

What is the interplay between social identity, entrepreneurial passion and business planning success?

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ABSTRACT

Purpose: In business research, much attention is given to the factors that contribute to the success of the various aspects of the business development process. For this paper, we chose to examine the social identity of entrepreneurs as well as the degree of passion they feel towards the entrepreneurial process and relate these to business planning success. The goal of the study was to determine if entrepreneurs with specific social identities or those that feel self-reportedly passionate about inventing are more likely to achieve business planning success.

Methodology: Data was obtained from students of the University of Twente participating in entrepreneurial activities as part of their course. Their task was to develop a business plan and present it to two judges with years of experience in business development who acted as proxies for venture capitalists and evaluated the students' business plans on multiple criteria. Two separate surveys were sent out to students which measured their social identity and passion. The data was analyzed in SPSS by way of correlation and multiple regression analysis.

Results and Conclusion: The data showed that social identity and entrepreneurial passion for inventing are not significant predictors for business planning success. These findings can be attributed to the fact that social identity and passion were measured on an individual level while business planning success was measured on a group level. However, a post-hoc analysis determined the darwinian social identity to be a significant predictor of individual criteria the judges used when evaluating the business plan proposals, namely the economic value and feasibility of the proposal.

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Keywords

Social identity, entrepreneurial passion, business planning success, venture capital

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1. INTRODUCTION

In the realm of entrepreneurial research, much attention has been given to the impact of an entrepreneur's personality traits on the creation and success of a business (Rauch & Frese, 2007; Lee & Tsang, 2001). Until recently, however, much of this research has been done through the lens of role identity theory which "emphasizes role-related views of the self while discounting key social aspects of self-concept, such as the basic social motivations that shape the behaviors and actions of individuals when they are engaging with others." (Fauchart & Gruber, 2011, p. 935) Consequently, role identity theory provides only a limited perspective of an entrepreneur's self-concept and the way it impacts his behaviors in business development.

Drawing on social identity theory (Tajfel & Turner, 1979), scholars have been able to more closely examine business founders' self-conception and its impact on firms by developing a three-group framework for the classification of founders' social identities, each group consisting of its own motivations and goals for starting a company (Fauchart & Gruber, 2011). Those in the first group, called the darwinian identity group, are motivated by self-interest, usually in the form of profits, and their entrepreneurial activities center around increasing the firm's revenue. The second group, the communitarians, on the other hand, have a closer relationship with their customer base which they view as a community of which they are a part. The communitarians' motivation for starting a company can often be attributed to a desire to positively impact a field they are already personally invested in. Lastly, the third group, the missionaries, view their firm as a platform and a tool to be utilized in the advancement of a specific cause. Unlike darwinians, missionaries do not consider profit as the motivating goal but rather as a means of pursuing other projects and of having a positive impact on the lives of others. Their goal is to positively impact society as a whole, often by being industry leaders in sustainability and environmental efforts (Fauchart & Gruber, 2011). While the identity groups described by Fauchart and Gruber offer a robust view into the actions entrepreneurs take in the process of venture creation, further research could be hindered by the lack of a precise way to measure founders' identities. To remedy this, Sieger et al. (2016), developed and validated a 15-item scale capable of efficiently measuring and classifying founder identity thereby allowing for further research on the effects of founder identity on the various aspects of business creation and success.

Based on the work by Fauchart and Gruber (2011), we can conclude that the individual identity of a firm's founder will have a profound impact on his actions, decisions and goals. The question thus arises as to which identity group possesses the characteristics most valued by potential investors when making funding decisions that will contribute to company success.

Although Fauchart and Gruber (2011) found that the motivations and views entrepreneurs held of themselves which are reflected in their choices and actions, will differ among the groups, they did not attempt to examine the three

identity groups and how they may predict growth or success in specific areas of running a business.

With this in mind, an opportunity arises to take a closer look at the three social identities as outlined by Fauchart and Gruber to see how each relates specifically to business planning success, the latter being a key and essential step in the entrepreneurial process. Business planning success can be defined as the development and presentation of a business plan that leads to a third party investment into the venture; the business plan and its presentation are often an entrepreneur's first and best chance of acquiring financial funding (Mason & Stark, 2004). Differing founder motivations for business creation across the three identity groups could result in companies that vary in appeal to potential investors because of characteristics that are a direct reflection of the entrepreneur himself.

Acquiring investor funding to cope with increases in demand is an important step in the entrepreneurial process and one that is necessary once a company reaches a certain threshold. During this stage, young companies often turn to venture capital firms which, based on a detailed analysis of a company's market and product, as well as its business plan and presentation, will decide whether or not to invest in the company in exchange for an equity stake (Mason & Stark, 2004). Because of the crucial role played by venture capital firms, the factors that positively contribute towards a company's ability to acquire funding from them has been a strong focus of prior research (MacMillan et al., 1985; Robinson, 1987; Tyebjee & Bruno, 1981; Muzyka et al., 1996; Chen et al., 2009).

Studies in the field of venture capital investment are of particular interest because they assess the criteria used in judging a business plan and a venture as a whole and because the research provides a theoretical basis for the notion that the entrepreneur's individual traits impact the funding decisions of venture capitalists (VC). MacMillan et al. (1985) found, for instance, that a potential investor's impression of entrepreneurs during the presentation of their business plan was a significant contributing factor towards an investment. MacMillan et al. recommended that entrepreneurs bolster their presentations to demonstrate and accentuate the fact that the entrepreneur "has staying power, has a track record, can react to risk well, and has familiarity with the target market" (p. 128). This recommendation indicates that although a good business idea or product is essential, the ability to convince potential investors that this specific entrepreneur rather than anyone else is the right person to run the venture successfully is important. This view shares similarities to research on entrepreneurial passion, a different approach that also attempts to link personal characteristics to business growth and success.

Cardon et al. (2009a) define entrepreneurial passion (EP) as "consciously accessible intense positive feelings experienced by engagement in entrepreneurial activities associated with roles that are meaningful and salient to the self-identity of the entrepreneur" (p. 517). Cardon et al. posited that entrepreneurs fall within three distinct role identities which

correspond to specific activities that evoke positive feelings and are central to their identity: inventing, founding, developing. EP and its outward expressions are thought to positively impact the success of a venture. Baum, Locke and & Smith (2001), concluded that characteristics traditionally associated with a “passionate” entrepreneur such as tenacity, proactivity and passion for work, do positively impact venture growth. Building on this, Baron and Markman (2003) found that the degree to which an entrepreneur is able to outwardly express his emotions has an impact on venture success.

Although an entrepreneur's personal traits have been found to play an important role in obtaining funding (MacMillan, 1985; Robinson, 1987), in recent years little research has been undertaken to determine whether EP and its outward expression give entrepreneurs the upper hand in achieving success at the funding stage of their venture. Chen et al. (2009) are a notable exception, although they limited their study to the VC's perception of the outward and visible expression of EP, and did not investigate the entrepreneurs' self-reported feelings of passion, as these cannot be perceived during the business plan presentation.

Consequently, for this research paper we will examine and focus on *internal* passion as a factor that influences the motivations, characteristics and skill-sets of entrepreneurs which may contribute positively towards obtaining funding, rather than focus on the impact of *perceived* passion by VCs during a business plan presentation, which Chen et al.'s (2009) have found show little impact on VCs' funding decisions. Drawing on the passion domains identified by Cardon et al. (2009), this paper will analyse the relationship between a successful funding decision and an entrepreneur's passion for inventing, expressed through opportunity recognition and the desire to innovate new products to fill gaps in the market.

With the above in mind, this paper will investigate the following research question:

“What is the interplay between social identity, entrepreneurial passion and business planning success?”

To achieve this goal, we have sent out surveys to student entrepreneurs enrolled at the University of Twente. As part of their studies, these students are involved in creating and developing a business model and presenting it to external judges who will evaluate it as a possible investment proposal presented to a venture capital firm. Based on the returned surveys, we will classify the entrepreneurs into the three identity groups as outlined by Fauchart and Gruber (2011), by using the validated scale developed by Sieger et al. (2016). Once classified, the relationship between each identity group and a successful funding decision will be analyzed to determine the nature of the relationship between the different groups and the funding acquired. Furthermore, the relationship between passion and business planning success will be tested, with a separate survey, based on the work of Cardon et al. (2013), that we sent out to evaluate the strength of passion for inventing the student entrepreneurs have.

2. THEORY

2.1 Business Planning Success

Business planning can be said to consist of “the processes of gathering and analyzing information, evaluating required tasks, identifying risks and strategy, projecting financial developments, and documenting these things in a written plan” (Delmar & Shane, 2003, p. 1165).

Furthermore, business planning is characterized by ends, defined as: “the major, higher level purposes, mission, goals or objectives set by organizations, each of which (should there be more than one) significantly influences the overall direction and viability of the firm concerned”, and means: “the patterns of action which marshal/allocate organizational resources into postures that, once implemented, increase the probability of attaining organizational ends” (Brews & Hunt, 1999, p. 891).

A business plan often finds its use when raising finance, and is usually the first point of contact between entrepreneurs and potential investors. As such, the quality of the proposal expressed through the business plan will determine the likelihood of the investment moving forward (Mason & Stark, 2004). We can conclude therefore, that a successful business plan in this context is one which results in or increases the potential of acquiring funding from third parties such as venture capitalists (VCs).

It should be noted that firms financed by VCs are usually young, operating in highly dynamic environments with few tangible assets. By purchasing an equity stake in such a company, VCs expose themselves to the high-risk and uncertainty that is attached to new firm creation but also to the possible rewards of holding high equity stakes in a company that may eventually be successful (Gompers & Lerner, 2001).

Consequently, each funding decision made by a VC is unique and complex in its own way due to market and entrepreneur uncertainty, specific to each individual venture. VCs therefore, require as much data as possible about every aspect of the venture, which includes their subjective impressions of an entrepreneur during the business plan presentation (Chen et al., 2009).

As venture capital funding often plays a significant role in the entrepreneurial process, the criteria used by VCs when judging business proposals, as well as the process by which they are screened, have been the subject of much research (MacMillan et al., 1985; Robinson, 1987; Tyebjee & Bruno, 1981; Muzyka et al., 1996; Chen et al., 2009; Fried & Hisrich, 1994). These studies generally found that VCs place importance on the competence of the entrepreneur and the people working with him, including their skill and track record. Further criteria, cited by Mason and Stark (2004), include “product characteristics (proprietary features, competitive advantage, potential to achieve strong market position), market characteristics (significant growth, limited competition) and returns (potential for high returns, clear exit opportunity)” (p. 231). However, VCs are likely to do the

bulk of their research into these factors after the first proposal meeting with the entrepreneur, which is designed as a general screening process for new proposals (Fried & Hisrich, 1994).

2.2 Entrepreneurial Identity

Researchers have for a long time been interested in defining an entrepreneur’s cognitive traits and how these traits factor in the actions undertaken in business decisions (Rauch & Frese, 2007). Additionally prior studies have focused on entrepreneurial identity through the eyes of role identity theory, defined as a “theoretical perspective that encourages research on the roles with which people identify in the entrepreneurial process” (Fauchart & Gruber, 2011). The problem Fauchart and Gruber found with this perspective was the lack of focus on the social aspect of entrepreneurial identity. Since companies do not exist in a vacuum, social activity and social interaction need to be viewed as key aspects both in firm creation and its success. By focusing solely on the context of an entrepreneur’s role within the entrepreneurial process, we miss the opportunity to study and evaluate the impact founders’ conceptions of their social self can have on their decisions, social interactions and overall outcome of companies.

To investigate the role of a founder’s social self in the success of a business, Fauchart and Gruber propose to study entrepreneurial identity through the lens of social identity theory, as outlined by Tajfel and Turner (1979), which they suggest “deals with the structure and function of identity as it relates to an individual’s social relationships and, in particular, to his/her membership in groups or social categories” (p. 936).

In their research, Fauchart and Gruber thus utilize the three main dimensions of social identity theory to classify entrepreneurs into three pure identity groups:

Pure identities	Identity Dimensions		
	Basic social motivation	Basis for self-evaluation	Frame of reference
Darwinian	Self-interest	Professionalism	Competitors
Communitarian	Support and be supported by a community	Authenticity	Community benefit from product
Missionary	Advancing a cause	Responsible behavior	Society as a whole

Figure 1: Social identity dimension. Adapted from: “Darwinians, Communitarians, and Missionaries: The Role of Founder Identity in Entrepreneurship” by Gruber, M. & Fauchart, E., 2011, Academy of Management Journal.

Based on Fauchart and Gruber’s research, founders of companies possessing the darwinian identity usually start their entrepreneurial venture with the goal of creating a successful and profitable company. Their primary motivation is self-interest, be it in the form of a desire to increase their own personal wealth or a desire to ensure the firm’s success. While these founders are generally interested in the area in which their business operates, there is a lack of personal investment other than in the activities required for the business to succeed. They view their business choices as the

exploitation of an opportunity, something they might have done in an entirely separate field had the circumstances been different.

The darwinians’ professional approach to firm creation is in contrast to the communitarians’ approach. The latter identities often enter a specific business area as a direct result of a prior personal involvement in an endeavour that may have included family, friends and/or community. As such, communitarians are often motivated by a desire to contribute to their community and be recognized for it by their peers. The entrepreneurs identified as communitarians by Fauchart and Gruber often indicate having initially created their first products for personal use, only to later discover a potential market for it due to the interest of other members of the community. Because communitarians perceive themselves as belonging to the same group as their customer base, they are capable of effectively identifying with them and having authentic relationships. They feel that their position in the community allows them a better perspective into the needs and desires of their customer base, ultimately enabling them to deliver products superior to those of their competitors.

Finally, founders of companies identified as missionaries viewed their firm as a platform and a tool to be utilized in the advancement of a specific cause. Unlike darwinians, they do not consider profit as a goal but rather as a means of pursuing other projects and of having a positive impact on the lives of others. As such, missionaries are often at the forefront of social, political, and environmental progress.

2.2.1 Entrepreneurial Identity and Business Planning Success

Venture capitalists obviously have a vested interest in the success of the companies they finance and will place the utmost importance on the capabilities of the managerial team that will be running them (Mason & Stark, 2004; Tyebjee & Bruno, 1981; Muzyka et al., 1996). This conclusion was also reached by Robinson (1987) who surveyed senior partners in venture capital firms and found that of the five primary concerns they expressed when deciding whether to invest in a company or not, the skill and experience of the management team was the most critical.

Similar results were obtained by MacMillan et al. (1985), who, based on a questionnaire given to 100 VCs, found that five of the ten most important criteria used for funding decisions dealt directly with the quality of entrepreneurs themselves, expressed through their personality. VCs value an entrepreneur’s determination, perseverance, staying power, and ability to handle risks. Consequently, they criticize the fact that business plans traditionally place little emphasis on the individual qualities of the entrepreneur. They suggest that the entrepreneur should not only attempt to sell the venture, but also “sell” himself by demonstrating within the business plan that he has the character, experience and market knowledge required to deal with whatever risks may come his way.

Although these studies demonstrate that VCs highly value

the competencies, skills and characteristics of the people running the companies they invest in, the studies have not considered the possible link between specific entrepreneurial identity groups, each possessing its own characteristics, and the likelihood of obtaining venture funding.

Based on the work of Fauchart and Gruber (2011), we can conclude that the individual identity of a firm's founder will have a profound impact on his actions, decisions and goals. As such, the differing founder motivations for business creation across the three groups could result in companies that vary in appeal to VCs. The question thus arises as to which identity group possesses the characteristics most valued by VCs when making funding decisions.

As we have seen, darwinian founders are motivated by self-interest, usually in the form of profits. Since VCs invest in companies for the main purpose of achieving a financial return, it stands to reason that a business idea and plan developed by a darwinian type entrepreneur will achieve a higher score when assessed by VCs than a missionary type founder who typically creates a company out of more altruistic motivations or a communitarian type who starts his firm based on his personal connection to the customer base he would be serving.

This leads to the following hypothesis:

H1: *The darwinian identity is positively related to business planning success.*

Communitarians, while primarily motivated by a relationship with the community, are not innately opposed to profit maximization, as long as it is done the right way. Since communitarians desire to appear authentic and be positively regarded, they are unlikely to act in ways that will reduce their products' quality for fear of damaging their image and relationship with their peers and their community.

Since VCs also highly value legitimate distinctiveness when evaluating the plausibility of a venture (Glynn & Navis, 2011), the competitive advantage and brand loyalty gained through communitarians' unique relationship with their consumer base could be a characteristic that positively impacts business planning success. Furthermore, VCs value entrepreneurs with substantial market knowledge (MacMillan et al., 1985), which communitarians are likely to have as a result of their longstanding involvement in the niche as a hobby prior to founding their companies.

This leads to the following hypothesis:

H2: *The communitarian identity is positively related to business planning success.*

Lastly, companies founded by missionaries are those seemingly least likely to appeal to VCs, since the entrepreneurs' altruistic self-conceptions will result in business goals that are not typically directly compatible with those of VCs. VCs are not necessarily innately opposed to the causes championed by missionaries, such as sustainability, but they are highly unlikely to consider them equally as important as financial factors such as potential

return or market size.

This leads to the following hypothesis:

H3: *The missionary identity is negatively related to business planning success.*

2.3 Entrepreneurial Passion

From ancient times to the present, passion has been defined in a myriad of ways; as a positive, intense emotion that stirs, energizes, motivates, absorbs, focuses, engages, empowers, guides, determines, overpowers, enthuses, excites, elates and so on. According to current research, passion is not an innate state that we are born with or that we cannot control. It is rather a feeling that is stimulated by external factors, a feeling that we are aware of and can call upon at different times (Cardon et al., 2009).

Passion can, depending on the way in which it is internalized in an individual's self, be obsessive, leading individuals to feel internal pressure to engage in activities they enjoy. Alternatively, passion can be harmonious with individuals autonomously choosing to pursue specific activities simply because they enjoy doing them. The difference between the two boils down to internalization, with harmonious passion being a result of an individual's own volition with no attached contingencies. Obsessive passion, on the other hand, is internalized as a result of contingencies such as a derived sense of self-worth or social acceptance on which they are dependant (Vallerand et al., 2003)

In the business domain, Cardon et al. (2009), explore entrepreneurial passion (EP) specifically, and direct their research on providing a theoretically grounded conceptualization on the nature of EP as well as a theoretical model to explain the influence of experienced EP on the cognitions and behaviors of entrepreneurs. Thus, they define EP as a consciously accessible, intense positive feeling that results from engaging in activities which are meaningful, central, and salient to an entrepreneur's self-identity.

To explore the implications of EP, it is important to understand how EP is aroused by the activities an entrepreneur engages in and how meaningful and central these activities are to his self-identity. Cardon et al. link these salient activities for an entrepreneur's self-identity to three specific "role identities" of a business venture which they identify as the identities of inventor, of founder and of developer.

Cardon et al. conceive a number of propositions regarding the influence of EP on various aspects of the entrepreneurial process. They posit that EP will influence an entrepreneur's effectiveness in opportunity recognition because of passion's effect on creative problem solving, citing the work of Ward (2004), which found problem solving as particularly important for generating new and useful ideas and opportunities for new business creation. Furthermore, they propose that EP will influence an entrepreneur's persistence on tasks that validate and reaffirm the role identity. Persistence is an important characteristic for entrepreneurs to

possess, as they are likely to face adversity and rejection during the process of creating and running their business. Lastly, Cardon et al. suggest that passionate entrepreneurs will set more challenging goals for themselves which in turn will foster greater motivation and a heightened commitment to the successful attainment of these self-set goals.

For this paper, we are concerned mainly with the inventor identity, exemplified by an entrepreneur's passion for "activities involved in identifying, inventing, and exploring new opportunities" (Cardon et al. 2009). Those entrepreneurs that are passionate about inventing enjoy activities that deal with identifying and meeting new market needs through the invention of new solutions. Inventors are always on the lookout for new, exciting opportunities, and as such, the ability to recognize and commercialize unmet market needs is one of their primary characteristics. As with the other identified roles, inventors often consider the act of inventing to be central to their identity and an integral part of who they are as a person.

Furthermore, these internally held feelings of passion are perceived by others by way of the affective, cognitive and behavioral signs entrepreneurs display (Chen et al., 2009). Firstly, affective signs are akin to enthusiasm (Cardon, Sudek & Mitteness, 2009) and consist of verbal and nonverbal displays of one's emotional state. Secondly, the cognitive aspect of passion is manifested in frequent thoughts and reflections pertaining to the thing entrepreneurs are passionate about (Chen et al., 2009). Lastly, the behavioral aspect of passion consists of entrepreneurs' behaviors and actions taken as a result of their passion (Chen et al., 2009). For example, the commitment demonstrated by the time entrepreneurs devote to their business as well as how much of their own money they invest can be perceived by others as an indication of EP (Cardon, Sudek & Mitteness, 2009).

2.3.1 Entrepreneurial Passion and Business Planning Success

Entrepreneurial passion, if and how an entrepreneur displays it and how others perceive it, comes into play during business plan presentations made to VCs. Although data about the entrepreneur's venture itself are essential to VCs in making funding decisions, the entrepreneurs themselves and how they present the plan may also be decisive. Since VCs are unable to observe and experience the actions and competences of entrepreneurs beyond the context of the presentation, the actual behavior of the entrepreneur during the presentation becomes crucial and is likely to influence VCs' opinion of the venture as a whole (Chen et al., 2009). The way VCs perceive the entrepreneur is through his or her passion, displayed through affective signs (verbal and nonverbal displays of one's emotional state), cognitive signs (quality of the business plan being presented and entrepreneurs competence) and behavioral signs (the actions they have taken) (Chen et al., 2009).

In their research, Chen et al. (2009) conclude that VCs see the affective expression of passion displayed during business plan presentations as hollow, if it is not backed by the

cognitive aspect in the form of perceived preparedness of the entrepreneur; the latter is reflected in the entrepreneur's knowledge and consideration of the venture's market forces, financial and product factors. If VCs perceive the entrepreneurs as unprepared, their displayed positive emotions or impression management techniques during the presentation will be considered disingenuous and off-putting. Furthermore, affect is not always a true reflection of internally held passion. Research shows that individuals are able to display emotions they do not actually feel in an effort to appear passionate in order to achieve their desired outcome (Lucas, Kerrick, Haugen & Cider, 2016).

Although Chen et al. (2009) acknowledge that passion is a multidimensional construct, for their study on entrepreneurs' passion (affective dimension) and preparedness (cognitive dimension), they chose to focus only on the visible, outward expressions of passion. Their conclusion that the external expression of passion during a business plan presentation is inconsequential has limitations because in reality passion is more than just expressed and perceived emotions. Entrepreneurs' subjective experiences and corresponding cognitions and actions might be quite different and far richer than what outsiders can observe (Cardon et al., 2013). Thus, Cardon et al. suggest that future research should look beyond perceived passion and preparedness and should explore the measurement of internally experienced passion, its antecedents, and its consequences.

Per Cardon et al. "Although the Chen et al. (2009) study has augmented our understanding of some cognitive and behavioral manifestations of passion, the observed passion they focus on may not accurately reflect experienced passion, and instead may simply be a function of impression management by the presenting entrepreneurs" (p. 375).

This is in line with the research of Lucas et al. (2016) which examines the relationship between entrepreneurs' self-reports of personal passion and investors' ratings of perceived passion during a business plan presentation. Their findings indicate that there is a misalignment between the two, with self-reportedly passionate entrepreneurs being unable, in many cases, to effectively convey their internal feelings of passion to investors. Lucas et al. also found the opposite to be the case with entrepreneurs who didn't report feeling passionate being perceived as passionate by investors. Lucas et al. conclude that "public speaking skills—including confident body language, vocal variety, personal engagement with investors, and explicit statements of passion—were the key factors contributing to investors incorrectly estimating entrepreneurs' passion or lack thereof. Poor presentation skills diminished perceived passion, and strong presentation skills heightened perceived passion" (p. 374).

The implication of Lucas et al.'s findings is that internally held feelings of passion may not be interpreted as such by third parties because how passion is perceived is highly dependent on the entrepreneur's public speaking skills which are not necessarily related to the passion he feels. Lucas et al. (2016) conclude that personal passion and perceived passion are two separate concepts, and need to be differentiated as

such in further research.

Passion, therefore, is conceivably significant in the context of motivating entrepreneurs to take actions that will result in both themselves and their company being worth investing in, rather than solely being viewed as a tool to convince potential investors of that fact during a presentation.

It should be noted here that in contrast to Chen et al.'s research results which focus on the business plan presentation itself, affect has been shown to influence key aspects of the entrepreneurial process, such as opportunity recognition and the capability to respond well to high environmental uncertainty, both of which are highly valued by VCs (Baron, 2008). In addition, Baum, Locke and Smith (2001), also looked past the business plan presentation itself and analyzed the predictors of venture growth. They concluded that entrepreneurial traits that emerge as a result of the feelings of passion felt towards their projects, such as tenacity and productivity, have a positive effect on venture growth.

Consequently, for this research paper, rather than focusing on the impact of perceived passion during a business plan presentation which Chen et al. (2009) have already demonstrated as inconsequential in VC funding decisions, it makes sense to view passion as a factor influencing entrepreneurs' characteristics, skill-sets, motivations, which may likely contribute positively towards business planning success. Given the above presented arguments, we assume that entrepreneurs who hold self-reported, internal feelings of passion, specifically for inventing, are more likely to achieve business planning success.

This leads to the following hypothesis:

H4: *Passion for inventing is positively related to business planning success.*

3. METHODS

3.1 Conceptual model

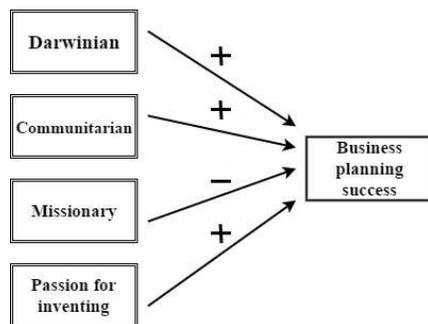


Figure 2: Conceptual model

3.2 Data Collection

To collect data for our research analysis, we sent out surveys to student entrepreneurs enrolled at the University of Twente. As part of their studies, these students were asked to create

and develop a business model and present it to external judges who evaluated the model as a possible investment proposal presented to a venture capital firm. The two surveys that were sent out were meant to measure the students' social identity and their passion for inventing. A survey was chosen as the data collection method since we are interested in the self-reported characteristics of the students.

In total, 66 students split amongst 19 groups responded to the surveys. After removing missing data, 52 responses for social identity and 50 responses for passion from 16 groups remained.

3.2.1 Independent Variables

Independent variable: entrepreneurial identity. The measurement of entrepreneurial identity is done using the scale developed by Sieger et al. (2016). Respondents voiced their level of agreement/disagreement with 15 declarative statements designed to assess the three identity dimensions outlined by Fauchart and Gruber (2011). A 7-point Likert scale which includes a neutral mid-point was used. We used this scale rather than Fauchart and Gruber's original research methods of coding data from long-form verbal interviews because it allows for easier and more accurate measurement. Examples of the declarative statements include:

Item 1: "I would create my firm in order to advance my career in the business world"

Item 2: "I would create my firm in order to solve a specific problem for a group of people that I strongly identify with (e.g. friends, colleagues, club, community)"

Independent variable: passion for inventing. The passion an entrepreneur feels for inventing is measured using the scale developed by Cardon et al. (2013). Respondents voiced their level of agreement/disagreement with 4 declarative statements pertaining to the feelings they had for inventing and 1 statement assessing the centrality of inventing to their identity. As with the other variables, a 7-point Likert scale was used. Examples of the declarative statements include:

Item 1: "It is exciting to figure out new ways to solve unmet market needs that can be commercialized"

Item 2: "Searching for new ideas for products/services to offer is enjoyable to me"

3.2.2 Dependent Variable

The dependent variable is the approval of the student's business plan proposals by external judges. For the purposes of this study, the student business plans were evaluated by two independent judges, both with multiple years of experience in business development. The judges were given 6 declarative statements designed to evaluate the economic value, uniqueness and feasibility of the proposed business plans. The judges were then asked to voice their agreement/disagreement with the 6 statements in regards to each individual business plan by way of a 7-point Likert scale. Examples of the declarative statements include:

Item 1: “The business opportunity has potential economic value”

Item 2: “The business opportunity is new”

The scores for each of the statements were then averaged, resulting in a single variable representing business planning success for each group.

3.2.3 Reliability

An outcome can be considered reliable if it is independent from the sample and reproducible under the same conditions (Merriam, 1995).

In order to test the reliability of our scales, Cronbach’s Alpha, which measures the internal consistency between items, will be used. A Cronbach’s Alpha of over 0.7 indicates that the items are internally consistent (Cronbach, 1951).

The Alpha’s for the scales used in this study have all been found to be over 0.7 and thus can be considered sufficient.

Table 1. Cronbach’s Alpha

	Alpha	N of Items
Social identity	.899	15
Entrepreneurial passion for inventing	.833	4
Business planning success	.836	6

4. RESULTS

In Table 2, basic descriptive statistics pertaining to all variables are given.

Table 2. Descriptive statistics

	N	Mean	Standard Deviation
Darwinian	52	5.12	1.02
Communitarian	52	5.13	0.81
Missionary	52	4.87	0.99
Passion (IPF)	50	5.06	1.14
Passion (IC)	50	5.15	1.39
BPS Score	55	7.47	2.40

4.1 Correlation

Using SPSS, the correlation between the independent and dependent variables was assessed (see appendix Table 3):

- The darwinian identity group has a weak positive correlation to business planning success, $r(61) = .157$, $p > 0.1$
- The communitarian identity group has a very weak negative correlation to business planning success, $r(61) = -.017$, $p > 0.1$
- The missionary identity group has a very weak positive correlation to business planning success, $r(61) = .054$, $p > 0.1$
- The intense positive feelings dimension of passion has a weak positive correlation to business planning success

$r(54) = .139$, $p > 0.1$

- The identity centrality dimension of passion has weak positive correlation to business planning success $r(54) = .177$, $p > 0.1$

These results indicate that there is no significant correlation between the independent and dependent variables.

4.2 Regression Analysis

By utilizing multiple linear regression analysis, we developed two models for predicting business planning success from our independent variables, social identity and entrepreneurial passion. The regression coefficients and P-values are displayed in Tables 3 and 4.

Table 4. Multiple linear regression analysis: Social identity

Coefficients						
Model		Unstandardized		Standardized		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	6.583	2.179		3.020	.004
	Darwinian	.305	.289	.155	1.054	.297
	Communitarian	-.141	.376	-.061	-.375	.709
	Missionary	.096	.360	.044	.267	.791

Dependent Variable: business planning success

Model one was able to account for 2.8 % of the variance in business planning success as visible in the ANOVA analysis (see appendix Tables 6 & 7), $F(3, 48) = 0.456$, $p > 0.1$, $R^2 = 0.028$

The predictor variables were found to be statistically insignificant ($p > 0.1$) with the conclusion being that social identity has no influence on business planning success. Consequently, H1-3 have to be rejected.

Table 5. Multiple linear regression analysis: Passion

Coefficients						
Model		Unstandardized		Standardized		
		B	Std. Error	Beta	t	Sig.
2	(Constant)	6.546	1.459		4.488	.000
	Passion (IPF)	.095	.328	.052	.289	.774
	Passion (IC)	.232	.287	.145	.811	.422

Dependent Variable: business planning success

Model two was able to account for 3.3 % of the variance in business planning success as visible in the ANOVA analysis (see appendix Tables 8 & 9), $F(2, 47) = 0.8$, $p > 0.1$, $R^2 = 0.033$

The predictor variables were found to be statistically insignificant ($p > 0.1$) with the conclusion being that entrepreneurial passion has no influence on business planning success. Consequently, H4 has to be rejected.

4.3 Post-hoc Analysis

While the primary analysis showed that the independent variables of entrepreneurial passion and social identity do not predict the dependent variable of business planning success, it is pertinent to analyze the relationship between the independent variables and the individual items from the business planning success scale. As each item measures different aspects of the dependent variable, such as newness and feasibility, the possibility exists that, while passion and

social identity are not significant predictors of business planning success as a whole, they are predictors for individual items.

Consequently, for this part of the analysis we treated each item from the business planning success scale as an individual dependent variable and developed two multiple linear regression models for each of them. Additionally, a correlation matrix between the independent variables and the items was generated (see appendix Table 42).

From these analyses, significant relationships emerge between the darwinian identity and items 1 and 6 from the business planning success scale which pertain to the economic value and feasibility of the business proposal respectively (see Appendix for full scales).

Table 6. Multiple linear regression analysis: Social identity (Item 1)

Coefficients						
Model		Unstandardized		Standardized		Sig.
		B	Std. Error	Beta	t	
3	(Constant)	5.796	2.800		2.070	.044
	Darwinian	.678	.371	.263	1.826	.074
	Communitarian	-.137	.483	-.045	-.284	.778
	Missionary	-.51	.462	-.018	-.111	.912

Dependent variable: Item 1

Model three was able to account for 6.6% of the variance in business planning success as visible in the ANOVA analysis (see appendix Tables 9 & 10), $F(3, 48) = 1.139$, $p < 0.1$, $R^2 = 0.066$

The model indicates that the darwinian identity ($p = 0.074$, $Beta = .263$) has a positive effect on item 1 (economic value of the business proposal) and significantly contributes to its prediction.

Furthermore, a weak positive correlation was found between the darwinian identity and item 1, $r(61) = .252$, $p < 0.1$.

Table 7. Multiple linear regression analysis: Social identity (Item 6)

Coefficients						
Model		Unstandardized		Standardized		Sig.
		B	Std. Error	Beta	t	
4	(Constant)	4.072	2.483		1.640	.108
	Darwinian	.872	.329	.368	2.648	.011
	Communitarian	.071	.428	.025	.167	.868
	Missionary	-.334	.410	-.127	-.814	.420

Dependent variable: Item 6

Model four was able to account for 12.9 % of the variance in business planning success as visible in the ANOVA analysis (see appendix Tables 11 & 12), $F(3, 48) = 2.371$, $p < 0.1$, $R^2 = 0.129$

The model indicates that the darwinian identity ($p = 0.011$, $Beta = .368$) has a positive effect on item 6 (feasibility of the business proposal given the situation) and significantly contributes to its prediction.

Furthermore, a significant correlation was found between the darwinian identity and item 6, $r(61) = .341$, $p < 0.1$.

Additionally, the relationship between passion for inventing and the individual items from the business planning success scale was tested and no significant relationships were found, with $p > 0.01$ in all cases (see Appendix tables 25-42).

Lastly, the individual responses to the social identity and passion for inventing surveys were aggregated to test whether these variables influence business planning success on a group level. No significant relationship were found on the group level either, with $p > 0.01$ in all cases (see Appendix tables 46-48).

5. DISCUSSION

The goal of this study was to understand the impact of entrepreneurial passion and social identity on business planning success, expressed in the form of entrepreneurs acquiring venture capital funding. Based on the literature review, we hypothesized a positive relationship between individuals that are self-reportedly passionate for inventing and business planning success. Furthermore, we posited that the darwinian and communitarian social identities positively influence business planning success, while the missionary identity does so negatively.

To achieve this goal, data was collected from students enrolled at the University of Twente who, as part of their coursework, had to develop and present a business plan proposal to two judges, acting as proxies for venture capitalists, with multiple years of experience in business development. The data regarding self-reported passion for inventing was acquired by way of surveys sent out to students which utilized the scale developed by Cardon et al. (2013). Data regarding social identity was also acquired through surveys which used the scale developed by Sieger et al. (2016). Both scales consist of declarative statements to which students are asked to voice their agreement/disagreement on a 7-point Likert scale with a neutral midway point.

Lastly, the data for business planning success was acquired from the judges who were asked to voice their agreement/disagreement with 6 declarative statements relating to various aspects of the proposal such as feasibility and economic value. This scale also utilized a 7-point Likert scale.

Finding 1: Social identity has no association with business planning success as a whole.

The findings of the multiple linear regression indicate that none of the three social identity groups significantly predict business planning success as a whole. Additionally, no significant correlations were found between social identity and business planning success.

A possible reason for this outcome is that the data for social identity was collected on an individual level, while the judges rated the business plans on a group level. Because the testing did not take into account the differing social identities of other group members and their possible impact on the business idea, goals and proposal, the social identities of the

individuals that comprised the groups did not, on their own, significantly impact business planning success. That is to say, a darwinian entrepreneur who is hypothesized to possess the characteristics required to achieve business planning success might have been in a team with three missionaries whose values and ideas are less likely to fulfill the evaluation criteria. This notion is supported by research that states that goal congruence and shared mental models amongst team members impact their performance level (Mathieu et al., 2000, Bain et al., 2001).

Furthermore, the concept of minority dissent i.e. disagreement with the beliefs and ideas of the majority (De Dreu, 2002), could be present if there is a lack of shared goals amongst group members as a consequence of their differing social identities. De Dreu posits that minority dissent could be beneficial to team performance if the team allows for a high level of participation during the decision-making process. However, the possibility also exists that this is not the case in certain groups and that those with social identities that are in the minority within the group are forced to go along with the desires of the majority. In other words, the possibility exists that, within our sample, individuals classified as one social identity ended up developing and presenting a business plan proposal that went contrary to the values they possessed. Similarly, Fauchart and Gruber (2011) found homogeneous founder teams to be more cohesive and consistent in the actions they take during the founding process while heterogeneous teams faced frequent disagreements and heated discussions which were, often unbeknownst to them, the result of diverging social identities and not a simple difference in opinion. Consequently, the results of this study might have been vastly different if each student had developed and presented a business plan proposal individually.

The issue of team composition in terms of the social identity of its members and the dynamics it creates present an opportunity for further research. A separate scale based on the work of Fauchart and Gruber (2011) could be developed to measure and classify social identity on a team level, as differing combinations of identities within a group may result in varying degrees of success, not just in terms of acquiring funding but in other aspects of business creation and development as well.

Finding 2: Passion for inventing has no association with business planning success as a whole.

Similarly to social identity, internally held passion for inventing was found not to be a significant predictor of business planning success. A possible reason for this is that the scale developed by Cardon et al. (2013) measures general feelings of passion and not passion for specific activities being performed at a certain point in time. In our study, students could have conceivably felt passionate for inventing in general, but not so for the particular business plan they were developing with their group since it was a mandatory part of their study course and not something they had chosen to do of their own volition. Further research could attempt to test whether entrepreneurs that are passionate about the

business they are a part of specifically, are more likely to achieve business planning success than those that are not.

An additional factor to consider is the team dynamics of the groups being evaluated. In their research on team passion, Cardon, Drnovsek and Murnieks (2009), found that, in a team environment, the differing roles for which members feel passionate contributes to team cohesion and conflict. Their findings indicate that the passion of individual group members can increase or decrease both cognitive and affective conflict within the group. Affective conflict is found to be particularly high in groups where certain members are passionate while others are not. Cognitive conflict, on the other hand, is at its highest when all members of the group are passionate for a single entrepreneurial role.

Similarly, Kraus & Schjoedt (2009) state that while heterogeneity in teams in terms of their deep-level characteristics can create constructive conflicts, the possibility exists that it may create negative ones as well. Furthermore, it has been shown that the quality of the social interactions within a group positively affect the success of the venture as a whole (Lechler, 2001). These factors add another layer to the relationship between passion and business planning success on a team level that our study did not take into account because passion was measured on an individual level and business planning success was measured on a group level. For instance, individuals in a mixed team consisting of both those that do and those that do not experience passion might have encountered low team cohesion and high affective conflict stemming from frustration with their groupmates which could negatively impact the output of the group as a whole. Consequently, students that are self-reportedly passionate might not have had the opportunity to channel that passion in the most productive way possible due to conflicts within their group.

Finding 3: The darwinian identity promotes a positive perception of the economic value aspect of business planning success.

Finding 4: The darwinian identity promotes a positive perception of the feasibility aspect of business planning success.

Upon finding no significant relationship between social identity and business planning success as a whole, a post hoc analysis was done between the three identity groups and each aspect of business planning success that the judges evaluated. The darwinian identity was found to significantly predict the perceived economic value and feasibility of the business proposal. This is in line with the research of Fauchart and Gruber (2011) that found that darwinian entrepreneurs place a high importance on the value generation capability of a business idea when founding their companies. This result also suggests that the darwinian identity is strong enough to individually affect team outcomes despite the results of previous tests indicating that individually measured social identity has no impact on team outcomes.

As feasibility in this context refers to whether the proposed business could actually operate successfully in a real world

setting, factors such as market size, potential return on investment and product innovativeness were likely taken into account by the judges. As we hypothesized earlier, these factors seem to be areas where the more traditional, profit oriented approach taken by darwinians appeal to the judges evidenced by the fact that a significant positive relationship was found between the darwinian identity and the feasibility of the business proposal. Darwinians are also less likely to attach a sentimental value to the niche of their proposed business and could thus conceivably be more objective when evaluating the feasibility of their own proposal than communitarians and missionaries who might place a higher importance on their personal feelings regarding the community which would be serviced by their business or the political agenda it would promote. That is to say, the values possessed by the darwinian entrepreneurs determining whether a business idea is feasible in their own mind, are more likely to be in line with the judges' criteria for evaluating feasibility than those of the communitarians and missionaries.

Similarly to feasibility, the profit oriented approach taken by darwinians appears to result in proposals that are of a higher economic value than those of their communitarian and missionary counterparts. Because the financial success of the business directly corresponds to their own personal financial aspirations, they are likely to place more emphasis on this aspect of the business resulting in a high economic value.. Furthermore, darwinian founders often have prior business experience and carefully plan their entrance into a new business field. On the other hand, communitarian and missionary founders for whom profit is not a primary concern might either lack the resources or competencies to handle the business aspect of the founding process. For instance, a communitarian founder's competencies might be rooted in product development and manufacturing as they had been making the product for friends and family long before deciding to sell it to a broader consumer base.

5.1 Limitations

A limitation of this study is that the observations obtained were not conducted in a real-world setting, rather by collecting data from students who were required to perform entrepreneurial activities as part of their study. Consequently, the business proposals they developed may not be representative of those developed by entrepreneurs seeking investments in their own businesses.

Secondly, this study was non-longitudinal in nature, meaning that no causal inferences can be made, leading to issues of reverse causality. However, in the context of this research and the data sources used, it was not feasible to conduct a longitudinal study.

Finally, the number of respondents to the surveys was not particularly high at just over 50. This number may have been sufficient had each student made his own business proposal; however, this was not the case since the proposals were developed in a group setting. As such, the impact of individual characteristics on group level outcomes might be

different than if individual level outcomes had been measured. Furthermore, the sample size becomes even smaller when the independent variables are aggregated as part of the post-hoc analysis in order to assess the impact of group level characteristics on the outcome.

5.2 Implications for Further Research

This paper provides the results of empirical testing of the relationship between social identity, entrepreneurial passion and the dependent variable of business planning success.

This research adds to the field of business planning success by expanding on studies pertaining to the acquisition of investment funding and the criteria used by venture capitalists when judging business proposals (MacMillan et al., 1985; Robinson, 1987; Mason & Stark, 2004). While previous studies examined entrepreneurs' characteristics, externally expressed during the presentation of a business proposal (Chen et al. 2009), our research focused on the self-reported, internally held beliefs of entrepreneurs about their own self. By doing so, we were able to examine which entrepreneurs' self-held personal characteristics were most likely to result in businesses that appeal to VCs.

Since the results indicate that passion does not significantly predict business planning success, it may be pertinent for further research to attempt instead to link passion to different aspects of the entrepreneurial process such as idea generation or opportunity recognition.

Furthermore, because our findings indicate that a darwinian identity results in business ideas that are perceived as more feasible and more economically valuable by potential investors, it may be of interest to identify additional darwinian identity traits beyond those described by Fauchart and Gruber (2011) which may influence VCs' funding decisions.

Additionally, the characteristics of the darwinian identity could also be tested as predictors of other aspects of the business development process, such as opportunity recognition or managerial practices subsequent to the acquisition of outside funding.

While the results of this study did not find the evidence required to accept the proposed hypotheses, it may be pertinent to examine the same relationship preferably using data gathered from individuals that will start a business in the near future and venture capitalists with a long-standing track record.

Lastly, this paper highlights that future research could focus on team dynamics through the lens of the social identity theory developed by Fauchart and Gruber (2011). It may be interesting to investigate which team compositions, in terms of social identities, would yield the best results in productivity, team cohesiveness and overall success.

5.3 Practical Implications

Our research indicates VCs may want to include the social

identity scale of Sieger et al. (2016) into the screening process that is conducted prior to the initial meeting with an entrepreneur. As we have demonstrated, the darwinian identity results in business proposals that are both more feasible and more economically valuable. As such, the addition of this scale into the screening process could weed out extreme outlier cases whose priorities and goals are vastly different than those of the VC.

Additionally, this research could provide entrepreneurs with insights into the influences and contributions different social identities make towards business planning success as a whole as well as in its individual aspects. More specifically, the knowledge that the darwinian identity significantly predicts key aspects of business planning success i.e. feasibility and economic value, may have benefits during certain aspects of the entrepreneurial process such as hiring employees or selecting partners.

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8. APPENDIX

Table 3. Correlations

		Person correlation coefficients					
		1.	2.	3.	4.	5.	6.
1. Darwinian	Correlation	1					
	Sig (2-tailed)						
2. Communitarian	Correlation	.147	1				
	Sig (2-tailed)	.298					
3. Missionary	Correlation	.248	.470*	1			
	Sig (2-tailed)	.076	.000				
4. Passion (IPF)	Correlation	.472*	.484*	.609*	1		
	Sig (2-tailed)	.001	.001	.000			
5. Passion (IC)	Correlation	.085	.463*	.591*	.601*	1	
	Sig (2-tailed)	.572	.001	.000	.000		
6. BPS Score	Correlation	.157	-.017	.054	.139	.177	1
	Sig (2-tailed)	.266	.905	.704	.335	.220	

Table 6. Model summary regression Social identity

Model	R	R square	Adjusted R square	SE of estimate
1	.167 ^a	.028	-.033	1.98923

a. Predictors: (Constant), Missionary, Darwinian, Communitarian

Table 7. ANOVA Social identity

Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	5.149	3	1.806	.456	.714 ^b
	Residual	189.938	48	3.957		
	Total	195.356	51			

a. Dependent Variable: business planning success

b. Predictors (Constant), Missionary, Darwinian, Communitarian

Table 8. Model summary regression Passion

Model	R	R square	Adjusted R square	SE of estimate
1	.181 ^a	.033	-.008	2.12498

a. Predictors: (Constant), Passion Inventing (IC), Passion Inventing (IPF)

Table 8. ANOVA Passion

Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	7.224	2	3.612	.800	.455 ^b
	Residual	212.23	47	4.516		
	Total	219.453	49			

a. Dependent Variable: business planning success

b. Predictors: (Constant), Passion inventing (IC), Passion Inventing (IPF)

Table 9. Model summary regression Social identity (Item 1)

Model	R	R square	Adjusted R square	SE of estimate
1	.258 ^a	.066	.008	2.555444

a. Predictors (Constant), Missionary, Darwinian, Communitarian

Table 10. ANOVA Social identity (Item 1)

Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	22.316	3	7.439	1.139	.343 ^b
	Residual	313.453	48	6.530		
	Total	335.769	51			

a. Dependent Variable: Judges Question 1

b. Predictors; (Constant), Missionary, Darwinian, Communitarian

Table 11. Model summary regression Social identity (Item 6)

Model	R	R square	Adjusted R square	SE of estimate
1	.359 ^a	.129	.075	2.26636

a. Predictors: (Constant), Missionary, Darwinian, Communitarian

Table 12. ANOVA Social identity (Item 6)

Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	36.531	3	12.177	2.371	.082 ^b
	Residual	246.546	48	5.136		
	Total	283.077	51			

a. Dependent Variable: Judges Question 6

b. Predictors: (Constant), Missionary, Darwinian, Communitarian

Table 13. Model summary regression: Social identity (Item 2)

Model	R	R square	Adjusted R square	SE of estimate
1	.210 ^a	.044	-.016	2.33361

Table 14. ANOVA Social identity (Item 2)

Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	12.048	3	4.016	.737	.535 ^b
	Residual	261.394	48	5.446		
	Total	273.442	51			

a. Dependent Variable: Judges Question 2

b. Predictors: (Constant), Missionary, Darwinian, Communitarian

Table 15. Multiple linear regression analysis: Social identity (Item 2)

<i>Coefficients</i>						
Model		Unstandardized		Standardized	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.205	2.557		3.209	.002
	Darwinian	-.368	.339	-.158	-1.084	.284
	Communitarian	-.224	.441	-.081	-.508	.614
	Missionary	.513	.422	.199	1.216	.230

Dependent variable: Judges question 2

Table 16. Model summary regression: Social identity (Item 3)

Model	R	R square	Adjusted R square	SE of estimate
1	.149 ^a	.022	-.039	1.63356

a. Predictors: (Constant), Missionary, Darwinian, Communitarian

Table 17. ANOVA: Social identity (Item 3)

Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	2.891	3	.964	.361	.781 ^b
	Residual	128.090	48	2.669		
	Total	130.981	51			

a. Dependent Variable: Judges Question 3

b. Predictors: (Constant), Missionary, Darwinian, Communitarian

Table 18. Multiple regression: Social identity (Item 3)

<i>Coefficients</i>						
Model		Unstandardized		Standardized	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.825	1.790		4.931	.000
	Darwinian	-.040	.237	-.025	-.170	.866
	Communitarian	-.309	.309	-.162	-1.002	.321
	Missionary	.099	.295	.055	.335	.739

Dependent variable: Judges question 3

Table 19. Model summary regression: Social identity (Item 4)

Model	R	R square	Adjusted R square	SE of estimate
1	.160 ^a	.025	-.035	2.51715

a. Predictors: (Constant), Missionary, Darwinian, Communitarian

Table 20. ANOVA: Social identity (Item 4)

Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	7.946	3	2.649	.418	.741 ^b
	Residual	304.131	48	6.336		
	Total	312.077	51			

a. Dependent Variable: Judges Question 4

b. Predictors: (Constant), Missionary, Darwinian, Communitarian

Table 21. Multiple regression: Social identity (Item 4)

<i>Coefficients</i>						
Model		Unstandardized		Standardized	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.842	2.758		2.844	.007
	Darwinian	.309	.366	.124	.845	.402
	Communitarian	-.361	.476	-.123	-.760	.451
	Missionary	.044	.455	.016	.097	.923

Dependent variable: Judges question 4

Table 22. Model summary regression: Social identity (Item 5)

Model	R	R square	Adjusted R square	SE of estimate
1	.173 ^a	.030	-.031	2.59307

a. Predictors: (Constant), Missionary, Darwinian, Communitarian

Table 23. ANOVA: Social identity (Item 5)

Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	9.921	3	3.307	.492	.690 ^b
	Residual	322.752	48	6.724		
	Total	332.673	51			

a. Dependent Variable: Judges Question 5

b. Predictors: (Constant), Missionary, Darwinian, Communitarian

Table 24. Multiple regression: Social identity (Item 5)

<i>Coefficients</i>						
Model		Unstandardized		Standardized	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.270	2.841		2.911	.005
	Darwinian	.395	.377	.154	1.047	.300
	Communitarian	-.196	.490	-.064	-.400	.691
	Missionary	-.224	.469	-.079	-.477	.636

Dependent variable: Judges question 5

Table 25. Model summary regression: Passion for inventing (Item 1)

Model	R	R square	Adjusted R square	SE of estimate
1	.230 ^a	.053	.013	2.71608

a. Predictors: (Constant), Passion inventing (IC), Passion Inventing (IPF)

Table 26. ANOVA: Passion for inventing (Item 1)

Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	19.357	2	9.678	1.312	.279 ^b
	Residual	346.723	47	7.377		
	Total	366.08	49			

a. Dependent Variable: Judges Question 1

b. Predictors: (Constant), Passion Inventing (IC), Passion Inventing (IPF)

Table 26. Multiple regression: Passion for inventing (Item 1)

<i>Coefficients</i>						
Model		Unstandardized		Standardized	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.246	1.864		3.350	.002
	Passion inventing (IPF)	.003	.419	.001	.007	.994
	Passion Inventing (IC)	.473	.366	.229	1.290	.203

a. Dependent variable: Judges question 1

Table 27. Model summary regression: Passion for inventing (Item 2)

Model	R	R square	Adjusted R square	SE of estimate
1	.222 ^a	.049	.009	2.43751

a. Predictors: (Constant), Passion inventing (IC), Passion Inventing (IPF)

Table 28. ANOVA: Passion for inventing (Item 2)

Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	14.432	2	7.216	1.215	.306 ^b
	Residual	279.248	47	5.941		
	Total	293.680	49			

a. Dependent Variable: Judges Question 2

b. Predictors: (Constant), Passion Inventing (IC), Passion Inventing (IPF)

Table 29. Multiple regression: Passion for inventing (Item 2)

<i>Coefficients</i>						
Model		Unstandardized		Standardized	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.010	1.673		3.592	.001
	Passion inventing (IPF)	-.024	.376	-.011	-.065	.949
	Passion Inventing (IC)	.422	.329	.228	1.283	.206

a. Dependent variable: Judges question 2

Table 30. Model summary regression: Passion for inventing (Item 3)

Model	R	R square	Adjusted R square	SE of estimate
1	.086 ^a	.007	-.035	1.90910

a. Predictors: (Constant), Passion inventing (IC), Passion Inventing (IPF)

Table 31. ANOVA: Passion for inventing (Item 3)

Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	1.281	2	.641	.176	.839 ^b
	Residual	171.299	47	3.645		
	Total	172.580	49			

a. Dependent Variable: Judges Question 3

b. Predictors: (Constant), Passion Inventing (IC), Passion Inventing (IPF)

Table 32. Multiple regression: Passion for inventing (Item 3)

<i>Coefficients</i>						
Model		Unstandardized		Standardized	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.067	1.310		5.393	.000
	Passion inventing (IPF)	.141	.294	.087	.478	.635
	Passion Inventing (IC)	-.002	.258	-.001	-.008	.994

a. Dependent variable: Judges question 3

Table 33. Model summary regression: Passion for inventing (Item 4)

Model	R	R square	Adjusted R square	SE of estimate
1	.180 ^a	.032	-.009	2.78847

a. Predictors: (Constant), Passion inventing (IC), Passion Inventing (IPF)

Table 34. ANOVA: Passion for inventing (Item 4)

Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	12.170	2	6.085	.783	.463 ^b
	Residual	365.450	47	7.776		
	Total	377.620	49			

a. Dependent Variable: Judges Question 4

b. Predictors: (Constant), Passion Inventing (IC), Passion Inventing (IPF)

Table 35. Multiple regression: Passion for inventing (Item 4)

<i>Coefficients</i>						
Model		Unstandardized		Standardized	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.672	1.914		3.486	.001
	Passion inventing (IPF)	-.130	.430	-.054	-.301	.765
	Passion Inventing (IC)	.433	.376	.207	1.152	.255

a. Dependent variable: Judges question 4

Table 36. Model summary regression: Passion for inventing (Item 5)

Model	R	R square	Adjusted R square	SE of estimate
1	.051 ^a	.003	-.040	2.68800

a. Predictors: (Constant), Passion inventing (IC), Passion Inventing (IPF)

Table 37. ANOVA: Passion for inventing (Item 6)

Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	.890	2	.445	.062	.940 ^b
	Residual	339.590	47	7.225		
	Total	340.480	49			

a. Dependent Variable: Judges Question 5

b. Predictors: (Constant), Passion Inventing (IC), Passion Inventing (IPF)

Table 38. Multiple regression: Passion for inventing (Item 5)

<i>Coefficients</i>						
Model		Unstandardized		Standardized	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.890	1.845		4.277	.000
	Passion inventing (IPF)	.066	.415	.029	.159	.874
	Passion Inventing (IC)	.056	.363	.028	.155	.878

a. Dependent variable: Judges question 5

Table 39. Model summary regression: Passion for inventing (Item 6)

Model	R	R square	Adjusted R square	SE of estimate
1	.218 ^a	.047	.007	2.32408

a. Predictors: (Constant), Passion inventing (IC), Passion Inventing (IPF)

Table 40. ANOVA: Passion for inventing (Item 6)

Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	12.616	2	6.308	1.168	.320 ^b
	Residual	253.864	47	5.401		
	Total	266.480	49			

a. Dependent Variable: Judges Question 6

b. Predictors: (Constant), Passion Inventing (IC), Passion Inventing (IPF)

Table 41. Multiple regression: Passion for inventing (Item 6)

<i>Coefficients</i>						
Model		Unstandardized		Standardized	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.155	1.595		3.858	.000
	Passion inventing (IPF)	.548	.359	.272	1.528	.133
	Passion Inventing (IC)	-.286	.314	-.162	-.911	.367

a. Dependent variable: Judges question 6

Table 42. Correlation individual items BPS scale

		Person correlation coefficients										
		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Darwinian	Correlation	1										
	Sig (2-tailed)											
2. Communitarian	Correlation	.147	1									
	Sig (2-tailed)	.298										
3. Missionary	Correlation	.248	.470*	1								
	Sig (2-tailed)	.076	.000									
4. Passion (IPF)	Correlation	.472*	.484*	.609	1							
	Sig (2-tailed)	.001	.001	.000								
5. Passion (IC)	Correlation	.085	.463*	.591	.601	1						
	Sig (2-tailed)	.572	.001	.000	.000							
6. Item 1	Correlation	.252	-.015	.026	.139	.230	1					
	Sig (2-tailed)	.072	.918	.854	.336	.108						
7. Item 2	Correlation	-.121	-.011	.121	.126	.221	.443	1				
	Sig (2-tailed)	.394	.938	.392	.384	.122	.001					
8. Item 3	Correlation	-.35	-.140	-.027	.086	.051	.658	.471	1			
	Sig (2-tailed)	.804	.323	.848	.552	.726	.000	.000				
9. Item 4	Correlation	.11	-.097	-.011	.070	.174	.903	.609	.702	1		
	Sig (2-tailed)	.436	.494	.939	.628	.226	.000	.000	.000			
10. Item 5	Correlation	.125	-.079	-.071	.046	.046	.846	.456	.639	.867	1	
	Sig (2-tailed)	.378	.579	.618	.752	.753	.000	.000	.000	.000		
11. Item 6	Correlation	.341*	.020	-.024	.175	.001	.634	.055	.339	.522	.759	1
	Sig (2-tailed)	.013	.888	.868	.225	.993	.000	.691	.011	.000	.000	

Table 43. Model summary regression: Group level social identity

Model	R	R square	Adjusted R square	SE of estimate
1	.383 ^a	.147	-.086	1.83295

a. Predictors: (Constant), Missionary, Darwinian, Communitarian

Table 44. ANOVA: Group level social identity

Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	6.364	3	2.121	.631	.610 ^b
	Residual	36.957	11	3.360		
	Total	43.32	14			

a. Dependent Variable: business planning success

b. Predictors: (Constant), Missionary, Darwinian, Communitarian

Table 45. Multiple regression: Group level social identity

<i>Coefficients</i>						
Model		Unstandardized		Standardized	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.367	6.836		.931	.372
	Darwinian	1.159	.877	.394	1.321	.213
	Communitarian	-.612	1.347	-.150	-.454	.658
	Missionary	-.297	1.352	-.075	-.220	.830

a. Dependent variable: business planning success

Table 46. Model summary regression: Group level passion for inventing

Model	R	R square	Adjusted R square	SE of estimate
1	.189 ^a	.036	-.125	2.20834

a. Predictors: (Constant), Passion inventing (IC), Passion Inventing (IPF)

Table 47. ANOVA: Group level passion for inventing

Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	2.172	2	1.086	.223	.804 ^b
	Residual	58.521	12	4.877		
	Total	60.693	14			

a. Dependent Variable: business planning success

b. Predictors: (Constant), Passion Inventing (IC), Passion Inventing (IPF)

Table 48. Multiple regression: Group level passion for inventing

<i>Coefficients</i>						
Model		Unstandardized		Standardized	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.151	1.958		3.653	0.03
	Passion inventing (IPF)	.498	.813	.363	.613	.552
	Passion Inventing (IC)	-.314	.763	-.244	-.411	.688

a. Dependent variable: business planning success

Business planning success scale	
Item	Statement
1	The business opportunity has potential economic value.
2	The business opportunity is new
3	The business opportunity is perceived as desirable.
4	I will consider this business an opportunity.
5	This business is worth considering.
6	This business is feasible given the situation.

Social identity scale	
Item	Statement
1	I would create a firm in order to advance my career in the business world.
2	I would create a firm in order to solve a specific problem for a group of people that I strongly identify with (e.g. friends, colleagues, club, community).
3	I would create a firm in order to play a proactive role in shaping the activities of a group of people that I strongly identify with.
4	I would create a firm in order to play a proactive role in changing how the world operates.
5	As a firm founder, it would be very important to me to operate my firm on the basis of solid management practices.
6	As a firm founder, it would be very important to me to have thoroughly analysed the financial prospects of my business.
7	As a firm founder, it would be very important to me to provide a product/service that is useful to a group of people that I strongly identify with (e.g. friends, colleagues, club, community).
8	As a firm founder, it would be very important to me to be a highly responsible citizen of our world.
9	As a firm founder, it would be very important to me to make the world a "better place" (e.g. by pursuing social justice, protecting the environment).
10	When managing my firm, it would be very important to me to have a strong focus on what my firm can achieve vis-à-vis the competition.

11	When managing my firm, it would be very important to me to establish a strong competitive advantage and significantly outperform other firms in my domain.
12	When managing my firm, it would be very important to me to have a strong focus on a group of people that I strongly identify with (e.g. friends, colleagues, club, community).
13	When managing my firm, it would be very important to me to support and advance a group of people that I strongly identify with.
14	When managing my firm, it would be very important to me to have a strong focus on what the firm is able to achieve for society-at-large.
15	When managing my firm, it would be very important to me to convince others that private firms are indeed able to address the type of societal challenges that my firm addresses (e.g., social justice, environmental protection).

Passion scale¹	
Item	Statements
1	It is exciting to figure out new ways to solve unmet market needs that can be commercialized.
2	Searching for new ideas for products/services to offer is enjoyable to me.
3	I am motivated to figure out how to make existing products/services better.
4	Scanning the environment for new opportunities really excites me.
5	Inventing new solutions to problems is an important part of who I am.
6	Establishing a new company would excite me.
7	Owning my own company would energize me.
8	Nurturing a new business through its emerging success would be enjoyable.
9	Being the founder of a business would be an important part of who I am.
10	I would really like finding the right people to market my product/service to.
11	Assembling the right people to work for my future business would be exciting.
12	Pushing my employees and myself to make my future company better would motivate me.
13	Nurturing and growing companies will be an important part of who I am.

1. Only items 1-5 (passion for inventing) were used for this research