Improving Entrepreneurial Education through Self-Regulatory Skills

Peter T. Bryant
The University of Sydney

A mixed methods study investigated the role of self-regulation in entrepreneurial decision-making, including the significance of learning in relation to those processes. Findings from survey data measuring three existing self-regulatory constructs—regulatory pride, entrepreneurial self-efficacy, and metacognitive awareness—suggest that entrepreneurs are distinguished from other managers by a distinctive pattern of self-regulation. Prior studies suggest that such a pattern of self-regulation is strongly related to effective use of intuition, heuristics, and learning processes. Furthermore, when analysed in combination with interview data, the results suggest a strong relationship between self-regulation and prior learning experiences in decision-making. At the same time, educational research has shown that self-regulatory skills are critical for achieving learning outcomes and that those skills can be enhanced by appropriate interventions. Consequently, the findings suggest that entrepreneurial education and training can be enhanced by incorporating techniques that improve a range of self-regulatory skills.

Introduction

Scholars still debate the degree to which the distinguishing characteristics of entrepreneurs are owing to nature or nurture (S. Shane & Venkataraman, 2000). Some scholars have focused on inherent personality traits and related psychological factors such as locus of control and risk propensity (Low & MacMillan, 1988). However, studies of personality traits have proven unreliable and this approach has largely fallen out of favour (Mitchell et al., 2004). Instead, many scholars now investigate more acquired characteristics such as entrepreneurial cognition, which includes mental models, heuristics, intuition, and self-regulatory skills as key factors in entrepreneurship (Baron, 2004; Busenitz & Barney, 1997). That is, having abandoned the search for an archetypal entrepreneurial personality, the main focus of research has shifted to cognitive factors (Mitchell et al., 2004). For example, some studies suggest a positive relation between effective decision-making and the social cognitive self-efficacy, which is the belief in one's own ability to be efficacious in specific task domains or field of activity (Chen, Greene, & Crick, 1998; Markman, Balkin, & Baron, 2002; Scherer, Adams, Carley, & Wiebe, 1989). Entrepreneurship education has also focused on developing task self-efficacy (Béchard & Grégoire, 2005). Yet there has been little research into other aspects of self-regulatory factors in entrepreneurship or entrepreneurial education.

At the same time, there is a related debate about the degree to which entrepreneurship can be taught, and if so, how (Béchard & Grégoire, 2005). On the one hand, if one accepts that key attributes of entrepreneurship are based on personality traits (e.g., Stewart, Watson, Carland, & Carland, 1999), then education and training are unlikely to

©2006, The NCIIA

have a fundamental impact because they rarely alter a person's underlying personality. On the other hand, if one accepts that entrepreneurial cognition and skills are largely acquired through experience (e.g., Neck, Neck, Manz, & Godwin, 1999), then education and training may have a significant impact on decision-making and other key aspects of entrepreneurship. However, even though it is broadly agreed that aspects of self-regulation such as self-efficacy and metacognition play important roles in educational outcomes (Boekaerts, Maes, & Karoly, 2005), few scholars have investigated the role of those aspects of self-regulation in entrepreneurial education and training (Béchard & Grégoire, 2005). Finally, even those who believe that entrepreneurial education and training are effective argue about the degree to which such intervention must be practical and experience-based, as opposed to formal classroom instruction (Markman et al., 2002).

This study addresses these issues and seeks to contribute to theory development by investigating the following questions: Do entrepreneurs possess a distinctive pattern of self-regulation? What is the role of self-regulation in entrepreneurial decision-making, and what is the scope for educational intervention to strengthen the self-regulatory skills of entrepreneurs? To investigate these questions, the study employed a mixed methods approach. Surveys were conducted with thirty entrepreneurs and a control group of thirty managers to measure three self-regulatory constructs: regulatory pride, metacognitive awareness, and entrepreneurial self-efficacy. In addition, the same thirty entrepreneurs were interviewed. However, the thirty managers in the control group were not interviewed, as they were used as a control for the survey component only. The survey and interview data were combined during analysis to identify relationships between self-regulation, entrepreneurial decision-making, and learning.

Theoretical background

Central concepts

Entrepreneur Competing definitions of *entrepreneur* continue to hamper research into entrepreneurship and prompt ongoing questions about its coherence as a field of enquiry (Scott Shane, Locke, & Collins, 2003). One approach focuses on entrepreneurs as agents who open up new markets and drive innovation (Alvarez & Busenitz, 2001). From that perspective, entrepreneurs are people who play a significant role in those processes, whether as founders or employees. An alternative approach focuses on entrepreneurs as the founders of new ventures, and this approach typically excludes franchise owners and corporate employees (Shaver & Scott, 1991). Because this study explored individual characteristics, entrepreneurs were defined as founder managers. This definition has also been used in recent studies of entrepreneurial decision-making (e.g., Allinson, Chell, & Hayes, 2000; Forbes, 2005).

Self-regulation Self-regulation is an important topic in the study of social cognition, which is distinguished from non-social cognition by its focus on the interaction between social and cognitive variables (Higgins, 2000). Moreover, social cognition is increasingly relevant for management studies as organizational boundaries and networks become more dynamic and societal (Brotherton, 1999). Within theories of social cognition, self-regulation is widely seen as a systematic process of human thought and behavior that involves setting personal goals and steering oneself toward the achievement of those goals.

Theories of self-regulation

There are a number of theoretical frameworks employed in the study of self-regulation: goal-setting theory (Latham & Locke, 1991), control theory (Carver & Scheier, 1998), social cognitive theories (Bandura, 1997), and motivation

©2006, The NCIIA

theory (Higgins, 1998). Each has its strengths, but they are not always compatible (Zeidner, Boekaerts, & Pintrich, 2000). However, it is not the purpose of this study to adjudicate between them. Instead, it focuses on three existing self-regulatory constructs: metacognitive awareness (Schraw & Dennison, 1994), regulatory pride (Higgins et al., 2001), and self-efficacy (Bandura, 1997). Together, they cover the key attributes of self-regulation: self-reference, motivation systems, goal frameworks, and related affective and cognitive attributes. Such a combination of related constructs is recognised as an appropriate way of developing new theory in organizational studies (Whetten, 1989).

Metacognitive awareness Metacognitive awareness refers to self-reflection and self-reaction about one's own cognitions, or how people observe, monitor, evaluate, and regulate their own thought processes (Nelson, 1992). The originators of metacognition research focused on developmental processes, especially in childhood, while a later stream focused on cognitive processes such as judgments (Zeidner et al., 2000). This distinction remains a source of debate within the field. Nonetheless, most scholars agree that metacognition is especially important in situations that require complex cognitive functioning such as problem-solving and formal education (Yzerbyt, Lories, & Dardenne, 1998), and in that regard metacognition is domain-specific (Zeidner et al., 2000). Because this study focused on adult cognition in organizational contexts, it adopted the taxonomy of metacognition proposed by the cognitive psychology stream of metacognition research. From this perspective, metacognition is divided into two broad categories: Knowledge of Cognition and Regulation of Cognition (Nelson, 1992). [For an alternative developmental taxonomy, see Flavell (1987).] Knowledge of cognition refers to declarative knowledge (knowing "about" things), procedural knowledge (knowing "how" to do things), and conditional knowledge (the "why" and "when" aspects of cognition) (Schraw, 1998). Knowledge of cognition helps people to selectively allocate their resources and use strategies more effectively, and to adjust to changing situational task demands (Schraw, 1998), especially in uncertain dynamic work environments (Valot, 2002). Importantly, most of those attributes of Knowledge of Cognition have also been identified as features of entrepreneurial cognition (Mitchell et al., 2004). Regulation of cognition, on the other hand, is linked to more systematic skills such as planning, monitoring, and evaluation (Schraw, 1998). However, studies suggest that regulation of cognition is not a dominant factor among entrepreneurs (Allinson et al., 2000).

Regulatory pride The second self-regulatory construct included in this study is regulatory pride, which describes a person's subjective history of success or failure in strategic regulatory orientation (Higgins et al., 2001). Regulatory pride is derived from regulatory focus theory, which describes two main regulatory orientations called promotion focus and prevention focus. Promotion focus describes those circumstances where growth and advancement needs motivate people to try to bring themselves into alignment with their ideal selves, thereby heightening the importance of potential gains and the use of eagerness approach means. Prevention focus describes those circumstances where security and safety needs prompt people to seek alignment with their ought selves, thereby increasing the avoidance of potential losses and the use of vigilance means. This study focuses on the related, although not necessarily correlated, constructs termed promotion pride and prevention pride (together regulatory pride). As Higgins (2001:21) explains, "Promotion pride and prevention pride are conceptualized as orientations to new task goals that derive from a sense of history of past success in promotion and prevention goal attainment, respectively." These constructs encompass a person's sense of early family history as well as adult experience. People with stronger promotion pride are less likely to make errors of omission (failing to act), whereas people with stronger prevention pride are less likely to make an error of commission (committing an error) (Higgins et al., 2001). Higher promotion pride is also positively related to using more goal means that could produce a hit. Importantly, this tendency corresponds to the use

©2006, The NCIIA

of multiple strategies associated with strong metacognitive knowledge of cognition (Valot, 2002). Whereas people with high prevention pride possess a vigilance orientation that inclines them to use less unnecessary goal means that could produce a mistake. This tendency corresponds to the use of self-monitoring and deliberate planning associated with regulation of cognition. Entrepreneurs are typically motivated to approach or attain positive task goals, which is an important feature of regulatory pride (Alvarez & Busenitz, 2001; Baron, 2004; S. Shane & Venkataraman, 2000). Thus, Brockner and Higgins (2001) argue that entrepreneurs are more likely to act from a promotion focus.

Self-efficacy The third self-regulatory construct included in this study is self-efficacy, which refers to the belief in one's ability to be efficacious in specific task domains or fields of activity. The central construct in Bandura's (1997) Social Cognitive Theory claims that human beings possess self-reflective and self-reactive capabilities that enable some control over their thoughts, feelings, motivation, and actions. Self-efficacy also relates to other aspects of self-regulation such as self-confidence, task commitment, and motivational strength. It is especially important for advanced cognitive functioning, such as managing complexity and uncertainty, where agents require greater confidence and commitment to perform more sophisticated cognitive tasks. Self-efficacy is also a significant factor in motivation and achievement in educational situations (Mayer, 1998). Furthermore, judgments of self-efficacy can be metacognitive in themselves, and self-efficacy will influence one's confidence and commitment to employ metacognitive skills in specific task domains, especially within complex fields such as entrepreneurship. Some features of self-efficacy also correspond to aspects of promotion pride. In particular, strong promotion pride is associated with greater self-esteem and optimism (Grant & Higgins, 2003), both of which have been associated with self-efficacy (Bandura, 1997). This study measured the construct known as entrepreneurial self-efficacy—that is, the belief in one's efficacy as an entrepreneur.

Methods

Research design and sampling

Scholars have called for more varied methods to explore the situational complexities of entrepreneurship (Gartner & Birley, 2002). Partly in response, this study mixed methods and employed qualitative and quantitative techniques. The approach was philosophically pragmatic by assuming reality is ontologically heterogeneous and can be studied using pluralistic methods (Creswell, 2003). From that perspective, the researcher conducted semi-structured interviews with thirty entrepreneurs regarding their decision-making, and surveyed the same thirty entrepreneurs plus a control group of thirty non-founder managers to measure their metacognitive awareness, regulatory pride, and entrepreneurial self-efficacy. Mixed method studies of this kind have been recognized for some time (Yin, 1994). As in this study, they may explore relatively narrow research questions, and may include small samples that are purposefully selected to explore embedded processes.

The thirty entrepreneurs were purposefully selected to represent a range of industries and stages of company growth, but they were primarily drawn from high technology growth sectors. They had all been founder managers who retained a significant role in their venture. They represented a range of ages, education levels, industry backgrounds, and seven were women. All were based in or near Sydney, Australia. A control group of thirty non-founder managers was recruited for the survey component of the study. They also represented a range of ages, education levels, industry

©2006, The NCIIA

backgrounds, and levels of seniority within both small and large organizations. Twelve members of this group were senior executives and six were women.

Measures and data collection

The study employed pre-existing instruments to measure the three self-regulatory constructs that were discussed earlier, and pre-published factors were applied to the results. Firstly, metacognitive awareness was measured using the Metacognitive Awareness Inventory (MAI) developed in the early 1990s to test metacognition in learning tasks (Schraw & Dennison, 1994). It has shown consistently high validity and reliability in use across a range of task domains (Schraw, 1998). From a psychometric perspective, the MAI measures the two types of metacognition identified earlier: Knowledge of Cognition and Regulation of Cognition. This study intended to gather evidence about the metacognitive component of self-regulation in relation to decision-making. For that reason, some of its items were amended to refer to generic decision-making and problem-solving activities, rather than those associated with formal classroom learning. Secondly, promotion pride and prevention pride were measured using an instrument called the Regulatory Focus Questionnaire (Grant & Higgins, 2003; Higgins et al., 2001). This instrument has been shown to have strong construct validity and reliability in a number of studies. Thirdly, entrepreneurial self-efficacy was measured using an instrument based on an older survey called the self-efficacy scale (Scherer et al., 1989). It has been shown to have high construct validity across a range of cultures and geographies, and has high multidimensionality in terms of psychometric properties and task domains. However, some scholars argue that a few aspects of the entrepreneurship were not captured in this instrument, and alternatives have since been developed (cf. Boyd & Vozikis, 1994; Chen et al., 1998). However, none have shown consistently strong reliability and validity.

To avoid report bias, all subjects were told that the study was primarily about decision-making, and they were kept unaware that it was exploring self-regulation in particular. Firstly, the researcher conducted semi-structured interviews with all thirty entrepreneurs, lasting approximately one hour each. He adopted a non-participant observer role, and used the same interview guide covering a range of decision-making tasks. At the end of each interview, the interviewees were invited to talk openly about related topics and anything else that came to mind. After the interview, each participating entrepreneur then answered the survey questionnaire. The members of the manager control group answered the same survey. The reported survey scores are the factored scores divided by the number of related items in the instrument.

Results

Descriptive statistics and correlations

Kolmogorov-Smirnov tests, box plots, and histograms showed normal distribution for all self-regulatory construct variables in both groups and there were only three non-extreme outliers. Therefore, parametric methods of analysis were employed, and no significant differences emerged through re-testing after excluding the outliers. Table 1 shows the descriptive statistics and correlations for the entrepreneur group, and scatter plots showed linear relationships for all the significant correlations. Table 2 shows the descriptive statistics and correlations for the manager control group, one of which was significant and linear.

©2006, The NCIIA

Variable		M	S.D.	1	2	3	4
1.	Promotion Pride	2.29	0.31				
2.	Prevention Pride	2.05	0.54	-0.80			
3.	Entrepreneurial Self-Efficacy	3.84	0.65	0.49**	0.02		
4.	Knowledge of Cognition	2.73	0.28	0.50**	0.02	0.28	
5.	Regulation of Cognition	2.06	0.27	0.08	-0.04	0.07	0.46*

Table 1. Means, Standard Deviations, and Correlations among Study Variables for Entrepreneurs N = 30
* p < 0.05; ** p < 0.01; All effects are two-tailed tests

Variable		M	S.D.	1	2	3	4
1.	Promotion Pride	2.27	0.35				
2.	Prevention Pride	2.14	0.56	0.25			
3.	Entrepreneurial Self-Efficacy	3.77	0.56	0.06	0.02		
4.	Knowledge of Cognition	2.74	0.24	0.34	0.11	0.32	
5.	Regulation of Cognition	2.16	0.23	0.04	-0.08	0.35	0.46*

Table 2. **Means, Standard Deviations, and Correlations among Study Variables for Managers** N = 30
* p < 0.05; All effects are two-tailed tests

Overall, the descriptive statistics suggest that both entrepreneurs and managers possess stronger promotion pride than prevention pride, and stronger knowledge of cognition than regulation of cognition scores. Prevention pride and regulation of cognition are slightly weaker among entrepreneurs than managers. Notably, entrepreneurs had only a slightly higher score for entrepreneurial self-efficacy, which appears to contradict some earlier attempts to show that entrepreneurial self-efficacy distinguishes entrepreneurs from managers (Chen et al., 1998; Markman et al., 2002). However, this result is weakened by the limitations of the instrument used to measure entrepreneurial self-efficacy. With regard to the significance of each self-regulatory construct as a component of self-regulation among entrepreneurs, Table 1 shows that among entrepreneurs promotion pride is strongly related to knowledge of cognition ($r = 0.50$, $p < .01$, $r2 = 0.25$). Promotion pride is also strongly related to entrepreneurial self-efficacy ($r = 0.49$, $p < .01$, $r2 = 0.24$), and knowledge of cognition is moderately related to regulation of cognition ($r = 0.46$, $p < .05$, $r2 = 0.21$). All showed large effects. The inter-correlation of promotion pride, knowledge of cognition, and entrepreneurial self-efficacy among entrepreneurs was moderately significant ($\alpha = 0.69$).

Among the manager control group, Table 2 shows that regulation of cognition was moderately related to knowledge of cognition ($r = 0.46$, $p < .05$, $r2 = 0.21$). However, the strong relationships between promotion pride, entrepreneurial self-efficacy and knowledge of cognition observed among entrepreneurs were absent in the control group, further supporting the importance of those self-regulatory constructs among entrepreneurs. However, both groups displayed the standard relationship between knowledge of cognition and regulation of cognition, and were correlated at about the $r = .50$ range (Schraw, 1998).

Based on the inter-correlation effect ($\alpha = 0.69$) reported above, the entrepreneur's scores for promotion pride, knowledge of cognition and entrepreneurial self-efficacy were combined as a single factor. The combination of these three constructs will be termed the *entrepreneurial regulatory framework*. However, this framework is not presented

©2006, The NCIIA

as a new construct in its own right. To derive it, the raw scores for each separate construct variable were converted so that 1.00 was the highest score for each, then added together to arrive at the entrepreneurial regulatory framework score. Based on this combined score, the entrepreneurs were divided into high, medium, and low entrepreneurial regulatory framework groups, with each group containing ten members.

Interview results

The interview transcripts were entered into an electronic database indexed by interviewee and question number. Next, each interview was coded for recurrent themes using a computer application called NVIVO. A subset of the interviews was re-coded by a researcher who had not previously participated in the study. Then the researcher conducted cross-case analysis by comparing codes and themes. Next—after coding was complete—the interviews were organized into high, medium, and low entrepreneurial regulatory framework groups, using the result from the survey analysis discussed earlier. This approach is typical of mixed method studies that integrate quantitative and qualitative results during analysis, especially when the methods used in the study focus on closely related phenomena (Creswell, 2003).

The major finding from the integration of the interview and survey results was that those in the lower entrepreneurial regulatory framework level groups spoke more often about systematic learning experiences. In particular, they were more likely to refer to systematic learning and decision-making in relation to their self-assessment and self-confidence levels. For example, one said, "I actually really enjoyed the beginning phase of the company when I was doing all these… I mean learning how to run accounts, and figuring out how to deal with all these strange issues that come up was really good fun." In other words, the sense of self-efficacy of those in the lower levels appeared to be more reliant on systematic learning and modes of thinking. On the other hand, those in the high group did not refer to learning in this way. Their sense of self-efficacy and self-assessment was based strongly on experiential learning as the basis for intuitive modes of thinking. As one said, "I've done a reasonable job learning from mistakes and learning from situations that I've been, because I am pretty analytical. And I can read situations, sometimes I think it's almost spooky, when you can look at a situation and you can actually predict what is going to happen." The other finding of note is that those in the higher entrepreneurial regulatory framework level groups appeared to be more self-aware about their learning experiences and spoke about them more frequently.

These findings correspond very closely to the nature of the entrepreneurial regulatory framework and its components. Firstly, those with a higher score of promotion pride related to their sense of entrepreneurial self-efficacy will typically relate their self-assessment and related learning to a perceived history of successful positive task achievement. In addition, those with related strong knowledge of cognition will be more self-aware of those learning experiences and their impact on intuitive modes of decision-making and thought. The opposite will apply for those with in the low entrepreneurial regulatory framework group. They will be more likely to emphasise their prior success in systematic modes of decision-making and thought, although less self-consciously.

Discussion and conclusion

Entrepreneurial self-regulation and learning

The results suggest a distinctive pattern of self-regulation among entrepreneurs that is absent among non-founder managers. It was termed the *entrepreneurial regulatory framework*. The central role played by promotion pride in that framework suggests that entrepreneurs are habitually orientated toward eager approach means for new task

©2006, The NCIIA

goals, rather than vigilant avoidance means. Importantly, this eagerness orientation appears positively related to their sense of entrepreneurial self-efficacy and knowledge of cognition. This suggests that entrepreneurs possess strong self-perceptions of past success in positive tasks, high self-efficacy regarding typical entrepreneurial tasks, and self-awareness of their own cognitive resources. Moreover, they appear to have the same perceptions in relation to their prior learning experiences.

These results suggest that educational programs that seek to enhance entrepreneurial skills should aim to strengthen the relationship between students' sense of promotion pride, entrepreneurial self efficacy, and knowledge of cognition. That is, educational programs should seek to nurture and strengthen the relationships between students' sense of prior success in achieving positive goals, their sense of efficacy for entrepreneurial tasks, and self-awareness of their cognitive skills. This could be done through positive task achievement scenarios in entrepreneurial situations, and then prompting the students to associate such learning experiences with their subjective history of positive task achievement. For example, students could be prompted to associate their prior success in sports or study with their ability to succeed in entrepreneurial tasks that also demand strong self-motivation and perseverance.

At the same time, educational strategies should seek to relate positive task achievement with cognitive self-awareness of intuitive strategies and heuristics, as well as the traditional emphasis on systematic analytical skills and related task self-efficacy. For example, students could be given competitive team-based tasks requiring intuitive or heuristic judgments, thereby making them self-aware of the normalcy and necessity of employing such cognitive strategies in entrepreneurial situations. Furthermore, as this study has demonstrated, it is possible to measure self-regulatory characteristics, and this information could be used to identify those who are more suited to an entrepreneurial career. In addition, it is already known that self-efficacy (Bandura, 1997) and metacognition can be improved by education, training and experience (Schraw, 1998), and regulatory pride can be primed situationally (Higgins et al., 2001).

Conclusion

Scholars and educators remain divided on the best way to educate and train for entrepreneurship. This study investigated self-regulation as one important aspect of entrepreneurial cognition and related it to education and training. The results suggest that entrepreneurs possess a distinctive self-regulatory framework that integrates promotion pride, metacognitive knowledge of cognition, and entrepreneurial self-efficacy. However, given the small purposeful samples used in this study, the results cannot be used to make claims about the general population of entrepreneurs. In addition, because the data were gathered from one geographic region, the results are somewhat limited in applicability to different markets and cultures. Therefore further research is required to confirm these findings and demonstrate the generality of the entrepreneurial regulatory framework as a significant factor in entrepreneurial cognition, decision-making, education, and training.

References

Allinson, C.W., E. Chell and J. Hayes. "Intuition and entrepreneurial behaviour." *European Journal of Work & Organizational Psychology* 9(1) (2000): 31-43.

Alvarez, S.A., L.W. Busenitz. "The entrepreneurship of resource-based theory." *Journal of Management* 27(6) (2001): 755-776.

©2006, The NCIIA

Bandura, A. *Self-Efficacy: The Exercise of Control.* New York: W.H.Freeman and Company, 1997.

Baron, R.A. "The cognitive perspective: a valuable tool for answering entrepreneurship's basic 'why' questions." *Journal of Business Venturing* 19(2) (2004): 221-239.

Béchard, J.-P., D. Grégoire. "Entrepreneurship Education Research Revisited: The Case of Higher Education." *Academy of Management Learning & Education* 4(1) (2005): 22-43.

Boekaerts, M., S. Maes and P. Karoly. "Self-Regulation Across Domains of Applied Psychology: Is there an Emerging Consensus?" *Applied Psychology*, 54(2) (2005): 149-154.

Boyd, N.G., G.S. Vozikis. "The influence of self-efficacy on the development of entrepreneurial intentions and actions." *Entrepreneurship Theory and Practice* 18(4) (1994): 63-77.

Brockner, J., E.T. Higgins. "Regulatory Focus Theory: Implications for the Study of Emotions at Work." *Organizational Behavior and Human Decision Processes* 86(1) (2001): 35-66.

Brotherton, C. *Social Psychology and Management*. Buckingham: Open University Press, 1999.

Busenitz, L.W., J.B. Barney, "Differences between entrepreneurs and managers in large organizations: Biases and heuristics in strategic decision-making." *Journal of Business Venturing* 12(1) (1997): 9-30.

Carver, C.S., M.F. Scheier. *On the Self-Regulation of Behavior*. Cambridge: Cambridge University Press, 1998.

Chen, C.C., P.G. Greene and A. Crick. "Does entrepreneurial self-efficacy distinguish entrepreneurs from managers?" *Journal of Business Venturing* 13(4) (1998): 295-316.

Creswell, J.W. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (2nd ed.)*. Thousand Oaks: Sage Publications, 2003.

Flavell, J.H. Speculations about the Nature and Development of Metacognition. In F.E. Weinert & R.H. Kluwe (Eds.), *Metacognition, Motivation, and Understanding*. Hillsdale, N.J.: Lawrence Erlbaum Associates, 1987.

Forbes, D.P. "Are some entrepreneurs more overconfident than others?" *Journal of Business Venturing* 20(3) (2005): 623-640.

Gartner, W.B., S. Birley. "Introduction to the special issue on qualitative methods in entrepreneurship research." *Journal of Business Venturing* 17(5) (2002): 387-395.

Grant, H., E.T. Higgins. "Optimism, Promotion Pride, and Prevention Pride as Predictors of Quality of Life." *Personality & Social Psychology Bulletin* 29(12) (2003): 1521-1532.

Higgins, E.T. "Promotion and Prevention: Regulatory Focus as a Motivational Principle." *Advances in Experimental Social Psychology* 30 (1998): 1-46.

©2006, The NCIIA

Higgins, E.T. "Social Cognition: Learning about what matters in the social world." *European Journal of Social Psychology* 30 (2000): 3-39.

Higgins, E.T., R.S. Friedman, R.E. Harlow, L.C. Idson, O.N. Ayduk and A. Taylor. "Achievement orientations from subjective histories of success: Promotion pride versus prevention pride." *European Journal of Social Psychology* 31(1) (2001): 3-23.

Latham, G.P., E.A. Locke. "Self-regulation through goal setting." *Organizational Behavior & Human Decision Processes* 50(2) (1991): 212-247.

Low, M.B., I.C. MacMillan. "Entrepreneurship: Past Research And Future Challenges." *Journal of Management* 14(2) (1988): 139-161.

Markman, G.D., D.B. Balkin and R.A. Baron. "Inventors and new venture formation: The effects of general self-efficacy and regretful thinking." *Entrepreneurship Theory and Practice* 27(2) (2002): 149-165.

Mayer, R.E. "Cognitive, metacognitive, and motivational aspects of problem solving." *Instructional Science* 26(1) (1998): 49-63.

Mitchell, R.K., L. Busenitz, T. Lant, P.P. McDougall, E.A. Morse and J.B. Smith. "The Distinctive and Inclusive Domain of Entrepreneurial Cognition Research." *Entrepreneurship: Theory & Practice* 28(6) (2004): 505-518.

Neck, C.P., H.M. Neck, C.C. Manz and J. Godwin. "'I think I can; I think I can' A self-leadership perspective toward enhancing entrepreneur thought patterns, self-efficacy, and performance." *Journal of Managerial Psychology* 14(6) (1999): 477-501.

Nelson, T.O. (Ed.). *Metacognition: Core Readings*. Needham Heights, Mass.: Allyn and Bacon, 1992.

Scherer, R.F., J.S. Adams, S.S. Carley and F.A. Wiebe. "Role Model Performance Effects On Development Of Entrepreneurial Career Preference." *Entrepreneurship Theory and Practice* 13(3) (1989): 53-71.

Schraw, G. "Promoting general metacognitive awareness." *Instructional Science* 26 (1998): 113-125.

Schraw, G., R.S. Dennison. "Assessing Metacognitive Awareness." In G. Schraw & J.C. Impara (Eds.), *Issues in the Measurement of Metacognition*. Lincoln: Buros Institute of Mental Measurements, 1994.

Shane, S., E.A. Locke and C.J. Collins. "Entrepreneurial motivation." *Human Resource Management Review* 13(2) (2003): 257-279.

Shane, S., S. Venkataraman. "The promise of entrepreneurship as a field of research." *Academy of Management Journal* 25 (2000): 217-226.

Shaver, K.G., L.R. Scott. "Person, Process, Choice: The Psychology of New Venture Creation." *Entrepreneurship: Theory & Practice* 16(2) (1991): 23-45.

©2006, The NCIIA

Stewart, W.H.J., W.E. Watson, J.C. Carland and J.W. Carland. "A proclivity for entrepreneurship: A comparison of entrepreneurs, small business owners, and corporate managers." *Journal of Business Venturing,* 14(2) (1999): 189-214.

Valot, C. "An Ecological Approach to Metacognitive Regulation in the Adult." In P. Chambres, M. Izaute & P.-J. Marescaux (Eds.), *Metacognition: Process, Function and Use*. Dordrecht: Kluwer Academic Publishers, 2002.

Whetten, D.A. "What Constitutes a Theoretical Contribution?" *Academy of Management Review* 14 (1989): 490-495).

Yin, R.K. *Case Study Research Design and Methods* (2nd ed.). Thousand Oaks: Sage Publications, 1994.

Yzerbyt, V.Y., G. Lories and B. Dardenne (Eds.). *Metacognition Cognitive and Social Dimensions*. London: Sage Publications, (1998.

Zeidner, M., M. Boekaerts and P.R. Pintrich. "Self-Regulation: Directions and Challenges for Future Research." In M. Boekaerts, P. R. Pintrich & M. Zeidner (Eds.), *Handbook of Self-Regulation* (pp. 750-768). San Diego: Academic Press, 2000.

©2006, The NCIIA