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Decision criteria in the evaluation of potential intrapreneurs

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Abstract

Social cognition theory constructs were applied to systematically identify decision criteria underlying managers' selection of individuals for intrapreneurial and general administrative manager positions. Results revealed 19 attributes uniquely ascribed to the role of *intrapreneur*, 24 attributes uniquely ascribed in the role of *general administrative manager*, and 37 attributes held in common across the two roles. Differences in the average number of attributes elicited varied across sample groups, with a larger number of attributes elicited from individuals with greater entre/intrapreneurial expertise. Implications for researchers, organizations, and aspiring intrapreneurs are discussed.

Keywords: Intrapreneurship; Social cognition theory; Selection; Decision-making; Expertise

1. Introduction

Fueled by intense competitive pressures and heightened environmental turbulence and complexity, the management of technical innovation has become an increasingly critical activity in contemporary organizations. Successful technological innovation requires a unique combination of entrepreneurial and managerial skills (Maidique, 1980). Research on establishing and promoting innovative, entrepreneurial behavior within organizations (e.g., Kanter, 1983; Pinchot, 1985; Rule and Irwin, 1988; Cornwall and Perlman, 1990; Guth and Ginsberg, 1990; Martin, 1994) has underscored the importance of fostering internal entrepreneurial behavior, particularly in technology-based firms: ''Since entrepreneurship is a vital constituent in the innovation chain-reaction, well-established high-technology firms which fail to stimulate and nurture entrepreneurship... run the

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risk of becoming technologically moribund, losing their capacity for innovation'' (Martin, 1994, p. 333). Consistent with the strategic selection literature which advocates ''matching'' managers to business strategies (Miles and Snow, 1978; Leontiades, 1982; Gerstein and Reisman, 1983; Schuler, 1986), contemporary business pressures for innovation and resultant organizational strategies call for organizations to place a high priority on identifying, developing, and retaining individuals suited to such entrepreneurial organizational roles (Miles and Snow, 1978; Leontiades, 1982; Gerstein and Reisman, 1983; Gupta and Govindarajan, 1984; Pinchot, 1985; Hisrich and Peters, 1995; Oden, 1997).

Pinchot (1985) first introduced the term *intrapreneur* — ''shorthand for intracorporate entrepreneur'' (p. xii) — and the term *intrapreneurship* is now widely used to refer to the development of new businesses within an existing corporation where the new venture is owned by the parent (Bird, 1989; Hisrich and Peters, 1995; Oden, 1997). Unfortunately, the current literature provides little to assist managers in identifying individuals likely to be successful in this unique organizational role. Several factors likely contribute to this dearth in the literature. First, intrapreneurship is a relatively recent phenomenon. The literature thus has a short history, and much of it is exploratory in nature. Second, in contrast to other types of managers, few individuals hold intrapreneurial positions, although the research cited above suggests that the number should increase significantly as pressures for technical innovation increase. Third, it is likely that the development of this literature has been constrained by the belief that managers do not identify individuals to assume intrapreneurial roles, but that such individuals strictly self-select. This (mistaken) assumption is due in part to various scholars focusing on different internal entrepreneurial roles and subsequent confusion in the literature resulting from failure to recognize and articulate important distinctions among the multiple roles. For example, champions (Schon, 1963; Howell and Higgins, 1990; Shane, 1994, 1995), gatekeepers (Allen, 1977; Tushman and Scanlan, 1981; Katz and Tushman, 1983), sponsors (Roberts, 1977; Maidique, 1980) and intrapreneurs (Pinchot, 1985; Oden, 1997) have all been identified in the literature, and each term refers to a distinct role in the corporate innovation process (see: Howell and Higgins, 1990; Leonard-Barton and Smith, 1994). The first three are generally described as ''surfacing'' or ''emerging'' within an existing organizational structure, whereas intrapreneurs, the focus of the present study, are formally assigned to a management role within the organization. The term intrapreneur is used in this study to refer to an individual designated by management to head up an internal corporate venture. Thus, the intrapreneur may be, but is not necessarily, the project's champion or sponsor (Oden, 1997).

Clearly, arguments that intrapreneurs strictly self-select are inaccurate. They imply that organizations can do little to enhance the availability of internal entrepreneurial talent, and are inconsistent with literature advocating organizational efforts to promote internal corporate entrepreneurship (e.g., Quinn, 1979; Leontiades, 1982; Gerstein and Reisman, 1983; Kanter, 1983; Bradford and Cohen, 1984; Gupta and Govindarajan, 1984; Pinchot, 1985; Reich, 1987; Rule and Irwin, 1988; Cornwall and Perlman, 1990; Oden, 1997). They are also inconsistent with contemporary business practices. Numerous organizations that sponsor internal corporate entrepreneurship programs are identi-

fied in the literature (see, for instance, Pinchot, 1985; Cornwall and Perlman, 1990; Martin, 1994) including IBM, Xerox, General Electric, AT&T, Bell Atlantic, 3M, Texas Instruments, Eastman-Kodak, and Du Pont. Formal intrapreneurship programs have evolved significantly since their inception in the 1980s. Some now focus exclusively on early-stage seed financing (e.g., 3M's Genesis program) and others on new business development (e.g., Xerox New Enterprises). Some have even been redirected. TI Ventures, for example, was established in 1996 to provide venture funding for *external* development efforts; internally-developed new technologies are moved to business units within Texas Instruments which have the charter to take the new product or technology to market. In sharp contrast, Xerox New Enterprises is responsible for identifying and bringing to market promising technological breakthroughs that emerge from *internal* research and development but fall outside the company's core business. New Enterprise companies are created as independent business units under the Xerox corporate umbrella, ultimately to be merged into Xerox Corporation, taken public, or sold. Since its inception in 1996, Xerox New Enterprises has already taken two of its intrapreneurial companies public.

Although organizational procedures for establishing internal ventures vary, characteristics of the prospective venture leader weigh heavily in the final go/no-go decision (Hlavacek, 1974; Rule and Irwin, 1988; Martin, 1994). For example, summarizing venture evaluation procedures at 3M, Martin (1994) writes, ''Consequently, if [employees seeking company sponsorship of product ideas] possess a good idea **plus** the required personal entrepreneurial qualities, they are likely to find sponsorship somewhere within the corporation'' (p. 343, emphasis added). The critical importance of venture leader characteristics is a recurrent theme among these firms. Although it is generally agreed that champions and sponsors emerge, or self-appoint (see Howell and Higgins, 1990, for a review), even these individuals must at some stage receive formal endorsement by management if they are to establish and head-up internal entrepreneurial ventures.

For over two decades, researchers (Hlavacek, 1974; Hanan, 1976; Quinn, 1979; Brazeal, 1993) have advocated an even more proactive approach — focused organizational efforts to recruit, select, and develop individuals to lead internal entrepreneurial ventures — to facilitate corporate innovation and competitiveness. The success of organizational efforts to promote intrapreneurship requires the revamping of employee selection procedures and criteria (Quinn, 1979). Little empirical work, however, has been published in this area; the literature is overwhelmingly anecdotal and case oriented (Sherman and Souder, 1994). This was an exploratory study, designed to lay an empirical foundation for future research investigating the criteria associated with intrapreneurial success. The current project was designed as a preliminary study to a large-scale project aimed at examining managerial decision-making processes with regard to the evaluation of potential intrapreneurs. Accordingly, the objectives of this study were to: (a) systematically identify the criteria managers ascribe to successful intrapreneurs (and in contrast, more traditional organizational managers), (b) investigate the impact of expertise on the criteria specified, (c) determine the extent of agreement among managers regarding the criteria, (d) compare and contrast criteria associated with each of these two organizational roles (i.e., ''intrapreneur'' and ''general administrative

manager''), and (e) discuss implications for researchers, organizations, and aspiring intrapreneurs.

2. Theoretical framework and hypothesis and research questions

2.1. Intrapreneurship

While the significance of the role of the entrepreneur in a capitalistic society has been recognized for at least two centuries (cf., Schumpeter, 1954), attention to the critical role of entrepreneurial behavior *within* the firm is a much more recent phenomenon. Contemporary business challenges — including heightened competition, market globalization, and accelerating technological change — have created a volatile environment in which ''the ability to innovate effectively has become the primary determinant of business success'' (Pinchot, 1985, p. 10). ''We have entered a world of constant change where certainties don't exist and productivity in innovation is becoming as important as productivity in production ... a world in which ... intrapreneurial talent can prove a decisive advantage'' (p. 8). Organizations that fail to foster intrapreneurship will be left with ''nothing but the dead wood'' (p. 14) — hardly the resources needed to meet the contemporary challenges identified above!

Academic writers as well as the popular press appear to agree. There is increasing consensus among management and organization theorists that internal entrepreneurial behavior is a significant factor in organizational effectiveness. Entrepreneurship is considered one form of organizational strategic management (e.g., Mintzberg, 1973; Miles and Snow, 1978). The analysis of Snow and Hrebiniak (1980) suggested that entrepreneurial organizational strategies engender higher performance in those industries operating in uncertain organizational environments. ''Collective entrepreneurship'' (Reich, 1987), that is, entrepreneurial behavior exhibited throughout the organization, has been identified as instrumental to success in today's highly-competitive global economy. Similarly, Kanter (1983) has argued that corporations will prosper only to the extent that they understand, initiate, and execute innovative change at every level. More recently, Lumpkin and Dess (1996) argued the relationship between ''entrepreneurial orientation'' and firm-level performance, and proposed a contingency framework for its investigation.

Contemporary trends in organizations, too, emphasize the increasingly important role of internal entrepreneurial behavior and its impact on firm performance. Based on extensive case studies, Peters and Waterman (1982) linked entrepreneurship to invention and innovation, and argued that it is causally related to organizational productivity. Recent empirical work supports their proposition: Franko (1989) found that firms that are more innovative have higher performance in the global marketplace, and Geroski and Machin (1994) reported differences in corporate performance between innovative and non-innovative firms that suggest the beneficial effects of both the *product* and *process* of innovation on profits and growth. Kanter (1982) identified specific characteristics associated with various levels of entrepreneurial behavior in organizations and subsequently (1983) proposed a critical relationship between entrepreneurship and overall competitiveness in the world economy. Pinchot (1985) profiled a handful of

large organizations — including 3M, Du Pont, IBM, Texas Instruments, General Electric, AT&T — and identified specific organizational practices introduced to foster internal corporate entrepreneurship.

Increased environmental uncertainty is characteristic of many industries today. Bettis and Hitt (1995) describe the rapid emergence of a ''new competitive landscape'' characterized by the increasing rate and diffusion of technological change, proliferation of information, increasing knowledge intensity, increasing risk and uncertainty, and decreasing forecastability. Compounding this external volatility, many organizations are experiencing increased internal uncertainty as well, often brought about in response to the rapidly changing external environment. Modified organizational structures — more amorphous, decentralized, flatter, organic structures — are emerging (Drucker, 1988; Fulop, 1991; Mahoney, 1992), and many organizations continue to downsize dramatically, primarily among the middle echelons. These organizational changes, in consort, tend to increase the turbulence of the internal organizational environment (Kanter, 1982, 1983; Dickson and Giglierano, 1986) resulting in even higher levels of uncertainty.

It is generally agreed among organizational researchers that higher levels of uncertainty call for more flexible, innovative, entrepreneurial managerial practices (Covin and Slevin, 1988; Geisler, 1993; Naman and Slevin, 1993; Bettis and Hitt, 1995; Sanchez, 1995). Contemporary business pressures have forced organizations to place a high priority on identifying individuals suited to intrapreneurial roles and to emulating an entrepreneurial environment so that these managers may operate relatively unencumbered within the larger organizational structure (Stopford and Baden-Fuller, 1994; Jelinek and Litterer, 1995; Oden, 1997). The potential advantage of identifying criteria associated with intrapreneurial success is thus evident. Although a considerable body of research exists which suggests specific characteristics associated with entrepreneurial success, it should not be assumed that these characteristics are necessarily descriptive of *intra*preneurial managers. ''The constructs *entrepreneur* and *intrapreneur* differ substantially'' (Geisler, 1993, p. 54). Despite the fact that intrapreneurs are expected to function in an entrepreneurial fashion, they operate in a context quite different from independent entrepreneurs. For example, intrapreneurs must operate within an existing organizational structure in accordance with established corporate systems while reporting to hierarchical supervisors. It follows that in order to be successful, intrapreneurs need somewhat different competencies than do independent entrepreneurs. Research indicates, for example, that while intrapreneurs need to be fairly adept at corporate politics (MacMillan, 1983), many independent entrepreneurs deplore this behavior and resist traditional organizations in order to avoid it (Collins and Moore, 1964).

Although distinct, the constructs *entrepreneur* and *intrapreneur* do overlap (Burgelman and Sayles, 1986; Wortman, 1987). Based on the comparison of the characteristics of entrepreneurs, intrapreneurs, and traditional managers by Pinchot (1985), Hisrich and Peters (1995) point out that intrapreneurs appear to share more characteristics with entrepreneurs than they do with traditional managers, however, intrapreneurs and traditional managers share more characteristics than do entrepreneurs and traditional managers. Successful intrapreneurs are thus likely to possess a combination of competencies — some characteristic of independent entrepreneurs and others characteristic of more traditional managers.

It is therefore not surprising that previous investigations into the characteristics actually possessed by entrepreneurs, intrapreneurs, and more traditional organizational managers have revealed both similarities and differences (cf., Bird, 1989; Hisrich and Peters, 1995). For example, personality characteristics associated with entre/intrapreneurial success (as contrasted to characteristics associated with traditional managerial success) include high need for achievement, risk-taking propensity, tolerance for ambiguity, and Type A behavior (Begley and Boyd, 1986), initiative, and assertiveness (McClelland, 1987), and low need for affiliation and conformity (Sexton and Bowman, 1984). Experience and background characteristics associated with entre/intrapreneurial success (again, as contrasted to traditional managerial success) include extensive industry operating knowledge (Timmons, 1976), prior entrepreneurial experience (Hornaday and Aboud, 1971, Ronstadt, 1984), and formal education, though not to the extent of traditional managers (Brockhaus and Nord, 1979). Similar to traditional managers, however, successful intrapreneurs must be fairly skilled at corporate politics (MacMillan, 1983), a practice most independent entrepreneurs disdain (Collins and Moore, 1964).

Research focusing specifically on the characteristics of intrapreneurs (as opposed to entrepreneurs) is a more recent phenomenon, and researchers have not yet identified the decision criteria underlying the selection of individuals for intrapreneurial roles. A closely related stream of research, however, suggests the criticality of entrepreneur (team) characteristics as decision criteria in venture funding decisions (Wells, 1974; Poindexter, 1976; Tyebjee and Bruno, 1984; MacMillan et al., 1985, 1987). Hall (1989) delineated five sequential stages in the venture-funding decision process, with venture capitalists assessing the viability of the project idea prior to investigating specific characteristics of the entrepreneurial team. Hall and Hofer (1993) emphasized that research on venture capitalists' decision criteria must control for the stage of the decision process because not all criteria are emphasized at each successive stage. Numerous case studies and anecdotal evidence suggest that managerial endorsement of intrapreneurial ventures is highly consistent with the multi-stage process of venture capitalist evaluation (e.g., Gee, 1994; Martin, 1994).

Researchers have only recently begun investigating the behaviors and characteristics of intrapreneurs, and the emphasis has been on prescriptive rather than descriptive studies, leaving a void in the literature (Geisler, 1993). Past research has been primarily case-oriented and anecdotal; very little systematic empirical research has been published (Sherman and Souder, 1994). No study to date has systematically identified the criteria managers associate with intrapreneurial success.

This was an exploratory study, designed to identify the decision criteria underlying managers' selection of individuals to head up internal corporate ventures. It was descriptive in nature: the intent was to ascertain what managers think, rather than what managers should think. The study design was consistent with Hall's (1989) multi-stage model of venture capitalist decision-making, focusing on a later stage (following the initial screening and assessment of the project proposal) where the evaluation of managerial characteristics and potential occurs. In other words, once the internal venture *idea* is accepted, what criteria underlie the evaluation of internal venture management? How do these characteristics differ from those ascribed to more traditional administra-

tive managers? In addition to its utility in improving employee selection and development decisions, an understanding of the criteria ascribed to managers successful in this unique organizational role may lead to improvements in the success rate of internal corporate ventures and assist organizations in creating and maintaining environments that foster intrapreneurship — a critical success factor in contemporary technology-driven firms.

2.2. Social cognition theory

This study was conducted using the conceptual framework of social cognition theory.[1] Social cognition theory is built on the generally accepted assumption that people, having limited information-processing capacity, seek cognitive economy in the face of an objectively overwhelming information environment (see Ashmore and Del Boca, 1981, for a review). Social cognition theory is particularly suited for application to the evaluation and selection of intrapreneurial venture managers as these decisions require the cognitive processing of large quantities of information under conditions of bounded rationality and organizational constraints of time and money, and involve cognitive evaluations of people (venture management candidates) and social experiences (such as previous work history, proposal presentations, and interviews). Social cognition theory has been used as a conceptual framework for research in many varied areas of managerial decision making including performance appraisal (Feldman, 1981; Borman, 1987), employee discipline (Ball and Sims, 1991), and intercultural management (Shaw, 1990).

Social cognition theory focuses on the efficient organization of knowledge about people, drawing on cognitive psychology's work in knowledge structures, or schemata. A *cognitive schema* is an abstract knowledge structure that represents organized prior knowledge pertaining to a given concept or stimulus domain (Fiske and Taylor, 1984); it contains both the attributes associated with the stimulus category as well as the relationships among those attributes (Fiske and Linville, 1980). Schemata are generalized from prior experience with instances of the stimulus category (Anderson et al., 1979). Because some social experiences are individual and others shared, schemata can be classified as either idiosyncratic or consensual (Cantor et al., 1982). A *consensual schema* represents the degree of attribute overlap reflected in the schemata elicited by individuals. In other words, consensual schemata contain the attributes *generally agreed upon* as descriptive of category members. Schemata play a critical role in decision making by influencing perception, memory, inference, and evaluation (Fiske and Taylor, 1984). There are many different types of cognitive schemata. Of particular relevance to this research is a *person-for-role schema*, which is comprised of the attributes associated with the type of individual believed to be best suited for a specific organizational role (Jaccoud et al., 1990), in this case, heading up a corporate intrapreneurial venture.

[1] This article does not provide a rigorous review of social cognition theory. An extensive literature exists on this topic; see Fiske and Taylor (1984). This intent of this article is to *apply* social cognition theory constructs to uncover decision criteria underlying the selection of intrapreneurs.

2.3. Hypothesis and research questions

The dearth of descriptive research on the characteristics of intrapreneurs has been cited in the literature (Geisler, 1993); prior studies have been largely prescriptive. Descriptive studies are, however, quite valuable for understanding organizational phenomena and provide a solid foundation for future prescriptive research. This study was descriptive, designed to systematically delineate the attributes underlying intrapreneurial selection decisions. The objective was to ''capture'' the characteristics managers ascribe to successful intrapreneurs. Comprehensive identification of these characteristics would, in turn, provide a sound empirical foundation for future prescriptive studies. This approach is consistent with the call of Feldman (1981) to investigate the cognitive structures underlying managerial decisions, a suggestion which has been largely ignored by researchers (Lord and Maher, 1989).

Also of interest was the potential impact of expertise on the attributes specified. Much has been written about the effects of experience on the generalizability of decision-making research findings (see Locke, 1986), however, only a limited number of studies have employed multiple samples differing by experience level (Barr and Hitt, 1986), and those that have, have focused on decision-making differences between managers and students. It is quite possible that experience differences also exist *within* managerial and student samples. That is, it seems reasonable that the decisions of managers more experienced in a specific decision-making domain would differ from the decisions of managers with less expertise; similar differences would be expected between the decisions of students trained in the topic area and those lacking such training. Accordingly, this study directly measured differences in the decision criteria specified by individuals varying in level of training and/or experience with intrapreneurship. Evidence of differences would underscore the importance of including assessments of expertise in future intrapreneurship research and suggest limitations in the generalizability of findings currently reported in the literature.

2.3.1. Expertise

Social cognition theory directly addresses the impact of expertise on the cognitive knowledge structures, or schemata, underlying managerial decision-making. People generalize schemata content from prior experience with instances of the stimulus category (Anderson et al., 1979). The more experience an individual has with members of a given category, the more well-developed the associated schema in terms of quantity (i.e., number of attributes) and linkages among attributes (Fiske and Taylor, 1984; Lord and Maher, 1990). By definition, experts have more experience in a particular context than do novices (Lord and Maher, 1990). It follows that individuals who have had more experience with intrapreneurship (that is, those with greater intrapreneurial expertise) would have more well-developed schemata pertaining to the role of successful intrapreneur.

This does not suggest that experts consciously *use* more attributes in decision making than do less experienced individuals, but that the information upon which they base their decisions is richer. Recall that the cognitive schema includes the attributes associated with the stimulus *as well as the relationships among those attributes*. Fiske and Taylor

(1984) point out that one consequence of experts' well-developed schemata is that despite the greater quantity and complexity of schemata content, the compact and well-organized structure actually frees information-processing capacity. Experts thus ''use'' fewer attributes than do novices because the key attributes they do use have ''bundled'' to them many more closely-related attributes; experience permits experts to ''short-cut'' the demands of information processing by relying on the richness of their underlying knowledge structures. For example, Barr and Hitt (1986) reported that managers used substantially fewer factors in evaluating job candidates than did students. Accordingly, the following relationship of expertise to schemata content is proposed:

H. For the role of intrapreneur, the schemata elicitations of participants more experienced with intrapreneurship will include a greater number of attributes than will the schemata elicitations of participants less experienced with intrapreneurship.

2.3.2. Attributes

As was mentioned in the section on intrapreneurship above, prior research has identified attributes associated with entrepreneurs, intrapreneurs, and traditional managers. These studies have used varying approaches and samples, and each typically focused on a limited number of specific attributes (e.g., risk-taking propensity, conformity, educational attainment). The generalizability of these results is thus speculative. Rather than restricting this study to those attributes identified in the existing literature, this research was designed to allow for the unconstrained elicitation of attributes associated with successful intrapreneurs (and in contrast, successful general administrative managers) and omnibus verification of these attributes by actual managers. It was an exploratory investigation of the criteria underlying selection decisions for these two organizational roles. Consistent with prior applications of social cognition theory (Cantor and Mischel, 1979; Borman, 1987), this study was designed to elicit cognitive schemata content rather than to test hypotheses associated with specific role-attribute combinations. Accordingly, general research questions rather than specific a priori hypotheses were advanced. The literature does, however, suggest some specific characteristics likely to be included in the schemata elicitations (refer to Section 2.1). Some of these characteristics are descriptive of intrapreneurs as contrasted to traditional managers (e.g., high need for achievement and risk-taking propensity), some are descriptive of traditional managers as contrasted to intrapreneurs (e.g., needs for affiliation and conformity), and some are descriptive of both intrapreneurs and traditional managers (e.g., corporate political skills). Managers likely perceive these similarities and differences, and accordingly, consider the organizational roles of ''intrapreneur'' and traditional ''general administrative manager'' as distinct, but with some common characteristics. It is therefore likely that the consensual person-for-role schemata associated with these two organizational roles will share some characteristics, yet differ on many others. Consistent with the exploratory, descriptive objective of this study, the following research questions were advanced:

RQ1. What specific attributes will managers uniquely ascribe to the role of *intrapreneur*?

RQ2. What specific attributes will managers uniquely ascribe to the role of *general administrative manager*?

RQ3. What specific attributes will managers ascribe to both roles — *intrapreneur* and *general administrative manager*?

The aim of this research was the comprehensive identification of the attributes managers associate with success in each of these critical organizational roles.

3. Methodology

This study incorporated two research phases. The purpose of Phase One was threefold: to (a) verify that individuals hold person-for-role schemata corresponding to the focal role of intrapreneur (and contrast role of general administrative manager), (b) identify the specific attributes comprising these schemata, and ultimately, (c) explore differences in intrapreneurial schemata content associated with increasing levels of expertise. Data collected in Phase One directly addressed the research hypothesis — that, for the role of intrapreneur, schemata elicitations of participants more experienced with intrapreneurship would include a greater number of attributes than would schemata elicitations of participants less experienced with intrapreneurship.

The purpose of Phase Two was to identify the consensual person-for-role schemata associated with the roles of intrapreneur and general administrative manager, providing data to empirically address the research questions. Specifically, what attributes do managers uniquely ascribe to the role of intrapreneur? What attributes do they uniquely ascribe to the role of general administrative manager? And finally, what attributes do managers ascribe to both roles? Research methodology corresponding to each phase is described below.

3.1. Phase One — schemata elicitation

3.1.1. Sample and procedures

Participants were selected based on their presumed level of expertise with intrapreneurship. Specifically, seven sample groups were included in Phase One of the current study, listed here in decreasing order of presumed intrapreneurial expertise: (a) experienced intrapreneurs, (b) experienced entrepreneurs, (c) venture capitalists, (d) professional managers, (e) M.B.A. students with no managerial experience, (f) senior business undergraduate students, and (g) non-business major undergraduate students. [2] Obviously, it was presumed that among the seven sample groups, experienced intrapreneurs would have the greatest level of intrapreneurial expertise — and that the

[2] Student samples were included on the premise that they would be less experienced with intrapreneurship: see **Hypothesis**.

student groups would have the least with decreasing expertise corresponding to lower levels of formal business education. Ordering the remaining three samples (i.e., experienced entrepreneurs, venture capitalists, and professional managers) with regard to intrapreneurial expertise was a little more complex. The literature indicates considerable overlap among characteristics and activities of intrapreneurs and entrepreneurs, suggesting that entrepreneurs have considerable (but not complete) understanding of the requirements for intrapreneurial success. In contrast, venture capitalists' expertise focuses on entrepreneurial success. It was thus presumed that venture capitalists would be somewhat less knowledgeable regarding intrapreneurial success than would entrepreneurs. Finally, organizational managers generally have little to no experience with either entrepreneurs or intrapreneurs — it was presumed they would have less intrapreneurial expertise than would venture capitalists.

Across the seven sample groups, a total of 227 individuals provided schemata elicitations. Student participants were solicited through a large eastern university; managerial participants were solicited through graduate courses and an executive development program conducted by the same university, as well as from organizations in the surrounding major metropolitan area; venture capitalist, entrepreneurial, and intrapreneurial participants were solicited through a center for entrepreneurial studies sponsored by the same university, and through the headquarters of a major telecommunications corporation with an established intrapreneurship program. Demographics, by subsample, are reported in Table 1. Pairs of participants were randomly assigned to one of the two role conditions (i.e., intrapreneur or general administrative manager), resulting in a between-subjects design that avoided carry-over effects across the two role elicitations. [3]

The free-response technique is a basic method for determining the content of knowledge structures. It has been widely used in cognitive psychology to generate category features (Cantor et al., 1982), and was used in this study to elicit schemata content. Participants were informed that the purpose of the research was to examine the employee selection decision process, and were instructed to assume the role of a manager responsible for making selection decisions for managerial positions within an organization. Each participant received a packet of written materials corresponding to the assigned role condition; these materials included a company profile that included background information describing the organization, and a single job description. The company profiles and job descriptions were essentially the same length and format for each of the two role conditions. Those for the intrapreneurial role were developed in consultation with several venture capitalists and intrapreneurs who confirmed the accuracy of the venture decision process as depicted. The intrapreneurial company profile was consistent with the description of Hall (1989) of the multi-stage venture

[3] Due to limited accessibility, virtually all of the venture capitalist, entrepreneurial, and intrapreneurial participants were assigned to the intrapreneur role condition. These samples were included in order to assess the impact of expertise on schemata content specifically for the role of intrapreneur (see **Hypothesis**); it was not necessary to have general administrative manager schemata content elicited from individuals in these samples.

Table 1
Sample demographics: phases one and two

	Phase one								Phase two
	Across all groups	Non-business undergrads.	Senior business undergrads.	M.B.A.s, no experience	Professional managers	Venture capitalists	Entrepreneurs	Intrapreneurs	Professional managers
Sample size (n)	227	40	39	38	56	17	19	18	40
Intrapreneur role (n)	137	18	19	18	32[a]	16	16	18	20
Manager role (n)	90	22	20	20	24	1	3	0	20
Average age (yrs)	29	21	23	25	33	41	42	37	36
Male (%)	67	57	46	53	79	100	84	88	78
Minority (%)	26	43	28	39	25	0	11	6	8
College (yrs)	4.68	2.30	4.18	4.95	5.55	6.19	5.61	5.44	4.80
Supervisory experience (yrs)	4.81	0.65	1.12	0	6.80	11.31	14.22	9.70	8.69
Experience in selection (%)	60	28	41	32	84	100	95	83	90
Considerable interactions w/ entrepreneurs (%)	33	1	31	18	21	88	68	61	20
Considerable training in entrepreneurship (%)	6	0	0	0	4	12	16	39	23

[a] In order to obtain approximately equal cell sizes for the planned comparisons, a subsample of $n = 18$ was randomly selected for the t-tests.

decision process in which project evaluation (including evaluation of venture management) occurs after initial proposal screening and assessment. (Company profiles and job descriptions corresponding to each role appear in Appendices A and B.) Participants were instructed to: (a) read the information provided, (b) develop a mental image of the type of person who would be successful in the described position (in an effort to evoke the participant's person-for-role schema), and (c) ''with that image in mind, list everything [they believed described] the type of person who would be a good fit to the job and organizational requirements'' specified.

3.1.2. Measures and analyses

Independent variables included the assigned role condition (i.e., intrapreneur or general administrative manager) and level of expertise. Level of expertise was directly assessed by the following measures: (a) prior supervisory experience, (b) experience in employee selection decision-making, (c) experience working with entre/intrapreneurs, and (d) participation in formal courses or training programs pertaining to entre/intrapreneurship. Together, these measures confirmed the presumed expertise differences across the target samples (see Table 1): sample membership was therefore used as a surrogate measure of level of expertise in subsequent analyses. Dependent variables included the total number of attributes elicited (to test the hypothesis) as well as the actual content of the elicitations (to address the research questions).

To assess differences in the number of attributes elicited across the seven sample groups, [4] planned comparisons were conducted; the dependent variable was the mean number of attributes elicited from each sample group. The groups were arranged in decreasing order of level of intrapreneurial expertise: intrapreneurs, entrepreneurs, venture capitalists, professional managers, inexperienced M.B.A.s, senior business undergraduates, and non-business undergraduates. The first group was compared with all the remaining groups, then eliminated from any further comparisons. This procedure was repeated for each of the remaining groups. In all, six mutually orthogonal planned comparisons were conducted. This strategy of defining orthogonal comparisons is particularly appropriate when groups are arranged hierarchically — such as by level of expertise (Klockars and Sax, 1986).

The individual attribute lists were further analyzed in preparation for verification of the consensual schemata in Phase Two. Content analysis was used to collapse clearly synonymous attributes: the objective was to identify the underlying attribute dimensions. Specifically, three Industrial/Organizational (I/O) psychology graduate students independently grouped the individual attributes into attribute dimensions, coding those attributes they perceived as synonymous. I/O psychology students are trained in management and organization theory as well as in cognitive and social psychology and basic psychometrics. These particular students were selected for the coding task because in addition, they had received training in personality theory and assessment making them

[4] To obtain approximately equal cell sizes, a subsample of $n = 18$ professional managers was randomly selected for the *t*-tests.

particularly suited for assessing the content of cognitive schemata. Attributes coded as synonymous by all three independent judges were collapsed, and the three judges subsequently agreed on a single attribute label from among the collapsed attributes. Attributes coded as synonymous by only two of the three independent judges were discussed by the group. If after brief discussion there was unanimity that the attributes were synonymous, the attributes were collapsed and labeled; if not, they remained as individual attributes. For example, ''ambitious,'' ''aggressive,'' and ''a go-getter'' were collapsed, as were ''intelligent'' and ''smart.'' Consistent with previous research (Cantor et al., 1982), an attribute dimension must have been elicited from approximately 25% of participants in a single role condition to be retained, thus, attributes which were infrequently mentioned were eliminated at this point (e.g., ''healthy,'' ''drives a sports car''). The end result was a single comprehensive list of 154 attribute dimensions.

3.2. Phase Two — schemata verification

3.2.1. Sample and procedures

Phase Two was designed to assess the reliability of the elicited person-for-role schemata content. The comprehensive list of attribute dimensions generated in Phase One was subjected to further analysis in order to obtain consensual schemata corresponding to the two organizational roles. Because organizational managers select/endorse individuals for corporate intrapreneurial positions, experienced managers (rather than intrapreneurs, entrepreneurs, or venture capitalists) participated in the Phase Two schemata verification. A second sample of 40 business managers — none of which had participated in the Phase One schemata elicitations — was solicited through graduate classes and an executive development program conducted by the university described above, and from technology-based organizations in the surrounding major metropolitan area. All were currently mid- to senior-level managers, averaging 8.69 years management experience, and were employed predominately in high-tech industries including communications, information systems, electronics, and aerospace. Phase Two participants held business rather than technical managerial positions (although many had technical/engineering backgrounds) bearing titles such as Manager of Operations, Director of New Business, Manager of Program Integration, and Champion Program Director. Ninety percent had participated in employee selection decisions over the course of their careers. (Complete sample demographics are reported in Table 1.)

The relatively small sample size ($n = 40$) was by design: it provided a conservative test of the reliability of the elicited schemata content. As the power to detect an effect increases with sample size, evidence of a statistical effect based on a relatively small sample has likely avoided inclusion error that can result from capitalizing on sample size. Specifically, based on the analyses of Cohen (1988) of effect sizes, it was estimated that the power to detect a large effect using a sample size of 40 ($\alpha = 0.05$) was 70%, while the power to detect a medium effect was only 34% (Cohen, 1988). Therefore, attributes rated significant by subjects in a sample of this size likely reflect big differences in content between the two schemata — not small differences detected as a result of capitalizing on sample size. Using a larger sample would have increased the

power to detect smaller effects — but that was not the objective. The objective was to identify those attributes, and only those attributes, managers agree describe each role. Due to the restrictive nature of this test it is possible that some attributes may have been excluded from the consensual schemata (Type II error); this tradeoff, however, was preferable to the alternative of including attributes which were not generally agreed upon as decision criteria for the respective organizational roles (Type I error).

A between-subjects design was again used to eliminate carry-over effects; pairs of participants were randomly assigned to one of the two role conditions, ensuring an equal number of participants in each role condition. Consistent with Phase One, participants were informed that the purpose of the research was to examine the employee selection decision process. Each received materials identical to those used in the Phase One elicitations (i.e., company profile and job description corresponding to the assigned role condition), as well as the comprehensive list of attribute dimensions generated in Phase One (with the 154 attributes appearing in random order). Participants were instructed to: (a) assume the role of a manager responsible for making selection decisions for managerial positions in the described organization, (b) read the organizational and job information, (c) develop a mental image of the type of person who would be successful in the described position (in order to evoke the person-for-role schema), and (d) ''with that image in mind, indicate the degree [they believed] each attribute is typical of the type of person who would be a good fit to the job and organizational requirements'' specified.

3.2.2. Measures and analyses

The independent variable was the assigned role condition (i.e., intrapreneur or general administrative manager). Participant ratings of typicality (on a nine-point scale anchored by *very typical* [1], *somewhat typical* [3], *neither typical or atypical* [5], *somewhat atypical* [7], and *very atypical* [9]) served as dependent variables.

To address the research questions, analyses were conducted to empirically derive consensual schemata corresponding to each of the two organizational roles. This required identifying the attributes rated as more typical of one of the two roles vis-à-vis the other (distinguishing attributes), as well as those shared between the two roles (common attributes). The objective was to classify each of the 154 elicited attributes into its appropriate organizational role(s). As an example, ''customer-oriented'' was identified in the Phase One attribute elicitation. Consistent with the research questions, is it the consensus of the managers in Phase Two that ''customer-oriented'' is: (1) more characteristic of an intrapreneur than of a general administrative manager, (2) more characteristic of a general administrative manager than of an intrapreneur, (3) characteristic of both, or (4) characteristic of neither?

Toward this end, ANOVAs were performed on the managers' ratings of each attribute dimension. [5] The purpose of the analysis was to determine if subjects in the

[5] The assumption of independence (i.e., independence of groups and treatments) applies to the conditions (*intrapreneur* and *general administrative manager*) rather than the individual attributes themselves, and was met by random assignment in this study.

two groups (i.e., intrapreneur and general manager conditions) rated the attribute differently (indicating a distinguishing attribute) or similarly (indicating a common attribute or an attribute not included in either schema). Significant differences indicated distinguishing attributes; mean attribute ratings indicated the appropriate role. Specifically, a significant *F*-value indicated that subjects in one role condition perceived the attribute as ''typical'' while subjects in the other role condition perceived the same attribute as ''atypical'' — a distinguishing attribute by definition. The *F*-value, however, did not indicate with *which* of the two roles the attribute was associated. Evaluation of the mean attribute rating was thus required. A mean less than 5.0 (the neutral point, anchored by *neither typical or atypical*) was on the ''typical'' end of the scale; the cutoff for distinguishing attributes was therefore specified as a mean less than 5.0. Thus, all attributes perceived as typical of one role vis-à-vis the other (i.e., distinguishing attributes identified by significant *F*-value with mean less than 5.0) were included in the consensual schemata, regardless of their degree of typicality. For example, ''attempted outside venture in past'' was perceived as characteristic of intrapreneurs in contrast to general administrative managers, although not highly characteristic of intrapreneurs ($\bar{x} = 4.4$). Application of this decision rule preserved the richness of perceived differences between the two roles.

In contrast, the absence of significant differences indicated common attributes in the case of mean ratings toward the ''typical'' end of the scale. (In the case of mean ratings toward the ''atypical'' end of the scale, the attribute was considered not characteristic of either role and therefore not included in the consensual schemata.) A more conservative cutoff was used to identify common attributes: an overall mean across both role conditions less than or equal to 3.0 (anchored by *somewhat typical*). Application of this decision rule included in the consensual schemata only those attributes considered rather characteristic of both roles. Essentially, using a higher cutoff (e.g., 4.0 or 5.0) would have included attributes in the consensual schemata that were considered typical of both roles, but not very typical of either — adding essentially meaningless noise to the attribute lists. For example, subjects in both role conditions perceived ''35 to 45 years old'' as typical (rather than atypical), but not highly typical ($M = 4.75$); this attribute was therefore not included in the consensual schemata.

Finally, high inter-rater reliability (as indicated by the relatively low standard deviation across raters) was required for an attribute to be included in the consensual schemata. [6] Thus, to be included as a *distinguishing attribute*, the between-role ANOVA must have been significant, the applicable within-role mean rating of typicality must have been < 5.0, and the standard deviation (within the applicable role) must have been < 2.0; to be included as a *common attribute*, the between-role ANOVA must have been non-significant, the overall mean rating must have been ≤ 3.0, and the standard deviation (within *each* role) must have been < 2.0. The end product of these analyses

[6] Consistent with prior decision-making research (e.g., Bernardin and Beatty, 1984), a standard deviation of 2.0 (on a 9-point scale) was used as the criterion for rater agreement.

Table 2
Expertise and schemata content: comparisons of the number of attributes elicited for the role of intrapreneur from sample groups varying by level of expertise

Group	Intrapreneurs	Entrepreneurs	Venture capitals	Professional managers	M.B.A.s, no experience	Senior business undergrads.	Non-business undergrads.
Mean[a]	30.61	24.44	23.50	20.33	19.44	17.32	18.11
s.d.	14.14	11.25	6.95	4.68	7.15	4.12	5.49
n	18	16	16	18	18	19	18

	Comparison[b]	Value	S. Error	*t*[c]
	Intrapreneurs vs. less experienced participants	60.52	20.43	2.96**
	Entrepreneurs vs. less experienced participants	23.48	14.40	1.63*
	Venture capitalists vs. less experienced participants	18.80	7.41	2.54**
	Professional managers vs. less experienced participants	6.13	4.04	1.52*
	M.B.A.s, no experience vs. less experienced participants	3.46	3.73	0.93
	Senior business undergrads. vs. non-business undergrads.	−0.80	1.60	−0.50

[a] Number of attributes elicited.
[b] These comparisons represent a series of tests in which the first group was compared with all the remaining groups (i.e., the less experienced participants) and then eliminated from any further comparisons.
[c] One-tailed test.
* $p < 0.10$.
** $p < 0.01$.

Table 3
ANOVA results indicating attributes attributed to the role of intrapreneur: distinguishing attributes

Attribute[a]	F	$\bar{x}_i^b$	s.d.$_i$
creative/innovative	10.41***	1.40	0.68
ambitious/aggressive/a go-getter	20.40****	1.55	0.69
enthusiastic/excited	8.73***	1.55	0.76
resilient/able to deal with setbacks and rejection	8.26***	2.00	0.86
intuitive	5.74**	2.10	1.02
tenacious/persistent	6.09**	2.20	1.32
enterprising	11.86***	2.40	0.94
visionary	7.30***	2.40	1.27
bored with repetition/likes variety	8.98***	2.55	0.83
inspires others/inspirational	5.32*	2.60	0.99
assertive/take charge-type	6.63**	2.65	1.73
driven/sense of urgency/intense	9.90***	2.75	1.69
a hands-on manager/''rolled-up-sleeves''-type	4.20*	3.20	1.70
desire to own own business	23.60****	3.25	1.48
history of experimentation and discovery	7.57***	3.30	1.45
non-conformist/unconventional	11.31***	3.80	1.61
history of innovativeness/prior inventions	4.51*	4.00	1.65
prior business failure	9.84***	4.30	1.34
attempted outside venture in past	15.04****	4.40	1.35

[a] Criteria for distinguishing attributes: (a) significant ANOVA ($\alpha = 0.05$), (b) lower within-role mean indicates appropriate role; applicable within-role mean < 5.0, and (c) standard deviation (within applicable role) < 2.0.
[b] Means based on 9-point scale where 1 = *very typical* and 9 = *very atypical.*
F-value indicates level of significance of difference in mean typicality ratings for *intrapreneur* compared to *general administrative manager* role condition.
* $p < 0.05$.
** $p < 0.025$.
*** $p < 0.01$.
**** $p < 0.001$.

was consensual schemata content corresponding to the role of intrapreneur and general administrative manager as verified by actual organizational managers.

4. Results

4.1. Expertise and schemata content

The research hypothesis — that the schemata elicitations of participants more experienced with intrapreneurship would include a greater number of attributes than would the schemata elicitations of participants less experienced with intrapreneurship — was tested by a set of six mutually orthogonal a priori comparisons. [7] Analyses indicated support for the hypothesis among the experienced manager samples, but not among the

[7] For orthogonal comparisons planned in advance, contemporary practice favors the comparison as the conceptual unit for error rate (Klockars and Sax, 1986); reducing α to control for familywise error is unnecessary.

inexperienced student samples, as reported in Table 2. Specifically, in comparison to participants less experienced with intrapreneurship, intrapreneurs listed significantly more attributes ($t_{18.5} = 2.96$, $p < 0.01$), as did entrepreneurs ($t_{16.5} = 1.63$, $p < 0.10$), venture capitalists ($t_{19.3} = 2.54$, $p < 0.01$), and professional managers ($t_{34.6} = 1.52$, $p < 0.10$); no significant differences were found between inexperienced M.B.A.s and undergraduate students ($t_{24.9} = 0.93$, n.s.), or between senior business undergraduate students and non-business undergraduates ($t_{31.5} = -0.50$, n.s.).

4.2. Consensual schemata content

The research questions were posed to identify specific attributes organizational managers ascribe to the roles of intrapreneur and general administrative manager. Table 3 reports the *F*-value, mean rating, and standard deviation for each of the 19 attributes

Table 4
ANOVA results indicating attributes attributed to the role of general administrative manager: distinguishing attributes

Attribute[a]	*F*	$\bar{x}_i^{b}$	s.d.$_i$
well-respected/reputable	5.03*	2.00	1.17
well-organized	7.03**	2.10	0.72
bachelor's degree	5.28*	2.10	1.45
high ratings in prior performance evaluations	9.37***	2.15	1.18
prior management experience	5.20*	2.30	1.08
sound administrative skills	9.63***	2.45	1.45
project management experience	5.94**	2.50	1.19
professional/businesslike	4.62*	2.65	1.35
stable job history	14.34****	2.70	1.17
prior budgeting responsibility	6.81**	2.85	1.04
professional appearance	4.72*	2.85	1.23
experience with finance/accounting/statistics	15.18***	2.85	1.46
prior experience with the company	6.92**	3.15	1.53
experience in a large company	17.61****	3.45	1.19
career history indicates ''logical'' job changes	19.62****	3.70	1.98
prior staff (vs. line) experience	7.60***	3.80	1.32
''corporate''-type personality	19.30****	3.85	1.76
high G.P.A.	12.53****	3.95	1.05
security conscious	21.81****	4.00	1.48
prior personnel/HRM experience	9.36***	4.00	1.78
M.B.A. degree	4.33*	4.05	1.32
over 45 years old	7.57***	4.10	1.68
prior international experience	5.34*	4.30	1.69

[a] Criteria for distinguishing attributes: (a) significant ANOVA ($\alpha = 0.05$), (b) lower within-role mean indicates appropriate role; applicable within-role mean < 5.0, and (c) standard deviation (within applicable role) < 2.0.
[b] Means based on 9-point scale where 1 = *very typical* and 9 = *very atypical*.
F-value indicates level of significance of difference in mean typicality ratings for *intrapreneur* compared to *general administrative manager* role condition.
* $p < 0.05$.
** $p < 0.025$.
*** $p < 0.01$.
**** $p < 0.001$.

managers uniquely ascribed to the role of intrapreneur (distinguishing attributes corresponding to RQ1). Table 4 reports these statistics for the 23 attributes uniquely ascribed to the role of general administrative manager (distinguishing attributes corresponding to

Table 5
ANOVA results indicating attributes attributed to both the role of intrapreneur and the role of general administrative manager: common attributes

Attribute[a]	F	$\bar{x}_i^{b}$	s.d.$_i$
effective communication skills	0.30	1.52	0.75
self-confidence/self-esteem	0.14	1.78	1.17
positive attitude/optimistic	0.32	1.88	1.09
credible/trustworthy	0.15	1.95	0.88
achievement oriented	0.13	1.98	0.95
intelligent/smart	1.00	2.05	1.04
has initiative/a self-starter	0.16	2.05	1.13
responsible/dependable/reliable	0.27	2.08	1.00
ethical/honest/strong moral convictions	0.88	2.08	1.02
prior supervisory experience	0.09	2.10	1.13
industrious/self-motivated	1.00	2.15	0.95
good presentation skills	0.89	2.22	1.14
energetic/dynamic	0.13	2.25	1.44
skilled at organizing/coordinating	0.67	2.27	1.09
articulate/good oral communication skills	0.32	2.28	1.11
dedicated/committed	0.89	2.28	1.13
goal-oriented	0.68	2.32	1.14
mature	0.27	2.42	1.28
track record of accomplishment/hard work	0.14	2.55	1.06
resourceful/efficient	0.62	2.58	0.93
willing to take well-calculated risks	0.43	2.58	1.38
customer-oriented	0.80	2.65	1.23
flexible/able to improvise	0.06	2.65	1.37
not afraid to speak mind	0.06	2.65	1.35
sound interpersonal skills	0.84	2.70	1.59
responsive/able to adjust quickly	0.65	2.72	1.04
record of minimal absenteeism/turnover	0.27	2.73	1.28
record of high achievement	0.30	2.75	1.21
passion for success	0.26	2.75	1.39
approachable/open	0.66	2.75	1.43
up-to-date/knowledgeable re. industry trends	0.91	2.78	1.35
competitive/strong desire to win	0.17	2.80	1.38
outgoing/extroverted/not shy	0.31	2.82	1.39
experience in stressful situations	0.40	2.85	1.12
persuasive/ability to influence others	0.90	2.88	1.28
prior business success	1.00	2.95	1.52
prior experience generating funding	0.34	2.97	1.14

[a]Criteria for common attributes: (a) ANOVA ($\alpha = 0.05$) *not* significant, (b) overall mean (average rating across both roles) ≤ 3.0, and (c) standard deviation (within *each* role) < 2.0.
[b]Means based on 9-point scale where 1 = *very typical* and 9 = *very atypical.*
F-value indicates level of significance of difference in mean typicality ratings for *intrapreneur* compared to *general administrative manager* role condition.

RQ2). Note that these findings indicate a total of 42 distinguishing attributes among the 154 attribute dimensions: only eight would have been expected by chance. Finally, Table 5 reports *F*-values, mean ratings, and standard deviations for the 37 attributes managers ascribed to both roles — intrapreneur and general administrative manager (common attributes corresponding to RQ3).

5. Discussion

Contemporary business pressures have increased the need for organizations, particularly technology-based firms, to promote intrapreneurship (Martin, 1994; Stopford and Baden-Fuller, 1994; Bettis and Hitt, 1995; Hisrich and Peters, 1995; Jelinek and Litterer, 1995; Oden, 1997). Such efforts depend in great part on the ability of organizations to identify individuals suited to success in this unique organizational role. This study provides an initial step toward this objective. The purpose of this study was not to assess the relative validity of specific decision criteria, but to systematically delineate the attributes managers ascribe to successful intrapreneurs and in contrast, successful administrative managers. This data provides an empirically sound foundation for future prescriptive research.

The results of the Phase One schemata elicitations clearly indicate that individuals hold cognitive schemata corresponding to the organizational roles of intrapreneur and general administrative manager. Across the seven sample groups, participants expressed no difficulty specifying attributes they associated with the assigned role. [8] For example, attributes frequently elicited in the intrapreneurial role condition included innovative, industrious, bored with repetition, and prior business failure(s). In the managerial role condition, frequently elicited attributes included sound interpersonal skills, credibility, graduate or business education, and professionalism. In several cases, the actual verbalizations themselves alluded to person-for-role schemata, for example, ''rolled-up-sleeves-type'' and ''not an 'engineer'-type'' for the intrapreneur and ''corporate-type'' for the general administrative manager. These findings are consistent with previous research demonstrating that individuals hold schemata associated with specific organizational positions (e.g., Jaccoud et al., 1990).

Despite the high level of consistency regarding schemata content (as indicated by the consensual schemata verified in Phase Two — see Tables 3–5), some variability was evident across individuals: there was variability in both the number of attributes included in the individual elicitations (see Footnote 8) and in actual schemata content. Some attributes were mentioned infrequently, and some only once. For example, ''oldest child'' and ''a little too much of every desirable *and* undesirable trait'' were elicited in reference to the intrapreneur, and ''disadvantaged childhood'' and ''good handwriting''

[8] The number of attributes included in the elicitations ranged from seven to 62, with a mean of 21.

in reference to the general administrative manager. (Recall that the infrequency of elicitation of these attributes in Phase One resulted in their exclusion from the consensual schemata.) While some of these differences can be attributed to level of expertise (and will be discussed next), others likely reflect the idiosyncratic schemata of individual participants.

As predicted, the number of attributes included in the intrapreneurial elicitations did increase with level of expertise, but only among the non-student samples. One likely explanation for the lack of significant differences among the student samples is that these groups did not differ significantly by level of expertise. Support for this explanation is provided in the background information supplied by participants (see Table 1). As would be expected, the students indicated considerably lower levels of prior supervisory experience, participation in selection/hiring decisions, experience with entrepreneurs, and training in entrepreneurship than did the professionals. It is likely that participants in all three groups (specifically, non-business undergraduate students, senior business undergraduates, and inexperienced M.B.A.s) were essentially novices (Lord and Maher, 1990) regarding intrapreneurship — and management, for that matter — lacking enough role-specific experience to differentially impact schemata content.

Another possible explanation for the lack of significant differences among the student samples is suggested by the actual content of the elicitations. For the most part, elicitations from the student samples included a considerable number of vague verbalizations (for example, ''clean police record'' and ''the ability to pass all the interviews and assessments for the job'') in contrast to more job-specific verbalizations (such as ''project management experience'') from the professional samples. Further, the student elicitations frequently included multiple verbalizations of a single attribute dimension (such as ''reliable,'' ''dependable,'' ''meets deadlines,'' and ''punctual'' — all expressed by the same respondent), while the professional elicitations were generally more concise and non-redundant. Taken together, these patterns imply differences in the complexity of schemata between managerial and student groups. These findings are consistent with other research indicating substantive differences in the content of managerial and student decision-making models (Barr and Hitt, 1986; Olian, 1986).

It should be noted that a considerable number of attributes elicited by individual participants in Phase One would have significant legal implications if used as the basis for actual managerial decisions. Age, marital status, race, and gender were all explicitly verbalized in the Phase One elicitations. Of these, only age (i.e., ''over 45 years old'' and ''mature'') was included in the consensual schemata (see Tables 3–5) — either because of insufficient frequency of elicitation in Phase One, or non-significant differences by role and/or low typicality ratings in Phase Two.

The content of the consensual schemata associated with the roles of intrapreneur and general administrative manager is highly consistent with prior research differentiating these two types of managers (e.g., Pinchot, 1985; Bird, 1989; Hisrich and Peters, 1995). For example, as indicated in Table 3, managers in this study perceived intrapreneurs to be more creative and innovative, ambitious, aggressive, enthusiastic, and resilient than their managerial counterparts. In contrast, traditional general managers (see Table 4) were perceived as more reputable and organized, with more formal education and corporate experience than intrapreneurs. These perceptions are consistent with the

popular image of intrapreneurs as ''unconventional'' managers who acquire their training and experience independently through trial and error rather than through academic institutions and traditional corporate structures. Both types of managers, however, were perceived to possess effective communication skills, self-confidence, optimism, credibility, achievement-orientation, intelligence, and initiative (see Table 5). It may be asked if many of these traits would apply to individuals in practically any organizational role. Several of them may, such as ''responsible/dependable/reliable.'' But that can only be argued with regard to attributes listed in Table 5 (the common attributes). By design, it was the consensus of managers in this study that *every* attribute listed in Table 3 applies to intrapreneurs *but not to general administrative managers* (distinguishing attributes), and that every attribute listed in Table 4 applies to general managers, *not* intrapreneurs (distinguishing attributes). These findings have interesting implications for researchers, organizations, and aspiring intrapreneurs.

6. Implications and directions for future research

Successful technological innovation requires the effective combination of entrepreneurial and managerial skills (Maidique, 1980), and contemporary organizations are placing a higher priority on efforts to identify individuals suited to intrapreneurial roles (Martin, 1994; Oden, 1997). The attribute lists developed in this study contribute directly to knowledge regarding the selection and development of individuals for intrapreneurial positions. Although previous studies have investigated differences between general managers and intrapreneurs (Pinchot, 1985), this is the first study to systematically identify the attributes organizational decision-makers ascribe to these two roles. It is readily apparent that managers' shared conception of the successful intrapreneur differs significantly from their conception of the successful administrative manager. As organizations are increasingly concerned with recruiting, selecting, and promoting intrapreneurial behavior (Kanter, 1983; Pinchot, 1985; Cornwall and Perlman, 1990; Oden, 1997), a better understanding of the characteristics managers associate with intrapreneurial success should guide the investigation of selection criteria for this critical organizational role. Managers who continue to assume that intrapreneurs strictly self-select and that organizations cannot foster intrapreneurial behavior are missing critical opportunities for competitive advantage.

The results of this study present interesting implications for researchers. This study confirmed that individuals hold person-for-role schemata corresponding to specific organizational positions, suggesting the promise of applying social cognition theory to future selection research. This study focused exclusively on content aspects of selection decisions, specifically, the decision criteria managers ascribe to successful intrapreneurs (and general managers) and differences in decision criteria associated with intrapreneurial expertise. Applying a social cognition framework in future studies would allow researchers to simultaneously address both content and process aspects of employee selection decisions, furthering not only knowledge of the criteria used, but an understanding of how this information is processed. For example, it may be that some

types of candidate information are easier to process (such as biodata), and thus relied upon heavily, while other types (such as, possibly, personality) may be more difficult to process and relied on less by decision makers. Social cognition theory has been used to investigate content and process aspects of other types of managerial decisions including performance appraisal (Feldman, 1981; Borman, 1987) and employee discipline (Ball and Sims, 1991), and appears quite promising in the area of employee selection.

This study has specific implications for social cognition researchers. The consensual schemata content associated with each organizational role was derived in this study via a multi-sample approach in which attributes elicited from one sample (Phase One) were subsequently verified by another sample (Phase Two). Previous studies have generally elicited schemata content from a single sample and simply defined consensuality as the degree of attribute overlap evidenced across the individual elicitations (cf. Fiske and Taylor, 1984), thereby raising concerns regarding generalizability. The two-sample methodology introduced in the current study suggests the reliability of the consensual schemata content specified in Tables 3–5 and its generalizability to general managers similar to Phase Two participants. Future researchers should consider similar multi-sample approaches to verifying schemata content. Research focusing on sources of variance that explain similarities and differences in consensual schemata content within and across organizations is also warranted. For example, differences in consensual schemata content may explain why qualifications for the ''ideal candidate'' for a given position often vary across organizations, and even across units within the same organization (Rynes and Gerhart, 1990). Comparing elicited schemata content across groups may shed light on this phenomenon. From there, it is possible to move into an investigation of the reasons for these organizational, group, or individual differences in schemata content.

The decision criteria elicited from managers in this study were intentionally *not* restricted to valid selection criteria. This fact yielded a somewhat disturbing outcome — and an important message for researchers. Specifically, the individual (Phase One) elicitations included legally ''protected'' characteristics, including age, race, and gender. These are decision criteria actually verbalized by managers (and aspiring managers) responsible for selection decisions in their organizations! Granted, only age was verbalized with enough frequency to be included in the consensual schemata, but managers in this study still associated these protected characteristics with success in these two organizational roles. This finding could not have been evidenced had the study been restricted to pre-validated selection criteria. Focusing research on the criteria managers actually *use* (rather than limiting investigations to those criteria which have been previously validated) provides greater insight into what actually occurs in organizations, rather than what researchers believe occurs. Empirical results suggesting the predictive validity of specific decision criteria does not guarantee their use by managers, nor does empirical evidence indicating lack of validity preclude managers from basing decisions on invalid criteria. By investigating *actual* decision criteria, researchers avoid exclusion error and are better able to assist managers in improving organizational decisions.

Future research into the predictive validity of the attributes elicited in this study is clearly warranted. The objective of this research was to identify the criteria underlying

managers' selection decisions for intrapreneurs and general administrative managers — not to assess the validity of their decision criteria. The content of the consensual schemata identified in this study provides a sound empirical foundation for future validity studies. Researchers may also want to investigate likely differences in consensual schemata content across groups. Current findings regarding the relationship of expertise to schemata content suggest that future prescriptive research look to the criteria of more ''expert'' decision-makers. Although having managers verify schemata content accurately captures the criteria upon which these decisions are made in organizations (and thus serves the purpose of the current investigation), it is possible that these decisions could be improved by focusing on criteria verified by intrapreneurs, entrepreneurs, and/or venture capitalists. For example, organizational managers may disregard criteria that individuals with more intrapreneurial expertise weigh heavily, or consider other criteria that experts completely ignore. Subjecting the list of attributes elicited in Phase One to a sample of intrapreneurs for verification would yield a somewhat different — and likely more valid — list of characteristics associated with intrapreneurial success. It would also be interesting to explore differences in schemata content associated with individual difference variables: Are younger managers less influenced by traditional stereotypical images of intrapreneurs than are than older managers? Do individuals in technology-intense industries/organizations have more accurate perceptions of successful intrapreneurs than do individuals in lower-tech environments? The current study provides an empirical framework for such investigations.

One of the most valuable contributions of this study is the empirically-derived, unrestrained lists of attributes generated. Consistent with Feldman's (1981) call to investigate the cognitive structures underlying managerial decisions, this research aimed to preserve the richness, vividness, and granularity of subordinate levels of categorization. Future efforts to explore the schemata content associated with these two organizational roles may employ factor analysis or other hypothesis testing procedures.

This study provided evidence of substantial differences in schemata content elicited from managerial and student samples. This finding underscores cautions in the literature regarding the use of inexperienced students as surrogates for experienced managers in tasks involving content aspects of managerial decision-making (Barr and Hitt, 1986; Olian, 1986). Expertise differences, however, were not evidenced among the student samples in the current study. The lack of expertise differences across student groups may possibly be attributed to insufficient expertise differences across the student samples participating in this study. Additional investigation of expertise differences within student samples thus appears warranted. Finally, the purpose of this study was to delineate the characteristics managers ascribe to successful intrapreneurs. It did not attempt to determine the extent to which managers base actual selection decisions on these criteria, or how this information is processed. A policy-capturing study would prove helpful for ascertaining which attributes are actually used, and how they are weighted by managers selecting individuals for intrapreneurial roles.

The results of this study have direct implications for the practice of management. Differences in consensual schemata content corresponding to the roles of intrapreneur and general administrative manager indicate differences in managers' perceptions of

these two organizational roles. As stated above, the validity of these perceived differences should be investigated in future research, and appropriate selection procedures developed to evaluate intrapreneurial candidates along valid criteria. Of particular concern, the findings of the current study suggest that managers may ascribe attributes to successful intrapreneurs which would subject their organizations to liability if used as a basis for selection decisions (i.e., age, marital status, race, and gender were all explicitly verbalized in the Phase One elicitations; age was included in the Phase Two consensual schemata). This finding is consistent with prior research evidence of managers' use of ''job-irrelevant'' protected characteristics in employee selection decisions (Hitt and Barr, 1989). Appropriate training to alter the content of the person-for-role schemata so that selection decisions are based on valid predictors would thus be warranted. Techniques for changing schemata content have been suggested (see Fiske and Taylor, 1984) including: (a) increased experience (Fiske and Linville, 1980), (b) frame-of-reference training (Bernardin and Buckley, 1981), and (c) forcing decision-makers to counterargue the content of their cognitive schemata (Anderson, 1982). It has been demonstrated that by encouraging comparisons to more appropriate schemata, rating accuracy can actually be improved (Nathan and Alexander, 1985; Murphy and Balzer, 1986; Mount and Thompson, 1987; Lord and Maher, 1990). These approaches, along with earlier suggestions to focus decision-making on schemata content verified by experts, are consistent with the hypothesized findings of differences in schemata content associated with expertise. Involving ''experts'' (i.e., successful intrapreneurs) in the selection of individuals for intrapreneurial positions may greatly improve the quality of these decisions in organizations, and is becoming much more feasible as the number of formal intrapreneurial programs increases.

As the critical role of technology management becomes focal in organizations, more and more universities are developing graduate programs concentrating on the management of technology. The findings of this study can provide insight for program development. For example, validated attributes could guide the selection of students into technology management programs as well as curriculum development efforts designed to provide students with the skills and experiences correlated with intrapreneurial success.

Organizational managers should be aware that the selection of individuals to head-up internal corporate ventures is a complex, multi-stage, multi-criteria process. Managers should be encouraged to separate endorsement of a venture idea from selection of a venture manager, and should be aware of distinctions between the multiple internal entrepreneurial roles. As Oden (1997) has pointed out, the most obvious choice for venture leader may be the idea champion, but this is not always the best choice. Should the idea champion not possess the skills required for intrapreneurial success, another individual should be selected for this critical role.

In addition to facilitating selection decisions, findings of this study may lead to improvements in organizational training and development efforts. Corporate management needs to be made aware of the characteristics uniquely associated with intrapreneurship, and should be encouraged to develop an acceptance of these differences. Programs focusing on managerial flexibility, decision-making under uncertainty, and creativity-enhancement may prove beneficial. Training addressing the appropriate modi-

fication of key administrative processes (such as performance evaluation and reward) in order to foster intrapreneurial behavior is also important. The critical importance of training managers involved in the selection of intrapreneurs with regard to the use of valid, legally-defensible selection criteria has already been addressed. Of course, individual intrapreneurs should be provided opportunities to develop critical skills that they may be lacking, or corporate systems should be provided to fill the gaps. Finally, organizational development programs designed to foster a culture of innovation should be considered. An organizational culture that fosters innovation would promote individual intrapreneurial behavior, and recent empirical findings support the linkage between corporate innovation and firm-level performance (Franko, 1989; Geroski and Machin, 1994).

Aspiring intrapreneurs should be aware of the attributes organizational managers associate with intrapreneurial success. Unlike entrepreneurs who generally self-select, intrapreneurs are selected (or at least formally endorsed) by organizational managers. It follows that knowledge of the decision criteria used by managers responsible for selecting intrapreneurs can be utilized by aspiring intrapreneurs for self-assessment, to guide individual career development efforts, and as an aid in presenting their credentials and personal characteristics during the selection process — thereby improving the likelihood of obtaining an intrapreneurial position. Although this study did not investigate the validity of the elicited decision criteria, it did reveal that managers do not always base their decisions exclusively on valid criteria, a fact which aspiring intrapreneurs should take into consideration.

It must be stressed that this was an exploratory investigation of the decision criteria underlying the selection of individuals for intrapreneurial positions. The study is not without limitations. First, no attempt was made to assess the validity of the elicited criteria. Future research into the relative predictive validity of the elicited attributes is clearly needed. It is quite possible that many of the attributes commonly ascribed to intrapreneurs are invalid and unrelated to job performance. For example, these findings indicate that the traditional stereotype of the intrapreneur as a renegade lives on. Training techniques to alter decision-makers' invalid perceptions appear promising in this regard. Second, it is possible that some attributes may have been excluded from the attribute lists due to the restrictive nature of the tests used to define the consensual schemata content in Phase Two. This was deemed preferable, however, to the alternative of including attributes in the lists that were not agreed upon as decision criteria for these two organizational roles. Finally, this study did not attempt to determine the extent to which managers base actual selection decisions on these criteria, or how this information is processed. Future research should pursue these issues.

There remains much to be learned about the selection and development of individuals for intrapreneurial positions. This study has contributed to this area in four key respects. First, organizations *can* foster intrapreneurial behavior, and the effective selection of individuals for this key role is critical. This study employed a descriptive, process approach to capture the complex, multi-stage, multi-criteria phenomena involved in the evaluation of intrapreneurial ventures. Second, the attribute lists generated in this study provide a sound empirical foundation for future research in this area. Third, the results provide empirical evidence of the impact of expertise on decision making among

managers — not just between managers and students. Finally, this study demonstrates the promise of applying social cognition theory to the employee selection decision process. One of the major contributions of this project is that it investigated the actual decision criteria of organizational decision-makers. The study was clearly descriptive in nature. More of these descriptive kinds of investigations are needed in order to ground future prescriptive research in practical, real behavior.

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Appendix A. Company profile and job description corresponding to the role of intrapreneur

A.1. Organizational background

Viacorp is a large, established corporation headquartered in the eastern United States. It is a high technology firm, with businesses in diversified industries including information and communication systems, consumer products, industrial machinery, and environmental technology. Viacorp employs over 16,000 people in offices in 6 countries. Total consolidated sales for 1990 were US$820 million. Viacorp is organized on a divisional basis around strategic business units.

Viacorp operates an inside corporate entrepreneurship program called ‘‘Venture,’’ established to bring employees’ revenue-producing ideas to market. Employees are encouraged to submit product/service ideas to the Venture program staff which then evaluates the ideas for revenue-producing potential. After a product/service *idea* is accepted by the Venture program staff, the *employee* who submitted the idea is evaluated for ‘‘fit’’ to an inside entrepreneurial position through a series of interviews and assessments. Those selected are appointed to head up the resulting new business enterprises. They receive partial financial backing, and with the exception of ‘‘bottom line’’ reporting responsibilities to Viacorp corporate executives, operate these spin-off business as stand-alone strategic business units. In other words, these Viacorp employees essentially ‘‘leave’’ the firm to head up their own entrepreneurial ventures, with the partial financial backing of Viacorp. These positions are called intrapreneurial, that is, inside entrepreneurial positions.

A.2. Job description

Job Title: Intrapreneur
Reports To: Corporate V.P., Administration
Location: Open
Position Summary:

Responsible for taking new product/service ideas to market through the start-up, development, and management of a ''Venture'' enterprise. Has complete authority over the operation of the newly-established strategic business unit.

Position Functions:

1. Responsible for research and development of cutting edge products/services/technologies.
2. Responsible for the development of a business plan for the new venture.
3. Responsible for the creation of a new venture management team.
4. Responsible for securing external financing and marketing services.
5. Forecasts and responds to new or changed demands for products/services/technologies.
6. Monitors business indicators and implements necessary changes.
7. Responsible for the annual operating budget of the business unit and annual reporting to corporate headquarters.

Appendix B. Company profile and job description corresponding to the role of general administrative manager

B.1. Organizational background

Viacorp is a large, established corporation headquartered in the eastern United States. It is a high technology firm, with businesses in diversified industries including information and communication systems, consumer products, industrial machinery, and environmental technology. Viacorp employs over 16,000 people in offices in 6 countries. Total consolidated sales for 1990 were US$820 million. Viacorp is organized on a divisional basis around strategic business units.

Viacorp operates a succession planning program, established to aid in identifying and developing managerial talent within the corporation. Succession planning is a long-term human resource planning process in which potential replacements are identified for each managerial position within the company. The succession plan relies heavily on the tracking of executive ''fit'' to the performance requirements of the organization. The succession plan utilizes replacement charts which indicate the names of managers currently occupying each managerial position and the names of their likely replacements. The succession plan also includes a summary of the strengths and weaknesses of each employee included in the plan, along with suggestions for training and development to further prepare each employee for advancement.

B.2. Job description

Job Title: General Administrative Manager
Reports To: Corporate V.P., Administration
Location: Corporate Headquarters
Position Summary:

Responsible for all facets of management and production in an established strategic business unit.

Position Functions:

1. Responsible for the annual operating budget of the business unit.
2. Oversees human resource management functions for the business unit.
3. Plans and organizes activities to meet performance objectives of the business unit.
4. Monitors business indicators and coordinates responses with corporate headquarters.
5. Collects accountability data and responds to ongoing corporate reporting requirements.
6. Analyzes the effectiveness of operations and develops means of improving processes.
7. Coordinates cooperative activities with other general administrative managers within the corporation.

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