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The impact of various entrepreneurial interventions during the business plan competition on the entrepreneur identity aspirations of participants

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Abstract

We intend to see how interventions during a business plan competition workshop impact the relationship between the personality, intellectual capital, entrepreneurial skills of the participants and their entrepreneur identity aspiration. INVENT is a nation-wide business plan competition in which university students from all over Pakistan (around 3000) participate. This is a 5 month process which involves a lot of training and mentoring during the various rounds. The interventions to promote entrepreneurship take place in the form of lectures, workshops, case studies, and mentoring sessions. The survey was conducted in two phases; the baseline survey was conducted during the initial workshops and the second survey was conducted towards the end of the competition and finals. In this paper, we evaluate the results of the baseline survey conducted during the initial workshops. To test the model, the constructs of entrepreneurial personality, intellectual capital, entrepreneurial skills and business program inputs were validated followed by factor analysis and structural equation modeling. We found out that the entrepreneurial interventions carried out in the workshops led to positive relationships between the variables and had a positive impact on the Entrepreneur Identity Aspiration of the participants.

Keywords: INVENT, Entrepreneur identity aspiration, Intellectual capital, Entrepreneurial skills, Structural equation modelling

Background

Having become the most potent economic force the world has ever experienced over the last two decades (Kuratko, 2005), the importance of Entrepreneurship cannot be overemphasized in today's time. Entrepreneurship is no longer a buzz word referring to exclusive businesses that cater to niche markets. It is now a term that has evolved and is now being used widely; Entrepreneurship departments within many universities and dedicated Entrepreneurship institutes have been set up to teach and promote entrepreneurship even in a developing country like Pakistan.

The trait theory of entrepreneurship like the trait theory of leadership states that entrepreneurs have certain innate traits that make them capable of coming up with innovative ideas and putting them into fruition. And therefore, just like the premise that

"leaders are born and not made" according to some, it is stated that entrepreneurs are born. This begs the question then that can entrepreneurship be taught?

Although debate continues whether entrepreneurship can be taught, literature suggests that entrepreneurship education does lead to an increase in the students' desirability of becoming self-employed individuals in the future (Leitch et al. 2012). Authors suggest that entrepreneurship can be taught and that entrepreneurship education increases the chances of success of the startups (Metcalfe 2013). Entrepreneurship education is widely being implemented in primary as well as secondary schools and institutes of higher education in order to impart the skills and the knowledge required for students of all ages to start-up their ventures.

Business plan competitions act as entrepreneurship support programs and provide a platform to the participants to enhance their entrepreneurial skill sets and increase their self-confidence (Russell et al. 2008). It is through these business plan competitions where the participants are provided with a real-life environment where they explore their ideas in detail. The exploration and discovery of business ideas take place and teams thoroughly work on their ideas, going through the nitty-gritties, the financials, and the practicalities of their products. They then enter the exploitation phase through developing stereotypes and test marketing their products to small samples of the population, mostly within their circles.

Entrepreneurship support programs such as business plan competitions enhance the desire within the students to become businessmen some day in the future (Russell et al. 2008). Business plan competitions are an effective way of incentivizing the participants to work on their ideas, and help in igniting the entrepreneurial spirit within them. In this paper therefore we intend to see how various entrepreneurial interventions carried out during a business plan competition helped in motivating the participants to start their own ventures in the future.

Furthermore, the literature is divided in terms of whether it is personal dispositions (Collins et al. 2004) and family background (Scherer et al. 1989), or situational and contextual elements ((Di Gregorio and Shane 2003); (Louis 1989); (Souitaris 2007)) that make a person entrepreneurial; with some authors just focusing on individual level factors while others just focusing on organizational-level factors. There is a dearth of literature that combines the two together to see how both the individual characteristics and situational factors impact an individual's entrepreneurial behavior (Walter et al. 2013). Through this paper therefore we also wish to address this issue and gauge how the combined effect of both the individual level factors and the collective or contextual elements play their role in shaping up the aspiration of a person to become an entrepreneur in the future.

In this paper we intend to see the impact of imparting basic entrepreneurial knowledge to students taking part in a business plan competition and measuring how that impacted their Entrepreneur Identity Aspiration. Entrepreneur Identity Aspiration is a term that we use in this paper to define the willingness of the individuals to become entrepreneurs in the future. We intend to find out how the business program inputs impact the psychological characteristics and the intellectual capital of the individual, and then how all of these factors combine to impact the entrepreneurial skills which ultimately impact the identity aspiration of the individual to become an entrepreneur.

The main variable of interest and the ultimate dependent variable is the Entrepreneur Identity Aspiration – the extent to which an individual aspires or longs to become an entrepreneur in the future. Aspiration or longings shape the behaviors of individuals in such a way that they develop their personality and work hard to achieve that desired state (Farmer et al. 2011). Thus, a high Entrepreneur Identity Aspiration would signify in most cases that the individual would ponder deeply and work towards becoming an entrepreneur shaping his personality and affecting his behavior in such a way.

This paper talks about how one day workshops in a national level business plan competition in Pakistan impacted the Entrepreneur Identity Aspiration of the participants, i.e., how much the participants were willing to work on their own ventures in the future. This one day workshop was a focused workshop that was conducted in universities within major cities of all the 4 provinces of the country. In the workshop, the participants were taught regarding the various definitions of entrepreneurship, the traits required to be an entrepreneur, case studies of entrepreneurial ventures were discussed, and the entrepreneurial process was discussed with the participants detailing how an entrepreneurial firm differed from a corporation. It was hypothesized that these would have a positive impact on our variable of outcome, i.e., Entrepreneur Identity Aspiration.

This paper was prepared in order to see how such entrepreneurial interventions, as already mentioned, would impact the entrepreneurial aspiration of the participants in a business plan competition. The purpose of the paper is to highlight the importance of entrepreneurial interventions during a business plan competition in incentivizing the students to start their entrepreneurial ventures in the near or distant future. Similar interventions can be incorporated at other universities in either business plan competitions or otherwise in order to increase the motivation among students to become entrepreneurs in the future.

The rest of the paper is organized as follows. We begin with the development of a theoretical framework by reviewing relevant literature in order to define the various constructs that we have used in the paper. We then present the research model and state the hypotheses to be tested. After that, the business plan competition itself is briefly discussed and the interventions that were carried out in the workshops are touched upon. Subsequently, we discuss the research methods employed in the paper including the sample size and measurements. The results of the research are provided thereafter. The key findings are then discussed in relation to existing and related studies in the discussion section. Finally we come up with the policy recommendations in the conclusion section and discuss some of the limitations of the study and propose avenues for future research.

Theoretical framework

This study develops an integrative conceptual framework that discovers the relationship between various factors and entrepreneurial skills leading to the main variable - entrepreneur identity aspiration. A model is developed that creates linkages between business plan exploration, psychological characteristics, intellectual capital, entrepreneurial skills and the ultimate output variable, Entrepreneur Identity aspiration.

The model starts with the business plan exploration variable impacting the psychological characteristics and the intellectual capital (second-order construct) of the individual. All these variables then influence the entrepreneurial skills (second-order construct) which ultimately lead the individual to develop an aspiration to become an entrepreneur sometime in the future. Below, we explain each of the variables in detail.

Business plan exploration

Business plan competitions are primarily conducted in order to give the participants the incentive to work on new venture creation and to generate new and unique ideas via the talents and skills of the individuals in the community (Russell et al. 2008). One of the major purposes of business plan competitions is to "foster skill development in business planning and entrepreneurial activity within the university and the broader community" (Russell et al. 2008, p. 129). Gaining practical experience is considered one of the most attractive factors of business plan competitions (Merenda et al. 2013) while practical skill development and opportunity to win prize money are also considered lucrative options.

Exploration refers to "the initial conception and further development of a venture idea" (Farmer et al. 2011, p. 255). Exploration is different from exploitation where the latter is carried out only after the discovery of the idea and carrying out the requirements of starting up a business. Thus, business plan exploration refers to how thoroughly the participants of the business plan competition worked upon their ideas – how thoroughly they worked on the financials of the business, the technical aspect of the prototype, the market for such a product, opinions of potential customers/relatives/friends, and the practicality of the product among other things.

Despite the returns linked to exploration being more variable and distant (He and Wong 2004), Koch (2003) found out that 30 % of the business plans actually resulted in the formation of a company. Half of the teams in a business plan competition launched their ventures each year, whereas 80 % of the ventures that initiated from another business plan competition over a period of 15 years were still in business (Roldan et al. 2005).

Intellectual capital

Intellectual Capital is defined as "the knowledge and knowing capability of a social collectivity such as an organization, intellectual community, or professional practice" (Nahapiet and Ghoshal 1998, p. 245). It is the knowledge that can be transformed into something of value for the company (Edvinsson and Sullivan 1996). Brooking (1996) defined Intellectual Capital (IC) as the aggregation of all the intangible assets that enable a company to function. IC is not just a static intangible asset, rather it is an ideological process through which mere information is converted effectively into beneficial knowledge (Bontis 1998).

IC can be simply classified into human capital and structural capital; where structural capital is further broken down into organizational capital, and relational capital (Andrikopoulos 2009). We employ organizational and relational capital components of structural capital in our questionnaire to measure IC of the participants.

Entrepreneurial skills

Individual competencies or skills can be divided into 2 main types, namely 1) general people and organization competencies that can be combined as managerial skill (oral presentation skill, decision-making ability, conceptualization ability, diagnostic use of

concepts, and use of power) and 2) specific competencies (technical skill and industry skill); opportunity recognition is deemed to be another important entrepreneurial skill under the category of general skills (Baum et al. 2001).

Entrepreneurial skills may also be divided into 3 categories including technical skills, business management skills, and personal entrepreneurial skills. Technical skills include skills in techniques such as written and oral communication skills, technical management and organizing skills; business management skills include managerial skills such as planning, organizing, etc. Personal skills include risk taking, innovation, and persistence (Elmuti et al. 2012). Although no two entrepreneurs are exactly the same, they share the entrepreneurial skill sets and risk taking abilities.

Oosterbeek et al. (2010) use market awareness, creativity and flexibility as variables that define entrepreneurial skills and state that skills differ from traits in that skills can be acquired and improved through different programs and therefore can change over time. In our paper, we use search/creativity, planning/management, marshalling, ambiguity, and financial knowledge to define the term entrepreneurial skills.

Psychological characteristics

The psychological characteristics that define an entrepreneur, according to literature, include self-confidence, risk-taking propensity, locus of control, need for achievement, tolerance to ambiguity and innovativeness (Rodrigues et al. 2012). Gartner (1989) states that entrepreneurship related phenomena cannot be sufficiently explained only through the psychological approach. Although, psychological and demographic variables are used along with behavioral indicators in order to determine the entrepreneurial intentions of the individuals (Rodrigues et al. 2012).

Although different authors use different variables to identify the psychological characteristics of the entrepreneur (Do Paco et al. 2011), we include the ones incorporated by Rodrigues et al. (2012) in our paper to identify the same.

Entrepreneur identity aspiration

Literature has fallen short in identifying how entrepreneur identities come into being; therefore the term 'Entrepreneur Identity Aspiration' is used to gauge how strongly a person desires to see himself/herself as an entrepreneur in the future (Farmer et al. 2011). This term is particularly important because the desire then shapes the actions and behaviors of the individuals to ultimately become an entrepreneur.

Entrepreneurial intention is widely used in literature as one of the best means to predict entrepreneurial activities ((Krueger and Carsrud 1993); (Ajzen 1991)). Entrepreneurial intention drives the person to engage in business behavior (Kolvereid 1996). Although Entrepreneurial Intention is a good means of measuring the intention to start a venture, we use the term Entrepreneur Identity Aspiration, as used by (Farmer et al. 2011), because it is more holistic and therefore we give it precedence over EI.

Aspirations represent longings and ambitions and therefore something that is desired shapes the behavior and actions of the individuals in such a way that they persevere and strive to reach that possible self (Farmer et al. 2011). The desire to become a certain kind of a person influences the behavior and actions in such a way so as to achieve it ((Cross and Markus 1994); (Markus and Nurius 1987); (Oyserman et al. 2006); (van Dellen and Hoyle 2008)). Despite work being done on possible selves (Markus and Nurius 1986), there is not much work done on possible selves with regards to entrepreneurship.

Burke and Reitzes (1981) state that "… individuals are motivated to formulate plans and achieve levels of performance or activity that reinforce, support, and confirm their identities" (pg. 84). Thus identities play a key role in shaping the attitudes and behaviors of the individuals. Identity provides the individual with a blueprint according to which the individual studies his or her actions or potential actions ((Foote 1951); (Rosenberg 1979); (Wells 1978)). Thus entrepreneur identity aspiration is preferred over the traditional entrepreneurial intention variable.

Research model and hypothesis

The model for our study is presented in Fig. 1. The hypotheses to be tested are also displayed in the model.

Hypotheses generated from the model

Business plan competitions provide a platform to the participants to work on their ideas, present them to the audience, get mentorship and feedback from experts, and network with others. Those who work on their ideas and develop the financials for the business apart from evaluating the practicality of the product are in a better position as compared to someone else who does not do so and therefore experience increased self-confidence.

The challenges posed throughout the business plan competitions provide newer insights to the participants and increase their knowledge and experience (Bell 2010). The feedback and the advice that the students receive from the experts helps the students generate newer ideas (Race 2007). Social business plans were found "…to compliment the pre-existing knowledge, interests, and ambitions of students" (Kwong et al. 2012, p. 341).

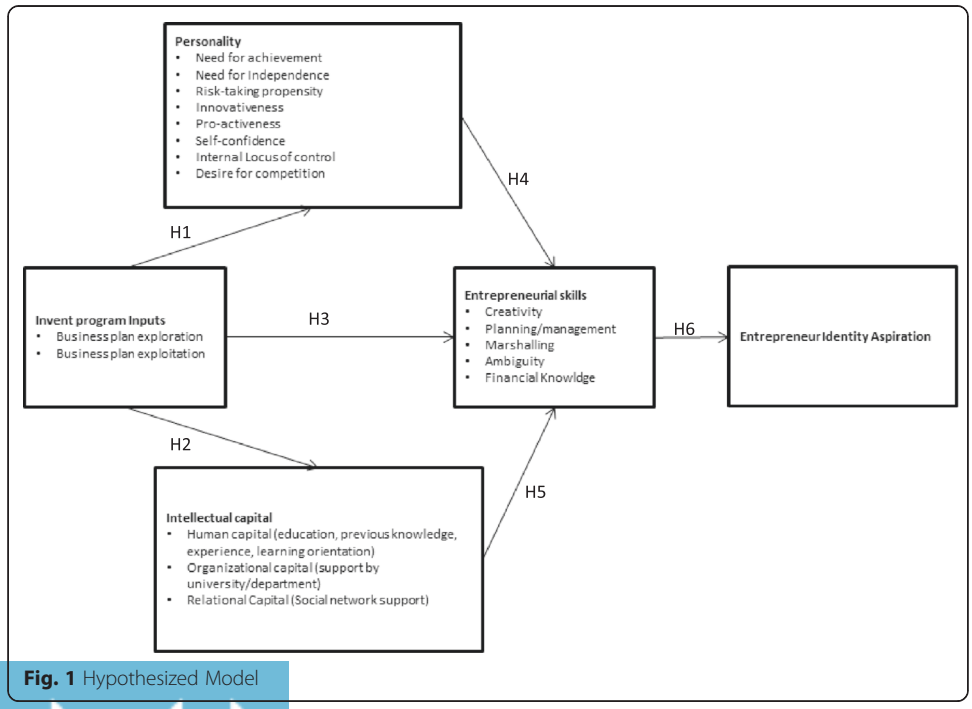

Fig. 1 Hypothesized Model

Those who thoroughly work on their business plans develop an intrinsic motivation to work on it and develop an internal locus of control where they are able to attribute what they do to their efforts and hard work rather than on external factors. They are more pro-active and are able to introduce new dimensions and innovate.

H1: A thorough business plan exploration results in enhanced psychological characteristics required to become an entrepreneur

We assume that someone who has thoroughly worked upon the business idea is likely to demonstrate greater entrepreneurial characteristics than the one who hasn't.

A study that investigated the impact of business plan competitions in Australia found, among other factors, that the competition provided the participants with valuable networks (Russell et al. 2004). Mentoring sessions in business plan competitions provide the participants with various benefits including but not limited to advice and feedback, scholarly sounding boards, and networking with experts (Clutterbuck and Megginson 2004). Furthermore, mentors add to the knowledge bank to the participants and provide them with a different perspective to view things (Boud 2001).

Participants in a business plan are driven by competition and are motivated to win the prize money offered, thus they use the various channels available to them in order to develop better business plans. They therefore network with professionals and people with expertise in order to improve the product and get a better insight. They also take this conscious step to learn more about the product, the market, the potential customers, the competitors, etc. This may also involve attending workshops, enrolling in specialized courses, etc.

H2: A thorough business plan exploration results in improved intellectual capital

A person who has explored the business idea in great detail and scrutiny is also likely to get a greater support from friends, family, and his/her institution as he/she thoroughly knows what to do and how to do it.

Although the primary purpose of business plan competitions is to increase the number of startups, they also lead to improving the entrepreneurial skills of the participants (Russell et al. 2008). Individuals and teams that work thoroughly on their business plans and explore it in detail are less ambiguous, have an in-depth understanding of the financials of the business, and are better able to plan how to bring the business into existence and how to manage the resources.

H3: A thorough business plan exploration improves the entrepreneurial skills of the individual

Furthermore, someone who thoroughly researched and worked upon his/her business plan is also more likely to plan and manage appropriately, and be ready for unexpected challenges and devise alternate plans thereupon leading to higher entrepreneurial skills.

Although researchers concluded that the study of the psychological characteristics of entrepreneurs was not very fruitful (Gartner 1989), Locke (2000) and Yukl

(1989) found passion and tenacity to be one of the most relevant factors in terms of describing leadership and in support of the entrepreneurial theory. Smilor (1997) considers passion to be "the most observed phenomenon of the entrepreneurial process" (p. 342). Passion is what motivates entrepreneurs to overcome uncertainty and shortage of resources (Timmons 2000). Variables defining entrepreneurial traits, skills, and motivation are significant direct or indirect determinants of venture growth (Baum and Locke 2004).

Similarly, Baum et al. (2001) stated that personal characteristics impact new venture performance through indirect effects and that they effect new venture performance through motivation and organizational factors. Therefore, we propose the following:

H4: More entrepreneurial psychological characteristics lead to higher entrepreneurial skills

A person with higher self-confidence, risk-taking propensity, and innovativeness is likely to display and exhibit greater entrepreneurial skills in the form of better management, greater improvisation, and effective and efficient allocation of resources.

Cohen et al. (1993) use human body's muscles to define intellectual capital; if one doesn't use it, he loses it. "The more muscles (factors of intellectual capital) an enterprise can use, the more successful the enterprise can be" (Prochazkova and Jelinkova 2014). Intellectual capital is the driving force behind an organization (Vanharanta et al. 2010). Thus we suggest that intellectual capital improves the creativity of the individuals and their other skills.

H5: Higher intellectual capital results in greater entrepreneurial skills

Someone who gets greater support from institution/university, and friends and family is likely to display higher entrepreneurial skills as he/she has the moral, emotional, and financial support of these groups and he/she can focus more on the tasks at hand that pertain to the business plan in particular.

Entrepreneurial competencies impact business performance (Faggian and McCann 2009); (Mitchelmore and Rowley 2010). The refinement of entrepreneurial characteristics such as traits, skills, and knowledge affect the entrepreneurial intentions of individuals (Lau et al. 2000). We use the term entrepreneur identity aspiration rather than entrepreneurial intention as an antecedent to business startup as we consider it to be more holistic. Programs that improve entrepreneurial competencies influence the attitudes of the participants in support of entrepreneurship (Sánchez 2013). Therefore, we state:

H6: Higher entrepreneurial skills lead to a high entrepreneur identity aspiration of an individual

In this final hypothesis we predict that higher entrepreneurial skills lead a person to have a higher entrepreneur identity aspiration. This is because as a person gets more creative and marshals resources more effectively, he/she is more likely to aspire to become an entrepreneur in the future.

About the INVENT business plan competition

The INVENT, a nation-wide entrepreneurial challenge, organized each year since its inception in 2010 by the Institute of Business Administration, Karachi in a short span of three years became one of the leading student-level business plan competitions of Pakistan ("IBA to launch 'Ideas Today, Businesses Tomorrow'," 2013). INVENT 2013 was launched with the theme 'Ideas Today, Businesses Tomorrow'.

It is a business plan competition that invites students from all over Pakistan to participate in it and win prizes by displaying their entrepreneurial skills in their business plans and their presentations. The objective of the program is to create a young generation of entrepreneurs, to bridge the academia-industry gap, to promote collaboration between the various universities and institutes within Pakistan, and to promote the entrepreneurial and innovative mindset.

The INVENT business plan workshops

The business plan competition of INVENT comprised of one day workshops conducted to familiarize students with the concepts and definitions of Entrepreneurship. These were conducted at various cities of all four provinces of Pakistan. The workshops provided a platform for participants where they were trained about entrepreneurship and had the opportunity to network with peers and mentors having entrepreneurial experience. The contents of the workshop were as follows. The participants in the workshop were told about the entrepreneurial requirements and the attributes of an entrepreneur. The entrepreneurial process was discussed in detail to inform them as to how the entrepreneurial firm is different from a corporation. A corporation emphasizes more on the resources, builds a team and then initiates the idea; whereas according to Timmons model the Entrepreneurial process is quite the opposite. An entrepreneur comes up with an idea through inspiration and experience; builds a team of like-minded people who share the same passion, and then the resources follow the entrepreneur (Spinelli et al. 2012).

Apart from that, the participants were briefed about the Entrepreneurship plus model which urges the entrepreneurs to work for a higher cause of providing service to the community to seek the pleasure of the Creator and not for worldly gains (Qureshi 2013).

These concepts were reinforced with entrepreneurship related case studies and real-life examples were discussed with the participants for motivation and inspiration. These cases included the iLink case, Azizullah: the story of an Abdullah, and the Polycon Pvt Ltd case.

Methods

Sample and measurements

The INVENT workshops were conducted in various cities all over Pakistan in order to get representation from all the 4 provinces. During these initial workshops, questionnaires were distributed among the participants who were requested to fill them towards the end of the workshop. The questionnaires were self-administered and it was made mandatory on the participants to complete the questionnaires. There were a total of 820 participants who submitted their questionnaires. However, after data cleaning the sample was reduced to 676.

Out of the 676 respondents, 454 (67.2 %) were males and 222 (32.8 %) were females. 226 (33.4 %) participants belonged to a family with a business background whereas 450 (66.6 %) participants belonged to a family with no business background. Respondents from various cities of all the 4 provinces of Pakistan were surveyed including the major cities of Abbottabad, Bahawalpur, Faisalabad, Gujranwala, Gujrat, Hyderabad, Islamabad, Karachi, Lahore, Multan, Peshawar, Quetta, Rawalpindi, and Sukkur.

Our model is constructed using the following constructs: business plan exploration, personality/psychological characteristics, intellectual capital, entrepreneurial skills, and entrepreneur identity aspiration. Intellectual capital and entrepreneurial skills are second order constructs where intellectual capital is defined by perceived university support, perceived institutional support, and relational capital (social network support). Entrepreneurial skills are defined by search/creativity, planning/management, marshalling, ambiguity, and financial knowledge. An explanation of the constructs is given in Table 1.

The model was graphed using the SmartPLS software only after validating and then creating factors for the variables defining Intellectual Capital (Perceived University Support, Perceived institutional support, Social group support, Emotional support, Very close friends & family support, Professional support, Distant friends & family support) and those defining Entrepreneurial skills (Search, Planning, Marshalling, Ambiguity, and Financial Knowledge). These variables defining intellectual capital and entrepreneurial skills were first validated and then factors were created, without forcing the number of factors, using the IBM SPSS software.

Results

Reliability results for the variables are given in the Table 2 at the end of the paper. The measures are robust in terms of their internal consistency reliability as indexed by the composite reliability. These composite reliability measures range from 0.743 to 0.956, which exceed the recommended threshold value of 0.70.

The Average Variance Explained is above the 0.5 threshold for almost all variables except for Intellectual Capital which is quite low, and Entrepreneurial skills and Psychological Characteristics which are relatively close to the minimum value of 0.5. Business Plan Exploration, Social group support, and perceived institutional support are not significantly lower than the 0.5 limit for AVE. Factor loadings of the variables are presented in the model in Fig. 2.

The model shows that all beta path coefficients are positive (i.e., in the direction required). It must be noted that Intellectual Capital and Entrepreneurial Skills are second order constructs. Therefore in order to create these, first the latent variables that make up these second order constructs were validated using SPSS and their respective factors were created (without forcing the number of factors to be created). These factor scores were then saved and used in SmartPLS to delineate their linkage with their respective constructs.

The beta values of all path coefficients are shown. Business plan exploration had a positive influence on psychological characteristics (beta = 0.466). It also had a positive impact on intellectual capital (beta = 0.364). “Access to mentors” and “workshop and training” are considered the factors that are most highly rated by participants in a business plan competition (Russell et al. 2008). Psychological characteristics had a positive impact on entrepreneurial skills (beta = 0.377) and so did business plan exploration

Table 1 Composite reliability and Average Variance Explained (AVE)

	Composite reliability	Average Variance Explained
Ambiguity	0.900	0.532
Business Plan Exploration	0.895	0.490
Distant Friends & Family Support	0.935	0.784
Emotional Support	0.790	0.560
Entrepreneur Identity Aspiration	0.919	0.656
Entrepreneurial Skills	0.956	0.429
Financial knowledge	0.930	0.768
Intellectual Capital	0.887	0.257
Marshalling	0.910	0.592
Planning	0.909	0.667
Professional Support	0.926	0.759
Psychological Characteristics	0.815	0.392
Social Group Support	0.743	0.494
Search	0.922	0.702
Very Close Friends & Family Support	0.908	0.711
Perceived University Support	0.948	0.820
Perceived Institutional Support	0.823	0.490

(beta = 0.322). Although relatively lower, intellectual capital also had a positive effect on the entrepreneurial skills (beta = 0.219).

The model explains 52.7 % of the variation in Entrepreneurial skills and 44.9 % of the variation in Entrepreneur Identity Aspiration.

Discussion

This study was undertaken in order to measure the impact of incorporating entrepreneurial interventions within a business plan competition on the aspirations of the participants to become entrepreneurs in the future. We were interested in finding out if and how interventions in the form of lectures and case study discussions would impact the attitudes and aspirations of the participants of a business plan competition to become self-employed individuals.

An important finding of the study is that the interventions had a positive impact on the entrepreneur identity aspiration of the participants. The interventions had a significant impact on the relationships among the various constructs and that led to a positive relationship among them. How thoroughly the participants explored their business ideas had a positive impact on their psychological characteristics and intellectual capital. Entrepreneurial skills were found to be positively impacted by better psychological characteristics, thoroughly explored business plans, and higher intellectual capital. Higher entrepreneurial skills ultimately had a positive impact on the entrepreneur identity aspiration of the participants.

Psychological characteristics point at the personality of the individuals and therefore these characteristics are individual specific. Intellectual capital on the other hand points towards the social factor and describes the social context of the individuals. Therefore, the impact of psychological factors on the entrepreneurial skills demonstrates how the individual level factors play a role in explaining the entrepreneurial skills whereas the

Table 2 Explanation of the constructs

Business Plan Exploration (5-point Likert scale from 1 = strongly agree to 5 = strongly disagree)
1. I have engaged in a deliberate, systematic search for an idea for a new business.
2. I have been thinking about a business idea or a number of business ideas that can potentially grow into a real business.
3. I have discussed ideas for a new business with my friends and family.
4. I have had discussions with existing suppliers or distributors.
5. I have had discussions with potential or existing customers.
6. I have taken some classes or seminars on how to start a new business.
7. I (alone or with others) have tried to define products or services for the business.
8. I (alone or with others) have tried to define the market opportunity for the business.
9. I have devoted significant time to this business idea.
Psychological Characteristics (7-point Likert scale from 1 = "I completely disagree" to 7 = "I completely agree")
Risk Taking Propensity: I am willing to take high risks for high returns.
Innovativeness: I am an innovative person who has ideas
Opportunity perception: I have identified a business opportunity to pursue as a career
Self-Confidence: Generally, when facing difficult tasks, I am certain that I will accomplish them
Internal locus of control: My life is determined by my own actions, not by others or by chance
Proactiveness: If I see something I do not like, I change it
Desire for competition: I like situations in which I compete with others
Entrepreneurial Skills (7-point Likert scale from 1 = "I completely disagree" to 7 = "I completely agree")
Search/Creativity
Identify ways to combine resources in new ways to achieve goals
Brainstorm (come up with) new ideas
Think outside the box
Identify opportunities for new ways to conduct activities
Identify creative ways to get things done with limited resources
Planning/Management
Manage time by setting goals
Reduce risk and uncertainty in projects
Conduct analysis
Deal effectively with day-to-day problems
Design an effective project plan to achieve goals
Marshalling
Put together the right group/team in order to solve a specific problem
Form partnerships in order to achieve goals
Identify potential sources of resources
Network (i.e., make contact with and exchange information with others)
Get others to identify with and believe in my visions and plans
Clearly and concisely explain verbally/in writing my ideas in everyday terms
Proactively take action and practically apply your knowledge
Ambiguity
Improvise when I do not know what the right action/decision might be in a problematic situation
Tolerate unexpected change
Persist in face of setbacks
Learn from failure

Table 2 Explanation of the constructs *(Continued)*

Manage uncertainty in projects and processes
Exercise flexibility in complicated situations when both means and goals are hard to establish
Work productively under continuous stress, pressure and conflict
Make decisions in uncertain situations when the outcomes are hard to predict
Financial knowledge
Read and interpret financial statements
Perform financial analysis
Control costs for projects
Estimate a budget for a new project
Entrepreneur Identity Aspiration (5-point Likert scale)
1. I often think about becoming an entrepreneur (business owner) although it is much more challenging than being a corporate manager.
2. I would like to see myself as an entrepreneur in contrast to being a manager of a large corporation.
3. Becoming an entrepreneur would be an important part of who I am; as I am risk prone, prefer to work in an uncertain environment and dislike routine work.
4. When I think about the term "entrepreneur" it would fit me pretty well because I am innovative, a risk taker and proactive.
5. I am always thinking about becoming an entrepreneur versus taking a job in corporation because it will enable me to demonstrate my true potential.
6. I would like to pursue an entrepreneurial career although it requires working under stress with long working hours.

impact of intellectual capital on entrepreneurial skills demonstrates how the networks and institutional and university support systems (social factors) impact the entrepreneurial skills of the individuals.

Psychological characteristics, business plan exploration, and intellectual capital take an indirect route to explaining entrepreneur identity aspiration through entrepreneurial skills. Although, Marques et al. (2012) conclude that psychological features do not bear a positive relationship with Entrepreneurial Intentions, rather the result is negative. Their study analyzed the direct impact of psychological characteristics on entrepreneurial intentions. They therefore conclude that the direct impact of psychological factors on entrepreneurial intentions is not positive.

Shapero and Sokol (1982), Krueger et al. (2000), and Boissin and Emin (2007) state that the personality characteristics and demographic variables take an indirect route in order to explain entrepreneurial intentions and do not directly explain it. This is what we conclude as well that psychological characteristics positively impact entrepreneurial skills and then entrepreneurial skills impact the entrepreneur identity aspiration of the participants. Thus, psychological characteristics do impact entrepreneur identity aspiration of the participants however that is done through entrepreneurial kills. Furthermore, 5 personality dimensions out of the 6 incorporated in the study are positively related to entrepreneurial intentions (Zhao et al. 2010).

Entrepreneurial opportunities exist within an economy at any given time waiting for the entrepreneurs to exploit them (Kirzner 1973). Furthermore, networks rather than resources foster the existence and growth of entrepreneurial opportunities (Aldrich and Fiol 1994). There are other authors, though, who state that entrepreneurial opportunities don't exist in a manner where they are waiting to be discovered. Entrepreneurial opportunities exist because people identify and exploit them (Weick 1979). It is

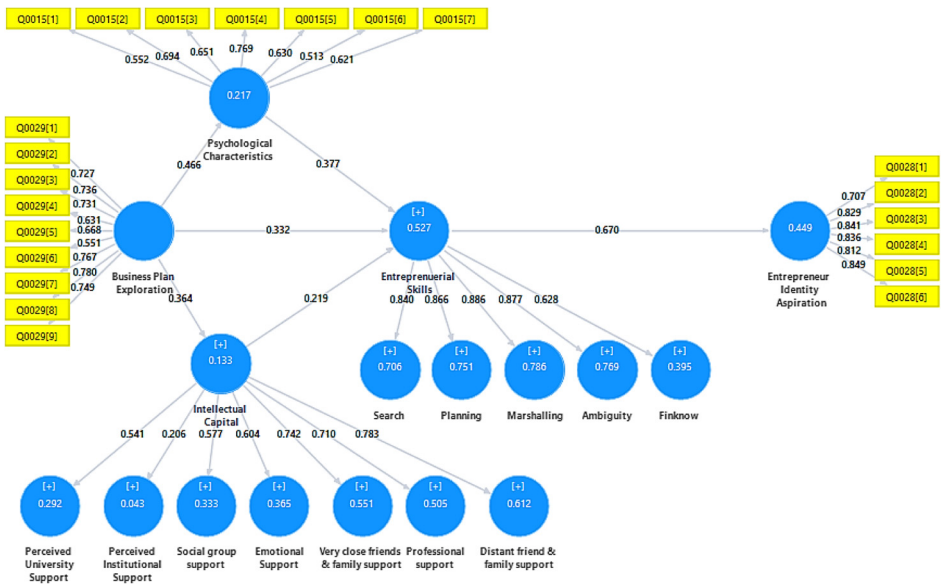

Fig 2 The Model (with factor loadings and beta coefficients)

individuals who create these opportunities using the resources available to them. Thus, the availability of networks and resources equips the individuals to make more informed and calculated decisions, thus increasing their skills of discovering and exploiting opportunities. Therefore, we hypothesize that improved intellectual capital increases the entrepreneurial skills of the individuals and the results support that hypothesis.

Although the primary reason of business plan competitions is to produce startups; development of entrepreneurial skills is found to be one of the major benefits to the participants (Russell et al. 2008). Thus, among other benefits of business plan competitions, they also help in developing the entrepreneurial skills of the participants and in arming them to start their own ventures albeit on a small scale. How thoroughly the participants explore their business ideas was hypothesized to have a positive impact on the entrepreneurial skills of the individuals. We found this relationship to be positive.

Entrepreneurs who had the new resource skills were more confident about their ability to create their own ventures and steer them to high growths (Baum and Locke 2004). It was proposed by us that higher entrepreneurial skills lead to a greater confidence within the individuals regarding their competence to start up their own ventures in the future. Developing the entrepreneurial skills of the people would better enable them to operate their own firms and increase their entrepreneurial interventions (through the antecedents of entrepreneurial skills) (Linan 2008). Thus, the entrepreneurs who have high entrepreneurial skills display a high entrepreneur identity aspiration and are more inclined towards starting their own entrepreneurial ventures in the future. Entrepreneurial skills had a quite high and positive impact on Entrepreneur Identity Aspiration (beta = 0.67).

Conclusion

We conclude that the entrepreneurial interventions carried out in the INVENT business plan competition workshops (in the form of concepts of entrepreneurship, Entrepreneurship plus model, case studies, etc.) led to positive relationships (positive beta values) between the variables.

We found that the business plan exploration had a positive impact on both psychological characteristics and the intellectual capital of a person. Those who explored their business plan in great detail and worked thoroughly on it were likely to demonstrate higher entrepreneurial characteristics and able to gather greater support from friends, family, and institution.

Psychological characteristics, intellectual capital, and business plan exploration all had a positive impact on entrepreneurial skills although psychological characteristics had the greatest impact on the entrepreneurial skills of a person. This could be because these are the personal dispositions of an individual and since these are inherent in an individual, therefore they are the most likely to impact the entrepreneurial skills that an individual displays.

Entrepreneurial skills had a very high, positive impact on Entrepreneur Identity Aspiration (beta = 0.67). This is because if a person exhibits greater entrepreneurial skills, he/she is more likely to aspire to become an entrepreneur. The better management skill, coupled with innovativeness and improvisation to be prepared for the unexpected, gives the individual the courage and the ability to aspire to become an entrepreneur sooner or later.

The findings are particularly significant for the field of entrepreneurship education. To our knowledge, no study has been done that studies the impact of interventions within a business plan competition on the entrepreneur identity aspiration of the participants. Despite studies being done that measure the impact of business plan competitions on students [(Kwong et al. 2012); (Baum and Locke 2004)], how various entrepreneurial interventions incorporated within a business plan competition effect the aspirations of the participants to become entrepreneurs is not studied.

Furthermore, research on entrepreneurship within a country like Pakistan is also very limited in scope. No such study has been conducted within Pakistan that studies the topic done in this manuscript. It is of particular relevance for a country like Pakistan where small and medium enterprises account for a huge share of the country's GDP. SMEs constitute nearly 90 % of all the enterprises in Pakistan; employ 80 % of the non-agricultural labor force; and their share in the annual GDP is 40 %, approximately (State of SMEs in Pakistan). That is why a study on entrepreneurship is of high importance for Pakistan. It would help us in inculcating an entrepreneurial spirit within the students which would drive them towards the creation of new and innovative ventures in the future.

The results from this study would help us in incentivizing the various schools and universities within the nation to conduct business plan competitions in order to promote entrepreneurship and aide them by incorporating interventions within them in order to increase the motivation level of the students to become entrepreneurs.

Some of the limitations of the study are as follows. The survey was carried out at one point in time and therefore does not reflect whether the aspirations of the participants translated into the creation of any new ventures or exploitation of opportunities. The survey needs to be carried out in the later stages of the business plan competition (after 4-6 weeks), in order to study the impact of interventions on Entrepreneur Identity Aspiration.

Furthermore, this study is Pakistan specific and therefore we cannot say with certainty how such interventions would impact the aspirations of participants in different nations. Therefore, it needs to be replicated in other regions of the world for generalizability.

Competing interests
The authors declare that they have no competing interests.

Authors' contributions
MSQ laid out the whole pattern of the paper, explained the methodology to be used, and also taught the use of SmartPLS and how it could be used to carry out the structural equation modelling. He was the main person who conducted the workshops based on which the questionnaires were collected and also was responsible for finally reviewing the paper and suggesting improvements. SS was responsible for creating the model to be used in the paper. He was also responsible for designing the questionnaire and explained in detail the model and the various hypotheses in the paper. SWMW was responsible for writing the main manuscript. He compiled the data, cleaned it, and conducted factor analyses for the required variables in the data. He also carried out structural equation modelling in the data using the software of SmartPLS and was responsible for finally editing the main manuscript and completing it. All authors read and approved the final manuscript.

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