe they have a large amount of control over behaviour will develop subsequent intentions to perform the behaviour. Together, attitudes, subjective norms, and PBC have an additive effect on an individual's intentions. This implies that it is possible for individuals to have high intentions even though one or two of the antecedents preceding their intentions might be low. As it is seen in Fig. 2, PBC not only affects one's intentions but also directly affects one's behaviour

as well. This partially mediated relationship between PBC, intention, and behaviour is the main difference between the Theory of Reasoned Action (Ajzen andFishbein 1980; Fishbein and Ajzen 1975) and the Theory of Planned Behaviour (Ajzen1988; Ajzen 1991). Ajzen (1991) argued that intentions alone are sufficient in predicting behaviours that individuals have complete volitional control over. However, Ajzen argued that as volitional control over the behaviour begins to drop, PBC becomes increasingly important in directly determining subsequent behaviour. As Armitage and Connor (2001, p. 473) described,

Ajzenargue (d) that under conditions where behavioural intention alone would account for only small amounts of the variance in behaviour (i.e. where there are problems of volitional control), PBC should be independently predictive of behaviour. This is based on the rationale that increased feelings of control will increase the extent to which individuals are willing to exert additional effort in order successfully to perform (sic)a particular behaviour.

### 2.1.2 Basic Categorization of the Literature

The 42 articles that were evaluated were published in a variety of academic journals. This can be seen by the breakdown in Table 2.1.2 where we show 12 different journals published from 2 to 28 % of the articles. It is promising to see that 48 % of the articles were published in Entrepreneurship: Theory and Practice and Journal of Business Venturing, which are the top entrepreneurship journals according to ABS ratings and impact factors. This shows that the TPB has generally made an important impact where it has been utilized in the entrepreneurship literature. Only 9 % of the articles were published in the top general management journals (ABS 4 and 4* general management classifications). When comparing the ABS 4 and 4* journal outlets alone (both entrepreneurship and general management categories) it turns out that 83 % of the articles have been published in the top entrepreneurship journals as compared to the 17 % in the top general management journals (Lortie et al. 2015) This seems to indicate that the TPB is used for specific research questions

in the entrepreneurship literature that might be too specific for the top mainstream management journals. Finally, 32 (76 %) of the articles cantered their studies at the individual level of analysis, while nine (21 %) used a mesolevel (House et al. 1995) approach. Thirty-seven of the 42 (88 %) articles published were empirical in nature. This is somewhat expected as the TPB is a well-established theory and empirical research often tests hypotheses derived from established theory (Hunt 2002, 2010). 24 (65 %) of these articles used cross-sectional data while 12 (32 %) utilized longitudinal data, and only one (2 %) used qualitative data. 24 (65 %) of the empirical studies used nonstudent data while 13 (35 %) used students as subjects.

**Table 2.1: A review of the TPB in Entrepreneurship Research (Marina Z. Solesvik, 2013)**

| SL | Author | Year | Source | Theory | Title | Sector | Type | Method |
|---|---|---|---|---|---|---|---|---|
| **01** | Krueger | 1993 | Entrepreneurship: Theory and Practice | TPB | The impact of prior entrepreneurial exposure on perceptions of new venture feasibility and desirability. | Entrepreneur | Venture Creation | Survey Questionnaire |
| **02** | Krueger and Brazeal | 1994 | Entrepreneurship: Theory and Practice | TPB | Entrepreneurial potential and potential entrepreneurs. | Entrepreneur | Venture Creation | None |
| **03** | Kolvereid | 1996 | Entrepreneurship: Theory and Practice | TPB | Prediction of employment status choice intentions. | Entrepreneur | Venture Creation | Survey Questionnaire |
| **04** | Kaufmann | 1999 | Journal of business venturing | TPB | Franchising and the choice of self employment. | Entrepreneur | Venture Creation | Survey Questionnaire |
| **05** | Chrisman | 1999 | Journal of small business management | TPB | The influence of outsider-generated knowledge resources on venture creation. | Entrepreneur | Venture Creation | Survey Questionnaire |
| **06** | Tkachev and Kolvereid | 1999 | Entrepreneurship & regional development | TPB | Self-employment intentions among Russian students. | Entrepreneur | Venture Creation | Survey Questionnaire |
| **07** | Douglas and Shepherd | 2000 | Journal of business venturing | TPB | Entrepreneurship as a utility maximizing response. | Entrepreneur | Venture Creation | Survey Questionnaire |
| **08** | Krueger et al. | 2000 | Journal of business venturing | TPB | Competing models of entrepreneurial intentions. | Entrepreneur | Venture Creation | Survey Questionnaire |
| **09** | LeBrasseur et al | 2003 | International small business journal | TPB | Growth momentum in the early stages of small business start-ups | Entrepreneur | New Venture development | Survey Questionnaire |
| **10** | Wiklund and | 2003 | Journal of management studies | TPB | Aspiring for, and achieving growth: the | Entrepreneur | New Venture | Survey Questionna |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Shepherd | | | | moderating role of resources and Opportunities. | | developm ent | ire |
| **11** | Peterman and Kennedy | 2003 | Entrepreneurship: Theory and Practice | TPB | Enterprise education: influencing students' perceptions of entrepreneurship | Entrepreneur | Venture Creation | Survey Questionna ire |
| **12** | Zhao et al. | 2005 | Journal of applied psychology | TPB | The mediating role of self-efficacy in the development of entrepreneurial intentions. | Entrepreneur | Venture Creation | Survey Questionna ire |
| **13** | Maula et al. | 2005 | Small business economics | TPB | What drives micro-angel investments? | Entrepreneur | Other | Survey Questionna ire |
| **14** | Arenius and Kovalain en | 2006 | International small business journal | TPB | Similarities and differences across the factors associated with women's self-employment preference in the Nordic countries | Entrepreneur | Venture Creation | Survey Questionna ire |
| **15** | Montalv o | 2006 | Technovation | TPB | What triggers change and innovation? | Technopreneu r | Other | Survey Questionna ire |
| **16** | Cassar | 2006 | Journal of business venturing | TPB | Entrepreneur opportunity costs and intended venture growth. | Entrepreneur | New Venture developm ent | Survey Questionna ire |
| **17** | Kolvereid and Isaksen | 2006 | Journal of business venturing | TPB | New business start-up and subsequent entry into self-employment. | Entrepreneur | Venture Creation | Survey Questionna ire |
| **18** | Carr and Sequeira | 2007 | Journal of business research | TPB | Prior family business exposure as intergenerational influence and entrepreneurial intent: a theory of planned behavior approach. | Entrepreneur | Venture Creation | Survey Questionna ire |
| **19** | Souitaris et al. | 2007 | Journal of business venturing | TPB | Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration and resources. | Entrepreneur | Venture Creation | Survey Questionna ire |
| **20** | Henley | 2007 | Entrepreneurship & regional development | TPB | Entrepreneurial aspiration and transition into self-employment: evidence from British longitudinal data. | Entrepreneur | New Venture developm ent | Survey Questionna ire |
| **21** | Delmar and Wiklund | 2008 | Entrepreneurship: Theory and Practice | TPB | The effect of small business managers' growth motivation on firm growth: a longitudinal study | Entrepreneur | New Venture developm ent | Survey Questionna ire |
| **22** | Delmar and Wiklund | 2008 | Entrepreneurship: Theory and Practice | TPB | The effect of small business managers' growth motivation on firm growth: a longitudinal study | Entrepreneur | New Venture developm ent | Survey Questionna ire |
| **23** | Delmar and Wiklund | 2008 | Entrepreneurship: Theory and Practice | TPB | The effect of small business managers' growth motivation on firm growth: a | Entrepreneur | New Venture developm ent | Survey Questionna ire |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | longitudinal study | | | |
| **24** | Delmar and Wiklund | 2008 | Entrepreneurship: Theory and Practice | TPB | The effect of small business managers' growth motivation on firm growth: a longitudinal study | Entrepreneur | New Venture development | Survey Questionnaire |
| **25** | Radu and Redien-Collot | 2008 | International small business journal | TPB | The social representation of entrepreneurs in the French press - desirable and feasible models? | Entrepreneur | Venture Creation | Survey Questionnaire |
| **26** | Kickul | 2009 | Entrepreneurship: Theory and Practice | TPB | Intuition versus analysis? testing differential models of cognitive style on entrepreneurial self-efficacy and the new venture creation process. | Entrepreneur | Venture Creation | Survey Questionnaire |
| **27** | Doern | 2009 | International small business journal | TPB | Investigating barriers to SME growth and development in transition environments A critique and suggestions for developing the methodology | Entrepreneur | Venture Creation | None |
| **28** | Linan and Chen | 2009 | Entrepreneurship: Theory and Practice | TPB | Development and cross-cultural application of a specific instrument to measure entrepreneurial intentions. | Entrepreneur | Scale Development | Survey Questionnaire |
| **30** | Lucas et al. | 2009 | Technovation | TPB | Industry placement, authentic experience and the development of venturing and technology self-efficacy. | Technopreneur | Venture Creation | Survey Questionnaire |
| **31** | Kautonen et al. | 2010 | International small business journal | TPB | Influence of work history on entrepreneurial intentions in 'prime age' and 'third age': a preliminary study. | Entrepreneur | Venture Creation | Survey Questionnaire |
| **32** | Ramos-Rodriguez et al | 2010 | International small business journal | TPB | What you know or who you know? The role of intellectual and social capital in opportunity recognition. | Entrepreneur | Other | Survey Questionnaire |
| **33** | Prodan and Drnovsek | 2010 | Technovation | TPB | Conceptualizing academic-entrepreneurial intentions: an empirical test. | Technopreneur | Venture Creation | Survey Questionnaire |
| **34** | Dimov | 2010 | Journal of management studies | TPB | Nascent entrepreneurs and venture emergence: opportunity confidence, human capital, and early planning. | Entrepreneur | Venture Creation | Survey Questionnaire |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **35** | Obschonka et al. | 2010 | Journal of vocational behavior | TPB | Entrepreneurial intention as developmental outcome. | Entrepreneur | Venture Creation | Survey Questionnaire |
| **36** | Fitzsimmons and Douglas | 2011 | Journal of business venturing | TPB | Interaction between feasibility and desirability in the formation of entrepreneurial intentions. | Entrepreneur | Venture Creation | Survey Questionnaire |
| **37** | Lee et al. | 2011 | Journal of business venturing | TPB | Entrepreneurial intentions: the influence of organizational and individual factors. | Entrepreneur | Venture Creation | Survey Questionnaire |
| **38** | Vissa | 2011 | Academy of management journal | TPB | A matching theory of entrepreneurs' tie formation intentions and initiation of economic exchange. | Entrepreneur | Other | Survey Questionnaire |
| **39** | Linan et al. | 2011 | Entrepreneurship & regional development | TPB | Regional variations in entrepreneurial cognitions: start-up intentions of university students in Spain | Entrepreneur | Venture Creation | Survey Questionnaire |
| **40** | Carsrud and Braennback | 2011 | Journal of small business management | TPB | Entrepreneurial motivations: what do we still need to know? | Entrepreneur | Venture Creation | None |

### 2.1.3Entrepreneurship Event Theory

The Shapero's model of entrepreneurial intention (1982) indicates that the decision to significantly change the course of our life, for example in creating a business, it's triggered by a specific event or a sudden change in the established routine. Thus, the choice of the individual will depend then of three elements. The first element, the perception of desirability, the second element is the propensity to act, and finally the third element is the perception of viability. Shapero suggested that the intention to create a business derives from perceptions of desirability and feasibility, as well as opportunities related to a propensity to act.

EET, as presented by Shapero and Sokol (1982), suggests that individuals reporting high perceived desirability and high perceived feasibility have a higher likelihood of becoming entrepreneurs with regard to an entrepreneurial event (i.e. new venture creation). Social (i.e.

family and work experience) and cultural factors may shape an individual's perception of desirability relating to the intention to become an entrepreneur. An individual's perception of feasibility can be shaped by the provision of resources to create and/or identify a business opportunity (i.e. information, technology, premises, finance, skills, knowledge, social capital, etc.). Individuals reporting high perceived desirability (i.e. personal attractiveness of starting business) and perceived feasibility (i.e. degree which an individual feels capable to start business) have been found to be more likely to engage in entrepreneurial events. Krueger (1993) detected that the intention to become an entrepreneur was shaped by the perception of desirability and perception of feasibility, as well as the propensity to act (Table I). Further, Krueger et al. (2000) explored the predictive accuracy of a model relating to TPB factors, and a model relating to EET factors. The latter model reported higher predictive accuracy with regard to the formation of entrepreneurial intentions.

### 2.1.4 Entrepreneurial Intention

According to Ajzen (1991, pp 181), intention refers to "the indication of how hard people are willing to try, of how much an effort they are planning to exert, in order to perform the behaviour". Generally, the stronger the intention, the more likely that a person will perform a particular behaviour. It is practical to study intention because actual behaviour is difficult to be measured in a research (Wu, 2010).

Entrepreneurial intention is closely related to entrepreneurship behaviour. Ajzen (1991) has mentioned that intention is a direct predictor of behaviour. Add to this, Krueger *et al.* (2000) has also explained that entrepreneurial behaviour is intentional and a planned behaviour. Since entrepreneurial behaviour is intentional, many researchers agreed that it can be predicted by entrepreneurial intention (Krueger and Carsrud, 1993).

## 2.2 Research Model and Hypothesis Development

H1. Attitude towards entrepreneurship has positive effect on perceived desirability to ecome a technopreneur.

H2. Subjective norm towards entrepreneurship has positive effect on perceived desirability to become a technopreneur.

H3. Subjective norm towards entrepreneurship has positive effect on perceived feasibility to become a technopreneur.

H4. Perceived behaviour control towards entrepreneurship has positive effect on perceived feasibility to become a technopreneur.

H5. Perceived desirability towards entrepreneurship has positive effect on intention to Become a technopreneur.

H6. Perceived feasibility towards entrepreneurship has positive effect on intention to become a technopreneur.

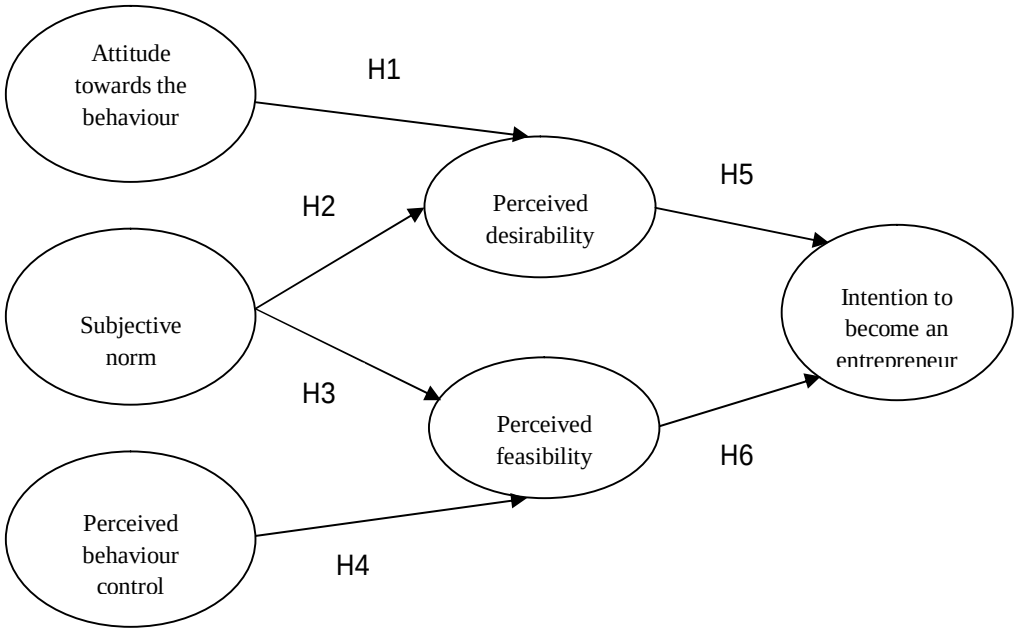


**Figure 2.3: Research Model**

# CHAPTER 3

# RESEARCH METHODOLOGY

## 3.1 Data Collection Method

A total of 400 questionnaires were distributed among the IT students in Daffodil International University and International University of Business Agriculture and Technology in Dhaka, Bangladesh using self administered questionnaire. A total of 222 questionnaires were returned (response rate 55.5%). According to power analysis calculator the effect is 95 percent. Number of predictors are 5 and they are Attitude, Subjective Norm, Perceived behaviour control, Perceived desirability, Perceived feasibility. The Sample size is 138. The questionnaire consists of six sections. The first section elicited the demographic data, the second section collected the data about Subjective Norm, the third section extracted information on Attitude towards the behaviour, section four measured the perceived behaviour control, section five on Perceived desirability, section six on Perceived feasibility and last section measured continuance intention to become an entrepreneur.

## 3.2 Measures

The measures were all adapted from the published literature. The measures for the variable confirmation was adapted from Bhattacherjee (2001), for perceived usefulness from Davis (1989), satisfaction from Spreng et al. (1996), and Liao et al. (2009) and lastly, the continuance intention was adopted from Bhattacherjee (2001), and Liao et al. (2009).

### 3.3 Sample Profile

The demographic of the respondents tabulated in Table 3.1 were derived from descriptive analysis. The majority of the age group (68.2 %) was in the category of 18-21 years old. Male (75.1 %) outnumbered the females (24.9 %). In terms of

**Table 3.1: Demographic Data of the Respondents**

| | Frequency | Percentage |
|---|---|---|
| *Age (years)* | | |
| 18-21 | 151 | 68.2 |
| 22-25 | 67 | 30.4 |
| 25 and above | 3 | 1.4 |
| *Gender* | | |
| Male | 166 | 75.1 |
| Female | 55 | 24.9 |
| *Admission* | | |
| 1st year | 50 | 22.6 |
| 2nd year | 89 | 40.3 |
| 3rd year | 46 | 20.8 |
| Final year | 36 | 16.3 |
| *Parents Businessman* | | |
| Yes | 73 | 33 |
| No | 148 | 67 |
| *Prefer entrepreneur course in their course Curriculum* | | |
| Yes | 166 | 75.1 |
| No | 55 | 24.9 |

ethnicity, the majority of the respondents were in the second year (55.2 %) of their education, the majority of the respondents parents are non business person (67%) and only few parents

are businessman (33.0 %). The total respondents are now at Bachelor degree. The majority of the respondents (75.1 %) prefer entrepreneur course in their course Curriculum.

### 3.4 Data Analysis

Smart PLS version 2.0, a variance based Structural Equation Modelling (SEM) was used to analyze the hypotheses generated. The reasons for using this technique are as follows:

a. PLS is known for its ability to handle both reflective and formative measures (Hair et al. 2014)
b. (b) PLS places a minimal restriction on the sample size (Chin 1998)

The two-step analytical procedure suggested by Anderson and Gerbing (1988) was adopted to analyze data whereby the measurement model was evaluated first and then followed by the structural model. Also, following the suggestion of Chin (1998), the bootstrapping method (200 resample) was done to determine the significant level of loadings, weights, and path coefficients. Figure 15.3 shows the Research Model of the study.

### 3.5 Measurement Model

Convergent validity is the degree to which the items that are indicators of a specific construct should converge or share a high proportion of variance in

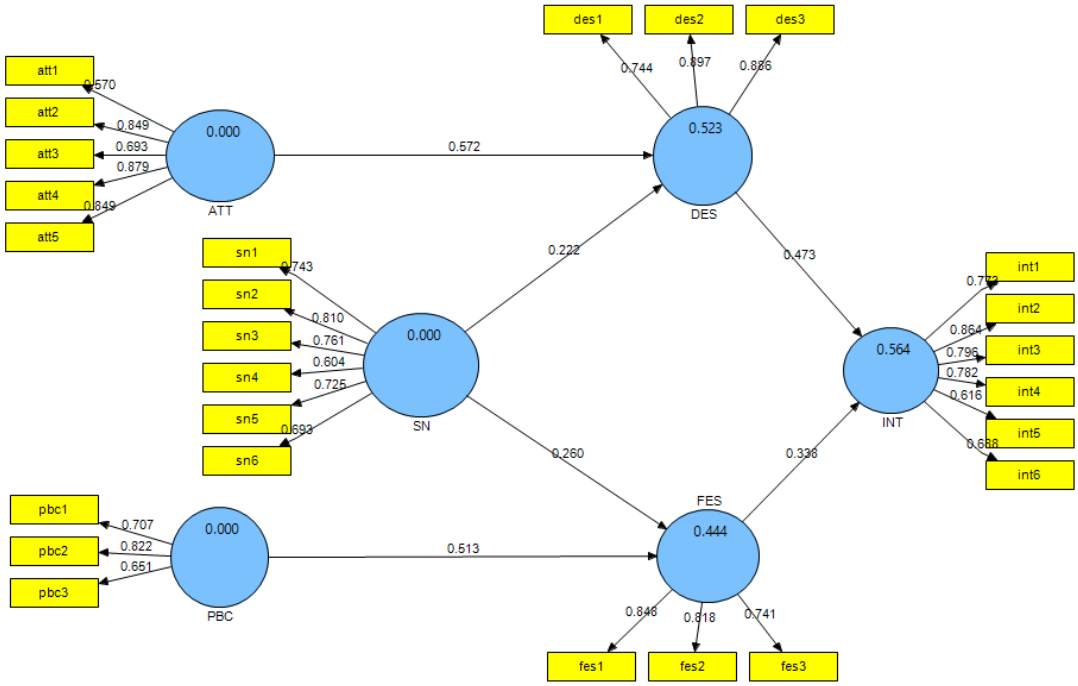


**Figure 3.1The Measurement Model**

**Table 3.2: Result of the Measurement Model**

| Construct | Item | Convergent validity | | |
|---|---|---|---|---|
| | | Factor loading | AVE | Composite reliability |
| Attitude | att1 | 0.570 | 0.603 | 0.881 |
| | att2 | 0.849 | | |
| | att3 | 0.693 | | |
| | att4 | 0.879 | | |
| | att5 | 0.879 | | |
| Perceived behaviour control | pbc1 | 0.707 | 0.532 | 0.772 |
| | pbc2 | 0.822 | | |
| | pbc3 | 0.651 | | |
| Subjective norm | sn1 | 0.743 | 0.526 | 0.868 |
| | sn2 | 0.810 | | |

| | | | | |
|---|---|---|---|---|
| | sn3 | 0.761 | | |
| | sn4 | 0.604 | | |
| | sn5 | 0.725 | | |
| | sn6 | 0.693 | | |
| Desirability | des1 | 0.744 | 0.714 | 0.881 |
| | des2 | 0.897 | | |
| | des3 | 0.886 | | |
| Feasibility | fes1 | 0.848 | 0.645 | 0.844 |
| | fes2 | 0.818 | | |
| | fes3 | 0.741 | | |
| Intention | int1 | 0.773 | 0.573 | 0.888 |
| | int2 | 0.864 | | |
| | int3 | 0.796 | | |
| | int4 | 0.782 | | |
| | int5 | 0.616 | | |
| | int6 | 0.688 | | |

common (Hair et al. 2010). According to Hair et al. (2010), factor loadings and average variance extracted (AVE) of more than 0.5 and composite reliability (CR) of 0.7 or above is deemed to be acceptable. As can be seen from Table 3.2, all loadings and AVE are above 0.5 and the composite reliability values are more than 0.7. Therefore, we can conclude that convergent validity has been established.

Next, we assessed the discriminate validity which is the extent to which a construct is truly distinct from other constructs (Hair et al. 2010). This can be established by the low correlations between all the measure of the interest and the measure of other constructs. To address discriminate validity, the square root of the AVE is compared against the correlations of the other constructs, when the AVE extracted is greater than its correlations with all the other constructs then discriminate validity has been established (Fornell and Larcker 1981) (refer Table 3.3).

**Table 3.3: Discriminate Validity of Constructs**

| Constructs | ATT | DES | FES | INT | PBC | SN |
|---|---|---|---|---|---|---|
| ATT | **0.777** | | | | | |
| DES | 0.700 | **0.845** | | | | |
| FES | 0.598 | 0.707 | **0.803** | | | |
| INT | 0.714 | 0.712 | 0.672 | **0.757** | | |
| PBC | 0.595 | 0.486 | 0.623 | 0.584 | **0.729** | |
| SN | 0.581 | 0.553 | 0.477 | 0.647 | 0.423 | **0.725** |

Note: Diagonal represents the square root of Average Variance Extracted (AVE) while the other entries represent squared correlations.

### 3.6 Structural model

The structural model represents the relationship between constructs or latent variables that were hypothesized in the research model. The goodness of the theoretical model is established by the variance explained (R2) of the endogenous constructs and the significance of all path estimates (Chin 2010). Together the R2 and the path coefficients indicate how well the data support the hypothesized model (Chin 1998). Figure 3.2 and Table 3.3, shows the results of the structural model from the PLS output. ATT was found to be significantly related to DES ($\beta = 0.571$, $p<0.01$) thus supporting H1 of this study. SN was found to be significantly related to DES ($\beta = 0.221$, $p<0.01$) hence supporting H2. Again SN was found to be significantly related to FES ($\beta = 0.260$, $p<0.01$) thus supporting H3. PBC was found to be significantly related to FES ($\beta = 0.513$, $p<0.01$) thus supporting H4. Further, both DES ($\beta = 0.473$, $p<0.01$) and FES ($\beta = 0.337$, $p<0.01$) were significantly related to INT, explaining 56.4 % of the variance therefore supports the H5 and H6.

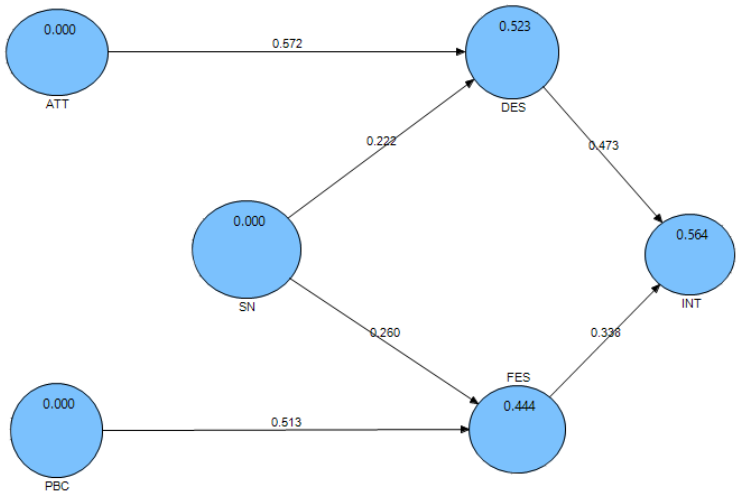


**Figure 3.2: The structural model**

**Table 3.3: Summary of the Structural Model**

| Path | Hypotheses | Path coefficient | T Statistics (\|O/STERR\|) | Decision |
|---|---|---|---|---|
| ATT -> DES | H1 | 0.571 | 7.483 | Supported |
| DES -> INT | H5 | 0.473 | 4.171 | Supported |
| FES -> INT | H6 | 0.337 | 3.074 | Supported |
| PBC -> FES | H4 | 0.513 | 6.123 | Supported |
| SN -> DES | H2 | 0.221 | 2.726 | Supported |
| SN -> FES | H3 | 0.260 | 3.195 | Supported |

# CHAPTER 4

# RESULTS AND DISCUSSION

## 4.1 Results and Discussion

To address attitudinal and resource barriers to entrepreneur, some universities are investigating about the necessity of entrepreneur courses in their modules, which seek to raise the expectations of students, and provide students with a realistic perspective relating to the commitment and resources required to pursue a career as entrepreneur. Entrepreneur modules have a role in encouraging more students to believe that being an entrepreneur is attractive and possible. Modules have a role in promoting a positive attitude toward entrepreneurship, especially, thyself-belief that a career in own business would provide benefits and satisfaction, the belief that they would be supported by their similarity groups (i.e. subjective norm), and they would able to control their destinies as entrepreneurs (i.e. perceived behavioral control).

A novel contribution of this study was the testing of two theories to “explain” the formation of entrepreneurial intentions. SEM was used to explore the causal links between factors discussed in EET, and the causal links between factors discussed in the TPB. A further novel contribution of this study was the testing of an ICM. Direct and indirect effects between factors and the intention to become an entrepreneur were considered.

Models relating to EET, the TPB and the ICM explained 40 per cent, 55 per cent and60 per cent of the variance in the entrepreneurial intention dependent variable, respectively. Students reporting higher levels of perceived desirability, perceived feasibility, attitude toward the behavior (i.e. entrepreneur) and perceived behavioral control were more likely to report the formation of entrepreneurial intentions. No significant negative interaction effect between

perceived desirability and perceived feasibility was detected. Unlike Fitzsimmons and Douglas (2011) with regard to IT students, we did not find evidence that suggests undergraduate students with lower levels of perceived desirability still reported entrepreneurial intentions if they perceived themselves as having sufficient perceived feasibility to do so. Most undergraduate students with no prior self-employment and work experience cannot leverage the knowledge accumulated, for example by IT students, to address resource and legitimacy barriers to enterprise formation. Enterprise models have a role in reducing attitudinal barriers to enterprise, and the accumulation of skills required for careers in entrepreneurship. The formation of entrepreneurial intentions in more students could be increased if enterprise teaching also seeks to nurture higher levels of attitude toward the behavior (i.e. entrepreneur), and higher levels of perceived behavioral control.

Initiatives that encourage student enterprise need to be monitored. This study monitored students in a single city (Dhaka). Presented results can be generalized to the Bangladesh and comparable transition economies. Studies conducted in other cultural, national and institutional contexts will insights relating to the generalizability of the findings presented. Additional research is warranted to explore the linkage between the delivery mode, nature and content of enterprise teaching and the formation of entrepreneurial intentions by participants. Longitudinal studies that monitor large cohorts of students over time which also consider local and family contexts will provide additional insights. Despite concern that the factors explored in previous studies are inter-related with one another, we found that the five operationalised factors were distinct, valid and reliable. Nevertheless, additional work is warranted to improve the validity and reliability of presented factors. Direct and interaction effects between factors need to be considered in several national contexts with regard to large and representative samples of students taking and not taking enterprise modules, as well as a sample of people drawn from the general population. A broader array of themes that can

shape an individual's career options (i.e. attitudes to risk, economic thresholds, etc.) need to be considered in future studies. Longitudinal studies using sophisticated SEM techniques should, in addition, explore the links between factors relating to EET and TPB and the subsequent "quality" of the businesses established with regard to economic, societal and environmental performance indicators.

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# APPENDIX

# ALUMINI DATA

### 1.1 Alumni Data of IT graduates from University A

| SN | Department | Designation |
|---|---|---|
| **1** | **CSE** | System Administrator |
| **2** | **CSE** | IT Consultant |
| **3** | **CSE** | Senior Lead System Administrator |
| **4** | **CSE** | UI Designer |
| **5** | **CSE** | IT Officer |
| **6** | **CSE** | Technical Lead and Senior Software Engineer |
| **7** | **CSE** | Senior IT Officer |
| **8** | **CSE** | Systems Specialist |
| **9** | **CSE** | System, Network & IT Solution Professional |
| **10** | **CSE** | Manager IT |
| **11** | **CSE** | Executive, Network & System |
| **12** | **CSE** | Web Developer |
| **13** | **CSE** | PHP Developer |
| **14** | **CSE** | Web Developer |
| **15** | **CSE** | System Administrator & Assistant Programmer |
| **16** | **CSE** | Assistant Manager |
| **17** | **CSE** | Application Developer |
| **18** | **CSE** | Asst.Manager& In-charge,IT |
| **19** | **CSE** | System Analyst |
| **20** | **CSE** | Senior Officer |
| **21** | **CSE** | Network & Security Administrator |
| **22** | **CSE** | Technical Coordinator - System Integration |
| **23** | **CSE** | IT Manager |
| **24** | **CSE** | Web Developer |
| **25** | **CSE** | Software Engineering Senior Analyst |
| **26** | **CSE** | Freelance Web Applications Developer |
| **27** | **CSE** | Manager IT |
| **28** | **CSE** | Manager IT |
| **29** | **CSE** | Assistant Manager& IT |
| **30** | **CSE** | System Administrator |

| | | |
|---|---|---|
| **31** | **CSE** | Junior System Analyst |
| **32** | **CSE** | IT officer |
| **33** | **CSE** | **Managing Director** |
| **34** | **CSE** | Officer IT |
| **35** | **CSE** | Network Engineer |
| **36** | **CSE** | Associate IT Security Specialist |
| **37** | **CSE** | Technology Specialist |
| **38** | **CSE** | Executive, IT |
| **39** | **CSE** | IT Support Engineer |
| **40** | **CSE** | Project Manager & Sr. Programmer |
| **41** | **CSE** | Senior Officer (IT) |
| **42** | **CSE** | Database Administrator |
| **43** | **CSE** | IT Officer |
| **44** | **CSE** | e Commerce |
| **45** | **CSE** | IT Manager |
| **46** | **CSE** | Software Developer |
| **47** | **CSE** | SEO Manager |
| **48** | **CSE** | Associate Web Developer |
| **49** | **CSE** | Web Developer |
| **50** | **CSE** | Infrastructure Associate |
| **51** | **CSE** | IT Executive |
| **52** | **CSE** | Content Developer |
| **53** | **CSE** | Executive Officer,IT |
| **54** | **CSE** | Network Engineer |
| **55** | **CSE** | Web Developer |
| **56** | **CSE** | Infrastructure Associate |
| **57** | **CSE** | SEO Analyst |
| **58** | **CSE** | MIS Executive & Application Developers |
| **59** | **CSE** | Web Developer |
| **60** | **CSE** | CEO & Founder |
| **61** | **CSE** | Web Programmer |
| **62** | **CSE** | **Founder & CEO** |
| **63** | **CSE** | Lead of ERP Development |
| **64** | **CSE** | Officer, MIS |
| **65** | **CSE** | Sr. Programmer Analyst (Project Manager) |
| **66** | **CSE** | Officer, IT |
| **67** | **CSE** | Executive Officer |
| **68** | **CSE** | Web Developer |
| **69** | **CSE** | Junior Officer |
| **70** | **CSE** | Sr. Executive |
| **71** | **CSE** | Senior Programmer & Project Manager |
| **72** | **CSE** | UX Engineer |
| **73** | **CSE** | Android Apps Developer |
| **74** | **CSE** | Web Developer |
| **75** | **CSE** | **Founder and Developer** |
| **76** | **CSE** | Trainee Web Developer |
| **77** | **CSE** | Network Engineer |
| **78** | **CSE** | Web Developer |

| | | |
|---|---|---|
| **79** | **CSE** | Web Application Developer |
| **80** | **CSE** | IT Executive |
| **81** | **CSE** | Web Development |
| **82** | **CSE** | Web-Programmer |
| **83** | **CSE** | Front-End web developer |
| **84** | **CSE** | Web developer |
| **85** | **CSE** | Jr. System Analyst |
| **86** | **CSE** | Trainee-MIS |
| **87** | **CSE** | Web Developer |
| **88** | **CSE** | IT Officer |
| **89** | **CSE** | IT ADMINISTRATOR |
| **90** | **CSE** | Web Developer |
| **91** | **CSE** | Web Developer |
| **92** | **CSE** | Software Designer |
| **93** | **CSE** | IT Administrator |
| **94** | **CSE** | Network Engineer |
| **95** | **CSE** | Freelancer |
| **96** | **CSE** | Freelancer |
| **97** | **CSE** | IT Attendant |
| **98** | **CSE** | Data Entry Operator |
| **99** | **CSE** | **Asst. Director** |
| **100** | **CSE** | Software Developer ( Senior Officer, IT |
| **101** | **CSE** | IT Officer |
| **102** | **CSE** | Web Developer |
| **103** | **CSE** | UI/UX Developer |
| **104** | **CIS** | course Instructor |
| **105** | **CIS** | System Administrator |
| **106** | **CIS** | CTO |
| **107** | **CIS** | Asst. Manager, IT |
| **108** | **CIS** | System Administrator (IT) |
| **109** | **CIS** | **Director** |
| **110** | **CIS** | Freelance Web Programmer |
| **111** | **CIS** | Database Administrator & SQL Developer |
| **112** | **CIS** | Systems Manager & Website Administrator |
| **113** | **CIS** | IT In charge |
| **114** | **CIS** | Technical Trainee |
| **115** | **CIS** | Programmer |
| **116** | **CIS** | IT Consultant |
| **117** | **CIS** | Associate Manager, |
| **118** | **CIS** | Analyst Programmer cum DBA |
| **119** | **CIS** | Creative Head |
| **120** | **CIS** | SEO & Manager, Network & System Specialist |
| **121** | **CIS** | Assistant Officer |
| **122** | **CIS** | MIS Officer |
| **123** | **CIS** | System Analyst |
| **124** | **CIS** | Executive IT |
| **125** | **CIS** | Programmer |

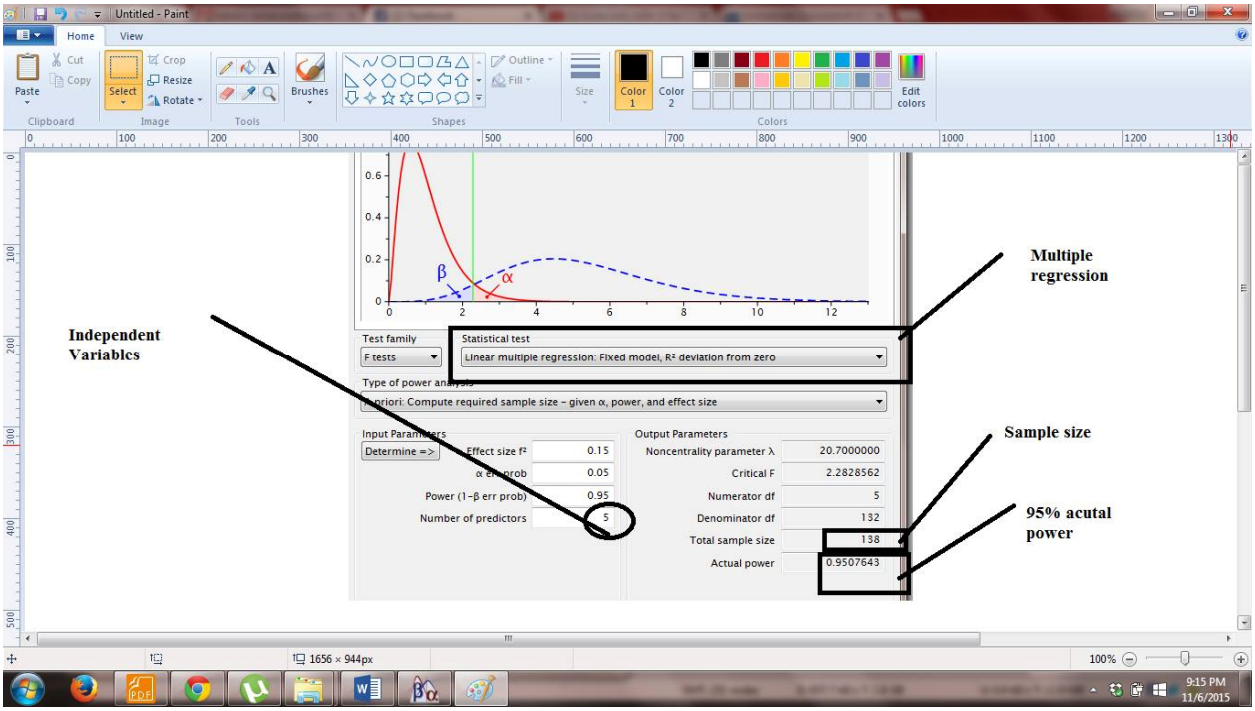
| | | |
|---|---|---|
| **126** | **CIS** | Network & Security Administrator |
| **127** | **CIS** | Technical Coordinator - System Integration |
| **128** | **CIS** | IT Manager |
| **129** | **CIS** | Senior Engineer & In-Charge(NOC) |
| **130** | **CIS** | Infrastructure Sr.Analyst |
| **131** | **CIS** | Asst.Manager& IT Head |
| **132** | **CIS** | Senior Executive(Technology) |
| **134** | **CIS** | Web Developer - Word press \|\| E-Commerce |
| **135** | **CIS** | Network Infrastructure & Data Centre Operation |
| **136** | **CIS** | System Administrator |
| **137** | **CIS** | Sr. Engineer |
| **138** | **CIS** | Software Support Assistant |
| **139** | **CIS** | Programmer |
| **140** | **CIS** | Software Engineer |
| **141** | **CIS** | IT Officer |
| **142** | **CIS** | Systems Operation Administrator |
| **143** | **CIS** | User interface designer |
| **144** | **CIS** | **Founder & CEO** |
| **145** | **CIS** | IT & ERP Software Engineer |
| **146** | **CIS** | IT Cord Engineer |
| **147** | **CIS** | Service Engineer Network Solution |
| **148** | **CIS** | Executive Officer |
| **149** | **CIS** | **Managing Director** |

**1.2 Alumni Data of IT graduates from University B**

| SN | Department | Designation |
|---|---|---|
| 1 | **BCSE** | IFS consultant |
| 2 | **BCSE** | Wed Developer |
| 3 | **BCSE** | Junior Programmer |
| 4 | **BCSE** | IT consultant |
| 5 | **BCSE** | Civil Engineer |
| 6 | **BCSE** | Senior Officer(Computer) |
| 7 | **BCSE** | Executive Officer-IT |
| 8 | **BCSE** | Programmer |
| 9 | **BCSE** | Assistant Teacher(Computer) |
| 10 | **BCSE** | IT Executive |
| 11 | **BCSE** | Associate BI and Database Analyst |
| 12 | **BCSE** | System Support Officer |
| 13 | **BCSE** | IT-Executive |
| 14 | **BCSE** | Web Developer |
| 15 | **BCSE** | **CEO** |
| 16 | **BCSE** | **Chairman** |
| 17 | **BCSE** | CTO |
| 18 | **BCSE** | Executive Web Application |
| 19 | **BCSE** | officer |

| | | |
|---|---|---|
| 20 | **BCSE** | Project Manager |
| 21 | **BCSE** | ICT support |
| 22 | **BCSE** | Officer, Global Automation |
| 23 | **BCSE** | Executive Web Application Developer |
| 24 | **BCSE** | Web Developer |
| 25 | **BCSE** | Software Engineering Senior Analyst |
| 26 | **BCSE** | Web developer |
| 27 | **BCSE** | Manager IT |
| 28 | **BCSE** | Manager IT Support |
| 29 | **BCSE** | Software developer. |
| 30 | **BCSE** | System Administrator |
| 31 | **BCSE** | Web developer |
| 32 | **BCSE** | IT officer |
| 33 | **BCSE** | **Managing Director** |
| 34 | **BCSE** | Officer IT |
| 35 | **BCSE** | Network Engineer |
| 36 | **BCSE** | **CEO** |
| 37 | **BCSE** | Technology Specialist |
| 38 | **BCSE** | Executive IT |
| 39 | **BCSE** | Part time lecturer |
| 40 | **BCSE** | Project Manager & Sr. Programmer |

## 2 G* power Calculation



## 3 Research Questionnaire

| | | |
|---|---|---|
| Name | | |
| Age | | |
| Admission Year | | |
| Current Semester | | |
| Gender | ☐ Male | ☐ Female |
| Are your parents businessmen? | ☐ Yes | ☐ No |
| Do you prefer entrepreneur course in your course curriculum? | ☐ Yes | ☐ No |

| Strongly Disagree | Disagree | Moderately agree | Agree | Strongly Agree |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

| | Intention | | | | | |
|---|---|---|---|---|---|---|
| L1 | I am ready to do anything to be an entrepreneur | | | | | |
| L2 | My professional goal is to become an entrepreneur | | | | | |
| L3 | I am determined to create a business venture in the future | | | | | |
| L4 | I have very seriously thought about starting a software firm | | | | | |
| L5 | I have got the intention to start a firm one day | | | | | |
| L6 | I intend to start a firm within five years of graduation | | | | | |
| | Subjective Norm | | | | | |
| SN1 | My closest family members think that I should pursue a career as an entrepreneur | | | | | |
| SN2 | My closest friends think that I should pursue a career as an Entrepreneur | | | | | |
| SN3 | People that are important to me think that I should pursue a career as an entrepreneur | | | | | |
| SN4 | To what extent do you care about what your closest family members think as you decide on whether or not to pursue a career as self-employed? | | | | | |
| SN5 | To what extent do you care about what your closest friends think as you decide on whether or not to pursue a career as self-employed? | | | | | |
| SN6 | To what extent do you care about what people important to you think as you decide on whether or not to pursue a career as self-employed? | | | | | |
| | Attitude | | | | | |
| ATT1 | Being an entrepreneur implies more advantages than disadvantages to me | | | | | |
| ATT2 | A career as an entrepreneur is attractive for me | | | | | |
| ATT3 | If I had the opportunity and resources, I would love to start a business | | | | | |
| ATT4 | Being an entrepreneur would give me great satisfaction | | | | | |
| ATT5 | Among various options, I would rather be an entrepreneur | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Perceived Behavioural Control | | | | | |
| PBC1 | If I wanted to, I could easily become an entrepreneur | | | | | |
| PBC2 | As an entrepreneur I would have sufficient control over my business | | | | | |
| PBC3 | It is entirely up to me whether or not I become an entrepreneur | | | | | |
| | Desirability | | | | | |
| DES1 | It is desirable for me to become an entrepreneur | | | | | |
| DES2 | It is interesting for me to become an entrepreneur | | | | | |
| DES3 | It is attractive for me to become an entrepreneur | | | | | |
| | Feasibility | | | | | |
| FES1 | It is feasible for me to become an entrepreneur | | | | | |
| FES2 | Becoming an entrepreneur is a realistic option for me | | | | | |
| FES3 | Starting my own business would be possible for me | | | | | |
| EM1 | Most people consider investing in their own small or medium sized enterprise and its management a desirable career choice | | | | | |
| EM2 | Most people start their own business, because they want to be free and independent | | | | | |
| EM3 | Most people start their own business, because they have good ideas and want to realize them | | | | | |
| EM4 | Most people start their own business to be better off financially | | | | | |
| EM5 | Most people start their own business, because they want to be successful | | | | | |