MISMATCH BETWEEN ENTREPRENEURS AND THEIR FIRMS: THE ROLE OF COGNITIVE FIT / MISFIT

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Abstract

This paper examines the relationship between cognitive fit/misfit, and burnout, satisfaction, and intentions to exit the firm in entrepreneurs. Given the disordinal (crossed) nature of the significant interactions, the results indicate when cognitive misfit in entrepreneurs (based on their dominant decision-making approach) is more likely lead them to experience negative outcomes, given the nature and degree of firm structure. This study contributes by extending the Person-Organization fit approach beyond employees to entrepreneurs and by providing researchers with means of placing the individual entrepreneur and his/her psychological make up back into the entrepreneurship equation without the pitfalls and the limitations associated with many of the past psychological (trait) studies.

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The concept that mismatches may arise between entrepreneurs and the varying demands of new ventures over time is a recurring theme in the entrepreneurship and management literatures. In particular, scholars have examined the problems associated with entrepreneurial transitions from start-up to ongoing concerns, and have found that many founder CEOs are eventually replaced by professional managers (Flamholtz, 1986; Hambrick & Crozier, 1985). Replacement of entrepreneurs by managers is mainly attributed to the demands on managerial leadership changing in both content and complexity as firms move through the organizational life-cycle (Jayaraman, Khorana, Nelling & Covin, 2000; Kazanjian, 1988; Miller & Friesen, 1984). Successfully navigating through these transitions is difficult. Mismatches often arise between the entrepreneur and the demands of the new venture as it matures.

While many authors have acknowledged this concept of entrepreneurial mismatch, few have elaborated. Moreover, theoretical examination and empirical testing of the reasons behind this phenomenon are lacking. An exception is the work of Meyer and Dean (1990), which combined organizational life-cycle theory with Hambrick and Mason's Upper Echelon's Model to develop an "executive limit scenario." In this scenario, the failure of the original founder CEO to develop the requisite executive qualities for coping with the transition to a larger, more complex organization is termed the "executive limit." By studying CEO founders in high technology firms, Meyer and Dean found an executive limit as the firm matures. In particular, their work suggests that the potential for mismatch between the individual entrepreneur and the business over time may be due both to a lack of certain skills and abilities, and to the individual entrepreneur's distinctive behavioral and psychological characteristics.

Explicit assumptions in the discussion of transition difficulties are that entrepreneurs are not homogeneous and that entrepreneurs possess different sets of skills, goals, or mindsets (combinations of cognitive and personality factors). The approach of looking merely at demographic characteristics and traits as predictors of entrepreneurial behaviors and performance has met with little success (Gartner, 1988; Herron & Robinson, 1993; Shaver & Scott, 1991).

Yet this inability to consistently find differences between types of entrepreneurs based on traits is at odds with the need to explain the mismatch between entrepreneurs and the changing demands of businesses over time. A promising approach at bridging that gap comes from moving away from personality and demographic variables, and toward the role of cognitive factors and their interaction with situational factors in studying entrepreneurship phenomena. The basic premise of this perspective is that key insights into distinguishing entrepreneurs from others and understanding entrepreneurial behavior may be attained through the study of how entrepreneurs think, process information, solve problems, make decisions, and interact with the complex environments in which they operate.

For example, when using a cognitive perspective in entrepreneurship research, Busenitz and Barney (1997) found that entrepreneurs and managers in large organizations employ different biases and heuristics (simplifying strategies used in making decisions) when faced with complex decisions. This perspective assumes that individuals possess different (and relatively stable) cognitive make-ups and preferences in how they frame problems and make decisions. These dominant cognitive make-ups may be advantageous or detrimental depending on the situation (Wright, Hoskisson, Busenitz, & Dial, 2000).

In this paper, we also employ a cognitive perspective by assessing individual entrepreneurs' decision-making styles and the relative levels of structure and formalization in their respective organizations. This allows us to measure the relative degree of fit or mismatch between the entrepreneur's dominant cognitive style and the demands of one aspect of her/his work environment (the construct of cognitive misfit). Following research in the field of Organizational Behavior (more specifically, research in the area of Person-Organization fit), once a dimension of potential mismatch has been identified, then its relationship to various individual and organizational outcomes may be examined. In this paper, our research question is whether there is a relationship between cognitive misfit (the mismatch between an individual's decision-making style and her/his work context) and specific individual attitudes, intentions, and organizational outcomes.

This study makes a number of contributions to the literature. First, a theoretically grounded framework is developed that helps to explain why the individual entrepreneur may face certain transitional difficulties, and may express predictable attitudes and intentions as the firm grows and becomes more formalized and structured. Second, a multidisciplinary approach is employed and introduces the construct of cognitive misfit to the entrepreneurship field. Third, the methodological approach used allows the researcher to include aspects of the individual entrepreneur while avoiding the pitfalls of earlier studies focusing solely on the psychology of the entrepreneur. Finally, prescriptive advice is offered for the practicing and nascent entrepreneur on possible methods to mitigate the negative outcomes associated with cognitive misfit.

This paper proceeds as follows. Initially, the construct of cognitive style is introduced, the Person-Organization fit perspective and the facets used in these approaches are discussed, and the interesting empirical findings from this area are presented. Next, the construct of cognitive fit/misfit is introduced and the relationship between different decision-making style preferences and different work contexts is developed. Then our model is presented and hypotheses are developed based on the expected nature of the relationships between cognitive misfit and selected dependent variables. In the following section, the variables, the method of data collection, and the statistical methods employed ere described. The results are presented and discussed, as are the limitations and avenues for future research.

PREVIOUS RESEARCH AND MODEL

Psychology, Cognition, and the Entrepreneur

In the extant entrepreneurship literature, the broad psychological approach has been misrepresented by studies on "the personality of the entrepreneur" (Shaver & Scott, 1991: 25). The inability of the personological trait approaches to provide adequate explanations of the entrepreneurial process has led to three fairly distinct responses (Busenitz & Barney, 1997). First, previous failures were the result of improper methodologies (Ginsberg & Buchholtz, 1989; Stewart, Watson, Carland & Carland, 1999). Second, some scholars have abandoned the search for individual differences and focused on external and/or economic explanations of entrepreneurial behavior (Amit; Muller, & Cockburn, 1995). The third response has been to

focus on psychological and cognitive determinants of entrepreneurial behavior (Baron, 1998; Busenitz & Barney, 1997).

By examining the interaction between the way entrepreneurs approach and make decisions in different situations and with different environmental factors, this study attempts to ascertain why certain entrepreneurs will behave differently from other entrepreneurs in a given situation. This research is based on the tenet that behavior is influenced by the confluence of the person, the situation, and their interaction (Chell, Haworth & Brearley, 1991). If one adheres to the view that behavior is best understood by studying the person and the situation, then the psychology of the entrepreneur should hold a central position in entrepreneurship research (Goldsmith & Kerr, 1991). This study examines the relationship between cognition and the work context of entrepreneurs, and the interactive nature of this relationship on the relevant outcomes of burnout, intention to exit, satisfaction, intention to grow, and actual employee growth.

Cognitive style.

Cognitive style is widely recognized as an important determinant of individual behavior in the psychology literature (Sadler-Smith & Badger, 1998). Researchers have defined cognitive style as an individual's preferred and habitual approach to organizing, representing, and processing information (Streufert & Nogami, 1989), a built-in and automatic way of responding to information and situations (Riding & Rayner, 1998), individual differences in the way people perceive, think, solve problems, learn, and relate to others (Witkin, Moore, Goodenough & Cox, 1977), and an individual's characteristic modes of perceiving, remembering, and problem-solving (Messick, 1984).

Cognitive style is a high-order heuristic that individuals employ when they approach, frame, and solve problems. Cognitive style has certain characteristics; research has shown that 1) it is a pervasive dimension that can be assessed using psychometric techniques; 2) it is stable over time; 3) it is bipolar; and, 4) it may be value differentiated (i.e. style describes different rather than better thinking processes [Sadler-Smith & Badger, 1998]). Contemporary examination of cognitive style can trace its roots to four main areas in psychology. These include perception, cognitive controls and processing, mental imagery, and personality (Rayner, 2000). The term "style" has been used in the psychology of individual differences to describe psychological structures or observed behaviors associated with typical forms of functioning.

The model and subsequent measure of cognitive style we employ in this study is classified under the Holistic-Analytic family of styles (Sadler-Smith & Badger, 1998). Recent comprehensive reviews of the Holistic – Analytic models within the cognitive style paradigm (Hayes & Allinson, 1994; Rayner, 2000; Rayner & Riding, 1997, Riding & Rayner, 1998; Sadler-Smith & Badger, 1998) suggest that 1) there are a number of psychometrically sound measures of decision-making style (for example, Allinson & Hayes, 1996; Kirton, 1976; Riding, 1994); 2) there is empirical evidence demonstrating that the dimensions measured by these models are stable over time and independent of intelligence; and 3) these dimensions interact with external factors affecting individual attitudes and behavior.

In the Cognitive Style Index, the measure of cognitive style used in this study (Allinson & Hayes, 1996), individuals are classified as either *Intuitivists* or *Analysts*. In general, intuitivists

tend to be relatively nonconformist, prefer an open-ended approach to problem-solving, rely on random methods of exploration, and work best with ideas requiring a broad perspective (Allinson & Hayes, 1996). Alternatively, analysts tend to be more compliant, favor a more structured approach to problem-solving, prefer systematic methods of investigation, and are especially comfortable with ideas requiring sequential analysis (Allinson & Hayes, 1996). For this study, we are interested in the relationship between the respective ends of the intuition – analysis dimension and its interaction with the formal structure of the work environment. In their initial validation study of the CSI, Allinson & Hayes (1996) provided data suggesting that the greater an individual's analysis orientation, the greater her/his predilection for a structured, ordered, and impersonal work environment.

If individuals do have preferences for different work environments based on either a dominant analytic or intuitive orientation, then we would expect to find these individuals in occupations that match their dominant style. Evidence supports this connection (Allinson & Hayes, 1996; Sadler-Smith, Spicer, & Tsang, 2000) with individuals in "more structured" professions possess significantly more analytic dominant styles and individuals in "less structured" professions possessing significantly more intuitive styles.

An entrepreneur's work context

While certain dimensions of an individual's cognitive style will remain stable over time (Kirton, 1989; Hayes & Allison, 1996), the style demands of the business will likely vary as the business grows. Thus, the potential for different degrees of cognitive misfit between the stable style of the entrepreneur and the variable style demands of the organizational context are not only likely, but may be inevitable. This study is particularly interested in the style demands related to formalization, structure, centralization, and bureaucracy. Chandler (1962) theorized that organizations develop patterns of organizational structure in response to common growth and market challenges. Moreover, life-cycle stage models support the idea that the organizational style demands change as the organization matures. In their review of the life-cycle construct, Hanks, Watson, Jansen and Chandler (1994) provide a synthesis of ten different life-cycle models. All of these models propose that certain key dimensions of organizations will change with respect to age and size (e.g., levels of formalization, structure, and bureaucracy). If the cognitive style remains stable for entrepreneurs, yet the work context is likely to change, we can expect misfit to occur between the cognitive style of the entrepreneur and the changing work context. For entrepreneurs, who are likely to be more intuitive and enjoy the freedom that entrepreneurial pursuits afford them, the change in organizational demands as the firms gets bigger and/or older is likely to result in misfit between the entrepreneur and the firm work context.

Person-organization fit and cognitive misfit

Exploring the interaction between certain characteristics of the individual and the organizational environment is central to the study of person-organization fit. Basically, the P-O fit literature suggests that P-O fit occurs when there is congruence between the attributes of the person and those of the organization or the work context (Chan, 1996). Conversely, a state of misfit exists when attributes of the person and those of the organization or work context are out of alignment.

In a foundational work, Pervin (1968) theorized that when a match exists between individual characteristics and organization characteristics, performance and satisfaction tend to be high and stress tends to be low. Recently, the interest in P-O fit has increased following studies that have indicated empirical relationships between dimensions of P-O fit. Sims and Kroeck (1994) found that the greater the degree of fit between the ethical beliefs of the individual and the ethical climate of the organization, the higher the levels of job satisfaction, intention to remain, and commitment to the organization. O'Reilly, Chatman & Caldwell (1991) operationalized P-O fit in terms of organizational climate. They found that P-O fit was a valid predictor of satisfaction, commitment, and actual turnover. For a more comprehensive review of the P-O fit literature see Kristof (1996).

The construct of cognitive misfit was first developed and introduced as a viable facet of Person-Organization Fit by Chan (1996). Cognitive misfit refers to the degree of mismatch between an individual's preferred and dominant cognitive style and the style demands of the work context. Whereas previously developed facets of P-O fit had included goals, values, ethics, climate, and particular personality characteristics, Chan argued that incorporating cognitive style was also a viable approach to examining P-O fit. In a study of 253 engineers, Chan demonstrated that cognitive misfit was a valid predictor of actual turnover (1996).

An Entrepreneur's Cognitive Misfit

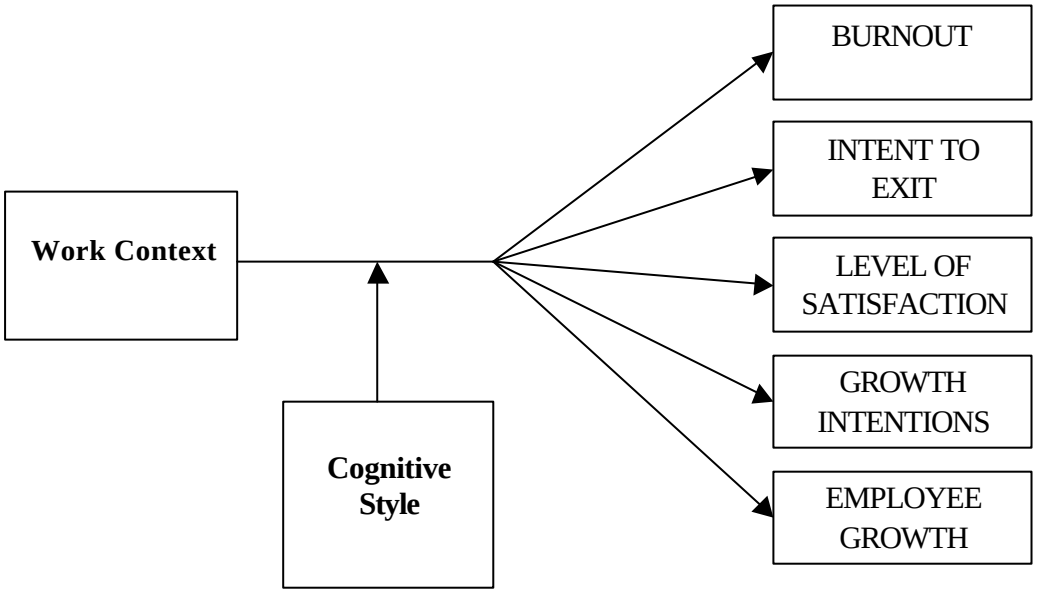
Previous work on cognitive style suggests that there is a predictable link between an individual's dominant problem-solving/decision-making style and levels of structure and bureaucracy within the organization (Allinson & Hayes, 1996; Kirton, 1976). Allinson and Hayes (1996, p. 128) note that "analysts will subscribe to the bureaucratic norm and thus prefer specific guidelines to follow, favour formal work relationships, value the security of organizational identification and be prepared to accept authority while intuitivists will prefer freedom from rules and regulations, favor personalized relationships, avoid close commitment to the organization and be prepared to question authority." Therefore, cognitive misfit should exist for an analytic individual whose firm possesses an environment that is low in formalization, structure, and bureaucracy. On the other hand, an individual with a dominant intuitive style would be better matched to this less structured type of work context and would experience less cognitive misfit than her/his more analytic counterpart. The key point is that analytic or intuitive styles will be more congruent, or better fitted, to different organizational work contexts, and the construct of cognitive misfit allows us to identify and measure the degree of mismatch.

Coping with cognitive misfit. As discussed above, the construct of cognitive misfit is determined by the level of incongruence (misfit) between the entrepreneur's preferred cognitive style and the style demands of the firm's work context. When individuals are in a state of cognitive misfit, they will employ certain specific coping behaviors to handle the conflict between their preferred problem-solving style and the conflicting style demands being placed upon them. However, these coping behaviors are not sustainable, and there is a marked tendency for individuals to return to their preferred decision-making style (Kirton 1976).

Exhibiting coping behavior is a source of great stress and, according to Kirton (1976), individuals required to sustain high levels of coping behavior (exhibiting behaviors associated

with the non-preferred style) will eventually either 1) change the circumstances to suit their preferred, dominant style or, 2) form a team whose combined preferences cover expected problem situations. Thus, when individuals entrepreneur experience high levels of cognitive misfit, they will require coping behavior. We propose that indications of cognitive misfit, as shown in Figure 1, are burnout, intentions to exit, level of satisfaction, growth intentions, and firm performance. While other outcome variables could and should be examined, we chose this set because of their prevalence in previous P-O fit studies and/or their particular relevance to the research question at hand.

FIGURE 1
Model of an Entrepreneur's Cognitive Fit/Misfit



When the individual entrepreneur experiences cognitive misfit (the style demands of the work context are incongruent with their preferred cognitive style), coping behavior will be required. The greater the degree of misfit, the more coping behavior is required and, consequently, the higher amount of stress on the individual (Kirton, 1976; Pervin, 1967). Based on the clear relationship between higher levels of cognitive misfit and stress, and previous P-O fit studies demonstrating the positive relationship between misfit and stress (e.g., Chesney & Rosenman, 1980; Edwards & Harrison, 1993), it follows that:

Hypothesis 1a. Cognitive style moderates the relationship between the structure of the work environment and burnout.

Hypothesis 1b. For less structured work environments, more intuitive entrepreneurs will experience lower burnout than those that are more analytic, but for more structured work environments, more intuitive entrepreneurs will experience higher burnout than those that are more analytic.

In 1983, Vesper (p.40) introduced the idea that entrepreneurship can be viewed, in part, as a

"path for pursuit for occupational happiness." Cooper and Artz also suggested that the entrepreneur's level of satisfaction should be viewed as a basic measure of entrepreneurial performance (1995). Examining the relationship between cognitive misfit and entrepreneurs' satisfaction would appear to be extremely relevant. In Person-Organization Fit studies, the outcome variable of overall (global) job satisfaction is also commonly employed. Several studies have demonstrated significant empirical relationships between different facets of P-O fit and job satisfaction (Cable & Judge, 1996; O'Reilly et al., 1991; Sims & Kroeck, 1994) with greater degrees of misfit being associated with lower levels of individual satisfaction. Thus,

Hypothesis 2a. Cognitive style moderates the relationship between the structure of the work environment and satisfaction.

Hypothesis 2b. For less structured work environments, more intuitive entrepreneurs will experience higher satisfaction than those who are more analytic, but for more structured work environments, more intuitive entrepreneurs will express lower satisfaction than those who are more analytic.

Another commonly studied outcome in the P-O fit literature is turnover. Chan (1996) found that cognitive misfit was a valid predictor of actual turnover. Where longitudinal data on actual turnover was unavailable, researchers have used intentions to leave as a proxy for turnover (Cable & Judge, 1996; O'Reilly et al., 1991). Both of these studies found that P-O fit was a significant predictor of higher expressed intentions to leave. Research has demonstrated that intentions are a reliable predictor of actual behavior in a variety of situations and are considered by many to be the most effective predictor of behavior (Ajzen, 1991; Ajzen & Fishbein, 1980; Bird, 1992). When individuals are experiencing cognitive misfit, they require high levels of coping behavior. Entrepreneurs required to sustain high levels of coping behavior (exhibiting behaviors associated with their non-preferred style) will eventually change the circumstances to suit their preferred, dominant style (Kirton, 1989). One form of changing the circumstances would be to exit the organization. Thus,

Hypothesis 3a. Cognitive style moderates the relationship between the structure of the work environment and intention to exit.

Hypothesis 3b. For less structured work environments, more intuitive entrepreneurs will express lower intention to exit than those who are more analytic but for more structured work environments, more intuitive entrepreneurs will express greater intention to exit than those who are more analytic.

Cognitive misfit may also be a valid predictor of intentions to grow the business. Entrepreneurs' growth intentions have been found to be a significant predictor of actual growth (Orser, Hogarth-Scott, & Riding, 2000). Sexton and Bowman (1994) argue that the decision to grow or not to grow is a conscious choice of the entrepreneur. It is important to reiterate the point that entrepreneurs' motives and intentions to grow their businesses are not homogeneous, and as researchers, we should not assume that growth is always a desired consequence of the decision to go into business (Orser, et al., 2000). For example, Blatt (1993) found that roughly one-half of the owners of newly registered businesses do not seek growth of their firms, and O'Farrell and

Hichens (1988) reported that a high proportion of small firms are more interested in maintaining their current level of profitability than in growth. Furthermore, the decision to seek business growth is not purely motivated by economic factors, but is often the result of a variety of motivational factors (including psychological) (Kolvereid, 1992; Orser, et al., 2000).

While entrepreneurs possessing either an intuitive or analytic decision-making style may experience cognitive misfit, their intentions to grow the business may differ based on their preferred style. Drawing from earlier discussions, more intuitive entrepreneurs are better suited to more unstructured work contexts. This type of work context is most likely associated with the early stages of the business (Hanks et al., 1994; Kazanjian, 1988). More intuitive entrepreneurs' desire to grow the business may be tempered by the increasing cognitive misfit that they will experience as the levels of structure and formalization increase with firm size. Conversely, highly analytical entrepreneurs are best suited for the relatively more structured work context associated with the later stages of business growth. Thus,

Hypothesis 4a. Cognitive style moderates the relationship between the structure of the work environment and intention to grow the business.

Hypothesis 4b. For less structured work environments, more intuitive entrepreneurs will express lower growth intentions than those who are more analytic, and the difference between the two groups will increase as the work environment becomes more structured.

For our final outcome variable, we examined the relationship between cognitive misfit and actual employee growth. Again, more intuitive entrepreneurs are better suited to more unstructured work contexts, which are most likely associated with the early stages of business development. More intuitive entrepreneurs' desire to grow the business may be tempered by the increasing cognitive misfit that they will experience as the levels of structure and formalization increase with firm size. Conversely, highly analytical entrepreneurs are best suited for the relatively more structured work context associated with the later stages of business growth. While the other outcome variables are based on individual entrepreneurs' attitudes and intentions, employee growth is a firm level variable, and the relationship between cognitive misfit and this variable is less direct and may be more greatly affected by other confounding variables. However, given that caveat, we would still expect that there would be a relationship and that the proposed interaction would parallel those of intentions to grow. Thus,

Hypothesis 5a. Cognitive style moderates the relationship between the structure of the work environment and percentage change in the number of employees.

Hypothesis 5b. For less structured work environments, more intuitive entrepreneurs will experience less employee growth than those who are more analytic, and the difference between the two groups will increase as the work environment becomes more structured.

METHODS

Sample

The sampling frame consisted of companies listed in the 2000 Colorado High Technology Directory. For companies listed in the directory, information included company name, address, phone number, fax number, email address, website, key management names and titles, year founded, number of employees, corporate status, sales volume, product description, parent company, product classifications, and NAICS Codes. The editors of the directory state that

Companies have been included if they develop and/or manufacture proprietary products that incorporate state of the art technology. In addition software firms, research, development and testing companies and laboratories have been included as have certain consulting and engineering firms that have significant technical expertise.

Once the appropriate sampling frame was identified, it was necessary to further refine the list. Subsidiaries and not-for-profit companies were excluded from the sampling frame. Also excluded were those companies with no contact information or where the listed contact(s) did not hold a principal position (e.g., CEO, President, Founder, Owner) within the organization.

From the total number of 1791 companies listed in the directory, 1294 were retained for inclusion in the study. Through the course of data collection, another 87 companies were removed for the following reasons: unable to be contacted (first contact letter was returned as undeliverable); business closed (included both voluntary and due to deaths); company was acquired or identified as a subsidiary (notified the author through phone, e-mail, or correspondence). This left a total number of 1207 companies that had a possibility of responding to the mail questionnaire. Of these, 267 usable questionnaires were returned constituting an effective response rate of 22.1%. A time trend extrapolation test (Armstrong & Overton, 1977) was conducted as a check on non-response bias. Subsequent comparison of the two groups (early versus late respondents) through ANOVA tests indicated no significant differences between the groups on the explanatory or dependent variables used in this study. [KB – The logic behind this test is that if the late respondents had not replied to the final contact they would have been non-respondents. Thus, the late respondents are more similar to the non-respondents than the early respondents.]

For the present study, a smaller sub-sample of the original data set was used. This set included only those respondents who had significant ownership in their firms and were involved in the day-to-day operations. Also, we included only firms with more than five employees, as those with less than five did not have sufficient structure to properly test for interactions (Naman & Slevin, 1993). This left 159 cases in the current sub-sample for which the hypotheses in this study were tested.

Data Collection

Data were collected through a mail questionnaire between March and April of 2001. For both construction and implementation of the mail questionnaire, the "Tailored Design Method"

(Dillman, 2000) was followed as closely as possible. In the questionnaire design process, the first step was to conduct semi-structured interviews with individuals who could both provide feedback on the items we considered using and provide suggestions on items or dimensions that had not been considered. Second, we also conducted semi-structured interviews with a number of habitual entrepreneurs, business owners, and venture capitalists. Their input was incorporated into the final questionnaire adding to the survey's face validity. Third, we pre-tested the survey. This provided feedback on clarity, appropriateness of items, and time required for completion (approximately 20 minutes). The final questionnaire consisted of 58 separate items (many with sub scales) and was presented in an 8 ½" by 11" booklet form consisting of eight pages. In total, four contacts were made with the sampling frame to maximize our response rate.

Variables and Measures

Cognitive style index: Intuition – Analytical. Sadler-Smith and Badger (1998) have argued that two models and subsequent measures of decision-making style are suitable for use in organizational settings and can be employed in field surveys – the Kirton Adaption Innovation Inventory (Kirton, 1976) and the Cognitive Style Index (Allinson & Hayes, 1996). We chose the more recent Cognitive Style Index because, as Allinson and Hayes (1996) argue, while there have been a number of dimensions on which cognitive style has been differentiated [19 separate labels (Messick, 1984); 29 separate labels (Hayes & Allinson, 1994)], the superordinate dimension of intuition-analysis appears to encompass all of these. The CSI measures the generic intuition-analysis dimension of cognitive style.

The CSI consists of 38 items, each requiring the subject to respond on a trichotomous true-uncertain-false scale. In the present study (n=159), the internal consistency and reliability of the CSI measure, as estimated by Cronbach's alpha, was .86. This is consistent with those reported by Allinson and Hayes (1996) and other researchers. For our sample of entrepreneurs, the mean CSI score was 32.06 (s.d. 12.59). The mean for the sample was significantly more towards the "intuitive" side of the scale than the means reported for other groups (e.g. various types of managers, business school undergraduates, and teachers [Allinson & Hayes, 1996]). Despite the shift, the distribution of scores for the sample remained within acceptable limits for a normal distribution (skewness .261, s.e. of skewness .191; kurtosis -.541, s.e. of kurtosis .379).
Work context. This is a composite variable created by first summing the standardized scores of the three structural variables- -vertical differentiation, formalization, and specialization (detailed below). A higher score represents a more structured, formal and bureaucratic organizational context. The Cronbach's alpha for this index was .70 and the inter-correlation range was .36 to .52. Both skewness and kurtosis were within acceptable *limits.*

The variable *Vertical Differentiation (Levels)* consists of the total number of organizational levels within the firm (Dewar & Hage, 1978). Respondents were asked to count the total number of levels in the longest line between direct workers and the organization's chief executive officer, including both of these levels (Pugh & Hinkson, 1976). This resulted in a range of scores from 1 to 6. Higher scores represent a higher degree of vertical differentiation. Scores were distributed normally.

The variable *Formalization* was operationalized using a scale of eleven items. All eleven items

were summed to create an index. In terms of scoring this measure, the higher the score, the greater the degree of formalization of the organization. Hanks et al., (1994) employed this measure of formalization and reported a Cronbach's alpha of .85. For this study, the Cronbach's alpha was .88 and inter-correlations ranged from to .15 to .75

Specialization was measured on a scale adapted from Pugh, Hinkson, Hinnings and Turner (1968). Respondents were given a list of 20 functional areas and asked to check those in which they have at least one full-time employee. The item is scored by totaling up the number of functions checked. This provides possible scores ranging from 0 to 20. A higher score indicates a greater degree of specialization.

Cognitive misfit is a composite measure based on individual decision-making style preferences and work context style demands. The cognitive fit score was calculated by multiplying the individual's centered CSI score by the centered Work Context Index score for that individual. The cognitive fit score is the interaction term between CSI and Work Context. In the present study, the person variable (i.e., decision-making style as measured by CSI) and the organization variable (i.e., Work Context as measured by WCI) represent the effects of the person and the organization. The person x organization product term (interaction) represents the degree of P-O fit on the expressed main effects (CSI and WCI).

Dependent variables. *Burnout* has been defined as "a process in which a previously committed (individual) disengages from his or her work in response to stress and strain experienced in the job" (Cherniss, 1980: 18), and as "a state of emotional exhaustion caused by excessive psychological and emotional demands . . ." (Jackson, Schwab & Schuler, 1986: 30). It is theorized that burnout consists of three components: emotional exhaustion, depersonalization of others, and feelings of diminished personal accomplishment (Maslach & Jackson, 1981). The emotional exhaustion component is the most important of the three components (Rosse, Boss, Johnson & Crown, 1991) and we used a nine-item measure that includes the emotional exhaustion component of the Maslach Burnout Inventory (MBI; Maslach & Jackson, 1986). Participants are asked to indicate how often they have felt that way for each of the nine items. A mean of the nine items was used as the index for burnout. A higher score corresponds to a higher level of burnout. The Cronbach's alpha was .90 and inter-correlations ranged from .35 to .70**.**

Intentions to Exit was measured using four items each scored on a 7-point Likert-type scale. These four items were used by O'Reilly et al. (1991). A higher score corresponds to a greater intention to exit. The Cronbach's alpha was .76 and the inter-correlations ranged from .21 to .84.

Satisfaction has been measured using numerous different scales. For this study, we chose to use a measure of satisfaction first developed by Quinn & Staines (1979). They define satisfaction as "affective reaction to the job," and the definition and measure is intended to refer to and measure what they label as "facet free job satisfaction" (205). This is an established measure of satisfaction and is reviewed, in depth, by Price and Mueller (1986: 220-223). The total score for the measure was calculated by summing the scores for the five individual items. Higher scores correspond with higher levels of global job satisfaction. The Cronbach's alpha was .76 and the inter-correlations ranged from .33 to .58.

Growth intentions was measured using two items. Both of these items were similar to those used by Westhead and Wright (1998). Respondents were asked, "How would you prefer for the number of employees in the business to change over the next TWO years?" and "How would you prefer for the sales for the business to increase or decrease over the next TWO years?" For both of these items, participants indicated their response using a 7-point Likert-type scale ranging from 1 = 20% or more decrease, to 7 = More than double. The overall score was calculated by summing the scores for each of the two items. Observed scores ranged from 2 to 14, and the distribution met the criteria for normality. The Chronbach's alpha for the two-item scale was .76 and the correlation between the two items was .62

Employee Growth reflects organizational growth for the firm's most recent year of performance. It was calculated using both data from the 2000 Colorado High Technology Directory and self-reported employment data, based on the following formula:

$$\text{\% Change in Number of Full-Time Employees} = \frac{\text{(Full-Time Employees 2001 – Full-Time Employees 2000)}}{\text{Full-Time Employees 2000}}$$

This formula was used by Hanks et al. (1994) and is similar to employee growth formulas used in numerous previous studies.

Control Variables. Following previous P-O Fit studies examining similar dependent variables (e.g., O'Reilly, Chatman & Caldwell, 1991), we controlled for owner's education, gender, and tenure with the firm. In the entrepreneurship literature, education and gender (Cooper & Artz, 1995) are frequently controlled for. While owner's age is also frequently controlled for in entrepreneurship studies, and was asked for and collected, we chose to use tenure instead. Tenure was highly correlated with owner's age, which made the inclusion of both variables problematic. Virany, Tushman, and Romanelli (1992) have argued that CEO tenure should be controlled for in research seeking to relate CEO characteristics to firm performance. Given a choice between the two, tenure appears to be a more relevant variable to this study.

In addition, it seems reasonable to expect that prior or concurrent business ownership could influence the individual's level of burnout, intentions to exit, satisfaction, growth intentions, and employee growth. As a result, this was controlled for by using the dummy variable Serial, which was coded 0 for ownership in only one firm and 1 for ownership in two or more firms. The final control variable chosen for inclusion was one that measured firm performance. This variable is a subjective measure of performance in which the respondent is asked to rate the current profit performance of his or her firm versus the competition. Inclusion of this variable as a control is important since a goal of this study is to identify the relationship between cognitive fit/misfit and the dependent variables over and above what may be explained by the financial performance of the firm.

Data Analysis

In order to test the hypotheses, we used hierarchical regression. To reduce the possibility of multicolinearity between the main effects and their interactions, the independent variables were centered (Aiken & West, 1991). First, the control variables were added. Next, the centered main

effects (CSI and WCI) were entered as the second block. Finally, the interaction term (CSI * WCI) was entered as the third block. While the multiple regression equations described above will indicate whether or not an interaction is significant for a given criterion (dependent) variable, they do not provide much information on the true nature of the interaction. In order to reveal the true nature of the interaction, the suggested procedure is to plot the interaction (Aiken & West, 1991). We followed Cohen and Cohen's (1983) recommendation to use values of the predictor variable at one standard deviation above the mean and one standard deviation below the mean. These values at plus and minus one standard deviation are then substituted back in to the modified regression equation and plotted to display the interaction. Following this procedure allows the hypotheses relating to the nature of the proposed interactions to be tested.

RESULTS

Means, standard deviations, and intercorrelations for the variables used in the models are presented in Table 1. Of particular interest are the mean scores for several of the dependent variables. The mean scores for burnout and satisfaction were extremely high as compared to the reported means for other sample groups (wage or salaried employees) in other studies. Conversely, the mean score for intention to exit was very low as compared to employees in other studies. We further discuss the implications of these findings in the implications for scholars section of this paper.

TABLE 1
Means, Standard Deviations, and Correlations[a]

	Mean	*s.d.*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*
1. Burnout	22.65	12.59											
2. Satisfaction	20.42	4.89	-.60										
3. Intention to Exit	9.81	5.81	.48	-.62									
4. Intention to Grow	9.50	2.36	.03	.01	.09								
5. Employee Growth	0.43	1.83	-.09	.07	-.02	.06							
6. Cognitive Style Index	32.06	12.59	-.03	.01	-.05	-.16	.05						
7. Work Context Index	0.00	2.37	-.16	.11	.08	.02	.17	-.07					
8. PFMVS	5.10	1.51	-.32	.47	-.36	-.06	.17	-.05	.05				
9. Gender	0.95	.22	-.14	.24	-.18	.01	.05	-.04	.12	-.01			
10. Education	4.21	1.16	.04	-.01	.03	.25	-.05	-.05	-.02	-.09	-.11		
11. Tenure	14.78	8.55	-.14	.09	-.15	-.38	-.17	.10	-.17	.15	.03	-.24	
12. Serial	0.60	.49	.02	.12	.04	.05	-.05	-.11	.05	.10	.11	-.01	-.06

[a] n = 159

Note: Correlations greater than .16 indicates $p < .05$

TABLE 2

Results of Hierarchical Regression Analysis Regressing the Outcomes on CSI, WCI, and Their Interaction[a]

	BURNOUT			SATISFACTION			INTENTIONS TO EXIT			INTENTIONS TO GROW			EMPLOYEE GROWTH		
Variable	Base Model	Main effects	Inter-action	Base Model	Main effects	Inter-action	Base Model	Main effects	Inter-action	Base Model	Main effects	Inter-action	Base Model	Main effects	Inter-action
Performance	-.32***	-.31***	-.30***	.47***	.47***	.46***	-.37***	-.38***	-.36***	.01	.01	.01	.21**	.20**	.20**
Gender	-.15**	-.13*	-.14*	.25***	.24***	.24***	-.20***	-.21***	-.21***	.04	.04	.04	.06	.04	.04
Education	-.02	-.04	-.03	.07	.07	.07	-.05	-.04	-.04	.18**	.18**	.18**	-.08	-.07	-.07
Tenure	-.12	-.15*	-.17**	.05	.07	.04	-.09	-.07	-.04	-.31***	-.31***	-.31***	-.22***	-.20**	-.20**
Serial	.08	.09	.08	.04	.04	.05	.11	.10	.08	.01	-.01	.01	-09	-.09	-.09
CSI Score		-.04	-.06		.05	.06		-.06	-.08		-.12	-.11		.08	.09
Work Context		-.19**	-.20***		.09	.10		.07	.06		-.03	-.03		.14*	.14*
CSI * Work Context			-.16**			.12*			-.22***			.02			.05
R^2	.15***	.18***	.21***	.29***	.30***	.32***	.19***	.20***	.24***	.16***	.17***	.17***	.08**	.11**	.11**
R^2 Change	.15***	.04**	.03**	.29***	.01	.02*	.19***	.01	.05***	.16***	.01	.01	.08**	.02	.01

[a] n = 159

* significant at p < .10

** significant at p < .05

*** significant at p < .01

The results of the hierarchical regressions are displayed in Table 2. For *burnout*, the main effects model makes a significant contribution over and above the base model ($\Delta R^2 = 0.035$, $p < 0.05$). Within the main effects model, the findings suggest that work context has a statistically significant influence on burnout. The negative sign of the standardized regression coefficient suggests that burnout was higher for those entrepreneurs with an organizational context that is less structured, less formal, and less bureaucratic. We hypothesized that cognitive style moderates the relationship between work structure and burnout. The interaction model makes a significant contribution over and above the main effects model ($\Delta R^2 = 0.026$, $p < 0.05$) and therefore provides support for hypothesis 1a. The interaction was plotted to aid with interpretation and is displayed in Figure 2a. As hypothesized, for the work context lower in formalization and structure, burnout was higher for more analytic individuals than for more intuitive individuals. Conversely, for the work context higher in formalization and structure, burnout was greater for more intuitive individuals than for more analytic individuals. Therefore, hypothesis 1b was supported.

FIGURE 2a
Plot of CSI x WCI on Burnout

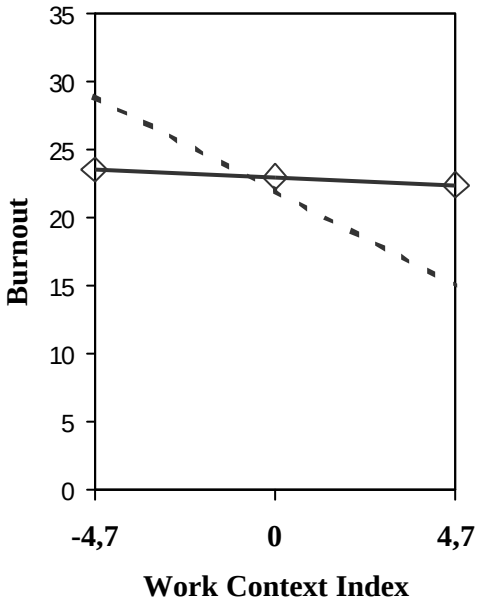


FIGURE 2b
Plot of CSI x WCI on Satisfaction

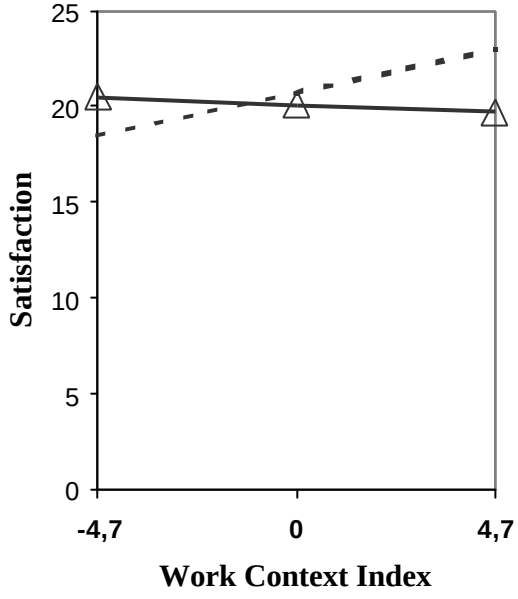
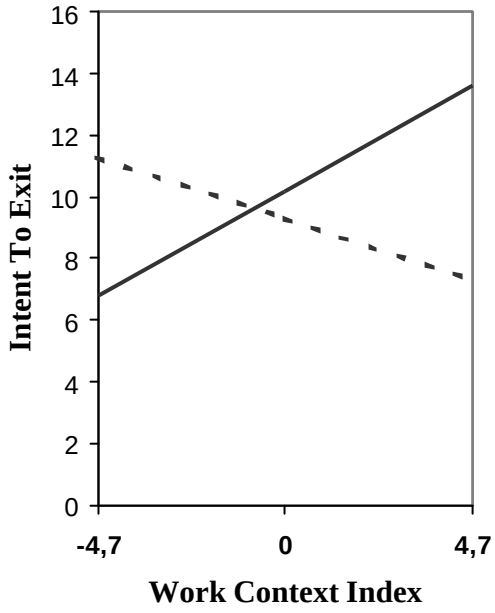
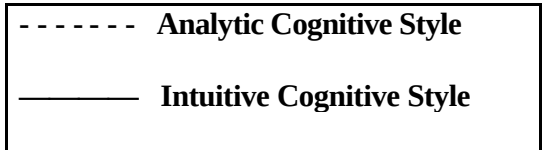


FIGURE 2c
Plot of CSI x WCI on Intent To Exit





For *satisfaction*, the main effects model does not make a significant contribution over and above the base model ($\Delta R^2 = 0.010$, $p > 0.10$). Within the main effects model, the findings suggest that neither work context nor cognitive style alone has a statistically significant association with satisfaction. We hypothesized that cognitive style moderates the relationship between work structure and satisfaction. The interaction model makes a significant contribution over and above the main effects model ($\Delta R^2 = 0.015$, $p < 0.10$) providing support for hypothesis 2a. The interaction was plotted and is displayed in Figure 2b. As hypothesized, for the work context lower in formalization and structure, satisfaction was higher for more intuitive individuals than for more analytic individuals. Conversely, for the work context higher in formalization and structure, satisfaction was greater for more analytic individuals than for more intuitive individuals. Therefore, hypothesis 2b was supported.

For *intent to exit*, the main effects model does not make a significant contribution over and above the base model ($\Delta R^2 = 0.088$, $p > 0.10$). Within the main effects model, the findings suggest that neither work context nor cognitive style alone has a statistically significant influence on satisfaction. We hypothesized that cognitive style moderates the relationship between work structure and individuals' expressed intentions to exit their firm. The interaction model makes a significant contribution over and above the main effects model ($\Delta R^2 = 0.047$, $p < 0.01$) providing support for hypothesis 3a. The interaction was plotted and is displayed in Figure 2c. As hypothesized, for the work context lower in formalization and structure, intention to exit the firm was higher for more analytic individuals than for more intuitive individuals. Conversely, for the work context higher in formalization and structure, intention to exit the firm was greater for more intuitive individuals than for more analytic individuals. Therefore, hypothesis 3b was supported.

For *growth intentions*, the main effects model does not make a significant contribution over and above the base model ($\Delta R^2 = 0.012$, $p > 0.10$). Within the main effects model, the findings suggest that neither work context nor cognitive style alone has a statistically significant influence on growth intentions. We hypothesized that cognitive style moderates the relationship between work structure and individuals' expressed intentions to grow their firm. The interaction model does not make a significant contribution over and above the main effects model ($\Delta R^2 = 0.001$, $p > 0.10$). Therefore, hypothesis 4a was not supported. In addition, having found that the interaction was not significant, hypothesis 4b was not supported and plotting the interaction was rendered moot.

For *employee growth*, the main effects model does not make a significant contribution over and above the base model ($\Delta R^2 = 0.022$, $p > 0.10$). Within the main effects model, the findings suggest that neither work context nor cognitive style alone has a statistically significant influence on growth intentions. We hypothesized that cognitive style moderates the relationship between work structure and employee growth. The interaction model does not make a significant contribution over and above the main effects model ($\Delta R^2 = 0.002$, $p > 0.10$). Therefore, hypothesis 5a was not supported. In addition, having found that the interaction was not significant, hypothesis 5b was not supported and plotting the interaction was rendered moot.

DISCUSSION

The empirical results indicate that when controlling for firm performance, entrepreneurial experience, and other demographic variables, there is a significant relationship between cognitive misfit and the individual entrepreneur's reported levels of burnout (H1), satisfaction (H2), and their intentions to exit (H3) the firm. Furthermore, when these significant interactions are plotted and examined in detail (Figures 2a-2c), they reveal some interesting patterns. These disordinal (crossed) plots suggest that different types of entrepreneurs (analytic versus intuitive) will exhibit different attitudes on these important outcomes, given the level of structure and formalization in their firms. An entrepreneur whose cognitive style is mismatched with the structure level of her/his firm will tend to experience significantly more "negative" outcomes (higher burnout, lower satisfaction, and higher intentions to exit) than an entrepreneur who is more in fit.

This is an important finding. It suggests which types of entrepreneurs will experience greater difficulty in managing their businesses (from a cognitive conflict perspective) at different stages of growth and maturity. The results presented in this paper make it is possible to offer some prescriptive advice to practicing and nascent entrepreneurs with respect to where they are more likely to experience cognitive misfit and the associated negative outcomes as they attempt to grow their businesses. This is an important step towards better understanding the cognitive component of entrepreneurial transition difficulties.

Also interesting is that while the interactions for burnout and satisfaction were as expected, the effects for analytical entrepreneurs are more marked than those of intuitive entrepreneurs. An initial explanation of that result could be that intuitive entrepreneurs might be more able to adapt than analytical entrepreneurs to less than desirable environments. Yet the results for intent to exit are similar for both analytical and intuitive entrepreneurs, meaning that while they might suffer less burnout and problems of satisfaction than analytical entrepreneurs, they are as likely to want to exit the venture when in misfit. Further research is needed on the nature of analytical and intuitive entrepreneurs and the implications of misfit for organizations.

The significant relationships between cognitive misfit and burnout, satisfaction, and intentions to exit support our contention that it is important to look at interactions in the study of entrepreneurship. Individual or firm level variables alone are not sufficient to explain the dynamic nature of the questions of real interest in the field. It is the interaction of the person (entrepreneur) and the place (firm) that yields significant insights and may offer a better understanding of questions such as the entrepreneurial transition dilemma, serial entrepreneurship, and lifestyle entrepreneurs. Focusing on the ways that entrepreneurs think and make decisions in combination with relevant firm level or environmental level variables allows us as researchers to keep the individual entrepreneur in the equation without falling into the personological trap that was indicative of so many of the past "trait" studies.

We failed, however, to uncover significant relationships between cognitive misfit and growth intentions (H4) and percentage change in employee growth (H5). With respect to growth intentions, we proposed that individuals would desire to avoid cognitive misfit and, as a result,

would seek to either grow or arrest development of their businesses in the direction that fit with their dominant style. While we expected that individuals would want to be in cognitive "fit," this non-finding does highlight an interesting paradox. The highly intuitive entrepreneur is best suited for the early stages of the business. We believe that growing the business will likely lead to increased cognitive misfit. It seems plausible that the desire to achieve growth far outweighs the possible negative consequences of cognitive misfit (of which the highly intuitive entrepreneur may not even be aware). Further research is needed on this point, as it should provide better explanatory power to the executive limit scenario and its limitations.

Finally, the relationship between cognitive misfit and percentage change in employee growth was not significant. This was the only outcome variable that was at the firm and not the individual level. This is clearly related to the issue of levels of analysis in entrepreneurship research. It is possible that the ability of the entrepreneur to influence the growth of the firm over a one-year period was too small to detect. Also, numerous confounding variables may influence employee growth. But clearly, that method and measurement issues have to be examined in depth when attempting to link entrepreneur and firm level variables, and that link remains a big concern for entrepreneurship research. However, despite this non-finding, we believe that whenever possible, entrepreneurship researchers should examine possible links to traditional performance measures.

Implications for Scholars

In this paper, we have further validated and extended the construct of cognitive misfit as a viable facet of P-O fit. We have extended the traditional P-O fit approach beyond employees and some aspect of their job or organization to entrepreneurs and their businesses. This not only adds validity to the P-O fit approach, but also demonstrates its ability to be used to address fundamental questions in the field of entrepreneurship. This is a multidisciplinary and multilevel approach that allows researchers to include the individual entrepreneur in the study of entrepreneurship, while avoiding the limitations of earlier studies using psychological variables.

One problem with employing a multidisciplinary approach such as the one in this study is that many of the measures were developed for employees within organizations and not for owners/entrepreneurs. The mean scores for several of the dependent variables indicate that owners/entrepreneurs are different than employees with respect to burnout, satisfaction, and intention to exit. New measures of these variables, scaled specifically for entrepreneurs, would allow us as researchers to capture much more of the true variance on these variables and would be a solid contribution to research of this type.

The idea that the owner/CEO/entrepreneur transition dilemma is a problem of misfit is not new in the management literature. However, which individual and environmental variables might lead to this misfit and the nature of the relationships between these variables is very underdeveloped. We provide a framework that specifies the interaction of two of these variables (cognitive style at the individual level and work context (structure) at the firm level) as a potential contributing source of this misfit.

Limitations and Future Research

This study uses intentions as a proxy for actual behavior. Whereas intentions have been linked to actual behavior in P-O fit (Chatman, 1991) studies, it should be acknowledged that intentions do not always translate into actual behavior. A longitudinal design is necessary to determine if expressed intentions ultimately lead to a specific behavior. Also, the generalizability of the results to entrepreneurs in other types of industries should not be assumed. Finally, and as is often the case with studies of this kind, despite the precautions undertaken and some comparative support, it is impossible to rule out common method bias.

A number of alternative cognitive style models have been excluded from this study and could also be potentially relevant. Furthermore, the construct of cognitive misfit is only one facet of fit by which to explore many of the lingering questions in entrepreneurship. While this study finds that the construct of cognitive fit/misfit does hold significant explanatory power with respect to entrepreneurial behavior, it is likely just one component in what is ultimately a much more well-defined model of entrepreneurial behavior. Therefore, the results of this study point to a number of promising avenues for future research.
Studies that combine both individual and situational factors through an interaction approach may hold great promise (Stewart, 1996). While this study focused on the interplay of individual decision-making style and the situational factor of work context, the examination of the interaction between decision-making style and other situational factors would appear to be a promising approach. Further, a longitudinal approach would allow us to examine the link between intentions and actual behaviors and outcomes.

Moreover, if one looks at entrepreneurship as a career choice, then following entrepreneurs throughout their careers (possibly including multiple new business formations) seems to be an obvious and logical approach. Why does one entrepreneur start and grow multiple businesses over his or her career (serial) while another is content to only start one business (novice) and even arrest development (lifestyle) at a certain level? Cognitive misfit could add some substantial understanding with respect to these different types of entrepreneurs.

Roure and Maidique (1986) found that experienced and well-balanced entrepreneurial teams influence organizational performance. The theory on decision-making styles explicitly states that one form of coping behavior is the formation of teams to handle non-preferred tasks or problems (Kirton, 1989). While the design of this study did not allow for the examination of entrepreneurial team compositions, this would appear to be a necessary area of investigation. We propose that the effectiveness of the entrepreneurial team could be examined by looking at the decision-making styles of the individual team members. Do well- balanced entrepreneurial teams (from a decision-making style perspective) outperform teams that are made up of members with similar styles? Do more experienced entrepreneurs build teams with members having similar or dissimilar styles to their own? Does having a team with a range of styles and different from that of the entrepreneur moderate or mediate the relationships found in this study? There is a large body of existing research on decision-making style and teams within organizations. Extending this research into the study of entrepreneurial teams is an important and very promising area for future research.

CONCLUSION

If, as many researchers have argued, the individual entrepreneur is the most salient unit of analysis in entrepreneurship research and theory (Herron & Sapienza, 1992), then a more complete understanding of the entrepreneur is a necessary prerequisite for a more refined understanding of the process of entrepreneurship. A robust and comprehensive model of entrepreneurship must demonstrate how the predispositions and cognition of entrepreneurs are transformed into action (Shaver & Scott, 1991). The findings presented in this paper suggest that cognitive misfit is a useful construct in understanding entrepreneurial attitudes and intentions. Examining the interactions of entrepreneurs' different decision-making styles and aspects of their firms allows us to avoid the limitations associated with focusing on only individual *or* firm variables to explain behaviors and organizational outcomes. We believe that this research represents an important step, not only in gaining a fuller understanding of the entrepreneurial transition dilemma, but also, in ultimately creating a more complete model of the entrepreneurial process.

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