

6-11-2011

PATHWAYS OF FIRE: AN EMPIRICAL LOOK AT ENTREPRENEURIAL PASSION

Charles Y. Murnieks

U.S. Air Force Academy, charles.murnieks@usafa.edu

Elaine Mosakowski

University of Connecticut

Melissa S. Cardon

Pace University

Recommended Citation

Murnieks, Charles Y.; Mosakowski, Elaine; and Cardon, Melissa S. (2011) "PATHWAYS OF FIRE: AN EMPIRICAL LOOK AT ENTREPRENEURIAL PASSION," *Frontiers of Entrepreneurship Research*: Vol. 31: Iss. 4, Article 2.

Available at: <http://digitalknowledge.babson.edu/fer/vol31/iss4/2>

This Paper is brought to you for free and open access by the Entrepreneurship at Babson at Digital Knowledge at Babson. It has been accepted for inclusion in Frontiers of Entrepreneurship Research by an authorized administrator of Digital Knowledge at Babson. For more information, please contact digitalknowledge@babson.edu.

PATHWAYS OF FIRE: AN EMPIRICAL LOOK AT ENTREPRENEURIAL PASSION



Charles Y. Murnieks, U.S. Air Force Academy, USA

Elaine Mosakowski, University of Connecticut, USA

Melissa S. Cardon, Pace University, USA

ABSTRACT

This paper develops and tests a theory of entrepreneurial passion. We draw from the literature on identity theory to investigate the influence of entrepreneurial identities on entrepreneurial passion, as well as the relationship of entrepreneurial passion to behavior. Empirical analyses of responses from 247 entrepreneurs confirm that entrepreneurial passion rises and falls in connection with entrepreneurial identity centrality. Moreover, entrepreneurial passion influences entrepreneurial behavior through multiple pathways involving intrinsic motivation, self-efficacy and positive affect. This research provides new insights into the factors that impact entrepreneurial passion as well as the mechanisms through which that passion stokes the fire of entrepreneurial action.

INTRODUCTION

Scholars and practitioners alike agree that passion is an important catalyst in the entrepreneurial process (Bird, 1989; Cardon et al., 2005). Television host and M.S. Living Omnimedia founder Martha Stewart says “passion is the first and most essential ingredient for planning and beginning a business.” Smilor (1997: 342) claims that passion is “perhaps the most observed phenomenon of the entrepreneurial process.” Cardon et al. (2009: 511) state that “passion is deeply embedded in the folklore and practice of entrepreneurship.”

Given the widely held belief that entrepreneurial passion is such an important factor, it is surprising that scant empirical research exists concerning its nature and effects (Shane et al., 2003). Scholars have established the importance of passion in the entrepreneurial process (Shane et al., 2003) and examined empirically how it links to venture performance (Baum, Locke & Smith, 2001; Baum & Locke, 2004) and venture capital investments (Chen, Yao & Kotha, 2009). To date, however, researchers have neither investigated those factors that might influence the growth of entrepreneurial passion nor detailed how it impacts the actions of entrepreneurs themselves. In this study, we draw from the recent theoretical work surrounding passion in general (Vallerand et al., 2003) as well as entrepreneurial passion specifically (Cardon et al., 2009), and integrate it with identity theory (Stryker & Burke, 2000) to undertake a deeper investigation of entrepreneurial passion's effects. We develop and test a comprehensive model that explores both the factors that influence entrepreneurial passion and the mechanisms through which it subsequently affects individual entrepreneurs. In developing this model, we propose that passion strength is directly influenced by the entrepreneurial identity. We then expand this model to explore the pathways through which entrepreneurial passion inspires entrepreneurial action and relates to affective experiences. We test our model using a sample of actively engaged entrepreneurs.

This study makes important contributions to both social psychological and entrepreneurship research. First, we expand understanding surrounding the holistic nature of passion by integrating it with identity theory. An identity theory lens provides useful insights into where passion might emerge, and what factors play a role in influencing its growth. Though previous scholars have theorized that identities may influence passion (Cardon et al., 2009; Vallerand et al., 2007), empirical work confirming these ties, such as that undertaken in this study, is lacking. By analyzing the behavior of individual entrepreneurs, we provide useful insights into the factors residing within the self-concept responsible for the growth or decay of passion.

The second contribution concerns the mechanisms through which entrepreneurial passion influences individual behavior. Although work by other scholars links entrepreneurial passion to venture growth (Baum, Locke & Smith, 2001; Baum & Locke 2004), scholars have yet to test these ties with respect to individual entrepreneurial actions, a key component of the study of entrepreneurship (Amabile, 1997; McMullen & Shepherd, 2006). We bridge this gap. Numerous authors have investigated how variables like motivation (Edelman et al., 2010; Gimeno et al., 1997; Miner et al., 1994), self-efficacy (Baum & Bird, 2010; Hmieleski & Corbett, 2008) and affect (Foo et al., 2009; Grichnik et al., 2010) influence entrepreneurs. We extend their work by drawing from the extant theories in each of these areas, and integrating them with work on entrepreneurial passion to diagram a model where the latter influences individuals via pathways through intrinsic motivation, self-efficacy and affect.

In the sections that follow, we review extant work surrounding entrepreneurial passion as well as research concerning identity theory. Next, we extend identity theory into the realm of entrepreneurship in order to explore the connections between entrepreneurial identities and entrepreneurial passion. We then integrate these concepts into a comprehensive model of entrepreneurial behavior. Finally, we present our empirical study and results that support this model, and offer a discussion of our findings.

THEORY AND HYPOTHESES

Defining Passion

Vallerand et al. (2003) define passion as a strong inclination towards an activity that people like and that they find important. Building on this definition in the entrepreneurial realm, Cardon et al. (2009) conceptualize entrepreneurial passion as consciously accessible, intense positive feelings related to the entrepreneurial activities that are meaningful and salient to the self-identity of the entrepreneur. We draw from the work of both these groups to define entrepreneurial passion as a strong inclination towards enjoyable, important activities related to being an entrepreneur. Our definition of entrepreneurial passion follows the more general definition of passion chosen by Vallerand et al. (2003) because we employ the same empirical scales they used, and as such, we attempt to remain close theoretically to the construct they measure. That said, Vallerand et al. (2003) do not make explicit the ties between passion and the identity of the person feeling passion, while Cardon et al. (2009) do. We agree with the latter that entrepreneurial passion is tied to entrepreneurial identities, but rather than tie those two concepts together definitionally, we both explicate and test those links in this study.

In their dualistic model of passion, Vallerand and his colleagues argue that passions can be harmonious or obsessive (Vallerand et al., 2003). Harmonious passions are associated with autonomous internalization of inclinations towards activities into one's self-concept, which generate

positive emotions. Obsessive passions are characterized by controlled internalizations of inclinations towards activities, and generate negative emotions when they are not engaged. In this paper, we conceptualize entrepreneurial passion as harmonious, associated primarily with positive affect and autonomous engagement. Furthermore, when we reference the work of Vallerand and his colleagues (2008, 2007, 2003), we refer primarily to their theory and results surrounding harmonious passions. Although the conceptualization of entrepreneurial passion as obsessive is a fascinating stream of inquiry, we leave that discussion for another paper.

Entrepreneurial Passion

To our knowledge, only three studies have examined entrepreneurial passion empirically, and none of those has explored the possible factors that might cause passion to rise or fall. First, Baum, Locke and Smith (2001) conceptualized entrepreneurial passion as one component amidst three personality traits of entrepreneurs, and analyzed the links between a composite of those traits and overall venture growth. Second, Baum and Locke (2004) went a step further and analyzed the individual effect of entrepreneurial passion on venture growth, as well the relationship between passion and entrepreneurial goals, self-efficacy, and communicated vision. Taken together, Baum et al. (2001) and Baum and Locke (2004) found that passion does not impact venture growth directly, but rather works through pathways mediated by constructs more proximal to individual behavior, such as motivation, goals and self-efficacy. Third, Chen, Yao and Kotha (2009) evaluated the impact of perceived entrepreneurial passion on venture capitalists' decisions to invest in new businesses. They found that venture capitalists were less influenced by passionate displays of emotion versus logical presentations supported by facts. In all three studies, the focus was on the relationship between an individual's passion and either an organizational or other-focused outcome variable (venture capitalists). There is an absence of an organized body of empirical literature focused on studying entrepreneurial passion and its effects on individual entrepreneurs. We therefore push the analysis of entrepreneurial passion down to the individual level, seeking to provide a more comprehensive view of its possible origins as well as its outcomes. To begin, we posit that entrepreneurial identities are key factors influencing the rise or fall of passion, which we explore in greater depth in the next section.

Entrepreneurial identities

We contend that entrepreneurial passion is linked to entrepreneurial identities (Cardon et al., 2009). Entrepreneurial identities are cognitive schemas of interpretations and behavioral prescriptions that allow individuals to understand what it means to be an entrepreneur (Hoang & Gimeno, 2010; Murnieks & Mosakowski, 2006). According to identity theory (Stryker, 1968; Stryker & Burke, 2000), all identities begin as social roles. These roles embody the behaviors and meanings attached to certain social categories like "entrepreneur" (or, doctor, teacher, etc.) Individuals learn what it means to be an entrepreneur by first viewing how society interprets that particular social role. Identities are formed when these roles are internalized by an individual into his/her cognitive schema (Cast, 2004; Stryker & Serpe, 1982). In other words, an entrepreneurial identity forms when an individual internalizes the external meanings associated with the entrepreneurial role, and makes them self-defining; the individual begins to call himself or herself an "entrepreneur". When an individual reflects on what it means to be an "entrepreneur", s/he references the meanings and behaviors associated with his or her entrepreneurial identity. Even though there may be some variance across societal members as to which exact behaviors are associated with any role, the important point is that whatever meanings characterize the role of entrepreneur are no longer held external to the individual, but have now become part of the focal individual's

self-concept as an entrepreneurial identity. As such, this identity motivates behavioral attempts to confirm or verify its existence (Burke & Stets, 1999; McCall & Simmons, 1966). Individuals possess a need to feel competent (Ryan & Deci, 2000) and verification of one's identities satisfies this need (Burke, 1991; Swann, Pelham & Krull, 1989). Once identities are integrated into the self-concept, individuals are strongly motivated to act in a manner consistent with those identities (Burke & Reitzes, 1981, McCall & Simmons, 1966). Entrepreneurial identities are likely to be characterized by general meanings or actions related to the discovery, evaluation, and exploitation of opportunities (Shane & Venkataraman, 2000), as well as specific entrepreneurial actions like inventing new products, and founding and developing new companies (Cardon et al., 2009; Cardon & Glauser, 2010).

Entrepreneurial Identity and Identity Hierarchies

Although entrepreneurs likely possess numerous identities in addition to an entrepreneurial one, they are unlikely to rank all these identities equally. Identity theorists contend that the identities comprising our self-concepts can be organized according to two different hierarchies: 1) centrality (McCall & Simmons, 1966) and 2) salience (Serpe, 1987; Stryker, 1968). Centrality refers to the relative importance that an individual places upon a focal identity compared to other identities whereas salience refers simply to the probability of enactment of that focal identity. McCall and Simmons (1966) discuss the hierarchy of centrality, and are careful to separate the importance that individuals place on identities (centrality) from the actual probability of enactment (salience). The differences between these two hierarchies are elaborated at greater length in the next paragraph. For now, we emphasize that hierarchies of centrality and salience should not be viewed as competing explanations of identity organization, but rather are complementary.

Stryker and Serpe (1994) empirically demonstrated, with a sample of 320 college students, that both identity salience and centrality are separate and significant predictors of behavior. The key distinction between them arises from the fact that centrality requires the individual to ascribe importance personally to an identity whereas salience does not, referring only to the probability of enactment. As such, centrality demands conscious reflection by the individual; salience implies no such requirement (Stryker & Serpe, 1994). Salience is simply concerned with behavior, and does not make assumptions about whether conscious thought concerning the identity preceded that behavior. We maintain the conceptual distinction between these two hierarchies because many factors may drive certain identities to be enacted, or be salient, at certain points in time. Centrality is only one of these factors.

Linking Identity Centrality to Entrepreneurial Passion

Scholars assert that passion is related to identities (Vallerand et al., 2007), and that entrepreneurial passion is related to entrepreneurial identities (Cardon et al., 2009). However, because entrepreneurial identities residing within the self-concept are complex entities, the question remains as to what aspects of identity might influence entrepreneurial passion. Building on the work above, we argue that entrepreneurial passion is linked to entrepreneurial identity centrality. More specifically, as the importance of the entrepreneurial identity rises and falls, so will entrepreneurial passion. Entrepreneurial passion is tied to activities that are deemed important to the focal individual. As such, an individual feels passion towards activities, in part, because they are important. It stands to reason then, that factors influencing the perceived importance of activities might also influence the passion experienced. Higher identity centrality indicates higher identity importance (Callero, 1985; Rosenberg, 1979), and by extension, higher activity importance. Therefore, the activities associated with verifying central identities are likely to be

viewed as more important to individuals than activities associated with less central identities. Accomplishment of the activities associated with highly central identities leads to self-verification, which produces positive affect (Burke, 2004; Stets, 2004) and self-esteem (Burke & Stets, 1999; Erez & Earley, 1993). Given this relationship, we contend that individuals are more likely to feel passionate about activities to the extent they are related to verification of a highly central identity.

H1: Entrepreneurial passion is significantly impacted by entrepreneurial identity centrality.

We contend that entrepreneurial identity centrality, rather than salience, is linked to entrepreneurial passion because the act of ascribing importance in centrality rankings is likely an autonomous decision. In assigning centrality to identities, individuals reflect upon and think about whether or not the identity in question is important to the self-concept (Stryker & Serpe, 1994). Since this cognitive process allows an individual the freedom to choose which identities truly define him or her, the process is deemed autonomous. Because identity centrality decisions are autonomous, the identities ranking higher in centrality are more likely to be associated with the joyful feelings or positive affect characteristic of entrepreneurial passion.

Conversely, identity salience refers simply to enactment of identity-related activities. Hierarchies of salience can be affected by many extrinsic factors (such as needs of the moment or external pressures felt from other people), and as such, are not necessarily autonomous in nature. They may be enacted because the individual feels compelled by other people to do so, or feels that their own sense of self-worth is at jeopardy if they do not act accordingly. Motivations such as these are not aligned with the autonomous nature of passion, especially harmonious passion (Vallerand et al., 2003). Thus, it is not clear what the relationship between salience and entrepreneurial passion might be. Whereas we do not propose a formal null hypothesis concerning the entrepreneurial passion and identity salience, we still consider identity salience to be an important control variable in any assessment of identity centrality and entrepreneurial passion.

Linking Entrepreneurial Passion to Individual Entrepreneurial Behavior

Scholars have shown that entrepreneurial passion impacts venture growth (Baum & Locke, 2004; Baum et al., 2001) and have theorized that it leads directly to individual persistence (Chandler & Jansen, 1992), absorption (or flow (Csikszentmihalyi, 1990), where entrepreneurs are so caught up in their activities that they enter a flow-like state and lose all sense of time and their surroundings), and creative problem solving (Zhou & George, 2001; Cardon et al., 2009). Surprisingly though, there is little empirical evidence concerning how entrepreneurial passion actually links to individual entrepreneurial behavior.

As an inclination, entrepreneurial passion undoubtedly ties to motivational resources impelling entrepreneurial behavior. Yet, entrepreneurial passion may not tie directly to entrepreneurial behavior, and instead its effects may be mediated by more proximal elements. For example, during their investigation of entrepreneurial passion and venture growth, Baum and his colleagues discovered that passion's effect was mediated by intrinsic motivation and self-efficacy (Baum et al., 2001). Even though this work investigated passion's effects at the firm-, versus the individual-, level, the results are insightful for our investigation. First, entrepreneurial passion and intrinsic motivation are not identical constructs, even though they appear to be related. Vallerand et al. (2003) empirically confirm this distinction through factor analysis. Second, intrinsic motivation is more proximally related to behavior than passion in Baum and colleagues' findings. As an inclination associated with pleasurable feelings, passion provides the spark to want to engage in

activities related to entrepreneurship. In turn, those individuals who experience entrepreneurial passion are likely to feel intrinsically motivated to engage in entrepreneurial activities. In support of this line of reasoning, Vallerand and his colleagues found that passion did not lead directly to performance, but rather generated an internal motivation that led to deliberate practice, which in turn led to better individual performance (Vallerand et al., 2007). Thus, the effects of passion were mediated by factors more proximal to behavior. Following the logic of previous scholars, we contend that entrepreneurial passion should lead to intrinsic motivation, which in turn leads to entrepreneurial behavior.

H2: The effect of entrepreneurial passion on entrepreneurial behavior will be mediated by intrinsic motivation.

As discussed earlier, Baum and Locke (2004) contend that entrepreneurial passion fires the desire for individuals to pursue activities related to the practice of entrepreneurship. When individuals engage in these activities, they are likely to acquire skills related to being an entrepreneur. Over time, increased acquisition of such skills likely enhances the entrepreneur's efficacy beliefs. For example, Baum and Locke (2004) demonstrate that passion or love of work is positively related to an individual's self-efficacy. Following this reasoning, we contend that entrepreneurial passion, defined as a strong inclination to engage in enjoyable, important entrepreneurial activities, will also be significantly and positively related to entrepreneurial self-efficacy. Accordingly, we posit:

H3: Entrepreneurial passion will significantly influence entrepreneurial self-efficacy.

Because entrepreneurial passion involves an inclination to engage in important and enjoyable activities, it is likely associated with the accomplishment of those activities. As such, the exercise of entrepreneurial passion should be associated with entrepreneurs experiencing positive affect. Vallerand et al. (2003) found that passion was significantly related to positive emotions both before and after engagement of the associated activities. Moreover, the experience of entrepreneurial passion should not be related to the experience of negative affect, since it involves engagement in activities that individuals like and that are important to them. We formally posit:

H4: Entrepreneurial passion will be significantly related to the experience of positive affect, but not negative affect.

METHOD

Sample

To test the hypotheses for this study, we sampled the population of entrepreneurs in the field for a large metropolitan area in the Midwestern United States. Following the typical sampling procedures employed by other scholars studying entrepreneurs (e.g., Cardon et al., 2010; Hmieleski & Baron, 2009) we used the Dun & Bradstreet (D&B) selectory database as well as a local business registry to identify new ventures that were founded within the last seven years. These databases provided an initial tally of 920 firms. Each of these ventures was contacted by phone or email by the first author, and asked to participate in the study. 248 entrepreneurs returned surveys, one of which was excluded due to too much missing data. In total, 247 surveys were usable, resulting in a response rate of 27 percent. We examined non-response bias using a t-test for number of employees and the results were non-significant. Demographic questions at the end of the administered survey confirmed that each respondent was a founder of his/her current firm (n = 227) or that

they had founded a firm prior to the one they were currently running ($n = 20$). We ran sensitivity analyses to determine whether excluding those participants who were not founders of their current firms altered our results. Since excluding them did not change the results, these individuals were retained for the analyses reported herein. These participants included 184 males and 63 females with an average age of 45 years.

Measures

Identity Centrality. This variable was assessed by using Callero's (1985) five-item scale, modified to apply to the context of entrepreneurship. In Callero's (1985) original study, he used this measure to study the identities of blood donors. We replaced the words "blood donation" with "being an entrepreneur" (e.g. "Being an entrepreneur is something I frequently think about" and "I would feel a loss if I were forced to give up being an entrepreneur"). This scale produced a Cronbach's coefficient alpha of 0.81 in the current study.

Identity Salience. This variable was assessed using the protocol developed by Stryker and Serpe (1982, 1994). In this protocol, participants are asked how they would introduce themselves to different groups of people for the first time in different contexts. Specifically, participants are asked to list what one activity or identity they would use during an introduction if they wanted that other person to know who they really are. Participants were given three lines to respond, and asked to rank the identities they would use to introduce themselves in order (from first to third). These data were coded in reverse order in terms of where the entrepreneurial identity was ranked. The correlation between these two questions concerning salience was 0.57 in this study, and the Cronbach's coefficient alpha was 0.73.

Entrepreneurial Passion. This variable was assessed by using the five-item scale for harmonious passion developed by Vallerand et al. (2003, study 4). The Cronbach's coefficient alpha was 0.73, which compares favorably with results obtained using the same scale by Ratelle et al. (2004), Mageau and Vallerand (2007), and Vallerand et al., (2003).

Intrinsic Motivation. This variable was assessed by using Lawler and Hall's (1970) four-item intrinsic motivation scale, modified to apply to the context of entrepreneurship. This scale produced a Cronbach's coefficient alpha of 0.89 in the current study.

Entrepreneurial Self-Efficacy. This variable was assessed by using Zhao et al.'s (2005) four-item scale designed specifically to gauge entrepreneurial self-efficacy. This scale produced a Cronbach's coefficient alpha of 0.78 in the current study.

Positive and Negative Affect. These variables were assessed using the standard PANAS scales developed by Watson, Clark and Tellegen (1988). Two ten-item scales measured the experience of either positive or negative affect associated with being an entrepreneur. The positive and negative affect scales produced Cronbach's coefficient alphas of 0.92 and 0.86 respectively.

Entrepreneurial Behavior. This variable was assessed using two measures. The first measure asked participants to indicate how many hours in an average week they spent on activities related to being an entrepreneur. The second measure asked participants to indicate on a five-item scale how much of their available time they spent being an entrepreneur. In an attempt to mitigate common method bias, these measures were asked during the time of the initial survey administration, and then they were also repeated at a second sampling point between one and four months

later. The average correlation between the measures across the sample was 0.71. For analysis, these items were averaged across their two sampling points. In cases where participants did not respond to the second sampling request ($n = 30$), only the initial sampling point was used.

Control Variables. Four control variables were included: sex, age, experience and perceived revenue growth when compared to the nearest competitor.

RESULTS

Following the approach of Anderson and Gerbing (1988), we examined the measurement model before testing the hypothesized structural model. Structural equation modeling (SEM) analyses were conducted using the Amos 6.0 program as well as the SPSS 14.0 software package. Means, standard deviations, and correlations for all variables are shown in Table 1.

Measurement Model

We conducted confirmatory factor analyses to assess the structure of the observed measures for entrepreneurial identity centrality and identity salience, entrepreneurial passion, entrepreneurial self-efficacy, intrinsic motivation, positive and negative affect, and entrepreneurial behavior. First, we assessed the factor structure for each of the individual measures. After conducting confirmatory factor analyses in SPSS, we determined that all eight constructs loaded onto their appropriate factors with no significant cross-loading. In addition, to verify distinctiveness between similar constructs, we conducted confirmatory factor analysis in Amos. Next, we assessed the fit of the measurement model via the eight latent variables. In this eight-factor model, four factors (identity centrality, entrepreneurial passion, positive and negative affect) were represented by composite parcels, as recommended by Bagozzi and Heatherton (1994). Because we had already established the factorial structure of each measure separately and this study focuses on the relationships between latent constructs versus individual indicator items, parceling was deemed appropriate (Little et al., 2002). Although the chi-square for the eight-factor model was significant ($\chi^2 = 345.6$, $df = 224$, $p < 0.001$), its fit indices were acceptable (CFI = 0.96, IFI = 0.96, RMSEA = 0.05, SRMR = 0.05) and met the goodness-of-fit criteria as suggested by Hu and Bentler (1999). Importantly, each indicator's loading on the appropriate latent variable was significant ($p < 0.01$). Moreover, the eight-factor model fit the data significantly better than a single-factor model ($\Delta\chi^2 = 1,449$, $\Delta df = 28$, $p < 0.001$), providing evidence that common method variance did not account for the observed relationships (Zhao et al., 2005).

Structural Equation Models

Given the acceptable fit demonstrated by the measurement model, we proceeded to analyze the structural model depicted in Figure 1. Although the chi-square for the structural model was significant ($\chi^2 = 408.9$, $df = 242$, $p < 0.001$), its fit indices were acceptable (CFI = 0.94, IFI = 0.94, RMSEA = 0.05, SRMR = 0.07) and met the goodness-of-fit criteria as suggested by Hu and Bentler (1999). In an attempt to verify the structure of the hypothesized model, we analyzed a series of alternative, nested models testing for partial mediation of the relationships posited. We tested seven different alternative models, each of which added a different path from identity centrality, entrepreneurial self-efficacy or intrinsic motivation towards one of the variables of interest (behavior or positive affect). As shown in Table 2, only two of those models resulted in improvements in fit to our hypothesized model: ALT1 ($\Delta\chi^2 = 5.0$, $\Delta df = 1$, $p < 0.05$) which proposed a direct path between identity centrality and intrinsic motivation, and ALT2 ($\Delta\chi^2 = 12.7$, $\Delta df = 1$, $p < 0.01$) which proposed a direct path between intrinsic motivation and positive affect (see

Table 2 below). Given these results, we created a new model (NEW1) incorporating the two additional paths discussed above. This model demonstrated a significant improvement in fit over our hypothesized model ($\Delta\chi^2 = 24.1$, $\Delta df = 2$, $p < 0.01$) and demonstrated adequate fit to the overall data (CFI = 0.95, IFI = 0.95, RMSEA = 0.05, SRMR = 0.06). Thus, this model was retained as the best-fitting solution and used to examine our hypotheses. This new model is depicted, with the standardized path estimates, in Figure 2.

Hypotheses 1 & 3

In our structural model, the relationship between entrepreneurial identity centrality and entrepreneurial passion is significant ($\gamma = .58$, $p < 0.01$) while the relationship between identity salience and passion is not ($\gamma = -.04$, $p = 0.58$). To analyze these relationships more deeply, we tested an identical structural model (labeled ALT3 in Table 2), but with the path between identity centrality and entrepreneurial passion reversed (so the arrow led from entrepreneurial passion towards identity centrality). In this alternative model, the path between passion and centrality is still significant ($\gamma = 0.58$, $p < 0.01$), but the fit does not improve. In fact, the fit of our first structural model (labeled NEW1, where identity centrality leads toward entrepreneurial passion), is significantly better than that of this alternative version ($\Delta\chi^2 = 7.6$, $\Delta df = 1$, $p < 0.01$). Although the precise direction of relationships can be difficult to determine in structural equation models, the improved fit of our first structural model over this alternative version leads us to conclude that the hypothesized direction of the relationship between identity centrality and entrepreneurial passion is correct. Taken together, these results provide support for Hypothesis 1.

Concerning Hypothesis 3, the relationship between entrepreneurial passion and entrepreneurial self-efficacy is positive and significant ($\gamma = 0.34$, $p < 0.01$). Similar to the deeper analysis of Hypothesis 1 described above, we tested an identical structural model (labeled ALT4 in Table 2), but with the path between entrepreneurial passion and entrepreneurial self-efficacy reversed (so that the arrow led from ESE towards passion). In this alternative model, the path between ESE and passion is still significant ($\gamma = 0.22$, $p < 0.01$) but the overall fit of the model, as judged by a reduction in the chi-square statistic relative to degrees of freedom lost, does not improve ($\Delta\chi^2 = 0.4$, $\Delta df = 2$, $p > 0.25$). As such, this provides support for Hypothesis 3, that entrepreneurial passion significantly influences entrepreneurial self-efficacy.

Hypothesis 2

In our hypothesized model, both the paths from entrepreneurial passion to intrinsic motivation ($\gamma = 0.22$, $p < 0.05$) and from intrinsic motivation to behavior ($\gamma = 0.31$, $p < 0.01$) are significant. To evaluate the mediating effect of intrinsic motivation on the relationship between entrepreneurial passion and behavior, we compared the results from our hypothesized model to an identical one that deleted intrinsic motivation. To replace intrinsic motivation, we created a direct path from entrepreneurial passion to behavior. This model fits the data adequately (CFI = 0.96, IFI = 0.96, RMSEA = 0.05, SRMR = 0.06) and the path between entrepreneurial passion and behavior is significant ($\gamma = 0.18$, $p < 0.05$). Of note, when we add a direct path between entrepreneurial passion and behavior to our hypothesized model, the fit of the overall model does not improve significantly (see ALT5 in Table 2), and more importantly, the direct path is not significant ($\gamma = 0.02$, $p = 0.80$). This indicates that intrinsic motivation mediates the relationship between entrepreneurial passion and behavior, and as such, provides support for Hypothesis 2.

Hypothesis 4

In our hypothesized model, the relationship between entrepreneurial passion and positive affect is significant ($\gamma = 0.54, p < 0.01$) while the relationship between entrepreneurial passion and negative affect is not ($\gamma = -0.09, p = 0.23$). This provides support for Hypothesis 4.

Control Variables

Adding four control variables (gender, age, experience, and venture growth) with direct paths to entrepreneurial behavior and positive affect does not significantly alter the hypothesized paths in our model. Namely, all paths that were hypothesized to be significant, remain significant. The fit statistics of this model, including all control variables, are presented in Table 2 under model ALT6. For simplicity of presentation, the effects of control variables are not shown in Figure 2.

Hypotheses 1-4 all received support in this study. As such, individuals who report stronger entrepreneurial identity centrality tend to possess greater entrepreneurial passion. Similarly, individuals with greater passion indicate greater entrepreneurial self-efficacy, intrinsic motivation, and positive affect. Moreover, the relationship between entrepreneurial passion and entrepreneurial behavior is mediated by intrinsic motivation. The final model explained 16.5% of the variance in entrepreneurial behavior and 51% of the variance in positive affect.

DISCUSSION AND FUTURE RESEARCH

Entrepreneurial identities and entrepreneurial passion drive behavior. In this study, we shed light on the role that entrepreneurial identities play in fueling entrepreneurial passion and examine how entrepreneurial passion influences the actions of individual entrepreneurs. Structural equation modeling of survey responses from active entrepreneurs in the field yields intriguing results. We find that the importance these individuals ascribe to entrepreneurial identities contributes directly to their entrepreneurial passion, and also that entrepreneurial passion possesses significant ties to entrepreneurial self-efficacy and positive affect. Moreover, our analysis confirms that entrepreneurial passion impacts entrepreneurial behavior through a mediated relationship with intrinsic motivation. Overall, this is the first study of which we are aware that empirically tests a model that simultaneously investigates both the variables that influence entrepreneurial passion (identity centrality), and its subsequent effects on individual behavior.

Our confirmation of the link between identity centrality and entrepreneurial passion provides a fascinating point of debarkation for understanding how passions change over time. Even though identities tend to be stable entities, especially over the short term, they are not rigid constructs (Serpe, 1987). The meanings resident within identities change over time, and the centrality of identities changes as well. Understanding the long-term malleability of identities and identity hierarchies gives us insight into why entrepreneurial passion may rise or fall over time. If an entrepreneurial identity becomes less central, or less important, we can expect an entrepreneur's passion to wane accordingly. This may explain why certain entrepreneurs decide to exit their businesses and move on to other endeavors. Although our model and our hypotheses point towards a unidirectional relationship between entrepreneurial identity centrality and entrepreneurial passion, we remain open to the idea that over the long term, their influences may be reciprocal. Namely, the passion that an individual entrepreneur experiences during the entrepreneurial process could, in turn, affect the degree of importance that individual places on enacting the entrepreneurial identity in the future. Overall, our model offers a finer-grained analysis of the precise linkages

between entrepreneurial identities (operationalized through identity centrality and salience) and entrepreneurial passion.

Scholars have posited that entrepreneurial passion may be a key element fueling the behavior of individual entrepreneurs (Cardon et al., 2009). Unlike previous studies that link individual passion to venture performance, this study makes the unique contribution of providing a conceptually rich model of linkages of entrepreneurial passion to both individual behavior as well as self-efficacy, and positive and negative affect. In doing so, we extend extant research across multiple avenues. First, we extend the theorizing of numerous scholars who posit that entrepreneurial passion directly impacts entrepreneurial behavior, by demonstrating that the path of influence is mediated by intrinsic motivation. In addition to providing a more accurate depiction of the actual mechanism through which entrepreneurial passion acts, we contend that our work provides an important stepping stone for future research. In our study, we confirm that entrepreneurial passion is a separate, distinct construct and that it accounts for unique variance in entrepreneurial behavior, while controlling for other variables such as positive affect and intrinsic motivation. Scholars have long theorized that passion is a key variable for predicting entrepreneurial behavior but we pause to remember that passion is not the only important variable. A litany of work surrounding motivation in entrepreneurship has contended that entrepreneurial motives drive behavior (Herron & Sapienza, 1992; Naffziger, Hornsby & Kuratko). Our model reaffirms this assertion and extends research by showing how entrepreneurial passion works in connection with intrinsic motivation to drive entrepreneurial action.

Finally, regarding our conceptualization of entrepreneurial passion, we acknowledge that there is great possibility for additional research exploring this concept. According to Vallerand et al.'s (2003) dualistic model, passion can be either harmonious or obsessive. Whereas harmonious passions are engaged of free volition, obsessive ones create compulsion among individuals to indulge. In this study, our conceptualization and measurement of entrepreneurial passion followed that of harmonious passion. As such, it is logical that identity centrality (versus salience) is linked to entrepreneurial passion because centrality implies conscious decision-making concerning the importance of an identity. Perhaps more interesting is the myriad of relationships possible between entrepreneurial passions and behavior. Assuming that entrepreneurial passions may be dualistic in nature (both harmonious and obsessive), how would that affect behavioral and affective outcomes? Amiot et al. (2006) found that obsessive passions can be more functional than harmonious passions in highly competitive environments. Specifically, they found that in highly competitive hockey leagues, obsessively passionate players displayed higher psychological adjustment than harmoniously passionate ones. Most entrepreneurial environments are viewed as highly competitive (Baron, 1998), so it is reasonable to speculate that obsessive passion may be more advantageous in this domain. Without doubt, the dualistic model of passion poses interesting questions for deeper empirical analysis with respect to entrepreneurship.

In conclusion, our results demonstrate that entrepreneurial identities and entrepreneurial passion affect behavior through a series of linkages with intrinsic motivation, self-efficacy, and positive affect. We hope our work opens up a fruitful dialogue about the many pathways through which passion may influence individual entrepreneurs and the entrepreneurial process.

CONTACT: Charles Y. Murnieks; charles.murnieks@usafa.edu; (T): 719-333-9712; (F): 719-333-9715; Department of Management, 2354 Fairchild Drive, Suite 6H-130, USAFA, CO 80840.

REFERENCES AVAILABLE UPON REQUEST

TABLE 1

Table 1 – Means, Standard Deviations, and Bivariate Correlations

	M	SD	1	2	3	4	5	6	7	8
1. Entrep Identity Centrality	4.15	0.71								
2. Entrep Identity Saliency	1.79	0.89	.25*							
3. Entrepreneurial Passion	4.09	0.57	.37*	.14*						
4. Intrinsic Motivation	4.47	0.53	.38*	.18*	.38*					
5. Positive Affect	4.11	0.60	.48*	.07	.48*	.48*				
6. Negative Affect	1.76	0.56	.05	-.08	-.15*	.04	.00			
7. Entrep Self-Efficacy	4.26	0.60	.15*	.09	.24*	.09	.32*	-.16*		
8. Entrep Hours	51.93	18.17	.15*	.05	.10	.24*	.21*	.12	.18*	
9. Avail Time	3.88	0.75	.21*	.09	.12	.24*	.24*	.09	.17*	.63*

TABLE 2

Table 2: Test statistics for alternative models

	χ^2 (df)	$\Delta\chi^2$ (Δ df)	CFI	IFI	RMSEA	SRMR
Initial Hypothesized Model	409.0(243)		.94	.94	.05	.07
ALT1: Direct Path Centrality-Intrinsic Motivation	404.0(242)	5.0(1)*	.94	.94	.05	.07
ALT2: Direct Path Intrinsic Motivation-Positive Affect	396.3(242)	12.7(1)**	.94	.94	.05	.07
NEW1: Initial Hypothesized Model plus ALT1 & ALT2. (this model serves as baseline for all future comparisons)	384.9(241)	24.1(2)**	.95	.95	.05	.06
ALT3: Identity Centrality-Passion path reversed	392.5(242)	7.6(1) ^a	.94	.95	.05	.07
ALT4: ESE-Passion path reversed	384.5(239)	0.4(2)	.95	.95	.05	.06
ALT5: Direct Path Passion-Behavior	384.8(240)	0.1(1)	.95	.95	.05	.06
ALT6: NEW1 plus 4 control variables	612.8(335)		.90	.90	.06	N/A

Note: ALT = Alternative Model; CFI = comparative fit index; IFI = incremental fit index; RMSEA = root-mean-square error of approximation; SRMR = standardized root-mean-square residual.

^aThe $\Delta\chi^2$ and Δ df shown for ALT3 indicate the differences between NEW1 and ALT3. NEW1 demonstrates superior fit than does ALT3 since the improvement in χ^2 (7.6) relative to the change in df (1) is significant ($p < .01$). In this table, NEW1 possesses more constraints (in terms of df) than does ALT3 though, so significance is not indicated in the table itself because the ordering of the models is reversed (i.e., the model with the greater constraints and lower χ^2 is usually depicted below the alternative).

* $p < 0.05$, ** $p < 0.01$

FIGURE 1

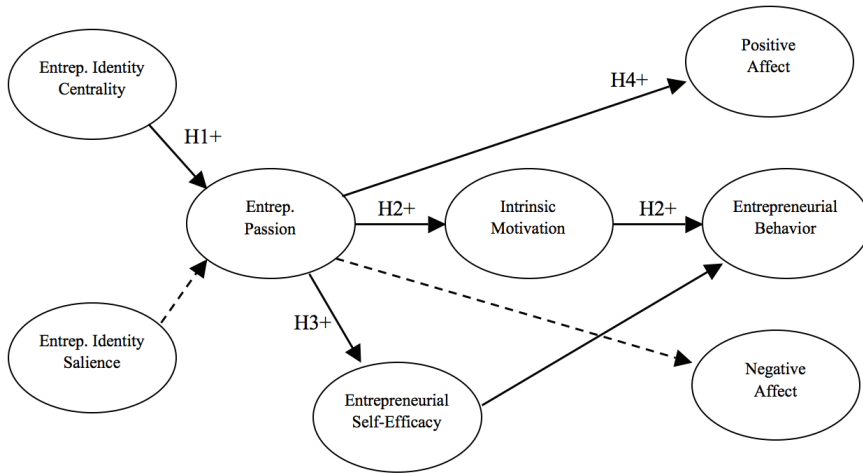


Figure 1: Hypothesized Model

FIGURE 2

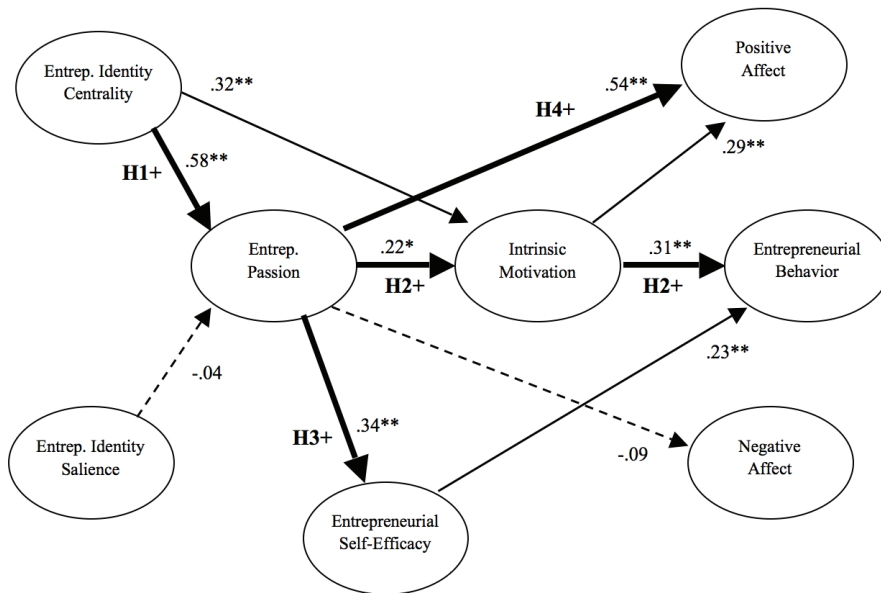


Figure 2: Structural Model Results

Note: Boldface lines indicate hypothesized paths; solid lines indicate significant paths; dashed lines indicate insignificant paths. Standardized regression weights are shown next to each path.

* $p < .05$; ** $p < .01$