The current issue and full text archive of this journal is available at
www.emeraldinsight.com/2040-8269.htm

Facilitating the acquisition of strategic skills

The role of traditional and soft managerial skills

Diane H. Parente
Sam & Irene Black School of Business, Penn State Erie, The Behrend College, Erie, Pennsylvania, USA

John D. Stephan
School of Management, Marist College, Poughkeepsie, New York, USA, and

Randy C. Brown
Sam & Irene Black School of Business, Penn State Erie, The Behrend College, Erie, Pennsylvania, USA

Abstract

Purpose – The purpose of this paper is to investigate whether managers can acquire strategic skills using management education methods in lieu of experience. It demonstrates that experienced-based pedagogical methods can be effective in developing traditional skills or "hard" skills and "soft" skills such as interpersonal communication, which then facilitate the acquisition of strategic skills.

Design/methodology/approach – The paper uses data from questionnaires and achievement scores from capstone classes to determine whether exposure to an experiential technique called large-scale simulation can lead students to acquire traditional, soft and strategic managerial skill sets.

Findings – The results show that soft and traditional skills are complementary and together lead to better acquisition of strategic skills and also imply that mastering soft skills may enhance the mastery of traditional skills.

Research limitations/implications – A limitation of the research stems from the use of students as research subjects. While this limits generalizability, it is important to remember that many such students go on to be successful managers in large and small organizations, partly due to their educational background. Replicating these findings with graduate and executive students is required.

Practical implications – A key practical implication is that organizations may be able to effectively supplement their own experienced-based developmental efforts for their managerial personnel with course-based learning.

Originality/value – The paper's findings support an option for many firms, although this has not received much direct empirical support. Additionally, the results support the increasing emphasis placed on soft skills, suggesting that development of strategic skills may help managers grasp the bigger-picture implications.

Keywords United States of America, Universities, Business administration, Students, Managers, Skills, Strategic management, Strategy, Soft skills, Simulation, Management education

Paper type Research paper

Management Research Review
Vol. 35 No. 11, 2012
pp. 1004-1028

2040-8269
DOI 10.1108/01409171211276918

One of the assumptions of management development programs and management education programs, alike, is that all managers will benefit from acquiring some strategic knowledge, skills, and abilities (McManus, 1995; Summers and Summers, 1997).

It can be argued that, regardless of functional training and responsibilities, such strategic management skills will enhance a manager's contribution to the firm, by helping to enable him or her to manage in support of strategic business-level goals (Stumpf *et al.*, 1991).

In the business arena, too, effective managers are expected to possess strategic skills. Here, though, strategic skill acquisition is frequently accomplished through work experience that requires a considerable amount of time. It is not uncommon for managers to progress through multi-year, on-the-job management development programs, which involve ever-changing and ever-increasing responsibilities (McCall, 1998). Such programs may be formal or informal and are usually designed to provide managers with a variety of experiences in different functions, under different managers, and with different work groups. One of the underlying premises of this experience-based approach is that individual and group experience enhances management competence (Baldwin and Danielson, 1998; McCall, 1998).

There are several alternatives (or, in some cases, supplements) to long-term experiential management development programs. One is management education (Gómez-Mejía *et al.*, 2004) in the form of short-term specialized training programs or formal university degree or certificate programs (Boyatzis *et al.*, 1995). Well-known variants of this are the training programs that many firms offer to their managers (Malik and Venkataraman, 2011). However, because of the complexity involved in acquiring strategic management skills, the traditional classroom approach may be relatively ineffective (Yau and Sculli, 1990). And yet, real-world experience presents its own set of limitations. For example, as managers respond to the immediate needs of the firm as they arise, the opportunity to experience the full range of responsibilities and skill deployment may be limited (Garman *et al.*, 2006).

The complexity of skill development, regardless of how it is done, is readily evident when it is recognized that not only is there a set of traditional management skills (so-called "hard skills,", e.g. planning, decision-making, problem solving) that managers must possess, but that managers also need a set of "soft skills" (e.g. leadership, motivation, conflict resolution) in order to be effective (Halfhill and Nielsen, 2007; Lyons, 2007; McManus, 1995). In addition, recent trends have seen an increasing emphasis being placed on teams to tap into higher levels of diversity. These pressures in turn require managers to acquire experience and skills in working and managing in a team environment (Michalisin *et al.*, 2004a) and in effectively developing and utilizing more diverse workforces (Qin *et al.*, 2009; Roberson and Park, 2007).

This paper presents a model which examines several factors that influence the acquisition of strategic management skills. The proposed model examines the influence of individual experience and group experience on the acquisition of both traditional management skills and "soft" skills. The model also proposes that these skill sets are complementary and together help explain the acquisition of strategic knowledge, skills, and abilities. In so doing, our model departs from much existing research on managerial skills which rarely consider the acquisition of particular managerial skills as dependent on the prior acquisition of other managerial skills. Specifically, our model indicates that the acquisition of strategic skills may be facilitated by managers already possessing soft and hard skills. Most prior work has generally looked at the acquisition of specific skills independently of other skills or as a final holistic outcome comprised of all needed

managerial skills (Al-Madhoun and Analoui, 2002; Boyatzis and Saatcioglu, 2008; Cacioppe and Albrecht, 2000; Elmuti, 2004).

In the next section, we present the conceptual foundations for the model. Following that, we develop our research model and the propositions which were tested. Then, we discuss our research design and the methodology used to test the model. Results from the statistical analysis are then presented and discussed. Our model illustrates the impact of both individual and group experience on the acquisition of strategic skills, and the empirical evidence supports our propositions that there are two distinct components that facilitate the acquisition of strategic management skills.

Conceptual foundation

Managerial skills

All managers are called upon to make decisions under uncertainty (Ahmed and Sahinidis, 2003; Fowler, 2003; Lin and Li, 2004; Nwogugu, 2003; Sniezek and Buckley, 1993), and this reality has led to continuing research interest into how these decisions are best made (Nutt, 2011). Mintzberg (1973) and Katz (1974) were among the first to place such decision-making activity within the larger context of a set of managerial skills that effective managers were deemed to have acquired and mastered. These initial accounts regarding the role of managerial skills have formed the bases for significant subsequent research attention. One major stream has focused on determining the list of skills that managers need to be effective. Katz (1974) originally argued for a three-part skill set consisting of technical skills (those specific to a particular area or field), human skills (primarily dealing with interpersonal issues) and conceptual skills (those requiring analytic, diagnostic and integrative abilities). Subsequent work has largely built on this initial framework, sometimes by describing how skill groupings differ on other, relevant underlying dimensions (e.g. cognitive, emotional and social (Boyatzis and Saatcioglu, 2008)) or adding additional skills to the necessary set as the nature of managerial work has changed over the years (Debowski, 2002; Gilinsky and Robison, 2008). Nevertheless, this set of three basic managerial skills continues to constitute the foundation for most of the work that followed. Peterson and Van Fleet (2004), for example, describe technical, human and conceptual categories of skills mirroring Katz' initial formulation. Others (Berdrow and Evers, 2011; Evers *et al.*, 1998) discuss skill sets such as managing self, communicating, managing people and tasks, and mobilizing innovation and change, which can be mapped back to Katz' initial sets, as the essentials for individuals to succeed in organizations. Boyatzis *et al.* (2002) refer to self-management (intrapersonal, or technical, ability), relationship management (human skills) and cognitive/intellectual ability (conceptual skills).

Starting from Katz' three primary managerial skill sets, numerous studies have looked to itemize more fine-grained skills, which have been dubbed competencies (Evers *et al.*, 1998), that managers are thought to need to be effective, coining terms like "hard" and "soft" managerial skills as another way of depicting what managers must be capable of doing. Skills such as analysis, critical thinking and problem solving have been labeled so-called traditional management or "hard" skills (Michalisin *et al.*, 2004b; Poulet, 1988; Whetten and Cameron, 2007), growing out of a traditional list of managerial requirements which includes skills such as planning, organizing and controlling (Robbins and Hunsaker, 2000). Evers *et al.* (1998), in their exhaustive study of the efficacy of educational programs in producing graduates with the required skill set

sought by today's organizations, point to, among others, planning and organizing, problem solving skills, and coordinating as key components of their larger skill set called "managing tasks and people," their analog of traditional management skills.

Juxtaposed against these traditional or hard skills are managerial responsibilities such as the motivation of subordinates and influencing people (Castelli, 2008) – what Katz (1974) referred to as human skills. These people-management responsibilities are seen as requiring a different set of managerial skills – so-called "soft" skills. Soft skills include providing clear communication and meaningful feedback, resolving and/or managing conflicts, understanding human behavior in group settings (Halfhill and Nielsen, 2007; Rapert *et al.*, 2002; Salton, 2000; Stevens and Campion, 1994), mentoring subordinates (Bryant, 2005), developing cohesive top management teams which have been shown to yield better firm performance (Michalisin *et al.*, 2004a; Schenkel and Garrison, 2009; Schjoedt and Kraus, 2009) and facilitating the sharing of information and knowledge, which is increasingly important in this age of competitive advantage (Chen and Barnes, 2006; Nik *et al.*, 2009). Evers *et al.* (1998), for example, specifically note classic softer skills such as listening and working well with others as parts of their "communication" skill set.

This distinction between hard and soft skills is frequently echoed in management literature (Daft, 2007). For example, the well-known 7-S/McKinsey framework, which traces its roots back to Peters and Waterman (1982) delineates between hard skills (strategy-, structure- and systems-related skills) and soft skills such as shared values and managerial style. A key distinction between hard and soft skills is that hard skills tend to be easier to identify and influence and are more tangible. Softer skills are more ambiguous and are harder to identify or assess via standard questionnaire-type instruments (Mullen, 1997). Yet these frameworks see each set as a necessary complement to the other.

Acquiring a high level of both traditional skills and soft skills has been seen as enabling a manager to be more effective. Most importantly, the acquisition and integration of these two skills sets may be a necessary precursor that helps a manager to acquire other skills. Katz (1974) alluded to this when he described conceptual skills as drawing on both technical and human skills. Peterson and Van Fleet (2004) discuss "administrative" skills which have an integrative function – that is, they denote the ability of managers to combine other skills, information and knowledge to get things done. Others have referred to these as "strategic skills" which are characterized by the ability to integrate information from diverse sources (Kachra and Schnietz, 2008). Strategic skills can be traced to those first identified by Stumpf and Mullen (1991), who identified a core set of six such skills which they suggested were instrumental for managerial effectiveness. These were: market knowledge, managing conflict, identifying and overcoming environmental threats, developing and enhancing organizational strengths, entrepreneurial activity (including assessing and managing the relationship between the firm and its environment and articulating a motivating vision for the organization) and handling adversity. Consistent with the work of Stumpf and Mullen (1991), recent research suggests that these strategic skills include the integration of functional knowledge, the ability to implement ideas, and understanding and managing complex interrelationships in organizations, industries, and economies (Kachra and Schnietz, 2008; Liedtka, 1998a, b; Wolfe and Chanin, 1993).

Skill acquisition

A second stream of research regarding managerial skills focuses on determining the mechanisms best suited to enable managers (or management students) to acquire, or learn, the necessary skills. Kolb (1984) sketched out four mechanisms that describe how individuals learn. These are: concrete experience, reflective observation, abstract conceptualization, and active experimentation. Each is a combination of one element from two primary dimensions: doing vs thinking and concrete vs abstract exposure. These have been generally translated into the choice between learning via the classroom (which falls at the thinking and abstract ends of the dimensions) and on-the-job training (falling at the doing and concrete ends). Whetten and Clark (1996) described how, within educational settings, experiential approaches can provide some of the "doing" aspect associated with on-the-job training. This has been echoed by others. For example, Dickinson (2000) describes how internships can provide hands-on exposure to critical managerial experiences that might not be possible in the classroom. Elmuti (2004) states that business games or simulations can be used within class settings thus demonstrating a more active approach.

The typical path for managers to develop the complete range of management skills is through work experience. Traditionally, it has also been assumed that in order to acquire strategic management skills, work experience must be significant, extensive, and at high levels within organizations (Liedtka, 1998a; McCall, 1998). Such a path will expose managers to a diverse set of circumstances and challenges, providing opportunities to acquire necessary strategic managerial skills through such experience. Figure 1 shows the conceptual model underlying long-term experiential management development programs. Through a combination of individual and group experiences, managers acquire traditional management skills and soft management skills, both of which then form the basis on which the acquisition of strategic skills is accomplished.

Post-secondary school management education is often seen as an effective alternative to work experience, with the intention of accelerating the learning process, often using case studies as a primary learning tool (Lyons, 2008; Whetten and Clark, 1996). The use of cases allows students to be exposed to a great variety of management situations, and to learn traditional management skills by examining these situations and analyzing the decisions made by real managers (Kachra and Schnietz, 2008). Many cases also provide the opportunity to examine real outcomes and explore the consequences of actual management decisions (Li and Baillie, 1993).

There are, however, significant limitations associated with the traditional classroom approach, even if cases are used. These drawbacks can reduce the opportunities for

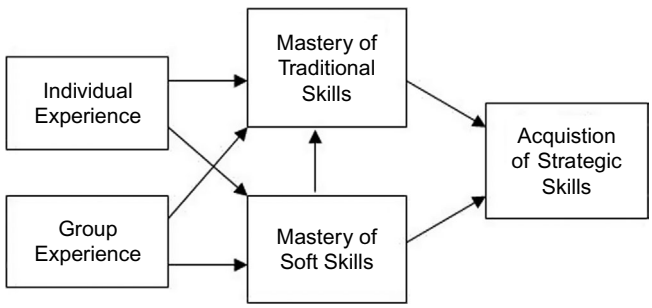

Figure 1.
Conceptual model

students to acquire some of the key skills necessary for good management. For example, case studies present students with a particular set of facts and circumstances asking the question, "What should management do?" While this certainly emphasizes analytical skills and decision-making skills under uncertainty (traditional management skills), each case essentially presents a snapshot of a company at one point in time – a static scenario. Cases are not dynamic and constantly changing, unlike management situations encountered in real-time and in the real-world. Students often assume that all needed information is retrievable when, in fact, problems in a work environment are ill-defined and unstructured. Often case analyses do not allow students to make decisions and explore the consequences of those decisions. The level of involvement, while greater than lecture-based approaches, still lags behind that of on-the-job experience.

Experiential approaches have emerged to deal with some of the limitations of the traditional classroom approach. These are typically a hybridization of traditional education methods and real-world work experience – providing participants in an educational setting with an idealized real-world situation that permits students to experience, reflect, think about and act in the experiential context (Sronce and Arendt, 2009) which in turn facilitates the development of metacognitive skills and the ability to apply concepts and skills effectively (Boggs *et al.*, 2007). For example, Alie *et al.* (1998) describe how embedding students in a simulated organization can help them acquire a feel for real-world teamwork and the specific responsibilities of a manager. Since a simulated management experience immerses the student in a dynamic environment, there may be greater opportunity for the student to acquire traditional management skills through experiential learning (Boggs *et al.*, 2007; Teach and Govahi, 1993). Simulation decisions can be made iteratively, if the simulation models events over time. In this case, each round of decision-making is dependent on the outcome of the prior processing period. Making decisions in this dynamic environment requires continuous analyses and decision-making, and also allows students to evaluate the merits and consequences of their ongoing decisions.

If designed properly, simulated/experiential methods may provide opportunities for students to acquire "soft" management skills as well. In a simulated teamwork environment, students can experience group processes and often have the opportunity to experiment with new behaviors in a team setting (Teach and Govahi, 1993). In addition, team environments can highlight the need for better communication and team cohesion to improve decision-making processes (Aquino and Reed, 1998). Such improved decision-making has been shown to lead to better performance of teams and firms (Aquino and Reed, 1998; Michalisin *et al.*, 2004a). Thus, a well structured experiential environment can build participants' skill sets over time in much the same way as real-world work experiences do (Elmuti, 2004; Whetten and Clark, 1996).

What prior research has not addressed, though, is whether and how the acquisition of particular skill sets affects the ability of individuals to more effectively acquire other needed managerial skills. However, some have argued that the acquisition of soft skills assists in the development of traditional skills (Muir, 2004). Similarly, in the case of strategic skill acquisition, there may be an advantage for individuals to have acquired soft and traditional managerial skills prior to attempting to acquire strategic skills.

Strategic skills, as previously described, put managers in a long-term perspective. They are also complex and fraught with ambiguity as they involve organizational-wide issues that span functional domains (Kachra and Schnietz, 2008; Liedtka, 1998b;

Mintzberg *et al.*, 1976; Stumpf and Mullen, 1991). In addition, they require a comprehensive grasp of both internal and external environments of the organization (Hambrick and Fredrickson, 2001). Consequently, they demand that information be obtained and analyzed from a wide array of sources (Fredrickson and Mitchell, 1984).

Because of these factors, managers face a number of challenges regarding strategic issues that can be addressed by being grounded in traditional and soft skills. First, having a solid understanding of the operations of the various functional areas in an organization seems to be a logical precursor to being able to design organizational strategies that effectively and efficiently utilize the functional expertise of the organization. While top-level managers typically delegate operational details to subordinates, the extent to which they are able to understand the functional contexts within which strategic moves will occur can enhance the success of strategic initiatives they devise. In this regard, a mastery of traditional skills, especially those related to the details of the various functional areas of the business, will better enable managers to devise strategic plans that play to the organization's strengths and improve (or avoid) weaknesses. For this to occur, managers must be willing and able to share this information (or to encourage others to share it) within the strategic decision-making process (Lant and Hewlin, 2002), reinforcing the critical role of soft skills as facilitating the exploitation of information gained through traditional skills.

The mastery of soft skills will serve to help managers uncover the necessary information they need from both inside and outside the organization through a manager's ability to work effectively with others in the organization. Most managers are not going to possess all of the information needed to plot a strategic course forward, nor are they going to understand all of the information they do possess. Being able to effectively motivate organizational members to contribute critical information will fill in some of these gaps as will devising decision-making processes that increase the likelihood that more information is considered (Aquino and Reed, 1998; Eylon and Allison, 2002; Schweiger *et al.*, 1986). Sharing information and encouraging joint problem solving is also likely to minimize the likelihood of strategic blind spots cropping up (Lant and Hewlin, 2002; Zajac and Bazerman, 1991). Chen and Barnes (2006) have shown that a variety of leadership traits is directly related to the degree of knowledge sharing, again suggesting a link between soft skills and strategic skills. The openness to the opinions and viewpoints of others through knowledge sharing also helps facilitate a manager's understanding of the intricacies of strategic skills themselves. Soft skills also help managers facilitate group interactions and the development of group cohesion (Michalisin *et al.*, 2004a) which helps managers implement strategic plans as it permits them to better build commitment throughout the organization. These are just a few examples of the way in which soft, human-relation skills can enhance the effective acquisition and utilization of strategic skills. As managers acquire these skills, possessing these precursors is thus likely to allow them to understand the key roles they play in strategic planning and also permit them to better grasp the nature of strategic skills as well.

From the above, it can be inferred that the acquisition of traditional and soft skills makes managers better able to acquire and exploit strategic skills. Thus, the key question this study seeks to answer is whether traditional and soft managerial skills help in the acquisition of strategic skills by managers.

Research model

The research model we developed depicts this temporal ordering of skill acquisition by managers. Since a primary goal of long-term experiential management development programs is the development of high-level strategic skills by participants, determining whether there are necessary precursors to this mastery is important. Both work experience and post-secondary management education seem to embody a process which establishes a basic skill set containing traditional management and soft skills upon which strategic skills are built. Our model reflects this ordering. Our conceptual model shows that both of these skills are necessary for the acquisition of strategic management skills. We also note that the *Mastery of Soft Skills* will influence the *Mastery of Traditional Skills*. In addition, the model suggests that both individual and group experiences contribute to both traditional and soft skill mastery. As previously noted, prior individual and group experiences help foster the acquisition of managerial skills and the building of managerial competence. Baldwin and Danielson (1998) describe how such experiences can help managers identify new challenges their businesses face, while also noting that they can serve to blind managers to the way these new challenges differ from those in the past. From a group perspective, they note the necessity for managers to be able to create teams of change agents and to develop effective firm-wide networks of resources on which they can draw when needed. Our model is consistent with this idea as it suggests that the experiences of the participants throughout a management development program will influence skill acquisition. Accordingly, the following four propositions will be tested:

P1. The acquisition of strategic skills is a function of and requires the mastery of both traditional and soft management skills.

P2. The mastery of traditional skills is a function of mastery of soft skills.

P3. The mastery of traditional skills is a function of both group experiences and individual experiences.

P4. The mastery of soft skills is a function of both group experiences and individual experiences.

In addition, it must also be recognized that the expectations of individuals and managers prior to entering a management development program is also likely to influence their skill acquisition throughout the program. These observations lead to the following propositions:

P5. Mastery of traditional skills is a function of the expectation of traditional skills acquisition.

P6. Realized individual experience is a function of expectation of individual experience.

P7. Mastery of soft skills is a function of expectation of soft skills acquisition.

Taken together, our seven propositions yield the research model shown in Figure 2.

Research design and methods

We tested our research model using a simulated management experience which emphasized active, experiential learning in a team work environment. Subjects for the

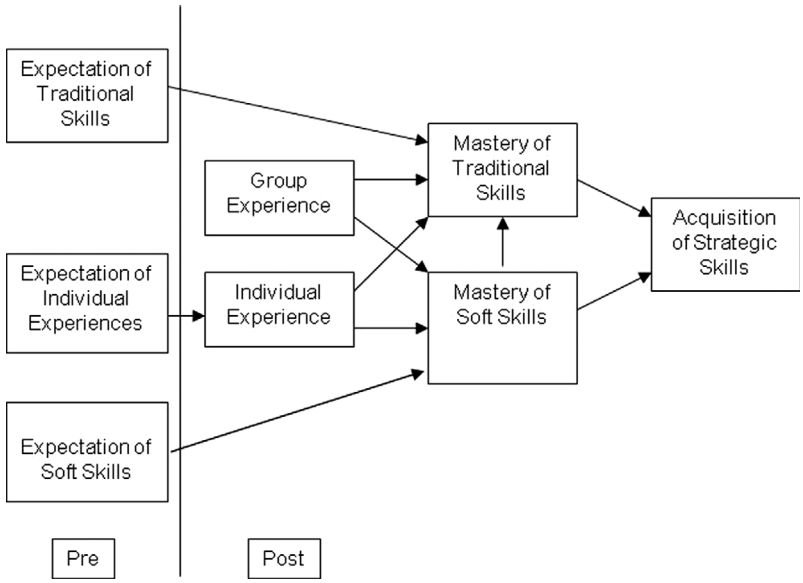

Figure 2.
Research model

study were 419 graduating seniors in the capstone course in business administration at two US universities over a one academic year period (2004-2005). The course was designed to simulate a management experience and emphasized active, experiential learning. A large-scale simulation approach was used. This approach is an intricate combination of theoretical concepts, role play, and the use of a computer business simulation (Parente, 1995).

Specifically, the course simulated a team work environment, and each student assumed the role of a particular functional manager or the CEO in his/her firm. Each team/firm competed against the other teams/firms in the class in a multi-industry, multi-period, computer simulation. By competing in the computer simulation, all teams were required to make managerial decisions in a dynamic, competitive environment. The simulated environment was not constrained by a fixed market size but rather was a function of the simulation competition and decision-making in each industry as well as the simulation economy. In addition, each team was required to produce a number of class projects, called deliverables, which were relevant to a variety of different stakeholders of their firm (e.g. annual report, operations plan, and corporate strategic plan). Each deliverable was structured in such a way as to require each group to work together as a team in its preparation. The simulated management environment was continued throughout the 15-week period of the course. Data were collected over multiple semesters.

Participants in the study included 12 course sections, 86 teams, and three different professors at two public universities in the USA. About 59 percent of the sample was male and 83 percent was white with the balance Asian, African-American, and Hispanic. Nearly a quarter of the sample was non-traditional students while 83 percent had less than five years of work experience. The distribution of academic majors of the students indicates that no one functional area dominated (accounting = 29 percent, marketing = 27 percent, management = 20 percent, finance = 16 percent,

management information systems = 8 percent) although MIS was the least represented.

Students were placed on teams via an industry-like practice of resume presentation, interview, and hiring by CEOs. A similar practice was used for hiring CEOs, who were interviewed and selected by former participants prior to the interview sessions for the remainder of the classes.

Student participants were surveyed within one week of being placed on a team using an instrument that contained measures of students' expectations for the course and their academic and occupational background. This initial survey gathered information on a priori ideas of the students on the objectives and expectations for the upcoming experience, based on very little direct experience. At most, the students would have had access to the syllabus and to information from students who had taken the course previously. A post-experience survey was conducted to assess the extent of the acquisition of strategic management skills, and the mastery of traditional and soft managerial skills, as well as the students' perceptions of their actual experiences in the course.

Model constructs

From the pre-experience surveys, we used measures of participants' expectations of individual and group experiences to reflect the a priori portion of the model (Figure 2). From the post-experience surveys, we measured, *ex post*, participants' assessment of their mastery of various management skills. The eight constructs identified in Figure 2 are discussed in the following sections. The correlation matrix for all model constructs is shown in Table I.

Dependent variable

The dependent variable in this study is the *Acquisition of Strategic Skills*. It was assessed on the post-experience questionnaire. Five items were developed to assess the degree to which students felt that they had acquired the typical skills associated with strategic management. These included the ability to translate goals into actions, understand the way an organization's subsystems needed to integrate to achieve organizational effectiveness, the ability to integrate functional knowledge, the ability to make analytical decisions, and the ability to make decisions based on incomplete information. They were all measured on a five-point Likert scale to assess whether the student felt that she/he had acquired the particular skill during the class (scale end points were: "1 – strongly disagree" and "5 – strongly agree").

Soft skills

The *Mastery of Soft Skills* construct is composed of items that describe the acquisition of soft, i.e. people-oriented, management skills. These were measured on a five-point Likert scale anchored by "1 – strongly disagree" and "5 – strongly agree" indicating whether the student felt they had acquired these skills or not. There were four items assessed which built on previous work identifying particular soft skills (Halfhill and Nielsen, 2007). These included capturing the student's ability to work as a member of a management team, communicate with peers, work in a group environment and participate in group problem solving. The degree to which students might have expected to develop or enhance these skills during the course may have affected the degree to which the characteristics of the large-scale simulation approach were

Table I.
Correlation matrix

Variable	No. items	α	Mean	SD	1	2	3	4	5	6	7	8	9
1. Expectation of soft skills	3	0.78	0.00	1.00									
2. Expectation of individual experience	3	0.76	0.00	1.00	0.47***								
3. Expectation of traditional skills	5	0.88	0.00	1.00	0.57***	0.58***							
4. Group cohesion	3	0.90	0.00	1.00	0.16**	−0.04	0.11*						
5. Group formalization	4	0.89	0.00	1.00	−0.27***	−0.14**	−0.19***	−0.59***					
6. Realization of individual experience	3	0.72	0.00	1.00	0.22***	0.47***	0.33***	−0.04	−0.08				
7. Mastery of soft skills	4	0.94	0.00	1.00	−0.25***	−0.26***	−0.32***	−0.18**	−0.32***	−0.22***			
8. Mastery of traditional skills	3	0.91	0.00	1.00	0.4**	0.26***	0.26***	0.06	−0.19***	0.25***	−0.59***		
9. Acquisition of strategic skills	6	0.93	0.00	1.00	−0.07	−0.22***	−0.26***	−0.29***	−0.11*	0.28***	−0.30***	−0.69***	−0.73***

Note: Significant at: $^{*}p < 0.05$, $^{**}p < 0.01$ and $^{***}p < 0.001$

effective in helping the student to acquire and/or improve such skills. To capture this, the measure *Expectation of Soft Skills* was assessed on the pre-experience survey. Three items were assessed and included the degree to which the student expected to improve his/her ability to provide feedback to others, learn to resolve conflicts and increase her/his ability to communicate clearly and effectively.

Hard (traditional) skills

Traditional skills are represented in this study by two constructs. The *Mastery of Traditional Skills* was assessed by three items on the post-experience questionnaire that captured the degree to which the student felt she/he had improved his/her ability to blend real-world business experience with class theory, become more aware of the types of problems real-world businesses face and broadened her/his understanding of day-to-day business problems as a result of the course experience. Similar to what was done for our soft skills measure, the student's expectation of how the course experience would affect their mastery of traditional skills (*Expectation of Traditional Skills*) was assessed on the pre-experience survey. This expectation was measured by five items including the degree to which the student thought the class experience would increase her/his ability to identify problems, integrate functional knowledge, increase business planning competence, increase confidence in solving practical problems and learn how to make decisions on incomplete information. These were assessed using six-point Likert scale questions anchored by "1 – not at all" and "6 – very much."

Individual experience

Individual experience in this study is represented by two constructs. The *Realization of Individual Experience* was assessed by three items on the post-experience survey. These items asked participants to evaluate the experience on the extent to which the class helped them to clarify career interests, become more introspective about themselves (understand themselves better), and experiment with new behaviors. These were assessed with six-point Likert scales anchored by "1 – not at all" and "6 – very much".

Expectation of Individual Experience represents the respondents' anticipation that they would gain the individual experiences identified and measured by the pre-experience survey. These items were the same three items measured by the post-experience survey.

Group experience

Two constructs were used to assess participants' perceptions on key group-related processes that have been previously tied to overall group experiences and outcomes in classroom experiences using simulations (Gosenpud and Miesing, 1992). These were taken from Gosenpud and Miesing's (1992) study that examined the impact of group cohesion and formalization (among other factors) on simulation performance outcomes. For group cohesion, participants were asked on the post-experience questionnaire the extent to which:

- their group relations were friendly;
- their group relations were harmonious; and
- their group had an open atmosphere.

These were assessed on a five-point Likert scale with end points of "1 – strongly disagree" and "5 – strongly agree." A high score indicates that members of the group were supportive and felt that all could participate in the operation of the group.

Group Formalization was measured using four items taken from Gosenpud and Miesing (1992) that measured the extent to which participants felt their team:

(1) established strong leadership;
(2) was organized;
(3) was methodical; and
(4) was purposeful.

These were assessed on a five-point Likert scale with end points of "1 – strongly disagree" and "5 – strongly agree." Purposeful, organized and methodical groups would score high on this scale, as would a group that had good leadership, allocation of tasks, and a formalized decision-making process.

Analytical methods and results

Table I contains the correlation matrix and descriptive statistics for all measures. The constructs were all normalized and thus show a mean of 0.00 and a standard deviation of 1.00. All correlations of 0.11 or more are significant at the 0.05 level.

Constructs

We used structural equation methods (SEM) to test our model. Specifically, we first assessed the degree to which each of the observed variables (our survey measures) was significantly related to its underlying (latent) construct in the measurement model. Results of these analyses showed that the components of each underlying construct loaded on the construct as expected. The standardized loading factors for the items on the constructs are shown in Table II. As is evident, all the individual item loadings were high, and all (except the fixed item for each construct) were significant at the $p < 0.001$ level.

Measurement model

We then tested the measurement model for goodness of fit. The model fit indices are also reported in Table II. All of the indices exceeded typically accepted standards for goodness of fit. Three measures are noteworthy. First the χ^2 goodness of fit measure was significant at the $p = 0.001$ level. Second, the root mean square error of approximation (RMSEA) of 0.038 was below the ideal level of 0.05 (Brown and Cudeck, 1993), demonstrating good model fit. Third, the comparative fit index (CFI) (Bentler, 1990) is considered to be a robust indicator of model fit, and it is recommended that the value be above 0.90. Our model had a CFI of 0.969, providing evidence of good model fit.

Structural model

Results of the structural model are shown in Figure 3. All predicted paths are shown, and those paths that were significant ($p < 0.001$) are shown as a solid line, while those paths that were not significant are shown as a dotted line. The correlations between each of the pre-experience constructs are shown in Figure 3, as well as the R^2 value for each predicted variable in the model. The model fit indices are listed below the structural

Construct and items	Standardized parameter estimate
Expectation of soft skills	
Expect to increase ability to provide appropriate feedback	0.73 (fixed)
Expect to learn to help people resolve conflicts	0.72***
Expect to increase ability to communicate clearly and effectively	0.77***
Expectation of individual experience	
Expect to experiment with new behavior	0.72***
Expect to clarify career interests	0.64 (fixed)
Expect to become more introspective about self	0.81***
Expectation of traditional skills	
Expect to gain confidence in ability to solve practical problems	0.77***
Expect to increase competence for planning business operations	0.71***
Expect to integrate learning from functional areas	0.67***
Expect to increase ability to identify problems	0.76 (fixed)
Expect to learn how to make decisions with incomplete information	0.67***
Group cohesion	
Open atmosphere	0.86 (fixed)
Harmonious relations	0.86***
Friendly relations	0.88***
Group formalization	
Strong leadership	0.71***
Organization	0.88***
Methods	0.85***
Purpose/goals	0.84 (fixed)
Realization of individual experience	
Experimented with new behavior	0.70 (fixed)
Clarified career interests	0.58***
Became more introspective about self	0.80***
Mastery of traditional skills	
Understanding of day-to-day business problems	0.91***
Awareness of real-world business problems	0.92***
Ability to integrate business reality with classroom theory	0.82 (fixed)
Mastery of soft skills	
Ability to communicate with peers	0.90 (fixed)
Ability to work in group environment	0.91***
Ability to work as part of management team	0.91***
Ability to participate in group problem solving	0.82***
Acquisition of strategic skills	
Ability to translate goals into actions	0.88 (fixed)
Understand need to integrate organization subsystems for effectiveness	0.82***
Understand the importance of goal setting	0.83***
Ability to make decisions with incomplete information	0.83***
Ability to integrate functional knowledge	0.80***
Ability to think analytically in decision-making	0.84***

Notes: Significant at: $^{*}p < 0.05$, $^{**}p < 0.01$ and $^{***}p < 0.001$; model fit indices: goodness of fit (χ^2) with 491 degrees of freedom = 789.47 ($p = 0.000$); root mean square error of approximation (RMSEA) = 0.038; root mean square residual (RMR) = 0.069; goodness of fit index (GFI) = 0.901; adjusted goodness of fit index (AGFI) = 0.881; comparative fit index (CFI) = 0.969

Table II.
Constructs and items

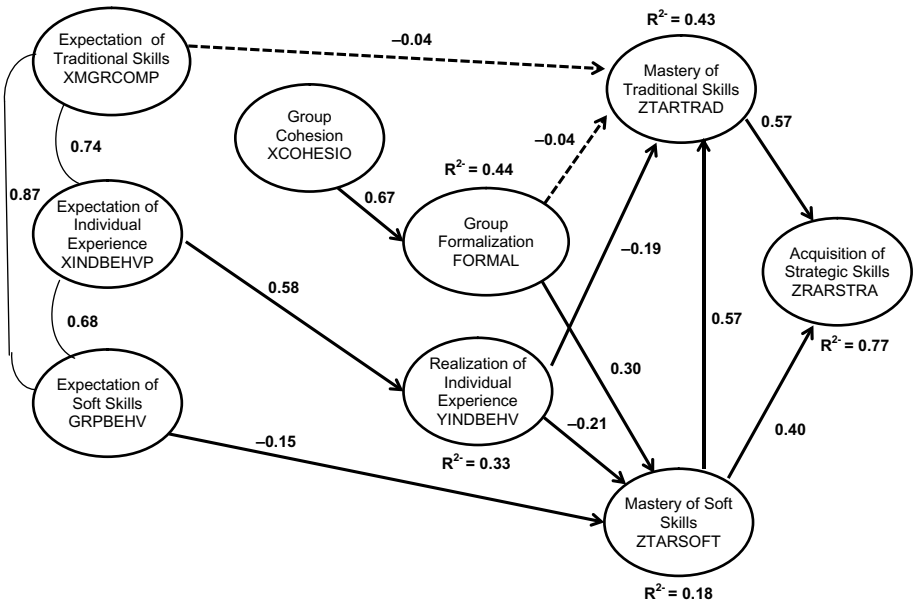

Figure 3.
Structural model

model in Figure 3. As was the case for the measurement model, all of the model fit indices exceeded typically accepted standards for goodness of fit.

P1 linked the acquisition of strategic skills to the prior mastery of traditional and soft skills. This proposition was tested by inspection of the structural model. As shown in Figure 3, *Mastery of Traditional Skills* had a direct effect on the dependent variable ($b = 0.57$, $p < 0.001$) as did *Mastery of Soft Skills* ($b = 0.40$, $p < 0.001$). In addition, *Mastery of Soft Skills* affected the *Acquisition of Strategic Skills* indirectly through *Mastery of Traditional Skills* ($b = 0.57$, $p < 0.001$).

These results provide substantial support for *P1* and *P2*. The model proposed direct relationships between both *Mastery of Traditional Skills* and *Mastery of Soft Skills* and the *Acquisition of Strategic Skills,* both of which emerged in our analysis. The fact that the model also shows that *Mastery of Soft Skills* predicts *Mastery of Traditional Skills* which, in turn, predicts *Acquisition of Strategic Skills* may indicate that for individuals, mastering soft skills represents a necessary precursor to mastering both the acquisition of strategic skills and traditional managerial skills. That is, without the ability to interact effectively with others on multiple dimensions, individuals have difficulty in developing a wide range of managerial skills in organizational and educational settings.

P3 and *P4* focused on the link between individual and group experiences and the subsequent mastery of traditional skills and soft skills. Relative to *P3*, results in Figure 3 show that group experiences do not predict *Mastery of Traditional Skills* (*Group Formalization* to *Mastery of Traditional Skills* path: $b = -0.04$, not significant), and *Realization of Individual Experience* is negatively predictive of *Mastery of Traditional Skills* ($b = -0.19$, $p < 0.001$) – contrary to our proposition.

P4 was partially supported by the structural model which shows that *Group Cohesion* predicts *Group Formalization* ($b = 0.67$, $p < 0.001$), which in turn predicts

Mastery of Soft Skills (b = 0.30, $p < 0.001$). These results indicate that when participants felt that their teams were more cohesive, they were also more formalized. This may indicate that more cohesive groups were better able to institute formal processes in their teams (e.g. procedures, methods, purposes) than less-cohesive groups. This greater formalization seemed to better facilitate participants' mastery of soft skills (and indeed may represent demonstration of this fact).

However, Realization of Individual Experience is negatively predictive of Mastery of Soft Skills (b = −0.21, p < 0.001), contrary to *P4*. Interestingly, the Realization of Individual Experience is a negative predictor of both the Mastery of Soft Skills and the Mastery of Traditional Skills. Perhaps, the focus on individualized learning actually "gets in the way" of the larger learning in these settings.

P5 and *P7* addressed the linkages between participants' expectations regarding acquiring traditional and soft skills and their subsequent ability to, in fact, master them. *P6* referred to the linkage between expectations regarding individual experiences and actual individual experiences.

Figure 3 shows that only one direct effect on the *Mastery of Soft Skills* or *Mastery of Traditional Skills* emerged from the expectations, providing only limited support for *P5-P7*. Figure 3 shows that participants' *Expectation of Individual Experience* was linked to the *Mastery of Soft Skills* through the *Realization of Individual Experience* (b = 0.58). However, the relationship was negative (b = −0.21), indicating that the more participants expected the class experience would help them in areas such as clarifying career interests, experimenting with new behaviors and becoming introspective, the less they felt they mastered soft skills as a function of these class experiences. Further, the *Expectation of Individual Experience* is linked to the *Mastery of Traditional Skills* indirectly through the *Realization of Individual Experience*. Again, the relationship was negative (b = −0.19) probably indicating that the higher their expectations for the class, the less they felt at the end that they had mastered the traditional skills.

The single significant direct effect from the expectations is shown by the path from the *Expectation of Soft Skills* to the *Mastery of Soft Skills* (b = −0.15), although again the relationship was negative. The results regarding *P7* are significant, but not in the direction proposed, indicating that the higher the expectation, the lower the perceived mastery of soft skills.

P5 which proposes that the *Mastery of Traditional Skills* is a function of the *Expectation of Traditional Skills* is not supported as shown by the dotted line for the non-significant path from the expectation to mastery (b = −0.04). Thus, there is no relationship between expectations and mastery of traditional skills.

Figure 3 also shows that *Realization of Individual Experience* was in turn affected by the expectation of participants to have these experiences (*Expectation of Individual Experience*; b = 0.58). These results seem to suggest that when participants are heavily focused on individual goals (to the extent that they expect to build on them and in fact do so), they may become distracted or prevented from acquiring more interpersonally-related (soft) managerial skills.

Finally, the overall predictive nature of the structural model in its various components was quite strong. The χ^2 statistic is 844.75 ($p < 0.001$). Figure 3 reports that other measures of the fit of the model such as goodness of fit (GFI = 0.90) and comparative fit index (CFI = 0.97), all indicate our model fits the data quite well. R^2 figures for the various dependent relationships ranged from $R^2 = 0.18$

(for the antecedents of *Mastery of Soft Skills*) to $R^2 = 0.43$ for the antecedents of *Mastery of Traditional Skills* and $R^2 = 0.44$ for the precursors of *Group Formalization*. Of greatest interest, the final model explained 77 percent of the variability in the dependent variable, *Acquisition of Strategic Skills*, and is significant at the $p < 0.001$ level. These results indicate that, at least within the settings studied, that the various constructs in our model were critical precursors to participants' development of soft, traditional and, ultimately, strategic managerial skills.

Discussion

The complexity involved in acquiring strategic knowledge, skills, and abilities is evident from the final structural model that emerged and is shown in Figure 3. As we expected, the model illustrates that there are complementary skill sets – soft skills and traditional skills – which lead to the acquisition of strategic skills. In addition, each of these skill sets is influenced to varying degrees by individual and group experiences and, less so, by individuals' expectations.

Closer examination of the model, however, reveals some interesting results which were not expected and which present some food for thought. The most striking result is the important role of *Mastery of Soft Skills* in the model. First of all, both the *Group Formalization* and *Realization of Individual Experience* variables directly predict *Mastery of Soft Skills*, while only the *Expectation of Individual Experience* directly predicted *Mastery of Traditional Skills*. This latter relationship was negative and this result is consistent with the negative relationship between *Realization of Individual Experience* and *Mastery of Soft Skills*. Note that the *Expectation of Individual Experience* played an interesting role in the model. As previously mentioned these relationships seem to suggest that a heavy focus by participants on their own individual growth and development (either in expectation or realization) may interfere with their ability to effectively master other skills that a management development process may emphasize. Clearly, one issue that this raises is for such development programs to carefully balance the attention paid to individual outcomes and those that can have a wider organizational impact. With appropriate framing of how these two outcomes (learning more about oneself and learning traditional management and interpersonal skills which are applicable in a wide array of organizational settings) can mutually reinforce one another, a management development program may be able to strike the appropriate balance between these two. For example, the degree to which an individual might clarify career interests can affect the way they interact with others whose career interests might differ from their own. A sensitively designed management development program can help the participant see the linkage between these two and recognize that both are important outcomes. This realization can minimize the extent to which they might be construed as mutually exclusive results.

The multiple paths leading to *Mastery of Soft Skills* (and explaining 18 percent of the variability in the construct) clearly demonstrate that the mastery of soft skills is affected by several factors, including those related to group interaction and an individual's own experiences and expectations. In addition, the mastery of soft skills appears to facilitate the mastery of traditional skills, making soft skills a seemingly necessary complement to traditional skills' role in the acquisition of strategic skills. So, while both skill sets appear to be needed to effectively acquire strategic skills, they themselves appear to have a temporal ordering working between them.

Soft skills appear to be a necessary facilitating mechanism for further management development. This makes some logical sense as these interpersonal skills can affect the sharing of information and the way in which organizational members come to perceive and understand the environments around them. Without this ability, individuals would be left pretty much on their own as they improve and expand the skills they acquire. While we maintain that each of these skills sets is essential for successful management, it is worthwhile noting that traditional skills such as manager's ability to understand real-world business problems occur in organizational settings of human interaction. Our results suggest that a manager's ability to perform well within these interactions is a necessary precursor to his or her successful mastery and application of traditional managerial skills.

Implications for research, practice, and/or society

The implications for managers and management development are quite clear. These results suggest that acquiring higher levels of soft skills – people skills, group skills, and leadership skills – will, in turn, improve managers' traditional skills which in turn will help managers increase their strategic knowledge, skills, and abilities. These results certainly give credence to the increasing emphasis recently being placed on "soft skills" in management development and management education programs.

Our results also suggest, to the degree possible, that academic attempts to "mimic" the work environment should focus most strongly on the interactions between students and the team-related structures that are created in the educational setting. Omitting this component may compromise the program's educational learning objectives as well as skew what participants may ultimately take back with them to their organizations.

It is also interesting to look at the impact of individual experience and group experience in the final model. Note that the sign on the relationship between *Expectation of Individual Experience* and *Realization of Individual Experience* is positive. This implies that those with high expectations (perhaps the high achievers previously noted) actually realized these expectations through the individual experiences in which they were involved. Of course, this also implies that those with low expectations for individual experience got the kind of outcomes relating to individual experience that they were anticipating. This may be an instance of a self-fulfilling prophecy whereby these students, starting out with low expectations, behaved in ways that were more likely to produce experiences that were deemed less than satisfactory. (But this may not be all bad news, because low *Realization of Individual Experience* led to higher *Mastery of Soft Skills*).

When the paths through the *Group Experience* constructs are examined, an even richer picture unfolds. The positive sign on the link from *Group Cohesion* to *Group Formalization* implies that more cohesive groups tended to have more formalization – more structure and rules. It seems clear that such highly cohesive groups were better able to institute the additional structures associated with higher formalization and consequently may have also been more capable of accomplishing their tasks. These groups had two things working for them: the willingness of group members to step up and support each other (cohesion) and the necessary structure so that they were in closer agreement on what was needed to be accomplished. Groups with less cohesion, though, seemed to doubly suffer as they were also unable to take advantage of the effectiveness and efficiency improvements that formalization frequently provides.

Our results suggest that among our participants some threshold level of group cohesion appears to have been necessary in order to develop more formalized group processes. This outcome casts some doubt on those (Bettenhausen, 1991) who have described formalization as a possible substitute for some of the benefits that cohesion provides to groups. For example, formalization can provide the necessary structure to coordinate activities that higher levels of coordination found in cohesive groups seems to provide (Dobbins and Zaccaro, 1986). While other work has shown that teams benefit from both cohesion and formalized structures (Tekleab *et al.*, 2009), this issue clearly warrants further attention to more clearly understand the circumstances where cohesion and formalization are both required and those where one may be an effective substitute for the other.

Also, the results of this study support the delay of exposure to strategic issues until the foundations are mastered. This lends support for strategy to be the capstone course in a business program.

Another potential implication for the education of managers has to do with the organization of the management class. Given that there is a clear result of strategic skill acquisition in the study, it is important to note that this class, unlike many business capstone classes that concentrate on firm level strategy, implements role play by function and focuses on the functional interaction and synergy in the operation of a business. The students are able to ascertain and practice how their specific disciplines of study can contribute to the competitive advantage of a firm. Future instructors may wish to consider this approach to a capstone experience.

Limitations, future research and conclusion

One of the limitations of the present study is the use of undergraduate college students as subjects. However, many prior studies have used similar samples to examine a wide range of organizational phenomena, where generalizing from this group may not be inappropriate. For example, a study by Tosi *et al.* (1997), used college students to study decision-making. Thoms *et al.* (2002) conducted a similar study using both college student teams and hospital teams on the behavior of self-managed work teams with nearly identical results. These results provide some supportive evidence that our use of college students was appropriate and that studies drawing from this population do not necessarily hinder generalizabilty.

An additional limitation is that the simulated management experience was only 15 weeks long. Such an accelerated management learning experience may not reflect actual managerial skill acquisition over a longer time period. If these current results are valid, however, it would be reasonable to expect that the participants in this study with higher scores in the *Acquisition of Strategic Skills* should have commensurately higher organizational positions, responsibilities, and salaries after graduation. Additional study would be very advantageous to enable the examination of such longitudinal relationships.

Another limitation is the potential for common-methods bias. All of our measures were obtained from questionnaires given to the course participants. Thus, there is a possibility that our results stemmed from the use of a common method of data collection as opposed to actual group and individual outcomes. While we cannot completely rule out common-methods bias, there are a number of reasons that we suspect it was low in this study. First, the responses by participants to the various questions were obtained

on two questionnaires separated by three months, which reduced the likelihood that contextual cues, respondents' moods or other extraneous stimuli were systematically similar at both times (Podsakoff *et al.*, 2003). In addition, if common-methods bias were operating, it would be expected that the correlations between the various measures would be quite high. This is not the case. Even though the correlations are significant, most are modest.

Finally, the present study did not compare results obtained using the described methodology to those using a different skill acquisition or management development technique. It is possible that similar results could be obtained through radically different approaches that in no way attempt to model the real-world. Indeed, a traditional lecturing method cannot be ruled out as capable of generating similar outcomes based on our results. It is therefore necessary to replicate this study utilizing appropriate control groups to fully gauge the effectiveness and uniqueness of the methods used in this study. Nevertheless, the fact that our results do seem to mirror those obtained through real-world experiences provides some positive evidence that academic approaches can be fashioned to deliver similar experiences, with similar results.

Overall, this research showed that soft skills and traditional management skills are complementary and together lead to better acquisition of strategic skills. These results imply that the *Mastery of Soft Skills* may enhance the *Mastery of Traditional Management Skills*. Consequently, it would seem that the recent emphasis being placed on soft skills in Master of Business Administration (MBA) and other management programs is well founded, and may, indeed, help enable managers to understand the bigger picture of their organizational environments. On the other hand, our findings provide a counterpoint to more recent moves by management programs, MBA programs in particular, to move some or all of the strategy courses taught to the beginning of the program. The argument here is that students will then be able to use the insights and tools gained from this early exposure to more fully understand how the functional areas contribute to the overall organization and influence its objectives and outcomes as they take marketing, accounting and other functionally-based courses. While this paper is not the place for us to resolve this question (or indeed, to address it at length), our results do seem to indicate that delaying part or all of the students' exposure to strategic issues until traditional and softer skills have been mastered might be in order. Put another way, our results suggest that ideas such as Kachra and Schnietz's (2008) that there are three types of integration that capstone courses should attempt to engage may be easier to realize if a temporal ordering of these types of integration is recognized. Barring that, however, this study suggests that such strategic issues should be introduced in an environment that expects to build on a foundation of both hard and soft skill sets simultaneously. Without these building blocks, students might just see the bigger organizational picture as an undifferentiated landscape where the role and importance of individual skill sets and their interdependence is overlooked.

References

Ahmed, S. and Sahinidis, N.V. (2003), "An approximation scheme for stochastic integer programs arising in capacity expansion", *Operations Research*, Vol. 51 No. 3, pp. 461-86.

Alie, R.E., Beam, H.H. and Carey, T.C. (1998), "The use of teams in an undergraduate management program", *Journal of Management Education*, Vol. 22 No. 6, pp. 707-19.

Al-Madhoun, M. and Analoui, F. (2002), "Developing managerial skills in Palestine", *Education & Training*, Vol. 44 Nos 8/9, pp. 431-42.

Aquino, K. and Reed, A. III (1998), "A social dilemma perspective on cooperative behavior in organizations: the effects of scarcity, communication, and unequal access on the use of a shared resource", *Group & Organization Management*, Vol. 23 No. 4, pp. 390-413.

Baldwin, T.T. and Danielson, C. (1998), "Management development", *Business Horizons*, Vol. 41 No. 5, pp. 2-4.

Bentler, P.M. (1990), "Comparative fit indexes in structural models", *Psychological Bulletin*, Vol. 107 No. 2, pp. 238-46.

Berdrow, I. and Evers, F.T. (2011), "Bases of competence: a framework for facilitating reflective learner-centered educational environments", *Journal of Management Education*, Vol. 35, pp. 406-27.

Bettenhausen, K.L. (1991), "Five years of group research: what have we learned and what needs to be addressed", *Journal of Management*, Vol. 17 No. 2, pp. 345-81.

Boggs, J.G., Mickel, A.E. and Holtom, B.C. (2007), "Experiential learning through interactive drama: an alternative to student role plays", *Journal of Management Education*, Vol. 31, pp. 832-58.

Boyatzis, R.E. and Saatcioglu, A. (2008), "A 20-year view of trying to develop emotional, social and cognitive intelligence competencies in graduate management education", *Journal of Management Development*, Vol. 27 No. 1, pp. 92-108.

Boyatzis, R.E., Cowen, S.S. and Kolb, D.A. (1995), "A learning perspective on executive education", *Selections*, Vol. 11 No. 3, pp. 47-55.

Boyatzis, R.E., Stubbs, E.C. and Taylor, S.N. (2002), "Learning cognitive and emotional intelligence competencies through graduate management education", *Academy of Management Learning and Education*, Vol. 1 No. 2, pp. 150-62.

Brown, M. and Cudeck, R. (1993), "Alternative ways of assessing model fit", in Bollen, K. and Long, J. (Eds), *Testing Structural Equation Models*, Sage, London, pp. 136-62.

Bryant, S.E. (2005), "The impact of peer mentoring on organizational knowledge creation and sharing: an empirical study in a software firm", *Group & Organization Management*, Vol. 30 No. 3, pp. 319-38.

Cacioppe, R. and Albrecht, S. (2000), "Using 3608 feedback and the integral model to develop leadership & management skills", *Organization Development Journal*, Vol. 21 No. 8, pp. 390-404.

Castelli, P. (2008), "The leader as motivator: coach and self-esteem builder: MRN", *Management Research Review*, Vol. 31 No. 10, pp. 717-28.

Chen, L.Y. and Barnes, F.B. (2006), "Leadership behaviors and knowledge sharing in professional service firms engaged in strategic alliances", *Journal of Applied Management and Entrepreneurship*, Vol. 11 No. 2, pp. 51-69.

Daft, R.L. (2007), *Management*, 8th ed., South-Western, Chicago, IL.

Debowski, S. (2002), "Developing effective electronic information seekers", *Australian Journal of Management*, Vol. 27, pp. 21-9.

Dickinson, M. (2000), "Giving undergraduates managerial experience", *Education & Training*, Vol. 42 No. 2, pp. 159-69.

Dobbins, G.H. and Zaccaro, S.J. (1986), "The effects of group cohesion and leader behavior on subordinate satisfaction", *Group & Organization Management*, Vol. 11 No. 3, pp. 203-19.

Elmuti, E. (2004), "Can management be taught?: If so, what should management education curricula include and how should the process be approached?", *Management Decision*, Vol. 42 Nos 3/4, pp. 439-53.

Evers, F.T., Rush, J.C. and Berdrow, I. (1998), *The Bases for Competence*, Jossey-Bass, San Francisco, CA.

Eylon, D. and Allison, S.T. (2002), "The paradox of ambiguous information in collaborative and competitive settings", *Group & Organization Management*, Vol. 27 No. 2, pp. 172-208.

Fowler, A. (2003), "Systems modeling, simulation, and the dynamics of strategy", *Journal of Business Research*, Vol. 56 No. 2, pp. 135-44.

Fredrickson, J.W. and Mitchell, T.R. (1984), "Strategic decision processes: comprehensiveness and performance in an industry with an unstable environment", *Academy of Management Journal*, Vol. 27, pp. 399-423.

Garman, A.N., Burkhardt, T. and Strong, J. (2006), "Business knowledge and skills", *Journal of Healthcare Management*, Vol. 51 No. 2, pp. 81-5.

Gilinsky, A. and Robison, R. (2008), "A proposed design for the business capstone course with emphasis on improving students' information competency", *Journal of Management Education*, Vol. 32, pp. 400-19.

Gómez-Mejía, L.R., Balkin, D.B. and Cardy, R.L. (2004), *Managing Human Resources*, Prentice-Hall, Upper Saddle River, NJ.

Gosenpud, J.J. and Miesing, P. (1992), "The relative influence of several factors on simulation performance", *Simulation & Gaming*, Vol. 23, pp. 311-25.

Halfhill, T.R. and Nielsen, T.M. (2007), "Quantifying the 'softer side' of management education: an example using teamwork competencies", *Journal of Management Education*, Vol. 31, pp. 64-80.

Hambrick, D.C. and Fredrickson, J.W. (2001), "Are you sure you have a strategy?", *Academy of Management Executive*, Vol. 15, pp. 48-59.

Kachra, A. and Schnietz, K. (2008), "The capstone strategy course: what might real integration look like?", *Journal of Management Education*, Vol. 32, pp. 476-508.

Katz, R.L. (1974), "Skills of an effective administrator", *Harvard Business Review*, Vol. 52 No. 5, pp. 90-102.

Kolb, D.A. (1984), *Experimental Learning: Experience as the Source of Learning and Development*, Prentice-Hall, Englewood Cliffs, NJ.

Lant, T.K. and Hewlin, P.F. (2002), "Information cues and decision making: the effects of learning, momentum and social comparison in competing firms", *Group & Organization Management*, Vol. 27 No. 3, pp. 374-407.

Li, E.Y. and Baillie, A.S. (1993), "Mixing case method with business games: student evaluations", *Simulation & Gaming*, Vol. 24 No. 3, pp. 336-55.

Liedtka, J.M. (1998a), "Linking strategic thinking with strategic planning", *Planning Review*, Vol. 25 No. 4, pp. 30-5.

Liedtka, J.M. (1998b), "Strategic thinking: can it be taught?", *Long Range Planning*, Vol. 31 No. 1, pp. 120-9.

Lin, Z. and Li, D. (2004), "The performance consequences of top management successions", *Group & Organization Management*, Vol. 29 No. 1, pp. 32-66.

Lyons, P. (2007), "A leadership development model to improve organizational competitiveness", *Advances in Competitiveness Research*, Vol. 15 Nos 1/2, pp. 103-15.

Lyons, P. (2008), "Case-based modeling for learning management and interpersonal skills", *Journal of Management Education*, Vol. 32, pp. 420-43.

McCall, M.W. Jr (1998), *High Flyers: Developing the Next Generation of Leaders*, Harvard Business School Press, Boston, MA.

McManus, K. (1995), "Acquiring knowledge and skills for twenty-first century supervision", *Management Development Review*, Vol. 8 No. 5, pp. 18-24.

Malik, A. and Venkataraman, N. (2011), "Extending the "size matters" debate: drivers of training in three business process outsourcing SMEs in India MRN", *Management Research Review*, Vol. 34 No. 1, pp. 111-32.

Michalisin, M.D., Karau, S.J. and Tangpong, C. (2004a), "The effects of performance and team cohesion on attribution: a longitudinal simulation", *Journal of Business Research*, Vol. 57 No. 10, pp. 1108-15.

Michalisin, M.D., Karau, S.J. and Tangpong, C. (2004b), "Top management team cohesion and superior industry returns", *Group & Organization Management*, Vol. 29 No. 1, pp. 125-40.

Mintzberg, H. (1973), *The Nature of Managerial Work*, Harper & Row, New York, NY.

Mintzberg, H., Raisinghani, D. and Théorêt, A. (1976), "The structure of 'unstructured' decision processes", *Administrative Science Quarterly*, Vol. 21, pp. 246-75.

Muir, C. (2004), "Learning soft skills at work: an interview with Annalee Luhman", *Business Communication Quarterly*, Vol. 67, pp. 95-101.

Mullen, J. (1997), "Graduates deficient in 'soft' skills", *People Management*, Vol. 3, p. 18, November 6.

Nik, M., Nik, M., Jantan, M. and Fauziah, M.T. (2009), "Environmental scanning and investment decision quality: information processing perspective MRN", *Management Research Review*, Vol. 32 No. 12, pp. 1117-29.

Nutt, P. (2011), "Making decision-making research matter: some issues and remedies: MRN", *Management Research Review*, Vol. 34 No. 1, pp. 5-16.

Nwogugu, M. (2003), "Decision making under uncertainty: a critique of options pricing models", *Derivatives Use, Trading & Regulation*, Vol. 9 No. 2, pp. 164-78.

Parente, D.H. (1995), "A large-scale simulation for teaching business strategy", in Crookal, D. and Arai, K. (Eds), *Simulation and Gaming Across Disciplines and Cultures*, Sage, Thousand Oaks, CA, pp. 75-82.

Peters, T.J. and Waterman, R.H. (1982), *In Search of Excellence: Lessons from America's Best Run Companies*, Harper & Row, New York, NY.

Peterson, T.O. and Van Fleet, D.D. (2004), "The ongoing legacy of R.L. Katz", *Management Decision*, Vol. 42 No. 10, pp. 1297-308.

Podsakoff, P.M., MacKensie, S.B., Lee, J.-Y. and Podsakoff, N.P. (2003), "Common method biases in behavioral research: a critical review of the literature and recommended remedies", *Journal of Applied Psychology*, Vol. 88, pp. 879-903.

Poulet, R. (1988), "Manufacturing with a smile", *Management Today*, pp. 145-7.

Qin, J., O'Meara, B. and McEachern, S. (2009), "The need for an integrated theoretical framework for researching the influence of group diversity on performance: MRN", *Management Research Review*, Vol. 32 No. 8, pp. 739-50.

Rapert, M.I., Velliquette, A. and Garretson, J.A. (2002), "The strategic implementation process: evoking strategic consensus through communication", *Journal of Business Research*, Vol. 55 No. 4, pp. 301-10.

Robbins, S.P. and Hunsaker, P.L. (2000), *Training in Management Skills*, Prentice-Hall, Upper Saddle River, NJ.

Roberson, Q.M. and Park, H.J. (2007), "Examining the link between diversity and firm performance: the effects of diversity of reputation and leader racial diversity", *Group & Organization Management*, Vol. 32 No. 5, pp. 548-68.

Salton, G.J. (2000), "Getting a grip on group behavior", *Industrial Management*, Vol. 42 No. 6, pp. 26-33.

Schenkel, M. and Garrison, G. (2009), "Exploring the roles of social capital and team-efficacy in virtual entrepreneurial team performance: MRN", *Management Research Review*, Vol. 32 No. 6, pp. 525-38.

Schjoedt, L. and Kraus, S. (2009), "Entrepreneurial teams: definition and performance factors: MRN", *Management Research Review*, Vol. 32 No. 6, pp. 513-24.

Schweiger, D.M., Sandberg, W.R. and Ragan, J.W. (1986), "Group approaches for improving strategic decision making: a comparative analysis of dialectical inquirey, devil's advocacy, and consensus", *Strategic Management Journal*, Vol. 29 No. 1, pp. 51-71.

Sniezek, J.A. and Buckley, T. (1993), "Becoming more or less certain", in Castellan, N.J. Jr (Ed.), *Individual and Group Decision Making: Current Issues*, Lawrence Erlbaum, Hillsdale, NJ, pp. 87-108.

Sronce, R. and Arendt, L.A. (2009), "Demonstrating the interplay of leaders and followers: an experiential exercise", *Journal of Management Education*, Vol. 33, pp. 699-724.

Stevens, M.J. and Campion, M.A. (1994), "The knowledge, skill, and ability requirements for teamwork: implications for human resource management", *Journal of Management*, Vol. 20 No. 2, pp. 503-30.

Stumpf, S.S. and Mullen, T.P. (1991), "Strategic leadership: concepts, skills, style and process", *Journal of Management Development*, Vol. 10 No. 1, pp. 42-53.

Stumpf, S.S., Dunbar, R.L.M. and Mullen, T.P. (1991), "Developing entrepreneurial skills through the use of behavioural simulation", *Journal of Management Development*, Vol. 10 No. 5, pp. 32-45.

Summers, T.P. and Summers, S.B. (1997), "Strategic skills analysis for selection and development", *Human Resource Planning*, Vol. 20 No. 3, pp. 14-19.

Teach, R.D. and Govahi, G. (1993), "The role of classroom techniques in teaching management skills", *Simulation & Gaming*, Vol. 24 No. 4, pp. 429-45.

Tekleab, A.G., Quigley, N.R. and Tesluk, P.E. (2009), "A longitudinal study of team conflict, conflict management, cohesion, and team effectiveness", *Group & Organization Management*, Vol. 34 No. 2, pp. 170-205.

Thoms, P., Pinto, J.K., Parente, D.H. and Druskat, V.U. (2002), "Adaptation to self-managing work teams", *Small Group Research*, Vol. 33 No. 1, pp. 3-31.

Tosi, H.L., Katz, J.P. and Gomez-Mejia, L.R. (1997), "Disaggregating the agency contract: the effects of monitoring, incentive alignment, and term in office on agent decision making", *Academy of Management Journal*, Vol. 40 No. 3, pp. 584-602.

Whetten, D.A. and Cameron, K.S. (2007), *Developing Anagerial Skills*, 7th ed., Prentice-Hall, Upper Saddle River, NJ.

Whetten, D.A. and Clark, S.C. (1996), "An integrated model for teaching management skills", *Journal of Management Education*, Vol. 20 No. 2, pp. 152-81.

Wolfe, J. and Chanin, M. (1993), "The integration of functional and strategic management skills in a business game learning environment", *Simulation & Gaming*, Vol. 24 No. 1, p. 34.

Yau, W.S.L. and Sculli, D. (1990), "Managerial traits and skills", *Journal of Management Development*, Vol. 9 No. 6, pp. 32-40.

Zajac, E. and Bazerman, M. (1991), "Blind spots in industry and competitor analysis: the implications of interfirm (mis)perceptions for strategic decisions", *Academy of Management Review*, Vol. 16, pp. 37-56.

About the authors

Diane H. Parente (PhD, University at Buffalo) is the Samuel A. and Elizabeth B. Breene Professor of Management at Penn State Erie. She developed the Interdisciplinary Business and Engineering program at Penn State Behrend. Her research interests are interdisciplinary, including business and engineering issues, functional and business-level strategy, business simulations, project management, and supply chain. She has received research awards including the Anbar Scientific Award and Best Paper in the *Journal of Management Education* and she has received numerous teaching awards for both online and residential teaching. She has worked in several industries, most recently as international business manager with Oxychem. Diane H. Parente is the corresponding author and can be contacted at: dhp3@psu.edu

John D. Stephan (PhD, Columbia University) is Associate Professor at Marist College and has also taught at Pace University, St John's University, The University at Buffalo and Florida Atlantic University. His research focuses on the causes and consequences of competitive interaction between firms. In addition, he conducts research looking at the pedagogical challenges associated with teaching capstone courses in Strategy.

Randy C. Brown (PhD candidate, University at Buffalo) is a Lecturer in Finance and Management at Penn State Erie. His research interests include cross-functional work teams, healthcare work teams, functional and business-level strategy, and business simulations. He teaches courses in strategic management, financial management, organizational behavior, and statistics. He has taught at several different colleges and universities, and has small-business consulting experience. His previous industry experience was in commercial and real estate investment, syndication, development, and property management. He currently serves on the board of Action for Mental Health, the largest consumer-run, mental health agency in Erie County, New York.