

**GOOD HOUSEKEEPING:
ESTABLISHING AN OPERATIONALIZATION BASELINE IN
THE TESTING OF TRANSACTION COGNITION ENTREPRENEURSHIP THEORY**

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ABSTRACT

This paper empirically tests aspects of Transaction Cognition Entrepreneurship Theory (TCET), by developing and testing using Partial Least Squares analysis, a model linking Intention to Venture with transaction-facilitating cognitions (planning, promise, and competition cognitions) and transaction-inhibiting cognitions (fatalism, refusal, and dependency). Consistent with TCET, promise cognitions relating to the start-up phase of a new venture were found to be a significant predictor of intention to venture, but other planning, promise, and competition cognitions were not. Dependency cognitions and fatalism cognitions were found to be positively related to intention to venture. Implications for TCET are discussed.

INTRODUCTION

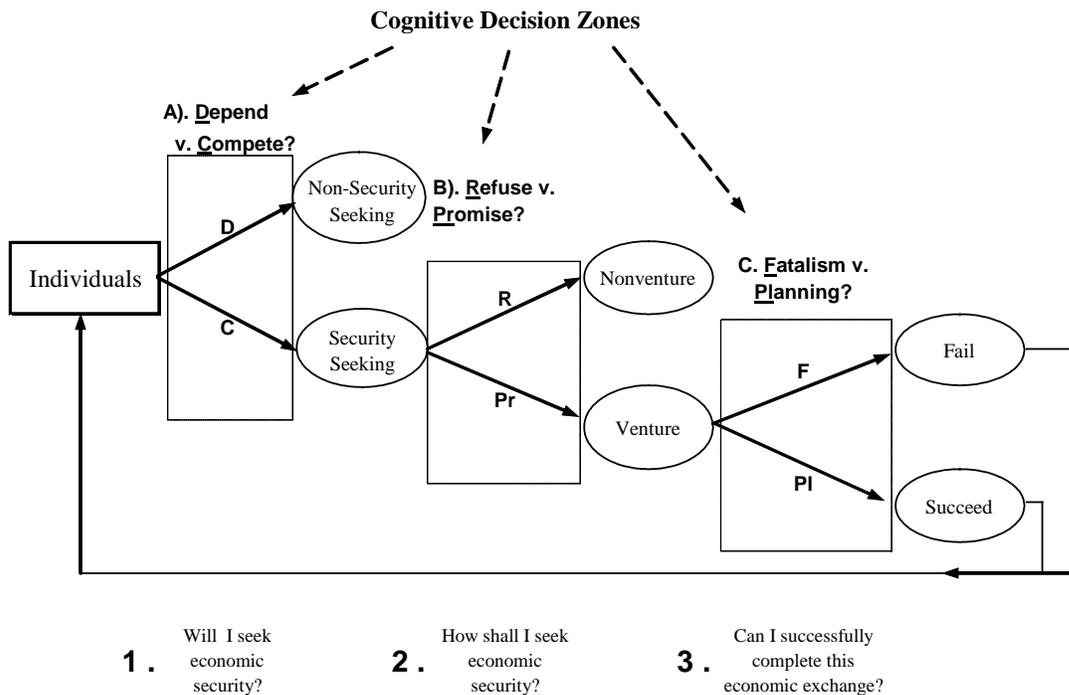
Theorizing is one thing; operationalizing is another. Good housekeeping in research design suggests that prior to the operationalization of theoretical models, an investigation should take place to identify likely alternative explanations, and thereby to indicate where the use of control variables might be most helpful in maximizing the explanation of variance (Rosenberg 1968). In this study, we undertake to establish an operationalization baseline in the testing of Transaction Cognition Entrepreneurship Theory (TCET) (Mitchell 2001, 2003, 2004; Mitchell et al. 2003).

TCET seeks to integrate findings in entrepreneurship research at multiple levels of analysis that explain why entrepreneurship might emerge, and why and how entrepreneurs engage in new value creation (Mitchell, 2001, 2003). This investigation has been set within the domain of entrepreneurial cognition research, where scholarly investigations of this question that focused on traits and characteristics of entrepreneurs (e.g., McClelland 1965, Begley & Boyd 1987), and later explanations concerning environment and context (e.g., Stuart & Abetti 1990, Krueger 1993), have more recently given way to explanations centered on the cognitions, or active knowledge structures, of entrepreneurs (e.g., Forbes 1999, Mitchell et al. 2000, Gaglio 2004). An appealing aspect of the cognitive perspective of entrepreneurship is that it provides researchers with a strong theoretical base on which to build empirical investigations. TCET (Mitchell 2001, 2003), integrates expert and information processing theories within the field of social cognition, with organization economic theory (especially utilizing the notion that entrepreneurs act to minimize transaction costs). Central to TCET is the premise that entrepreneurs use planning, promise, and competition cognitions to create transactions and new ventures. These higher-order active knowledge structures are thought to positively facilitate, motivate and direct entrepreneurial behaviour and have empirically been found to differentiate expert and novice entrepreneurs across countries (Mitchell et al. 2002b) and explain, in part, venture creation decisions (Mitchell et al. 2000).

But why don't more people create ventures? If entrepreneurial activity were just a matter of developing the

right knowledge structures, one might expect to see more entrepreneurs than the 5% to 10% of a population that we typically do (Drnovsek & Erikson 2005) – either as a product of entrepreneurship education programs, apprenticeships, or the “school of hard knocks.” TCET offers the explanation that there may be countervailing cognitions, thinking related to fatalism, refusal, and dependency, which inhibit entrepreneurial intention or counteract the positive, motivating effects of Planning, Promise, and Competition cognitions. Both sets of thinking, however, can occur at the same time and this explanation is offered by Gurnell (2000) as rationale for why some aboriginal peoples in Canada fail to attain economic independence, even while potentially possessing the requisite transaction cognitions. The recent Global Entrepreneurship Monitor (GEM) studies suggest that the level of national development depends largely on a nation’s entrepreneurial capacity and activity (c.f., Drnovsek & Erikson 2005). TCET (Mitchell 2004: 272) asserts that such entrepreneurial capacity may be reflected, in part, by the level and ratio of facilitating transaction cognitions to inhibiting countervailing cognitions in the general population as nested within a three stage decision tree that implicates in order the following countervailing cognition pairs: dependency/competition, refusal/ promise, and fatalism/ planning (Figure 1).

Figure 1: The Full TCET Model (Mitchell, 2004: 272)



In this paper we prepare for a more comprehensive test of this sequential, nested model by examining the most obvious alternative configuration of these constructs and developing and testing a model directly linking Intention to Venture with all of the transaction facilitating cognitions (planning, promise, and competition cognitions) and transaction inhibiting cognitions (fatalism, refusal, and dependency). In doing so we: (1) affirmatively respond to Carter, Gartner, Shaver, and Gatewood’s (2003) call for investigating cognitive and behavioural factors that effect an individual’s decision to start a business, (2) develop new measures for planning, promise, and competition cognitions and for fatalism, refusal, and dependency cognitions as a foundation for use in future research, and (3) by empirically testing an intentions-based model using all the constructs as variables in the full TCET model in direct relationship to Intention to Venture we also accomplish our “good housekeeping” research mission.

CONCEPTUAL MODEL

Drawing on Transaction Cognition Entrepreneurship Theory (Mitchell 2003) we develop a simple model linking Intention-to-Venture directly with cognitions that facilitate (planning, promise, and competition cognitions) and inhibit (fatalism, refusal, and dependency) entrepreneurship. This model is illustrated in Figure 2.

Intention to Venture

Intention to Venture is the construct currently within the entrepreneurship research domain that most closely represents the cognitive decision to venture (step 2 of the full model). Consistent with Shepherd and Krueger's (2002) definition of entrepreneurial intention, we define intention-to-venture as the motivational attitudes to bring into existence future goods and services via a new business. Intention to venture closely represents the cognitive decision to venture because: (1) intentions are a cognitive prerequisite for behaviour (Ajzen 1987); (2) one of the objectives of the research is to understand the interplay of cognitive factors leading to a decision to venture; and (3) intentions-based models are a mainstay in prior cognitive entrepreneurship research (e.g., Bird 1988, Krueger 1993, Jenkins & Johnson 1997). It is recognized, however, that intentions are not always followed through: In the entrepreneurial context, intentions must be combined with other facilitating factors such as access to necessary resources, feasibility assessment, self-efficacy, and perception of personal desirability, to lead to venture creation (Shepherd & Krueger 2002, Bird 1988). And that is the point. In our model we examine the cognitions around some of these other facilitating factors and their link to Intention to Venture, to ascertain the potential of these variables to trigger alternative explanations in future examination of the full model.

Facilitating Cognitions

Cognitions are the mental processes by which sensory inputs are utilized (transformed, reduced, elaborated, stored, and/or recovered), through the creation of active knowledge structures, or scripts, that initiate and guide behaviour (Neisser 1967, Glaser 1984). Expert information processing theory (e.g., Glaser 1984, Read 1987), suggests that experts possess knowledge structures that are more highly developed than those of novices, enabling experts to act more quickly and effectively than novices. Mitchell (2001, 2003) offers Transaction Cognition Entrepreneurship Theory (TCET) to explain entrepreneurial behaviour as a kind of expertise. Specifically, TCET focuses on the cognitions, or thought processes, that individuals need to create transactions, create firms, and modify their structure to achieve superior economic results.

TCET suggests that three sets of expert knowledge structures: planning, promise, and competition cognitions, are required to effectively create transactions and sustained transaction streams. Consistent with transaction cost economic theory (e.g., Williamson 1985), TCET observes that each component of a transaction, (the creating entity, the "work" or value of an exchange, and the other party to an exchange) introduces imperfections that create costs or social friction in frequent exchanges conducted under uncertainty. The creating entity introduces bounded rationality: limitations to thinking processes and information processing. The interface with "others" introduces the prospect of opportunism: transaction costs related to moral hazard and distrust that result from the ability of parties to the exchange to cheat or otherwise take advantage of the other. Once made, the "work" is relatively fixed, thereby introducing specificity: difficulty in transferring or deploying resources to other uses (Williamson 1985), or social and practical difficulty associated with changing commitment(s) (Ghemawat 1991). Williamson (1985: 31) identifies three social structuring/ contracting processes, planning, promise, and competition, which enable the organization of exchange relationships subject to transaction costs in imperfect markets. In TCET, the knowledge structures associated with these three types of contracting are defined as planning, promise, and competition cognitions (Mitchell 2003).

Planning cognitions are required in imperfect markets to mitigate transaction costs related to bounded-rationality. They are concerned with developing courses of action, analytical structures, and systems to

solve previously unstructured market problems that relate to the production and delivery of the “work” to the “others” in the context of frequency and uncertainty of transacting. Promise cognitions are required in imperfect markets to mitigate transaction costs related to opportunism. They help to build the mutual trust required to effect an agreement between the “creating entity” and “others,” and are concerned with the development and maintenance of exchange relationships. Competition cognitions are required in imperfect markets to mitigate transaction costs related to work specificity. They are concerned with the creation of small or large numbers bargaining positions, the development of competitive and comparative advantage, and the establishment of sustained transaction streams arising from the competitive attributes of the work.

In the full TCET model (Figure 1), planning, promise, and competition cognitions reflect the set of high-level active knowledge structures that contain the specific know-how (knowledge, norms, behaviours, and acumen) needed to create a transaction and the series of transactions needed to support a new venture. TCET posits that transactions are the fundamental building block of entrepreneurship and economics on which ventures, industries, and economies are built (Mitchell 2003). At a slightly more micro level, planning, promise, and competition cognitions are evident at different stages of the venture creation process. For example, Vesper (1996) identifies 6 stages in the development of a venture: Searching, screening, planning/financing, set-up, start-up, and on going operations. While planning, promise, and competition cognitions are needed at each stage of development, one type is primarily dominant at each specific stage. Searching, for example, primarily involves competition cognitions: identifying work that may be of superior value to others. Screening primarily involves promise cognitions: assessing whether it may be possible to create and facilitate a transaction with some specific others. Planning/financing primarily involves planning cognitions: creating methods, systems, and structures to attract key stakeholders and enable the work to be created and delivered to others. Set-up primarily involves competition cognitions: developing sustainable competitive advantage, entry barriers, and strategies for effective competition. Start-up primarily involves promise cognitions: enabling transactions by creating trust and facilitating transactions through relationship management, communications, order processing, fulfilment, distribution and other traditional marketing activities. On-going-operation primarily involves planning cognitions: methods, systems, and structures for the ongoing management of an organization. Thus entrepreneurial activity can be viewed as two iterations of the competition, promise, and planning cognitions sequence illustrated in Figure 1 (Mitchell 2001).

According to social cognition theory two sets of factors need to be considered to understand human behaviour: cognition and motivation, and the person-in-situation (Fiske & Taylor 1984). Because cognition is thought to be inherently motivating (knowledge structures are “active” in the sense of initiating and guiding behaviour) people with more highly developed planning, promise, and competition cognitions should have higher intentions-to-venture. This premise is also consistent with models and research linking intention to venture with self-efficacy (e.g., Boyd & Vozikis 1994, Drnovsek & Glas 2002, Zhao, Seibert & Hills 2005) because people with more highly developed planning, promise, and competition cognitions (those with greater expertise) should be more confident in their ability to venture successfully. Thus, while TCET suggests that only promise cognitions will be directly implicated in the decision to venture (Figure 1), the above argument supports the notion of an alternative explanation to TCET where planning and competition cognitions act extraneously as suppressor variables (Rosenberg 1968: 99). To discredit this alternative explanation in the testing of a more complex construction of the TCET model (figure 1), we test the alternative hypothesis with respect to planning and competition cognitions and seek evidence to reject them with confidence. Thus we hypothesize:

- H1a: More highly developed planning cognitions related to the planning - financing and on-going operation stage of venture creation will be positively related to intention-to-venture.
- H1b: More highly developed promise cognitions related to the screening and start-up stages of ventures creation will be positively related to intention-to-venture.
- H1c: More highly developed competition cognitions related to the searching and set-up stages of ventures creation will be positively related to intention-to-venture.

Inhibiting Cognitions

Even when possessing the required expertise, some people choose not to venture or engage in entrepreneurial activity. While contingency theory identifies structural or environmental barriers such as access to resources or technical feasibility, and social cognition theory identifies personal motivational barriers such as self-efficacy and personal interest or desirability, TCET offers another cognitive explanation for not engaging in entrepreneurial activity (e.g., Shepherd & Krueger 2002), there may be countervailing cognitions related to fatalism, refusal, and dependency that operate to counteract some or possibly all of the effects of planning, promise, and competition cognitions (Mitchell 2001). TCET suggests (Figure 1) that it is the level and ratio of facilitating transaction cognitions to inhibiting countervailing cognitions that determines courses of action and that both sets of thinking can, and often do, occur at the same time (Gurnell 2000). TCET suggests that only refusal cognitions should be taken into consideration (relative to promise cognitions) in the decision of whether or not to engage in entrepreneurial activity.

Refusal cognitions are mental models that reflect reasons for not engaging in exchange relationships. While promise cognitions are concerned with building trust and facilitating exchange relationships, refusal cognitions erect mental barriers to exchange, erode or pre-empt the capacity for trust, and result in a desire to avoid transactions entirely. An example of refusal cognition is that most people think that venturing is too big a risk (or too difficult), and therefore relatively few individuals attempt independent transaction initiation and completion (Evans & Leighton 1986, Steinmetz & Wright 1989). Other examples are avoidance thinking caused by incapacity to trust others, or fear or anxiety of the social interactions needed to engage in economic exchange (such telephone phobia). According to Ajzen's (1985) "theory of planned behaviour" intentions towards target behaviour also depend on perceptions that a course of action is personally desirable. Thus the theory of planned behaviour is consistent with TCET in suggesting that people with highly developed refusal cognitions are not likely to consider new venture-based exchange relationships to be desirable, and would actively seek to avoid them. Thus we hypothesize:

H2a: More highly developed refusal cognitions will be negatively related to intention-to-venture.

Fatalism cognitions are knowledge structures that are based on the belief that events are pre-ordained or that human intervention will not effect change. An example of fatalism cognition is the common mis-belief that entrepreneurial ability is based on certain personal characteristics, such as need for achievement (e.g., McClelland 1965) or high locus of control (e.g., Hull, Bosley & Udell 1982). Transacting success or failure is consequently fatalistically attributed to the possession or lack of certain traits, rather than to existence or lack of properly constructed transactions which one can acquire the capability to enact (Mitchell & Chesteen 1995). Fatalism cognitions undermine the inclination to plan, as even people who may have high planning expertise are less motivated to use that expertise if they believe that planning with not affect an outcome. TCET suggests that fatalism cognitions will be activated after venture creation is intended. However, according to Ajzen's (1985) "theory of planned behaviour" intentions towards target behaviour depend on perceptions that a course of action is within one's competence *and control*. This suggests an alternative explanation to TCET, that fatalism cognitions may directly impact entrepreneurial intentions. To support the future testing of the full TCET model (Figure 1) we need evidence that reduces the likelihood of this alternative conceptualization. Consequently, as a null hypothesis, there is reason to expect that people who have more highly developed fatalism cognitions, even those with highly developed planning cognitions, are expected to have lower intentions-to-venture.

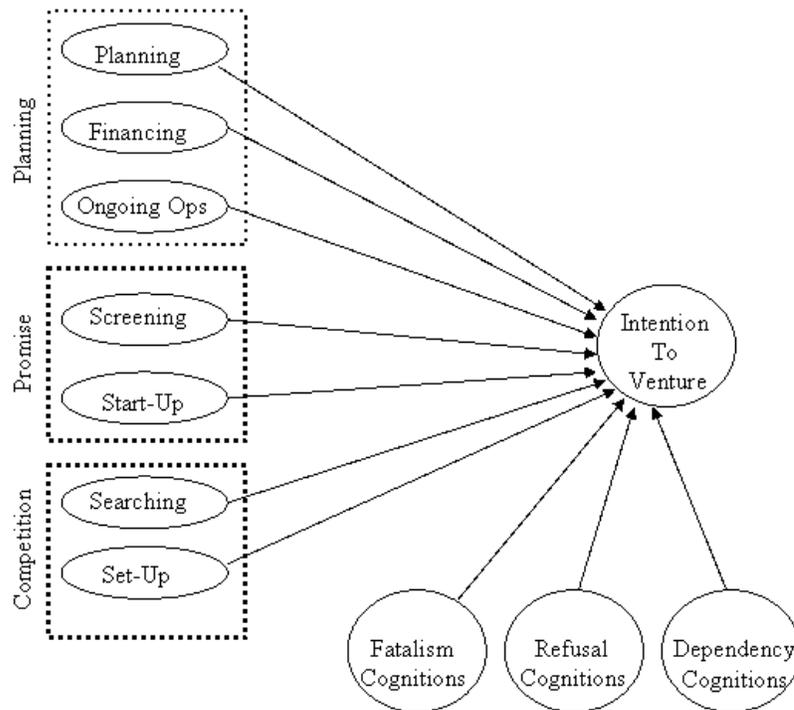
H2b: More highly developed fatalism cognitions will be negatively related to intention-to-venture.

Dependency cognitions are mental models that reflect a lack of self-reliance: the belief that a person shouldn't be expected or required to make their own way in life and that others should help or support them. This thinking is opposite to the thinking associated with competition cognitions and results in a desire not to compete in a market system. An example of a dependency cognition is the common belief of people that they can't create enough economic value themselves to run their own business and prefer getting access to a transfer payments stream (private or public) by being needy (Carroll & Mosakowski

1987). TCET suggests that dependency cognitions will be activated prior to the time when intentions to venture are developed. However, according to Ajzen’s (1985) “theory of planned behaviour,” people with highly developed dependency cognitions would be expected to find entrepreneurial activity either less personally desirable, or beyond their competence and control, and they would be less motivated to engage in that activity. Consequently, dependency thinking could directly affect Intentions to Venture. With the objective of finding evidence to help refute this alternative conceptualization of TCET constructs, we establish the null hypothesis that dependency cognitions are negatively related to Intention to Venture.

H2c: More highly developed dependency cognitions will be negatively related to intention-to-venture.

Figure 2: Test Model



METHODOLOGY

The modeled hypotheses (Figure 2) were tested using self-report survey data from a random sample of 139 rural Arizona business people, who had some entrepreneurial experience, and Partial Least Squares (PLS) analysis (e.g., Chin 2000, Tenenhaus, Chatelin & Esposito 2002).

Sample

The sample for this study was generated as part of a larger rural business development project in Arizona. A sampling frame of 3109 people was generated from state residents who were (1) members of chambers of commerce in the rural communities or (2) had contacted the Arizona Department of Commerce for information about starting new business. A random sample of 741 usable addresses was drawn from this list and mailed a cover letter, survey, and incentive offer. Follow-up postcards were also mailed to non-respondents 14 days after the initial mail-out reminding people to return their surveys as soon as possible, and inviting respondents to complete the same survey online if that were more convenient. Two hundred and ninety surveys were returned for analysis (n=290), for a 32% response rate. Of the 290 responses, 125

were removed from the analysis due to missing values. Another 26 respondents with low entrepreneurial experience (not having started a business) were also removed from the analysis because of the potential for them being “unskilled and unaware” (e.g., Kruger & Dunning 1999) and thus not having a cognitive basis for their intentions to venture. Consequently the useable sample consists of 139 rural Arizona business people with at least some entrepreneurial experience.

Measures

Intention to Venture was measured with three five-point Likert scaled items adapted from Grewal, Monroe, and Krishnan’s (1998) work on behavioural intent. The items sought to determine an overall assessment of the chance of starting a business, and included two contingency-based items that captured the probability of respondents starting a business if they had the right idea and connections, or if the economy improves (see Appendix 1). These items were specified as being reflective indicators of intention-to-venture as the underlying construct gives rise to the attitudes expressed.

Measures were created for planning, promise, and competition cognitions adapting the script cue recognition approach of Mitchell et al. (2000). The script cue recognition approach presents to a respondent two statements – one that an expert would recognize as being true and another (a distracter statement) that a novice would think was true, when it was not. To respond to a potential criticism that the original script cue recognition set-up utilizes “forced choice” thereby not actually being cue recognition, we adapted an alternative to this dichotomous approach to present the respondent with six statements for each construct (see Appendix), three of which were “true” (reflective of more highly developed cognitions), and three of which were not true, (reflective of less highly developed cognitions), but would generally be considered to be true by respondents with less expertise. The items are not the cognitions, but rather reflect the existence of expert cognitions.

Items that reflected more and less highly developed planning, promise, and competition cognitions by stage of the venture creation process were developed using a leading entrepreneurship textbook (Vesper 1996) as the determinant of true and false statements. Respondents were asked to identify three of the six statements that they considered to be the most correct or true. This approach generated a four-point summed scale (0 to 3) for correct answers. Because the cognitions related to planning, financing, and ongoing operations are independent facets of planning cognitions interrelationships were not expected. Hence, summed scales were specified as formative indicators for each facet, not as multiple indicators of the higher-order planning cognition construct. The scales were specified as formative indicators in the PLS model because the scale defines the construct: that is, the ability to discern correct and incorrect statements indicates the existence of highly developed planning cognitions. Similarly, summed scales were specified as formative indicators of screening and start-up promise cognitions and searching and set-up competition cognitions.

Because we were examining constructs that have not previously been conceptualized or investigated, original scales were developed for fatalism, refusal, and dependency cognitions using 5 point Likert scales with anchors of strongly agree and strongly disagree (Appendix). For each construct two scales were created by averaging three or four items that were consistent with the conceptualization of the construct: one scale that reflected general dependency, fatalism, or refusal cognitions and another that reflected venture specific dependency, fatalism, or refusal cognitions (see Appendix). Averaged rather than summed scales were used to preserve the original metric of the scales. The general and venture specific average scales were specified as reflective indicators of their respective constructs because the underlying cognitions were thought to give rise to the reported attitudes and beliefs. To reduce measurement bias, the items were randomly presented in the survey instrument (but in the same section of the instrument), with some items reverse scaled.

Analysis

The hypothesized relationships were tested using Partial Least Squares (PLS) analysis (e.g., Chin 2001). PLS is an ordinary-least-squares-based third generation analytic tool particularly suited to examining path analytic models with low sample sizes and new measures where the objective is prediction rather than

model fit (Smith & Barclay 1997). The key advantage of PLS over regression is the ability to test structural relationships in the context of a measurement model, and is thereby well suited to hypothesis testing where alternative explanations to a theoretical model are examined.

RESULTS AND IMPLICATIONS

Although the fatalism, refusal, and dependency summed scales were found to be significantly correlated with intention to venture (Table 1), preliminary analysis of the PLS measurement model found evidence of multicollinearity (high cross loadings) among these measures. Subsequent examination using Principal Components Factor Analysis found one underlying dimension (all of the loadings were above .85 except for Venture Specific Dependency). Consequently—and perhaps as an even stronger test of an alternative explanations to TCET—the conceptual model was re-specified with six reflective indicators of Inhibiting Cognitions as a predictor of intentions to venture.

Table 1: Correlations

Column 1	Correlation Intention to Venture	Significance
Planning Cognitions		
Planning	-0.091	0.288
Financing	-0.020	0.820
Ongoing Operations	0.041	0.631
Promise Cognitions		
Screening	-0.119	0.163
Start-Up	0.197	0.020*
Competition Cognitions		
Searching	-0.104	0.223
Set-Up	-0.006	0.942
Fatalism Cognitions		
General	0.201	0.018*
Specific	0.199	0.019*
Refusal Cognitions		
General	0.120	0.160
Venture Specific	0.175	0.040*
Dependency Cognitions		
General	0.233	0.006**
Venture Specific	0.187	0.027*

The resulting measurement model (Table 2) demonstrated strong psychometric properties for the multiple item measures of Intention to Venture and Inhibiting Cognitions. Only the loading of one item (venture specific dependency) was less than .71, which lent support for overall item reliability (Fornell & Larcker 1981). Convergent validity was evident in that the Average Variance Extracted (AVE), was greater than .70 for both constructs (more variance in the constructs in explained by the items than unexplained). Finally, composite reliability was evident as the internal consistency (IC) of the items was well above Nunnally's (1981) criteria of .70 for exploratory research. These results were sufficiently strong to enable interpretation of the structural model.

Structural Model

As shown in Table 3, modeled constructs explained 11.6% of the variance in intention to venture. Given the multitude of other factors known to influence entrepreneurial intentions, this somewhat low result was not unexpected, and it is significant at the .05 level.

Table 2: PLS Measurement Model

Measurement Model	Loading (λ)	AVE	IC
Intention to Venture			
a) Probability	.96	.92	.97
b) Likelihood	.96		
c) Overall Chance	.96		
Inhibiting Cognitions		.71	.90
General Dependency	.87		
Venture Specific Dep.	.59		
General Refusal	.77		
Venture Specific Refusal	.94		
General Fatalism	.95		
Venture Specific Fatalism	.90		

Note: AVE = Average Variance Extracted; IC = Internal Consistency. By using single summed scale indicators of the searching, screening, planning, financing, set-up, start-up, and ongoing operations facets of Planning, Promise, and Competition cognitions, the loadings, AVE, and IC are by definition equal to 1. All loadings are significant at the .01 level by bootstrap estimation.

Table 3: PLS Structural Model

Structural Model	Path Coefficient	t	Sig.
Intention to Venture ($R^2=.116$)			
Planning Cognitions			
Planning	-.07	0.64	
Financing	.03	0.92	
Ongoing Operations	-.06	0.32	
Promise Cognitions			
Screening	-.11	1.38	
Start-Up	.19	2.53	p. < .05
Competition Cognitions			
Searching	-.09	1.12	
Set-Up	.02	0.26	
Inhibiting Cognitions	.21	2.64	p. < .05

Note: t-statistics are estimated based on bootstrap procedures, as per Chin (2001).

Promise cognitions relating to the start-up phase of a new venture were, as expected, found to be a significant predictor of intention to venture (H1b), but promise cognitions relating to screening, were not. This latter result may simply reflect the general nature of our Intention to Venture construct – without a specific venture in mind, screening cognitions would not be activated. Consistent with TCET, planning and competition cognitions were not found to be related to Intention to Venture.

Interestingly, the inhibiting cognitions that reflect dependency, fatalism, and refusal cognitions were also found to be positively related to intention to venture (as were the sub-construct correlations) – which is opposite to hypotheses 2a, 2b, and 2c. The implication of this and the other results are discussed below.

DISCUSSION

Cognitive explanations for entrepreneurial behaviour have been the focus of much recent entrepreneurship research and cognitive constructs have been found useful for understanding why some people and not others choose to become entrepreneurs, how entrepreneurs recognize opportunity, how entrepreneurs think and make strategic decisions (Mitchell et al. 2002, 2004). Transaction Cognition Entrepreneurship Theory (TCET) is offered by Mitchell (2001, 2003) as the beginnings of a potentially unifying cognitive theory of entrepreneurship. The central tenets of this theory are only just beginning to be tested empirically as researchers tackle the difficult issue of measuring entrepreneurial cognitions (e.g., Hindle 2004, Baron & Ward 2004). In this paper we set out to examine constructs and relationships that would illuminate potential alternative explanations to TCET and tested whether antecedents of Intention to Venture may act as extraneous, suppressor, or distorter variables (Rosenberg 1968).

Consistent with TCET, promise cognitions relating to the start-up phase of a new venture were found to be a significant predictor of intention to venture, but other planning, promise, and competition cognitions were not. This result is useful in that it helps to refute the potential argument that significance found in future testing of the full, sequential, nested TCET model is due to model misspecification and Type I error due to the impact of extraneous variables (e.g., Rosenberg, 1968). Similarly, finding lack of evidence to support a direct relationship between planning cognition and Intention to Venture and competition cognitions and Intention to Venture, suggests that there would be limited exposure to Type II errors in testing the full TCET model, with only promise cognitions specified as a determinant of entrepreneurial intention. Such error may have been asserted had these variables acted as suppressor variables (Rosenberg 1968).

Previous works have conceptualized cognitive determinants of entrepreneurial intentions through self-efficacy (e.g., Shepherd & Krueger 2002, Drnovsek & Erikson 2005). Empirically, Zhao, Seibert and Hills (2005) found that self-efficacy mediates the relationships between entrepreneurial learning and experience and entrepreneurial intentions. Our finding extends these works by demonstrating what specific knowledge structures impact entrepreneurial intentions—namely promise cognitions. One implication of this for entrepreneurship education is the importance of including start-up promise cognitions in a curriculum. Future research is needed to extend the work of Zhao, Seibert and Hills (2005) and demonstrate a likely link between transaction cognitions and self-efficacy as suggested by Mitchell (2001). This would be helpful in demonstrating in greater detail the theoretical mechanisms through which key cognitive constructs impact entrepreneurial intentions.

Furthermore, the finding that dependency cognitions and fatalism cognitions were positively related to Intention to Venture is surprising. TCET suggests that only refusal cognitions should be negatively related to Intention to Venture and Ajzen's (1985) "theory of planned behaviour" suggests that the other countervailing cognitions should be negatively related to Intention to Venture. Our result is inconsistent with either of these perspectives. Either it reflects a unknown distorter variable at play (e.g., Rosenberg, 1968), or the need for new theory development. Our result is driven by significant correlations between general and venture specific fatalism cognitions, and general and venture specific dependency cognitions. It may simply be that people who have more highly developed fatalism cognitions are more willing to engage in entrepreneurial activity because they believe either that fate is on their side, or by having a more fatalistic outlook, they are more comfortable with risk and uncertainty. Similarly, people with more highly developed dependency cognitions may believe that others will look after them, or they will otherwise get bailed out, should they not succeed in a venture. If this were in fact the thinking underlying this finding, then it may be illustrative of a different type of cognitive bias than has been previously investigated (e.g., Busenitz & Barney 1997, Simon & Houghton 2002) – one that might be characterized as "mis-externalization" (unrealistic belief in the assistance of external forces), which is different than being over optimistic (unrealistically hopeful) or over confidence (unrealistic belief in oneself). Further research is needed to better understand this phenomenon and learn whether TCET needs to be amended to account for this more complex view of countervailing cognitions.

Our study does make a contribution to the literature, however, by introducing new cognitive constructs of fatalism, refusal, and dependency cognitions and tests initial measures. Although construct validity issues with these initial measures necessitated re-specification of the model, this action resulted in a more

conservative examination of alternative explanations. Additionally, the study introduces an alternative approach to script cue-recognition using an interval scale measure of planning, promise, and competition cognitions. In this study, recognition of which three of six statements were most likely correct generated a four-point scale; but more complex approaches could have been used. For example, respondents could be asked to rank statements in order of their veracity with greater weight being given to true statements that are recognized as being true or penalties given to statements thought to be true that are not – which would be consistent with the concept that knowledge which you think is true but is not, is more dangerous than knowledge that you do not have. However, these initial alternative constructions of the script cue recognition method are not yet sufficiently developed to be superior to the original method.

Overall this paper provides a foundation for future operationalization of TCET by examining plausible alternative relationships among TCET constructs. By our undertaking key research housekeeping tasks in this study, we are able to offer a baseline in the testing of transaction cognition entrepreneurship theory.

Appendix: Measures

Intention To Venture: $\alpha = .96$ (Very Unlikely - Very Likely)

1. With the right idea and connections, the probability of me starting a business is:
2. If the economy improves, the likelihood of me starting a business is:
3. Overall, the chance of me starting a business at some point is:

Searching: (contact the authors for the incorrect statements used in the facilitating cognitions scales)

1. If you don't reach as far as ideas that make you laugh, you are being too conservative.
2. Deliberate practice in idea generation can raise the idea generation rates of individuals, leading to better quality venture ideas.
3. The most common sources for new ideas draw from a person's prior experience and from watching others try ideas that can be improved upon.

Screening:

1. Greater time, effort, and resources should only be invested in ideas that have survived several reviews and met successive screening criteria.
2. A key screening criteria should be personal fit: such as the qualifications, training, experience, contacts, and interests of the entrepreneur.
3. The number one screening criteria should be having a unique, superior product.

Planning:

1. The best business plans communicate a management teams' strengths and ability to make the most of an opportunity.
2. Effective business plans clearly explain how a product idea will serve an opportunity in the market better than current solutions do.
3. A business plan is written for potential investors concentrates on convincing readers that a management team has the ability to cope with unexpected circumstances.

Financing:

1. An entrepreneur's "harvest" or reward objective strongly influences how a new business should be financed.
2. The biggest pitfall in financing a new business is running out of cash.
3. Venture capitalists typically look for opportunities for large investments with returns of 30% ROI or more.

Set-Up:

1. Copyright, patents, and other legal forms of protecting ideas from copying are only as effective as the ability of a company to defend their rights in court.
2. Setting up a business so it can compete successfully is unique to each situation.
3. A key set-up issue is deciding what parts of the product the company will make or buy.

Start-Up:

1. Important goals at start-up are product trial, credibility, and a sense of trust in your customers and other stakeholders.
2. A key success factor in start-up is thinking ahead and having a plan ready should anything go wrong on opening day.
3. The most common problems at start-up include failure to anticipate and meet demand, an inadequate or inappropriate workforce, and equipment failure.

Ongoing Operations:

1. When your business grows quickly it is very difficult to maintain the culture you want
2. Ongoing operations should involve a regular review, update, and implementation of the business plan.
3. A successful operation is generally quiet. People are not hectically running around putting out fires.

General Fatalism Cognitions: $\alpha = .93$

1. I think people don't have much control over what happens to them.
2. I live life by the motto "what will be, will be."
3. It is a waste of time to try to fight the

system.

4. I think that it really is not possible to rise above your station in life.

Venture Specific Fatalism Cognitions: $\alpha = .75$

1. Venture success has a lot more to do with luck than with skill or planning.
2. Entrepreneurs should just accept that political interference will impact the success of their business.
3. It really is not possible for individual entrepreneurs to take advantage of the big opportunities in business anymore.

General Refusal Cognitions: $\alpha = .73$

1. I dislike shopping so much I try to get others to do it for me.
2. I like to bargain or negotiate. (-)
3. I'd rather give something away than to have to try to sell it.

Venture Specific Refusal Cognitions: $\alpha = .88$

1. I find dealing with business transactions makes me uncomfortable or stressed.
2. I try to avoid dealing with customers whenever possible.
3. I would never consider starting my own business.

General Dependency Cognitions: $\alpha = .91$

1. I know that if I get into trouble, someone will look after me.
2. I think people who work when eligible for government support are crazy.
3. People should earn their own way in life. (-)

Venture Specific Dependency Cog.: $\alpha = .51$

1. The government should provide an economic safety net for entrepreneur.
2. I have a right to a steady income.
3. There should not be bail-outs or compensation for failed businesses. (-)

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