

FAILING TO SUCCEED:  
NEW VENTURE FAILURE AS A MODERATOR OF  
STARTUP EXPERIENCE AND STARTUP EXPERTISE

Ronald K. Mitchell, University of Victoria  
J. Robert Mitchell, Indiana University  
J. Brock Smith, University of Victoria

## ABSTRACT

In this study we investigate new venture failure. We do this in two ways: first, by testing for moderating effects of new venture failure on the relationship between startup experience and perceived startup expertise with a sample of 220 entrepreneurs; and second, by qualitatively exploring the nature of these relationships, drawing insights from interviews with these 220 entrepreneurs. Our results show a disordinal crossover moderating effect of new venture failure in the relationship between startup experience and startup expertise, and also assist in the interpretation of these results. We illustrate, for practice: more productive outcomes from initial new venture failure, and for research: a deeper understanding of the “bubbling cauldron” of new venture failure.

## INTRODUCTION

New venture failure has been portrayed both positively (e.g., McGrath, 1999) and negatively (e.g., Dickinson, 1981). While the negative effects of failure are manifest in monetary and emotional costs, its positive effects are less visible—being associated with learning, experience, and other cognitive constructs. Most lenders and venture capitalists consider a previous failure to be a virtue of finance seeking entrepreneurs—but why? Despite significant research interest in the topic of failure (e.g., Shepard, 2003; McGrath, 1999; Sitkin, 1992), the positive aspects of new venture failure have not been empirically verified. To do so is important for stakeholders to know how to treat new venture failure. In this study, we begin to address this issue by examining whether new venture failure moderates the relationship between startup experience and expertise, and if so, how. We further consider the nature of any startup expertise differences that appear between those entrepreneurs who have failed in a new venture, and those who have not failed. In doing so, we build on the work of previous researchers who have taken a cognitive perspective in examining new venture failure (Shepherd, 2003; Zacharakis, Meyer, & DeCastro, 1999).

The report of our study proceeds as follows. We first examine the literature to explore the meaning of and past research related to the key constructs that we use to develop our research model: startup expertise, startup experience, and new venture failure. In the methods section which follows our literature review, we describe the data gathering, measurement and analysis approaches that we have used to obtain the results that we report therein, including the gathering and transcription of the focused interviews we use to help us to better interpret our findings. In the final section of the paper, we discuss and explain how this study helps us to illustrate, for practice: more productive outcomes from initial new venture failure, and for research: a deeper understanding of the “bubbling cauldron” of new venture failure.

## THEORY & HYPOTHESES

### Background

New venture failure has been a topic of study for at least two decades. It has been investigated in one form or another at multiple levels of analysis: in the economy (McGrath, 1999; Shane, 1996), in organizational populations (Hannan & Freeman, 1989), in firms (Azoulay & Shane, 2001; Gimeno, Folta, Cooper, & Woo, 1997; Holmberg & Morgan, 2003; McGrath, 1999), and in individuals (Shepherd, 2003; Zacharakis, Meyer, & DeCastro, 1999). Failure has been portrayed in both a positive (e.g., McGrath, 1999; Sitkin, 1992) and negative (e.g., Dickinson, 1981) light. It has been linked to entrepreneurial grief (Shepherd, 2003), learning (Minniti & Bygrave, 2001; Sitkin, 1992), risk and reward (McGrath, 1999), and numerous other socio-economic phenomena (e.g., Begley & Tan, 2001).

Several theoretical frameworks have been used to address why some entrepreneurs succeed while others do not. Personality theory has attempted to distinguish between entrepreneurs and non-entrepreneurs based on the characteristics or traits of these individuals (Brockhaus & Horowitz, 1986; Carland, Hoy, Boulton & Carland, 1984; Hull, et al, 1982; McClelland, 1965, 1968). The behavioral approach of describing entrepreneurship distinguishes between entrepreneurs and non-entrepreneurs based on the entrepreneurial activities undertaken (or not undertaken) by these individuals (Gartner, 1989). A number of cognitive theories have also been applied to addressing the question of entrepreneurial success v. failure. In this study, we utilize one such view: expert information processing theory, which suggests that expert entrepreneurs possess a differential ability to transform, store, recover and use information that novice entrepreneurs miss (Mitchell, Smith, Seawright, & Morse, 2000). According to this theory, it is the knowledge structures or scripts possessed by experts that allow them to significantly outperform non-experts who do not possess such structured knowledge (Ericsson, Krampe, & Tesch-Romer, 1993; Glaser, 1984; Leddo & Abelson, 1986; Lord & Maher, 1990; Read, 1987). Accordingly, expert information processing theory suggests that some entrepreneurs succeed where others do not, in large part due to the expertise they possess.

But what drives expert performance? One explanation relates experience to expert performance. In their study of 52 technical ventures, Stuart and Abetti (1990) found that the leader's entrepreneurial experience was the primary determinant of superior performance—suggesting a relationship between experience and expertise. But not all experience results in learning (Brehmer, 1980). A well-known adage suggests that twenty years of experience is qualitatively different from one year of experience repeated twenty times.

### Model Development

Use of a social cognition framework—that focuses on the person-environment interaction (Fiske & Taylor, 1984)—provides insights into the effects of feedback on the relationship between experience and expertise. Echoing the sentiment captured within the above adage, Russo and Schoemaker (1992) suggest that for experience to result in learning, an individual must receive feedback from the environment about that experience. This fits a conceptualization of

entrepreneurial learning proposed by Minniti and Bygrave (2001) who suggest that entrepreneurs only repeat choices that result in positive feedback, and discard choices that result in negative feedback. Within this study, we examine new venture failure, a particular form of often negative feedback that, according to the foregoing logic, may moderate the relationship between startup experience and expertise (Figure 1). Thus we hypothesize,

*Hypothesis 1: Entrepreneurs who have failed will have higher levels of expertise relative to experience than those entrepreneurs who have not failed.*

To further understand the nature of any relationship between failure, experience, and expertise we rely on post-hoc analysis of qualitative data also gathered in the study.

## METHODS

### Sample

Hypotheses were tested using a sample of 220 entrepreneurs from multiple countries (primarily Canada), all of whom were chosen by entrepreneurship students between 1997 and 2003 to provide questionnaire and focused-interview input to the students in a mentor/student context. The authors provided an interview guide to the students consistent with the methods suggested in Mitchell & Chesteen (1995). The interviews were recorded and transcribed by the students. In addition, each entrepreneur completed a self-report questionnaire along with a consent form permitting this information to be used for academic research. All of the respondents considered themselves entrepreneurs, and 67% had started three or more businesses. Forty-two percent had experienced at least one new venture failure. The respondents ranged in self-reported experience and expertise and operated in a variety of industries. Respondent ages ranged from 20 to 81 (mean = 45), and 86% were male. Consistent with the difficulty of accessing sampling frames for probability samples in social science research (Pedhazur & Schmelkin, 1991), and in entrepreneurship research in particular (McDougall & Oviatt, 1997: 303), a purposeful sampling approach was utilized, where students selected only individuals who had a threshold level of entrepreneurial experience (as noted below). As such, we consider the sample to be appropriate for a theory-building exploratory study such as the one reported in this paper.

### Measures

The extent of entrepreneurial experience was measured with a summed four-item scale that incorporated both subjective and objective indicators. The one subjective item was a self-report item that asked respondents to rate their past experience on a semantic differential scale with anchors of “limited” and “experienced.” Responses were coded into a 9-point interval scale and were then recoded by dividing the scale by 9 to match the nominal scales used in measuring the other items. The three objective, nominally scaled items were: I have started three (3) or more businesses, at least one of which is a profitable, on-going entity; I have started at least one (1) business that has been in existence for at least two years; and I have significant career experience that makes me highly familiar with new venture formation. These four items were summed, and for analytic purposes, recoded into a categorical experience variable with approximately equal sized categories of high (69 cases), medium (81 cases), and low (63 cases) experience levels.

Perceived entrepreneurial expertise was measured with a single self-report item that asked respondents to rate their level of expertise on a semantic differential scale with anchors of “Novice” and “Expert,” and responses were coded into a 9-point interval scale measure of expertise. In addition, more objective measures of expertise captured the extent to which respondents had expert ability, willingness, and arrangements cognitions. Dimensions of these higher order constructs were measured with the cue-recognition-based multi-item interval scale method developed by Mitchell et al. (2002): Ability cognitions of Situational Knowledge with two items, Opportunity Fit with two items, Venture Diagnostic Ability with three items, and Opportunity Recognition with a single item; Willingness cognitions of Commitment Tolerance with four items, Seeking Focus with three items, and Opportunity Motivation with two items; and Arrangements cognitions of Protectable Idea with two items, Resource Access with three items, and Venture Specific Skills with a single item. The specific items and their wording are available from the authors on request or in the Appendix (Mitchell, et. al., 2000: 992).

New Venture Failure was measured with a single self-report item “I have a) failed in at least 1 new venture, or b) never failed in a new venture.”

In addition, the demographic variables of age (continuous) and level of formal education (7 categories) were captured in the study and included in the analysis as covariates. Age, in particular, could be an alternative explanation of any relationship between experience and expertise (Reuber & Fischer, 1994). Level of formal education could also be an alternative explanation (Vesper, 1996).

Descriptive statistics associated with these measures can be found in Table 1.

## Quantitative Analysis & Results

The first hypothesized relationship was tested using Univariate Analysis of Variance (see Table 2). Supportive of hypothesis 1, a significant ( $p = .000$ ) interaction effect was found for New Venture Experience and New Venture Failure on Perceived Expertise, after controlling for Age and Formal Education (which had non-significant main effects). This interaction effect, illustrated in Figure 2, is of the stronger disordinal crossover variety (e.g., Malhotra, 2004). It indicates that entrepreneurs with low levels of new venture experience and who have failed in at least one venture, perceive lower levels of expertise than those who have not failed. At a medium level of new venture experience, entrepreneurs who have failed perceive higher levels of expertise than those who have not failed. At high levels of new venture experience, entrepreneurs who have failed and those who have not failed perceive the same level of expertise. This suggests that failure acts as an accelerator of expertise.

In an exploratory post-hoc analysis of these results we examined, using Multivariate Analysis of Variance, the interaction effect on the 10 expertise constructs related to Arrangements, Willingness, and Ability cognitions. As illustrated in Table 3, the interaction effect was only significant for two of the 10 expertise variables: the Arrangements cognitions construct Resource Access ( $p = .005$ ) and the Ability cognitions construct Situational Knowledge ( $p = .003$ ), after controlling for Age and Education as covariates, somewhat demonstrating the manner in which failure affects expertise.

## Focused Interviews

To aid further in the interpretation of the findings, we utilized focused interviews from those entrepreneurs whose responses are the basis for the quantitative findings<sup>1</sup>. The use of focused interviews in research that seeks to interpret quantitative findings dates back at least to Merton and Kendall's (1946) classic article on the focused interview. These authors note (1946: 42) that: "The primary purpose of the focused interview is to provide some basis for interpreting statistically significant effects . . ."

We sought to better understand the nature of the startup expertise differences between those entrepreneurs who have failed in a new venture and those who have not failed. We therefore first explored the thinking of both those entrepreneurs who have not failed, and those who have failed, regardless of their experience or expertise levels, to ascertain the extent to which opinions about failure are similar or dissimilar between the groups.

When only separated into the non-failed group v. have-failed we found the following:

Those who have not failed seem to discount failure's impact:

"It's called guts. You're either going to do this or you're not going to do it . . . The hell with what happens, lets go and do it . . . Well, who gives a damn if you fail?" (male, age 48, not-failed)

Those who have failed generally seem to see a learning response as a "real option"—consistent with McGrath's (1999) thesis:

"Sure (I have failed), but I don't see (failure) as an error, I see it as a learning experience." (female, age 52, has-failed)

However, given the disordinal crossover results, we used the focused-interview comments of the entrepreneurs in the study to further interpret the findings. We therefore studied the interviews more closely, separating into groups: entrepreneurs with low, medium, and high levels of experience, to help us to ascertain the extent to, and manner in which, opinions and beliefs about failure differed among these six groups.

### Low Experience Entrepreneurs

For those entrepreneurs with low experience we investigated the phenomenon evident in our quantitative data: that less experienced entrepreneurs appear to have an "untempered" assessment of their expertise, especially when they have not failed. This condition of being "unskilled and unaware" (Kruger & Dunning, 1999) has implications, for example, for the financial risks posed both by and to such individuals. In our focused interviews we sought to resolve the apparent paradox for low-experience entrepreneurs: that if you haven't failed you are

---

<sup>1</sup> We were limited in the size and extent of focused interview excerpts due to space restrictions. Thus, these data are provided to expand our understanding of the quantitative results, but are not intended to be exhaustive.

less likely to accurately assess your own expertise; but to accurately assess your expertise you must have failed.

We observe this high, but less experienced confidence level in the comments of low experience entrepreneurs who have not failed:

Interviewer: “How do you explain your failures?”

Entrepreneur: “What mistakes? (she laughs) . . . Well, I would say that in the first two to three years, we have been in business for seven years, there was definitely a lot of naïveté, and so I should have known better.” (female, age 29, not-failed)

Interviewer: “Have you ever failed at a new venture before?”

Entrepreneur: “To tell you the truth no. I have never experienced failure. I guess I have been lucky. Both businesses that I started have been successful.”

Interviewer: “How and why were you successful?”

Entrepreneur: “To tell you the truth I don’t really know. I have never really asked myself that question. Hmmm . . .” (male, age 40, not-failed)

And we observe an orientation toward learning in those low experience entrepreneurs who have failed in a new venture:

“Failures are a leaning experience, sometimes I fail because we didn’t get out, you see it sliding and you think you can make it better because you have these skills, but you have to look from the outside to actually see. You don’t see the tell tale signs.” (female, age 30, has-failed)

“I’ve had one major failure, that was not good. An individual came to us to help us out of a jam. I had a partner (out of town), we were working on a project, with another company that was not up front, and we realized that this was going off the rails. A third party came in to give us a hand out of this, and eventually came in from a new company. I had shares in this company, we appeared to get a major contract, at which point the third party came in with his partner with 55% of the company, and told me that he didn’t want to work with me anymore. Gone, toast. That was it . . . It was an interesting exercise.” (male, age 49, has-failed)

### Medium Experience Entrepreneurs

Our next finding is that those with medium experience, who have failed, perceive higher levels of expertise than those with medium experience who have not failed. Here, it appears that an overconfidence zone exists that has been created by having overcome a failure. We therefore attempted to determine from the comments and statements of the medium experience-level entrepreneurs why this might be so, in hopes that we could provide some practical assistance for those in this group.

This time it is those who *have* failed who appear to adopt the “world-beater” stance:

“I don’t use the word “failure.” It implies you gave up and quit. Every business can be changed or reworked. If however, you decide to shut down, you liquidate and move on . . . Failure is quitting. You shouldn’t quit, you should just move on to the next venture. It usually takes until the 4th business to get it right. Or so they claim.” (male, age 56, has-failed)

“Yes, I failed before. Every time when I made a mistake, I learned something out of it. For example, before, I trusted people too much. To prevent people from taking advantages from me, now I ask people to put everything important on paper. I learned a painful lesson when I cooperated with the wrong partner. A wrong partner could undermine your success. I can’t emphasize enough how important it is to build strong relations with the key business partners. Without their support, (names venture) would not have today’s achievement. When I was young, I made a lot of mistakes. When my ex-husband and I had a new business idea, without carefully studying the feasibility of the business and understanding the real costs involved, we jumped in and were stuck in the business. But the good side was that I learned a lot from the mistakes. I failed in this business, but I also gained valuable experiences from the failure. I always stay positive. I might feel frustrated for a few days. After a few days, I would recover completely from the pain. You know, you make (a) mistake today, you will likely not repeat the same mistake if you really understand why you made the mistake.” (female, age 48, has-failed)

Those who have not failed, but who now have a bit more experience (as a group, that is) take a more cautious position:

“I have definitely, definitely, increased in my fear...over 20 years . . . I have become more shy, more withdrawn, more careful, more protective over the 20 years (due to) . . . repeated experience of ah...being subjective to criticism and judgment and I wouldn’t say that I have a tougher skin...um, I have maintained my sense of openness and presence of heart and so, it is like a tradeoff, so what are you going to do? I don’t want to close myself off, and yet I think I have become more protective in my psyche.” (female, age 40, not-failed)

“We haven’t failed yet, fortunately, and we don’t know what it’s like to fail. However, there are failures within a success, meaning that we experience failures, particularly the first two, three years of starting the business when you’re generating no income. Now, looking back, it has been a success, but that wasn’t so at that time. So failure occurs many, many times, even nowadays, because we still run into months that are not profitable or when things go wrong and you lose money. But that is not what you consider major failure.” (male, age 42, not-failed)

### High Experience Entrepreneurs

Finally, we studied the comments and statements of entrepreneurs with high levels of experience, to attempt to learn why failure no longer differentiates perceptions of expertise level. Regardless of has-failed or not-failed status, the comments of entrepreneurs who have high levels of

experience seem to center on the idea that you have to “work the problems hard, because the context is always a bear,” and “failures, in context, are manageable.”

Those who have not failed state:

Interviewer: “Have you experienced any situations of failure in your business?”

Entrepreneur: “Well, I don’t wanna sound like I am a major winner here but I can’t think of any major things here.”

Interviewer: “What did/do you do to anticipate and to avoid failure?”

Entrepreneur: “Just staying on top of the situation, you have to give a 150%, and I review and constantly, constantly playback everything in my drawings and in my mind, just to make sure, we have, we feel that we keep going over the same old trails to make sure that you’ve covered off every louse detail, it’s such an exacting business, detail-oriented, and you can never ever rest from it.”  
(female, age 44, not-failed)

“I have never fail(ed) before except (when I lost quite a lot of money in the Taiwanese real estate market). I believe that my hard work and fully dedication to the business is the most important factor to the success of my ventures. I believe that if the owner works hard and smartly, every business should succeed at least at certain level. I believe that all of the failures are due to the external environment factors, special the governmental policy and macro economics. When the governmental policy changes, the overall domestic environment will change. When the macro economics changes, the dynamic of market demand will change too. Since small business cannot fight with those macro factors, they end up with closing down.” (male, age 53, not-failed)

And those high-experience entrepreneurs who *have* failed respond:

Interviewer: “How many past new ventures have you started?”

Entrepreneur: Around 20.

Interviewer: “More successes than failures?”

Entrepreneur: “Nope, more failures than successes. You know, a few successes pay for a lot of failures.” (male, age 56, has-failed)

“Yeah (I have failed), but first of all, I don’t think there are such things as failures. You may not achieve what you desire, but when you look back on it in retrospect...If I could give an example, probably my biggest failures led to my biggest learning experiences. That may be a bit of a cliché, but when you’re down and out, at rock bottom, and you don’t know how you’re gonna get out of this thing, maybe in a year, two years, you look back and say...hmm why did I sweat that.” (male, age 57, has-failed)

It therefore appears to us from our study of the qualitative data obtained through focused interviews, that the differential effects of failure as they moderate the experience/ expertise relationship have a progressive theme (stated in a hypothetical general voice) that goes something like this:



“If I’m less experienced, I’d better be careful because I’m likely to be overconfident, especially if I have not failed. If I am moderately experienced, and have failed, it is likely that having overcome this failure, I have somehow adopted a ‘world-beater’-type approach that makes me think that I have more expertise than those whose experience does not include what they judge to be a failure. Only when I am highly experienced do I evidence the same level of expertise whether I have failed or not, indicating that failure must somehow now be fitting into a sufficiently broad context that its effects are not differentiating. And, whether I am male or female does not seem to matter: this pattern seems to hold.”

## DISCUSSION

There is a jazz refrain that goes, in part:

“You don’t know what love is—until you know the meaning of the blues . . . until you have that love that cannot live; but know that love will never die.”

Allegorically, at least, this song could be paraphrased to express the plight of entrepreneurs in trying to effectively interpret the meaning of a new venture failure in their life. This is not easy, for as we have seen in our results, the meaning of new venture failure must at least be interpreted within the context of startup experience; and we have found that the meaning of new venture failure as it impacts the link between experience and expertise is differential as experience grows.

As low experience potential entrepreneurs encountering the concept of new venture failure for the first time, many of our students, for example, inevitably begin with a focus on how to avoid failure, and to a somewhat lesser extent on attempting to understand its causes, with very few wanting to know how to learn from failure. We get the sense from this, that anti-failure bias with its self-limiting unintended consequences (McGrath, 1999: 17 – 19) begins early, even among pre-entrepreneurs with little entrepreneurial experience. Counterintuitively, it seems then, the findings we report herein suggest that failure can actually facilitate (and expedite) expertise; and that it is at lower levels of experience where such learning from failure is most needed.

Thus, the question becomes: What can be done to better transform failure into expertise at lower levels of experience? One possible answer to this question may be found in research on entrepreneurial pedagogy (Mitchell & Chesteen, 1995; Mitchell, 2004, forthcoming). This suggests that experiential pedagogy in entrepreneurship enhances a novice’s propensity to engage in entrepreneurial activities and the ability of that individual to successfully engage in such activities. Consequently, expertise-enhancing script-based pedagogy may actually allow those with lower levels of experience to overcome a failure bias and better benefit from new venture failure.

In this study, through our analysis of both quantitative and qualitative results, we therefore provide an empirical examination of McGrath (1999)—to, specifically in the startup setting, open a window through which we can view the costs of anti-failure bias as theoretically proposed: (1) by showing that, contrary to widespread belief, new venture failure has (to a

certain point in the growth of experience) a positive role in the creation of startup expertise; that there appears to be a range within which its impact is negative; and that with the attainment of high levels of startup experience, failure matters relatively less; and, (2) by presenting entrepreneur comments and reactions to new venture failure that further illuminate the nature of “real options reasoning” (ibid.): to develop the idea that the incremental creation and exercise of action-opportunities (options) with a large upside and small downside, is actually the practical mechanism that venturers use (and can use) to chart and navigate a course through the somewhat treacherous (to the unwary) territory of new venture failure.

CONTACT: Ronald K. Mitchell; University of Victoria, PO Box 1700 STN CSC, Victoria, B.C., Canada V8W 2Y2; (T) 250-472-4721; (F) 250-721-6067; mitch@business.uvic.ca.

## REFERENCES

- Azoulay, P., & Shane, S. (2001). Entrepreneurs, Contracts, and the Failure of Young Firms. *Management Science*, 47, 337.
- Begley, T. M., & Tan, W. L. (2001). The Socio-Cultural Environment for Entrepreneurship: A Comparison Between East Asian and Anglo-Saxon Countries. *Journal of International Business Studies*, 32, 537.
- Brehmer, B. (1980). In one word: Not from experience. *Acta Psychologica*, 45, 233-241.
- Brockhaus, R. H. S., & Horowitz, P. S. (1986). The psychology of the entrepreneur. In D. Sexton & R. Smilor (Eds.), *The Art and Science of Entrepreneurship* (pp. 25-48). Cambridge, MA: Ballinger.
- Carland, J. W., Hoy, F., Boulton, W. R., & Carland, J. A. C. (1984). Differentiating Entrepreneurs from Small Business Owners: A Conceptualization. *Academy of Management Review*, 9(2), 354-359.
- Dickinson, R. (1981). Business Failure Rate. *American Journal of Small Business*, 6(2), 17-25.
- Ericsson, K. A., Krampe, R. T., & Tesch-Romer, C. (1993). The role of deliberate practice in the acquisition of expert performance. *Psychological Review*, 100(3), 363-406.
- Fiske, S. T., & Taylor, S. E. (1984). *Social Cognition*. Reading, MA: Addison-Wesley.
- Gartner, W. B. (1989). Who is an entrepreneur? Is the wrong question. *Entrepreneurship Theory & Practice*, 13(Summer, ), 47-68.
- Gimeno, J., Folta, T. B., Cooper, A. C., & Woo, C. Y. (1997). Survival of the fittest? Entrepreneurial human capital and the persistence of underperforming firms. *Administrative Science Quarterly*, 42(4), 750.
- Glaser, R. (1984). Education and thinking. *American Psychologist*, 39, 93-104.
- Hannan, M. T., & Freeman, J. (1989). *Organizational Ecology*. Cambridge, MA: Harvard University Press.
- Holmberg, S. R., & Morgan, K. B. (2003). Franchise turnover and failure: New research and perspectives. *Journal of Business Venturing*, 18(3), 403.
- Hull, D., Bosley, J. J., & Udell, G. G. (1982). Renewing the hunt for means of identifying potential entrepreneurs by personality characteristics. *Journal of Small Business Management*, 20(2), 11-19.
- Kruger, J., & Dunning, D. (1999). Unskilled and unaware of it: How difficulties in recognizing one's own incompetence lead to inflated self-assessments. *Journal of Personality and Social Psychology*, 77(6), 1121-1134.
- Leddo, J., & Abelson, R. P. (1986). The nature of explanations. In J. A. Galambos, R. P. Abelson & J. B. Black (Eds.), *Knowledge Structures* (pp. 103-122). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Lord, R. G., & Maher, K. J. (1990). Alternative information-processing models and their implications for theory, research, and practice. *Academy of Management Review*, 15(1), 9-28.

- Malhotra, N. (2004). *Marketing research: An applied orientation* (Fourth ed.). Upper Saddle River, NJ: Prentice Hall.
- McClelland, D. C. (1965). Need achievement and entrepreneurship: A longitudinal study. *Journal of Personality and Social Psychology, 1*, 389-392.
- McClelland, D. C. (1968). *Characteristics of successful entrepreneurs*. Paper presented at the Proceedings of the Third Creativity, Innovation, and Entrepreneurship Symposium, Framingham, MA.
- McDougall, P. P., & Oviatt, B. M. (1997). International entrepreneurship literature in the 1990s and directions for future research. In D. L. Sexton & R. W. Smilor (Eds.), *Entrepreneurship 2000* (pp. 291-320). Chicago, IL: Upstart Publishing.
- McGrath, R. G. (1999). Falling forward: Real options reasoning and entrepreneurial failure. *Academy of Management Review, 24*(1), 13-30.
- Merton, R. K., & Kendall, P. (1946). The focused interview. *American Journal of Sociology, 51*(May), 541-557.
- Minniti, M., & Bygrave, W. (2001). A dynamic model of entrepreneurial learning. *Entrepreneurship Theory & Practice, 25*(3), 5-16.
- Mitchell, R. K. (2004, forthcoming). Creating global entrepreneurs: The road to excellence in international entrepreneurship education. In J. A. Katz & D. A. Shepherd (Eds.), *Advances in Entrepreneurship, Firm Emergence and Growth: International Entrepreneurship Research* (Vol. 7). Greenwich, CT: JAI Press.
- Mitchell, R. K., & Chesteen, S. A. (1995). Enhancing entrepreneurial expertise: Experiential pedagogy and the entrepreneurial expert script. *Simulation & Gaming, 26*(3), 288-306.
- Mitchell, R. K., Smith, B., Seawright, K. W., & Morse, E. A. (2000). Cross-cultural cognitions and the venture creation decision. *Academy of Management Journal, 43*(5), 974-993.
- Mitchell, R. K., Smith, J. B., Morse, E. A., Seawright, K. W., Peredo, A. M., & McKenzie, B. (2002). Are entrepreneurial cognitions universal? Assessing entrepreneurial cognitions across cultures. *Entrepreneurship Theory & Practice, 26*(4), 9-32.
- Pedhazur, E. J., & Schmelkin, L. P. (1991). *Measurement, design, and analysis: An integrated approach*. Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Read, S. J. (1987). Constructing causal scenarios: A knowledge structure approach to causal reasoning. *Journal of Personality and Social Psychology, 52*, 288-302.
- Reuber, A. R., & Fischer, E. M. (1994). Entrepreneurs' experience, expertise, and the performance of technology-based firms. *IEEE Transactions on Engineering Management, 41*( 4), 1-10.
- Russo, J. E., & Schoemaker, P. J. H. (1992). Managing overconfidence. *Sloan Management Review, 33*(2), 7-17.
- Shane, S. (1996). Explaining variation in rates of entrepreneurship in the United States: 1899-1988. *Journal of Management, 22*(5), 747-781.
- Shepherd, D. A. (2003). Learning from business failure: Propositions of grief recovery for the self-employed. *Academy of Management Review, 28*(2), 318-328.

- Sitkin, S. B. (1992). Learning through failure: The strategy of small losses. In B. M. Staw & L. L. Cummings (Eds.), *Research in Organizational Behavior* (Vol. 14, pp. 231-266): JAI Press.
- Stuart, R. W., & Abetti, P. A. (1990). Impact of entrepreneurial and management experience on early performance. *Journal of Business Venturing*, 5(3), 151-162.
- Vesper, K. H. (1996). *New Venture Experience*. Seattle: Vector Books.
- Zacharakis, A. L., Meyer, G. D., & DeCastro, J. (1999). Differing perception of New Venture Failure: A Matched Exploratory Study of Venture Capitalists and Entrepreneurs. *Journal of Small Business Management*(July), 1-14.

<b>Table 1: Descriptive Statistics</b>								
	<i>Mean</i>	<i>S.D.</i>				<i>Correlations</i>		
			NVE	PE	NVF	A		ED
New Venture Experience (NVE)	2.50	1.00		0.31 **	0.08	0.35 **		0.04
Perceived Expertise (PE)	6.40	2.25			0.08	0.27 **		0.09
New Venture Failure (NVF)	0.60	0.49				0.15 *		0.17 **
Age (A)	45.00	11.93						0.02
Education (ED)	5.00 <sup>a</sup>	1.79						
<b>Ability Cognitions</b>								
Situational Knowledge			-0.11	-0.02	0.23 **	-0.12		0.18 **
Opportunity Fit			0.02	0.06	-0.03	0.00		0.03
Venture Diagnostic Ability			-0.03	0.15 *	-0.01	-0.08		0.10
Opportunity Recognition			0.09	0.08	0.08	0.01		0.07
<b>Willingness Cognitions</b>								
Commitment Tolerance			0.08	0.19 **	0.15 *	-0.10		0.20 **
Seeking Focus			-0.11	0.05	0.08	-0.17 *		0.22 **
Opportunity Motivation			-0.02	-0.03	0.05	-0.11		0.02
<b>Arrangements Cognitions</b>								
Protectable Idea			0.02	0.12	0.16 *	0.06		0.25 **
Resource Access			0.19 **	0.11	0.06	0.01		0.01
Venture Specific Skills			-0.08	0.03	-0.07	-0.05		0.05

Note: <sup>a</sup> Median is reported, Median and Mode are both equal to 5.0. \*\* p < .01, \* p < .05. The main effects for New Venture Experience and New Venture Failure are not significant.

<b>Table 2: Univariate Analysis of Variance</b>				
		<i>Df</i>	<i>F</i>	<i>Sig.</i>
<b>Between-Subjects Effects</b>				
Corrected Model		7	8.1	0.000
Intercept		1	53.8	0.000
Experience * Failure Interaction		5	7.4	0.000
Age (Covariate)		1	2.5	0.117
Formal Education (Covariate)		1	1.2	0.277
<b>Interaction Effect Means</b>				
			<i>Venture Failure</i>	<i>No Venture Failure</i>
<b>Expertise (with Covariates) <sup>a</sup></b>				
Low Experience			4.7	5.300
Medium Experience			7.0	6.700
High Experience			7.1	7.200
<b>Expertise (no Covariates)</b>				
Low Experience			4.6	5.300
Medium Experience			7.1	6.900
High Experience			7.1	7.300
Note: <sup>a</sup> Evaluated at covariates appeared in the model: Age = 45.0, Formal Education = 4.4.				

<b>Table 3: Post-Hoc Analysis: MANOVA</b>				
<b>Multivariate Tests <sup>a</sup></b>				
Intercept		<i>DF</i>	<i>F</i>	<i>Sig.</i>
Experience * Failure Interaction		10	22.9	0.000
Age		50	1.6	0.007
Education		10	1.5	0.135
		10	2.8	0.003
<b>Between-Subjects Effects</b>				
		<i>Df</i>	<i>F</i>	<i>Sig.</i>
Experience * Failure Interaction				
Arrangements Cognitions				
Protectable Idea <sup>b</sup>		5	1.2	0.294
Resource Access		5	3.4	0.005
Venture Specific Skills		5	1.3	0.258
Willingness Cognitions				
Commitment Tolerance <sup>b</sup>		5	1.4	0.217
Seeking Focus		5	1.2	0.323
Opportunity Motivation		5	0.6	0.695
Ability Cognitions				
Situational Knowledge <sup>b</sup>		5	3.8	0.003
Opportunity Fit		5	0.7	0.588
Venture Diagnostic Ability		5	1.4	0.233
Opportunity Recognition		5	1.7	0.135
Note: a Wilk's Lambda reported, same results for other tests. b These variables were significant with respect to the covariate Formal Education.				



## Figures 1 and 2

Figure 1: Proposed Research Model

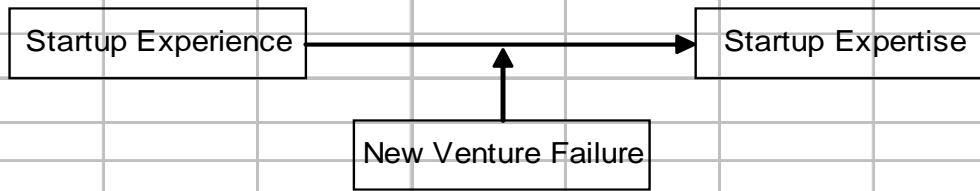


Figure 2: Interaction Effect: Experience \* Failure on Perceived Expertise

