START-UP INTENTIONS AND BEHAVIOR OF NECESSITY-BASED ENTREPRENEURS: A LONGITUDINAL STUDY

Noel Lindsay
The University of Adelaide, Australia, noel.lindsay@adelaide.edu.au

Wendy A. Lindsay
The University of Adelaide, Australia

Fredric Kropp
Monterey Institute of International Studies, USA

Recommended Citation
Available at: http://digitalknowledge.babson.edu/fer/vol29/iss5/2

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.
START-UP INTENTIONS AND BEHAVIOR OF NECESSITY-BASED ENTREPRENEURS: A LONGITUDINAL STUDY

Noel J. Lindsay, The University of Adelaide, Australia
Wendy A. Lindsay, The University of Adelaide, Australia
Fredric Kropp, Monterey Institute of International Studies, USA

ABSTRACT

In this study, we extend prior research by exploring the transition from nascent entrepreneur intentions to established entrepreneur behavior, whether entrepreneurial attitudes are inherent in nascent entrepreneurs, to what extent it is possible to develop entrepreneurial attitudes in non-entrepreneurs, and the use of values and attitudes to discriminate between entrepreneurs and non-entrepreneurs. The study is longitudinal with 4.5 years between Baseline (T₁) and End-of-Study (T₃). The research involved two groups: nascent necessity-based entrepreneurs (experimental group) and non-entrepreneurs (control group) who were exposed to an intensive one year entrepreneurship training program intervention (T₁-T₂). Measurements were taken at T₁, T₂, and T₃. Differences in values and entrepreneurial attitudes between the groups are examined.

INTRODUCTION

Over the last 50 years, numerous studies have tried to differentiate entrepreneurs from non-entrepreneurs based on both personal and demographic characteristics (e.g., McClelland, 1961; McClelland, Atkinson, Clark, & Lowell, 1953; Brockhaus, 1975; Brockhaus & Horwitz, 1986). Though many of these individual studies produced significant results, as a body of research they produced conflicting results that were often hard to decipher (cf., Gartner, 1988). Over the past two decades, several studies examined the attitudes of entrepreneurs in an attempt to distinguish entrepreneurs from non-entrepreneurs.

Attitudes are generally thought of as a predisposition to respond in a favorable or unfavorable manner with respect to the attitude object (Ajzen, 1982). Though there are differing viewpoints, attitude can be conceptualized as a tripartite construct containing affective, cognitive, and conative components. (see, Eagly & Chaiken, 1993). Studies that examined entrepreneurial attitudes, e.g., Robinson, Stimpson, Heufner, & Hunt (1991) and McCline, Bhat, & Baj (2000), find that entrepreneurs exhibit attitudes different than non-entrepreneurs.

Previous research, especially in marketing, identifies that personal values play an important role in attitude formation (see Kropp, Lavack & Silvera, 2005). Rokeach, (1973, p. 5) conceptualized values as “enduring beliefs that a particular mode of behavior or end-state of existence is preferable to opposite modes of behavior or end-state.” Personal values are desirable and stable end-states (Kahle, 1983) are developed through personal heritage and life experiences (Kahle, Poulos, & Sukhdiyal, 1988). Schwartz & Bilsky (1987) viewed values as cognitive representations of universal human requirements, including social interaction requirements and social institutional demands on the individual.

Using structural equation modeling, Homer & Kahle (1988) identified an important relationship between values, attitudes, and behaviors. Values shape attitudes which, in turn, shape behavior. As higher order social cognitions, values play an important role in shaping attitudes.
Our attitudes, in turn, drive our intentions and, ultimately, our behavior (Ajzen 1982, 1985; Fishbein & Ajzen 1975). McCline et al. (2000) developed a multidimensional measure of entrepreneurial attitude that includes a dimension that measures attitude toward opportunity recognition. It follows the tripartite construct of attitudes where the cognitive component captures thoughts and beliefs about the entrepreneurial opportunity; the affective component captures the positive or negative feelings toward the opportunity; and the conative component captures the behavioral intentions and predispositions to behave in a certain way toward the opportunity (McCline et al., 2000).

In this research, we build upon previous studies by focusing on linking the relationships among values, entrepreneurial attitudes including behavioral intentions, and the start-up behavior of nascent entrepreneurs over time. Exhibit 1 provides an overview of the Conceptual Model addressed in this research.

CONCEPTUAL MODEL

The term "entrepreneur" has been applied to the founder of a new business or to a person who started a new business where there was none before (Gartner 1985). Gartner (1985) presents a conceptual framework for describing new venture creation that integrates four major perspectives in entrepreneurship: The characteristics of the individual starting the venture, the organization they create, the environment surrounding the new venture, and the process by which the new venture is created. Our focus is on the individuals who start businesses; in particular, their values and entrepreneurial attitudes especially those related to opportunity recognition.

Values

Values are core to our functioning and are said to be the most significant construct in social sciences (Rokeach 1973). Values act as core motivations for basic psychological needs (Rokeach 1973) and represent conceptions of desirable influences on the way that individuals select behavior and evaluate their worlds (Schwartz & Bilsky 1987). Individuals use their values to help rationalize and guide their beliefs, attitudes, and behaviors (Rokeach 1973). Values are considered to be shaped largely by pre-adult socialisation and have been viewed as situationally invariant (Schwartz, 1992). Kropp et al. (2005) identified 30 studies in marketing where values shape attitudes and behavior including brand choice, gift-giving, shopping, consumption of organic foods, and numerous other consumer behaviors. We believe that entrepreneurs may have different value sets than non-entrepreneurs and that values have explanatory power in shaping entrepreneurial attitudes.

A review of the marketing and business literature conducted by the authors of this paper identify that three value schemes dominate the literature: those by Rokeach (1973), Kahle (1983), and Schwartz & Bilsky (1987) or variants on these approaches. The most common approach over the past two decades is the List of Values (LOV) because of its parsimony and well-established psychometric properties (Kahle, 1983). LOV has nine values divided into a three-dimensional structure: internal values, external values, and interpersonal values. Internal values are validated internally and do not require the real or imagined presence of an “other” (Kropp et al., 2005). The internal values are self-fulfillment, self-respect, and sense of accomplishment. External values include sense of belonging, being-well respected, warm relationships with others, and security. External values generally require the judgments, opinions, or presence of others (Kahle 1983). Interpersonal values (fun and enjoyment in life and excitement) are interactional and combine aspects of internal and external values (Kahle 1983).
Previous research in entrepreneurship identifies that entrepreneurs are internally grounded – they believe in themselves (Kropp & Lindsay, 2001). As such, we believe that entrepreneurs will be driven by higher order internal values and less by external or interpersonal values. Non-entrepreneurs, on the other hand, come from a variety of backgrounds and experiences and have a variety of motivations. As such, they are likely to demonstrate the full spectrum of internal values levels (from low to high) depending on the environmental influences they were exposed to in their formative values years as well as that which is inherited from prior family generations. Therefore,

**H1: Internal values of entrepreneurs are higher than non-entrepreneurs.**

Social capital is important to entrepreneurs (Timmons & Spinelli, 2009). They need to know who to contact if they need someone with the answer to a problem they are experiencing. As such, it can be expected that entrepreneurs (and nascent entrepreneurs) will demonstrate high levels of external values since these are associated with being able to relate with others. Non-entrepreneurs, on the other hand, will demonstrate the full range of external values from low to high depending on their formative year experiences, etc. Therefore,

**H2: External values of entrepreneurs are higher than non-entrepreneurs.**

Interpersonal values include fun and enjoyment in life and a sense of excitement. Even though interpersonal values combine some aspects of internal and external values, they are distinct from each of the other two sets of values. In addition, what constitutes fun and enjoyment and excitement are a function of definition and context. Since both entrepreneurs and non-entrepreneurs can experience interpersonal values in different ways, we hypothesize that there are no differences between the two groups. Therefore,

**H3: There are no differences in interpersonal values between entrepreneurs and non-entrepreneurs.**

**Entrepreneurial Attitude**

Robinson et al. (1991) developed a multidimensional entrepreneurial attitude orientation (EAO) scale to measure four dimensions of entrepreneurial attitude: achievement in business, which refers to the start-up and growth of a business; innovation in business, which involves perceiving and acting in new and innovative ways; perceived personal control of business outcomes; and perceived self-esteem in business. Though pioneering in its efforts, McCline et al. (2000) felt that the EAO scale was missing two important components, risk taking and opportunity recognition. Although their attempt to develop a risk-taking scale was not successful, they achieved success with their opportunity recognition scale. McCline et al. (2000) called the new entrepreneurial attitude scale “entrepreneurial opportunity recognition” (EOR).

The EOR scale uses the tripartite construct of attitudes where the cognitive component captures thoughts and beliefs about the entrepreneurial opportunity, the affective component captures the positive or negative feelings toward the opportunity, and the conative component captures the behavioral intentions and predispositions to behave in a certain way toward the opportunity (McCline et al., 2000). Sample items in the Likert-like EOR scale include: “At my job, I have helped identify new ways of performing the things we must do”, “I like talking to people to find out how I can provide better services”, and “I enjoy finding new ways my organization can better meet the needs of the customers” (McCline et al., 2000, p. 93).
As opportunity recognition is key to entrepreneurship, we focus on the EOR component in this study. Given the nature of the items contained in the EOR, it is likely that entrepreneurs will have stronger attitudes towards EOR than non-entrepreneurs. In addition, since values shape attitudes and entrepreneurs will have stronger internal and external values than non-entrepreneurs, entrepreneurs will exhibit a direct positive relationship between these values and entrepreneurial attitudes toward opportunity recognition. Therefore,

**H4**: Entrepreneurs have a stronger entrepreneurial attitude than non-entrepreneurs.

**H5**: There is a direct positive relationship between internal values and entrepreneurial attitude.

**H6**: There is a direct positive relationship between external values and entrepreneurial attitude.

Models based upon the theories of reasoned action (Fishbein & Ajzen 1975) and planned behavior (Ajzen 1985) use attitude as indirect behavior prerequisites to perform particular behaviors. Performance of a behavior is determined by the strength of the person’s intention, a part of the tripartite component of attitude, to perform that behavior. Intention is viewed as a function of the person’s attitude toward performing the behavior (Ajzen 1985). In this research, entrepreneurial attitude is measured in terms of the individual’s attitude toward opportunity recognition (McCline et al., 2000). We believe that the greater the entrepreneurial attitude, the greater the probability of venture start-up. Therefore,

**H7**: There is a direct positive relationship between entrepreneurial attitude and venture start-up.

**RESEARCH METHOD**

By design, we examine the values, attitudes and behaviors of individuals who are similar except in their intentions to start a business. The individuals in our study (described in detail below) were chronically unemployed with relatively few job prospects. They enrolled in a comprehensive training and mentoring program to enhance their entrepreneurial capabilities.

The study is longitudinal, with 4.5 years between Baseline (T1) - the commencement of the program - and the End-of-Study (T3). The research design involved two groups: nascent necessity-based entrepreneurs who intended starting businesses (experimental group) and non-entrepreneurs who had no venture start-up intentions (control group). Both the nascent and non-entrepreneurs were exposed to an intensive one year-long entrepreneurship training and mentoring program intervention that commenced at T1 and finished at T2. Between T2 and T3, the nascent entrepreneurs worked on starting their ventures while the non-entrepreneurs searched for jobs.

At Baseline (T1), there were 329 necessity-based nascent entrepreneurs and 107 non-entrepreneurs. The entrepreneur group was 61% female and 39% male; ages ranged from 18 to 39 years with 91% less than 30 years of age. The non-entrepreneur group was 59% female and 41% male; ages ranged from 19 to 42 years with 91% less than 30 years of age. At T3 (End-of-Study), there were 287 of the original nascent entrepreneur and 106 of the original non-entrepreneur survey respondents. The T3 entrepreneur group was 59% female and 41% male and ages ranged from 18 to 39 years with 91% less than 30 years of age. There were no significant demographic changes at T3 as compared to T1 in the non-entrepreneur group.
Repeated measures were taken at the start of the program (T₁), at the end of the year-long training and mentoring intervention (T₂), and 3.5 years after the training and mentoring intervention concluded (T₃) to assess to what extent the intervention effects lasted over the research period. In addition at T₃ semi-structured interviews were held with 15 members of the non-entrepreneur group and 33 members of the entrepreneur group. Structural equation modelling and independent-samples t-tests were used to explain venture start-up intentions and venture start-up behavior. Validated scales were used to measure the underlying variables. In all cases, scale reliabilities were above 0.70 meeting Nunnally’s (1978) reliability standards.

Participants

The majority of participants were unemployed at the time the study began. No social security or unemployment benefits are payable to the unemployed in South Africa. As such, if an individual is unemployed, there are only a few options to survive. These include seeking assistance from family members and friends, begging, stealing, and/or setting up a business. The entrepreneur participants used in this research can be regarded as “necessity based” as they were predominantly unemployed who were motivated to start businesses out of necessity.

Participants in the research were recruited through a range of newspaper advertisements placed in the mainstream and local community newspapers promoting the project. In addition, community centers were approached to help recruit individuals in their local communities who were looking to start up businesses. Word-of-mouth through family members and friends attracted additional potential applicants who did not see the newspaper advertisements or who were not members of local community groups. Information sessions were held for interested parties.

Participants were advised that they would be helped to start businesses through an intensive program of daily lectures on a range of topics including entrepreneurship, marketing, finance, and legal issues as well as topics such as personal grooming, personal motivation, and problem solving. In addition they would receive hands-on mentoring from a group of experienced business consultants during the latter half of the program. Those who were accepted on the program received a weekly stipend for the year’s duration. The possibility of receiving money to be on the program was a significant incentive for potential participants to apply. As such, personal interviews were conducted with each applicant to determine which applicants were serious about starting businesses. As a result of this process, of the more than 1,000 individuals that applied to participate on the program, 436 individuals were deemed eligible to participate. All stated that they intended starting businesses – although some appeared to be more serious than others.

After the interview process to determine participant “bona fides”, and before the program started, participants were given a confidential questionnaire to complete. This included questions about participant demographics and validated scales that focused on personal values and entrepreneurial attitude. The questionnaire also contained questions that asked whether the participant really intended starting a business in the near future. After the intense screening process applied to applicants, we expected all participants to answer this question in the affirmative. However, this was not the case. There were 329 participants who answered that they intended to start businesses and there were 107 participants who said that they did not intend to start businesses in the foreseeable future. Presumably, this latter group was motivated by the training stipend that they would receive as well as the skills and knowledge they would acquire that may be relevant to them in the future even though they had no intention of starting a business.
Measures

Validated scales were used to measure personal values and entrepreneurial attitudes. All scales were successfully piloted in the target population prior to the commencement of the study.

Personal values were measured using the List of Values or “LOV” (Kahle 1983; Kahle, Beatty, & Homer 1986). The instrument comprises nine questions and uses a Likert-type scale (1 = Important to Me and 9 = Extremely Important to Me). Examples of LOV items include “Sense of Belonging (to be accepted needed by friends, family, and community)”, “Excitement (to experience stimulation and thrills)”, and “Self-Respect (to be proud of myself and confident of who I am)”.

Entrepreneurial attitude was measured using the scale developed by McCline et al. (2000) that focused on attitude toward opportunity recognition. They identified the EOR scale to be more parsimonious in predicting entrepreneurial attitudes and differentiating entrepreneurs from non-entrepreneurs than Robinson et al.’s (1991) scale although they acknowledge that the EOR scale could be used advantageously in conjunction with Robinson et al.’s (1991) EAO achievement and perceived personal control subscales. For parsimony, this research uses only the EOR scale. EOR measures use a 10-point Likert-type scale (1 = Strongly Disagree and 10 = Strongly Agree). Examples of scale questions include “I like talking to people to find out how I can provide better services.” and “I believe I can identify what a customer needs to make them satisfied”.

RESULTS

Exhibit 2 provides the means and standard deviations for the two groups at T1, T2, and T3.

Structural Equation Modeling: We used structural equation modeling using AMOS Version 7.0 (Arbuckle, 2006) in the primary analysis of the data. Exhibits 3.1 and 3.2 provide the full structural model for the two groups at T1, T2, and T3. Since there were no significant within-group differences among entrepreneur values measures and non-entrepreneur values measures over the 4.5 year period, for parsimony, T1 values were used for each group in the analysis (the results were similar using T2 and T3 values for both groups).

With both groups, the $\chi^2$ statistic for the structural model was not significant indicating that there was no significant difference between the sample variance/covariance matrix and the model implied variance/covariance matrix. Hence, the data fitted the model well and the model was confirmed. Further fit indices also supported the fit between the sample and the model. With both group structural models, the Goodness of Fit Indices and Adjusted Goodness of Fit Indices were greater than 0.950, the Root Mean Square Error of Approximation was less than 0.05, and the Tucker Lewis Index was approximately 1.0. These indices, which are within the recommended cutoff limits, provide additional support to the $\chi^2$ statistic that the data fits the model.

Given the data sets for both groups fit the structural model, the following observations can be made about the results. At T1 in Group 1 (nascent entrepreneurs), the dependent variable, entrepreneurial attitude, accounted for 42% of the variance ($R^2 = 0.42$). Both internal and external values were significant at the 0.01 level ($\beta_{\text{Internal values}} = 0.51$ and $\beta_{\text{External values}} = 0.24$). Interpersonal values were not significant ($\beta_{\text{Interpersonal values}} = 0.03$). At T2 and T3 in Group 1, entrepreneurial attitude accounted for 91% and 99% of the variance respectively. At T3 in Group 1, 162 participants indicated that they had started businesses since commencing the program and
had not but said that they still had intentions and were working toward establishing their businesses. A major obstacle to business startup repeatedly cited by participants was a lack of access to early stage finance.

In Group 2 (non-entrepreneurs) at T₁, the dependent variable, entrepreneurial attitude accounted for only 10% of the variance (R² = 0.10). Both internal and external values were not significant (β Internal values = 0.19 and β External values = 0.14). Fun and excitement was significant and negative at the 0.05 level (β Interpersonal values = -0.33). At T₂ and T₃ in Group 2 (non-entrepreneurs), entrepreneurial attitude accounted for 91% and 90% of the variance respectively. At T₃, none of the non-entrepreneurs had started businesses but 52% said that they had found employment and an additional 6% had enrolled in an educational program of some form (including University degree studies).

**Independent-samples t-tests:** At T₁, T₂, and T₃ independent-samples t-tests were undertaken to compare the mean scores of the internal, external, and interpersonal values and entrepreneurial attitude constructs for the two groups. Exhibit 4 summarises the results. Levene’s test for equality of variances indicates that the variation of scores for the two groups is the same for external and interpersonal values (significance > 0.05) but differ for the internal values and all entrepreneurial attitude constructs (significance < 0.05). Thus, equal variances are not assumed for these latter constructs. In any event, there are significant differences between the two groups with regard to the external values (p < 0.05), internal values (p < 0.01), and the entrepreneurial attitude constructs at T₁ and T₃ (p < 0.01) but not at T₂. There were no significant differences between the two groups for the interpersonal values construct.

**Hypotheses:** Confirmation/rejection of the hypotheses was as follows: H₁ hypothesizes that internal values of nascent entrepreneurs are higher than non entrepreneurs and is confirmed. H₂ hypothesizes that external values of entrepreneurs are higher than non entrepreneurs and is confirmed. H₃ hypothesizes that there are no differences in interpersonal values between entrepreneurs and non-entrepreneurs and is confirmed. H₄ hypothesizes that entrepreneurs have a greater entrepreneurial attitude than non entrepreneurs. This hypothesis is partially supported; it was confirmed at T₁ and T₃ but not at T₂. H₅ hypothesizes that entrepreneurs will exhibit a direct positive relationship between internal values and entrepreneurial attitude and is confirmed. H₆ hypothesizes that entrepreneurs will exhibit a direct positive relationship between external values and entrepreneurial attitude and is confirmed. H₇ hypothesizes that entrepreneurs will exhibit a direct positive relationship between entrepreneurial attitude and venture start-up and is partially confirmed in that over 50% of the nascent entrepreneurs had started businesses and the remainder all said that they had intentions of starting once they resolved the financing issue.

**DISCUSSION**

The results build upon and extend prior values and entrepreneurial attitude research. First, as personal values of individuals are higher-order social cognitions and are relatively stable, we expected little or no change in values over the period. This was validated as there was no significant change in internal, external, and interpersonal values for both the control and experimental groups over the duration of the research project.

Second, the entrepreneur group demonstrates higher internal and external values than the non-entrepreneurs. Nascent entrepreneurs/entrepreneurs were primarily driven by internal values – a belief in themselves and, to a lesser extent, by their external values – their ability to relate to others. Their external values were significantly related to entrepreneurial attitude but less so than
their internal values. Ability to network and interact with others to help solve problems in moving the business forward is extremely important. Thus, external values are important to necessity entrepreneurs – but appear to be less so than internal values.

Third, two values sets – internal and external - appear core to shaping necessity entrepreneur attitudes. Interpersonal values, however, did not differ between the two groups. A possible explanation is that interpersonal values are equally important to both groups.

Fourth, prior research (Robinson et al., 1991; McCline et al., 2000) demonstrates that entrepreneurial attitudes are a way of differentiating between existing entrepreneurs and non-entrepreneurs where the entrepreneurs are opportunity-focused - setting up businesses because they want to, not because they necessarily have to. The results of this study extend prior research by examining necessity-based nascent entrepreneurs who intend starting businesses for survival purposes. In this regard, the entrepreneurial attitude construct was useful in successfully differentiating between necessity-based nascent entrepreneurs and non-entrepreneurs at T1 and T3.

Fifth, this research extends prior research by demonstrating that nascent entrepreneurs start with an entrepreneurial attitude which is then reinforced with entrepreneurial experience. The studies by Robinson et al. (1991) and McCline et al. (2000) were unable to determine whether entrepreneurial attitudes existed prior to business startup (or whether these attitudes developed later as a result of the entrepreneurial experience) because they focused on existing entrepreneurs. By tracking entrepreneurs as they moved from nascent to practicing, we are able to answer this question.

Sixth, the use of entrepreneurial attitude to discriminate between entrepreneurs and non-entrepreneurs was ineffective at T2. After both groups attended the entrepreneurship training program, the non-entrepreneurs actually scored higher on this construct than the nascent entrepreneurs. This result demonstrates that attitudes can change over time in attending events such as training programs. Taking measurements immediately after such events may produce results that are spurious in the long term. Thus, measuring attitudes at a moment in time may be tenuous as this represents a measurement “photograph” where the reality may change after the measurement has been undertaken. For this reason, repeated measures of entrepreneurial attitude over time may be more conducive to producing more stable and reliable results.

Seventh, in addition, values are more unwavering than attitudes and are less susceptible to change. Since they are related to attitudes, they provide the basis for more stable estimates of behavior. Entrepreneurs demonstrated a relationship between internal and external values and entrepreneurial attitude. Thus, perhaps a more stable approach to differentiating entrepreneurs from non-entrepreneurs is to use values and repeated entrepreneurial attitude measures.

Eighth, it would seem that low levels of internal and external values may not be conducive to venture start-up. Those with low internal and external values levels may not be the appropriate type of person to establish a business successfully. Thus, if there is a need to ensure that scarce resources are used wisely when allocating funding to entrepreneurial training programs that are designed to improve the skills, knowledge, attitudes, and behaviors of “would-be” necessity entrepreneurs, it may be prudent to screen applicants on the basis of their personal values favoring those that rate higher on the internal and external values scales.

Ninth, notwithstanding that the nascent entrepreneurs’ entrepreneurial attitudes improved the most from the training and mentoring, the non-entrepreneurs’ entrepreneurial attitudes also
improved – though less so. The entrepreneur group demonstrated an entrepreneurial attitude prior to the commencement of the intervention at T₁, a significantly greater entrepreneurial attitude at the end of the intervention (T₂), and a reduced entrepreneurial attitude at T₃ - but significantly greater than at T₁. The non-entrepreneur control group demonstrated no significant entrepreneurial attitude prior to the commencement of the intervention at T₁, a significantly strong entrepreneurial attitude at the end of the intervention (T₂), and a significantly reduced entrepreneurial attitude at T₃ compared to T₂ - but slightly greater than at T₁. We attribute the increases in entrepreneurial attitude in both groups to the one year training and mentoring program. The implication is that entrepreneurial attitude may be underdeveloped in necessity-based entrepreneurs (and non-entrepreneurs) and may be enhanced to various degrees by targeted educational programs.

_Tenth_, in the longer term, from a practical perspective, it appears that the entrepreneurship training was not wasted on the non-entrepreneurs. Although it is difficult to determine cause and effect, all of the 15 non-entrepreneurs interviewed stated that the program instilled confidence in them which motivated them to search for and find jobs and/or continue with further studies. To this end, it appears that a sustained entrepreneurship educational program may benefit even non-entrepreneurs in that it could provide potential employees who may become intrapreneurs for their employers (or even entrepreneurs) in the future.

**Limitations and Future Research Directions**

There were at least three limitations associated with this research that future studies should attempt to address. First, by design, we limited the research to Johannesburg, South Africa – a developing region. As such, the results are not necessarily generalizable to other countries. Future longitudinal values-entrepreneurial attitude research needs to occur in a range of countries – both developing and developed. Second, this research focused on necessity entrepreneurs. There is a need for future studies to longitudinally investigate the values-entrepreneurial attitude relationship in opportunity-focused entrepreneurs. Third, the sample was not randomly selected from the population which raises the possibility of sample bias. We attempted to overcome this problem with widespread promotion of the program and the provision of a stipend to make it attractive for people to apply; however, it is possible that there were nascent entrepreneurs in the target population who did not participate in the program and who may have values and/or entrepreneurial attitude profiles different than the sample used in this research.

**SUMMARY**

This research builds upon previous research to identify a stable approach to differentiating nascent necessity entrepreneurs from non-entrepreneurs. Previous research has identified entrepreneurial attitudes to be effective in discriminating between existing (opportunity-focused) entrepreneurs and non-entrepreneurs. Although in this research, entrepreneurial attitude was successful in discriminating between necessity entrepreneurs and non-entrepreneurs on two of the three occasions that measures were taken, it failed to do so on a third measurement occasion immediately after both groups were exposed to an entrepreneurship training program. Values, however, were stable across the duration of the 4.5 year study with internal and external values significantly associated with the entrepreneurial attitudes of the entrepreneur group members. Thus, we believe that both personal values and repeated measures of entrepreneurial attitudes suitably spaced over time can be useful in distinguishing necessity entrepreneurs from non-entrepreneurs.
CONTACT: Noel Lindsay; noel.lindsay@adelaide.edu.au; (T): +61-8-8303 7422; (F): +61-8-8303 7512; Entrepreneurship, Commercialisation and Innovation Centre, Faculty of Engineering, Computer and Mathematical Sciences, The University of Adelaide, Australia SA 5005.

REFERENCES


Exhibit 1: Conceptual Model

Exhibit 2: Means and Standard Deviations at T₁, T₂, and T₃

<table>
<thead>
<tr>
<th>Construct</th>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Values</td>
<td>Entrepreneurs</td>
<td>287</td>
<td>6.02</td>
<td>1.44</td>
</tr>
<tr>
<td></td>
<td>Non-Entrepreneurs</td>
<td>106</td>
<td>4.53</td>
<td>1.72</td>
</tr>
<tr>
<td>External Values</td>
<td>Entrepreneurs</td>
<td>287</td>
<td>5.58</td>
<td>1.37</td>
</tr>
<tr>
<td></td>
<td>Non-Entrepreneurs</td>
<td>106</td>
<td>5.25</td>
<td>1.56</td>
</tr>
<tr>
<td>Interpersonal Values</td>
<td>Entrepreneurs</td>
<td>287</td>
<td>5.52</td>
<td>1.49</td>
</tr>
<tr>
<td></td>
<td>Non-Entrepreneurs</td>
<td>106</td>
<td>5.43</td>
<td>1.64</td>
</tr>
<tr>
<td>Entrepreneurial Attitude - T₁</td>
<td>Entrepreneurs</td>
<td>287</td>
<td>5.74</td>
<td>1.44</td>
</tr>
<tr>
<td></td>
<td>Non-Entrepreneurs</td>
<td>106</td>
<td>4.59</td>
<td>1.67</td>
</tr>
<tr>
<td>Entrepreneurial Attitude – T₂</td>
<td>Entrepreneurs</td>
<td>287</td>
<td>6.59</td>
<td>1.22</td>
</tr>
<tr>
<td></td>
<td>Non-Entrepreneurs</td>
<td>106</td>
<td>6.71</td>
<td>1.37</td>
</tr>
<tr>
<td>Entrepreneurial Attitude – T₃</td>
<td>Entrepreneurs</td>
<td>287</td>
<td>5.83</td>
<td>1.20</td>
</tr>
<tr>
<td></td>
<td>Non-Entrepreneurs</td>
<td>106</td>
<td>4.72</td>
<td>1.48</td>
</tr>
</tbody>
</table>
Exhibit 3.1: Nascent Entrepreneurs/Entrepreneurs Structural Model $T_1$ to $T_3$
Exhibit 3.2: Non-Entrepreneurs Structural Model $T_1$ to $T_3$
## Exhibit 4: Independent-samples t-test Results at $T_1$, $T_2$, and $T_3$

<table>
<thead>
<tr>
<th>Construct</th>
<th>Variance Assumption</th>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>Sig.</td>
<td>t</td>
</tr>
<tr>
<td>Internal Values</td>
<td>Equal variances assumed</td>
<td>5.931</td>
<td>.015</td>
<td>8.609</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>7.940</td>
<td>162.525</td>
<td>.000</td>
</tr>
<tr>
<td>External Values</td>
<td>Equal variances assumed</td>
<td>2.953</td>
<td>.087</td>
<td>2.030</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>1.907</td>
<td>167.462</td>
<td>.058</td>
</tr>
<tr>
<td>Interpersonal Values</td>
<td>Equal variances assumed</td>
<td>.868</td>
<td>.352</td>
<td>.519</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>.496</td>
<td>172.647</td>
<td>.620</td>
</tr>
<tr>
<td>Entrepreneurial Attitude – $T_1$</td>
<td>Equal variances assumed</td>
<td>5.153</td>
<td>.024</td>
<td>6.721</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>6.281</td>
<td>166.063</td>
<td>.000</td>
</tr>
<tr>
<td>Entrepreneurial Attitude – $T_2$</td>
<td>Equal variances assumed</td>
<td>3.874</td>
<td>.050</td>
<td>-.854</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>-.812</td>
<td>170.897</td>
<td>.418</td>
</tr>
<tr>
<td>Entrepreneurial Attitude – $T_3$</td>
<td>Equal variances assumed</td>
<td>9.471</td>
<td>.002</td>
<td>7.667</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>6.962</td>
<td>158.553</td>
<td>.000</td>
</tr>
</tbody>
</table>