It seems that a gap exists between the identified needs of business students and the ability of the current curriculum to deliver this education. This paper attempts to present a solution to the dilemma. The paper is developed in three parts. First, selected cognitive styles, management education, and learning objectives and assessment research are briefly reviewed. Second, a new integrated approach to teaching managerial concepts within a course context is then introduced. Last, implications for business students, practitioners, educators and researchers are provided.

COGNITIVE STYLES, MANAGEMENT SKILLS, LEARNING GOALS AND MEASURES

Cognitive styles refers to the preferred manner in which people deal with information about the world around them. Jung (1971) identified two dimensions of human cognition i.e., perception (information gathering) and judgment (information processing). During the information gathering or perceptual phase, humans are likely to utilize either sensing (S) or intuition (N). Whereas, either thinking (T) or feeling (F) judgments are emphasized during the information processing stage. Combinations of these two dimensions result in four basic cognitive styles-sensation/thinking (ST), intuition/thinking (NT), sensation/feeling (SF), and intuition/feeling (NF).

Each of these cognitive styles have a different preferred approach to learning and problem solving: STs use a systematic approach to determining the pertinent facts in a problem. This style prefers impersonal, detached analysis of data in a logical process (Hirsh and Kummerow 1990; Taggart and Robey 1981). NTs consider long-term perspective and more conceptual relationships among the issues. They prefer to weigh the possible outcomes in addition to the concrete facts. SFs take a more personal focus when dealing with concrete facts. Their approach is guided by a shorter term and interpersonal perspective. NFs tend to rely heavily on personal and nonrational feelings when judging and interpreting facts (McKee 1991).

Interest in this dual cognitive/affective and analytical/intuitive view of human information processing by business managers can be traced to Barnard (1938). He noted that “mental” processes consist of two groups which I shall call ‘nonlogical’ and ‘logical’ (p. 302). In his opinion, an effective manager has access to the appropriate approach as dictated by the situation at hand. Moreover, Myers (1976) argues that a successful organization needs a variety of types since each has a particular and unique strength. For example, a sensing type contributes practical realism whereas a feeling type is the most skillful at understanding and communicating with people. The most penetrating analysis is provided by a thinking style while the clearest view of the future and theoretical possibilities comes from an intuitive style approach (cf. Myers and McCaulley (1985).
Management researchers have discovered that different cognitive styles results in varying preferences for the type of organizations (Mitroff and Kilman 1975; Kilman and Mitroff 1976) and organizational positions (Williams, Armstrong, and Malcolm 1985) as for diverse ways of conflict resolution (Kilman and Thomas 1975). In addition, information is defined and processed in a distinctive fashion (Mason and Mitroff 1973; Smith and Urban 1978) e.g., engineers with different cognitive styles focus on dissimilar facets of design (Lowen 1982). Not surprisingly, dissimilarities in decision-making, communicating, and learning processes have been linked to different cognitive styles (e.g., Carlson and Levy 1973; McCaulley and Nater 1974; Levin 1978; Thompson 1984).

According to Leavitt (1991), the process of managing can be divided into three interrelated parts: (1) the inner directed, pathfinding part (i.e., needing intuitive skills), (2) the analytical, planning, problem-solving stage (i.e., using logical thinking), and (3) the active, persuasive, implementing stage (i.e., utilizing sensing and feeling abilities). The majority of MBA program curriculum emphasizes the middle, problem-solving stage, but an orientation towards action and implementation is and will continue to be required of managers. In addition to analytical skills effective implementation requires the ability to influence and collaborate with others.

With respect to analytical problem-solving techniques business students are generally well prepared. They are also introduced to descriptive accounts of banking systems, financial markets, and organizational structures. However, American business students have not been typically taught to consider themselves global citizens, pursue lifelong learning, and develop an orientation towards social’ action i.e., interpersonal skills (Leavitt 1989). Managers who are capable of "integrating wisdom and feeling with analysis... are worth a great deal to an organization" (Leavitt 1975, p. 20). Managers need to overcome a bias towards conscious analysis and cautiously distinguish between intuitive and logical activities in order to apply the appropriate information processing style (Mintzberg 1976).

Gentry, Stoltman, and Mehlhoff (1992) observe that experiential approaches have typically concentrated on the process of teaching versus the process of learning. Consequently, little concern has been given to what is learned. Figure 1 depicts the still widely recognized taxonomy of six cognitive learning objectives along with selected assessment techniques and teaching methods (Bloom et al. 1956). Since this model allows for decision making i.e., logical activities learning, it is especially useful for business learning assessment (Gentry, Stoltman, and Mehlhoff 1992). In addition, the feeling or affective component of a related classification of educational goals can be used to measure the student’s attitudes, values, and emotional sets i.e., intuitive elements (Kratwohl, Bloom, and Masia 1964).

EXPERIENTIAL TEACHING METHODS FOR BUSINESS CLASSES

Perhaps underdeveloped interpersonal skills can be attributed to the teaching methods that university teachers have typically utilized e.g., the lecture method as they were taught (Gottko and Osterman 1987). Some business school educators, however, have recognized the value of action-oriented teaching approaches. Malhotra, Tashchian, and Jan (1989) argue that a group project method encourages such managerial skills as communication, problem-solving, critical thinking, and interpersonal skills. Conant and Mokwa (1987) designed a course wherein students act as product managers and use an audit to link theory and practice when investigating market behavior. Moutinho (1988) found that the use of computer simulation games both promotes the student’s learning experience and involvement in the marketing educational process (cf. Berman and McNoeley 1990). Perry and Euler (1989) for a comprehensive review of computer-based marketing simulations. Assessment centers require the development of both critical thinking and interpersonal skills e.g., task simulations, in-basket exercises, and oral presentations (Thomton and Byham 1982) and are utilized to evaluate employees for various purposes (Jaffee and Sefcik 1980). Indeed, assessment centers are currently utilized by 22% of Fortune 500 firms as either selection techniques or management development devices (Keel et al. 1989). The in-basket exercise developed by Castleberry (1990) is "interesting, versatile, and should enhance learning... for sales and sales management courses” (Ingram 1991, p. 89).

These pedagogical techniques are clearly different than the lecture and discussion approach. Svinicki and Dixon (1987) discuss these behavioral based instructional activities suggesting they aid in experiential learning. Cohen (1988) defined experiential learning as "any technique ... whereby the student learns primarily from his or her own experience (p. 1).

A MODEL FOR TEACHING MANAGERIAL SKILLS TO BUSINESS STUDENTS

Based on the research reviewed above, Figure 2 provides a decision-tree perspective that considers the mix among managerial skills, cognitive styles, educational objectives and assessment techniques. Given the recent concerns expressed by educators of both undergraduate and MBA students as documented in the extant literature, managerial skills are divided into two categories i.e., critical thinking or logical thinking and interpersonal or intuitive, affective behaviors (Stage 1). The ranking of ST and SF as mid-level and NT and NF as high-level cognitive style strengths (Stage 2) are drawn from McKee’s (1991) taxonomy of skills, curricula, and evaluation. Basic knowledge, comprehension, and application along with the analysis, synthesis, and evaluation learning objectives are assumed to be subsets of respectively mid-level (SF/ST) and high-level (NF/NT) cognitive style strength (Stage 3). Only the higher order learning objectives are highlighted since the literature review demonstrates me need for more experiential or participative teaching methods. Last, choices for learning assessment and experiential teaching methods represent only one among several possibilities. Also, some teaching methods may in fact simultaneously involve several learning objectives or managerial skill. Interested readers should refer to Bloom et al. (1956) for a comprehensive treatment of learning objective and assessment methods.

An integration of the taxonomy of educational objectives, learning assessments, and teaching methods (Figure 1) with managerial skill development and Jungian cognitive styles resulted in the decision tree approach to combining key educational process variables. Utilization of the decision tree model can be demonstrated through discussion of the three cornerstone elements of the marketing concept (required learning for all business school’ students) i.e., achieving customer satisfaction, encouraging inter-functional coordination, and accomplishing organization goals. One important caveat to be considered when using this taxonomy and decision tree model is that a certain amount of interaction among the variables is possible. For example, a computer simulation with student teams allows for simultaneous learning of ‘interpersonal’ and analytical managerial skills. Also, numerous permutations and combinations of educational process variables are feasible or even desired in order to achieve specific learning objectives within a particular course.

IMPLICATIONS FOR BUSINESS STUDENTS, PRACTITIONERS, AND EDUCATORS

A number of benefits for students, business managers, and educators, can be realized when applying the decision tree framework in designing courses. First, students are provided an educational environment that explicitly considers the complex interaction among learning process variables. Specifically, cognitive styles are matched to the appropriate managerial skill, its level, and a learning objective. Not only are students made aware of their preferred cognitive style but they are afforded the chance to learn and apply different styles that are necessary to deal with interpersonal and/or analytical issues. Moreover, since actual business problems are complex and require both interpersonal and -
analytical managerial skills, students are acquiring the capability to be more effective employees upon their graduation.

Next, prospective employers of business school graduates recognize the value of workers who can effectively and efficiently offer solutions to questions and challenges facing the organization. Seldom are problems facing the modern day firm simply answered by employees who have learned merely basic knowledge or comprehension of business concepts. Novel approaches to a constantly changing competitive environment require business school graduates to continually move beyond current ways of thinking and provide innovative solutions. Indeed, firms may find that training periods for new managerial hires can be shortened thus resulting in a financial savings to the organization.

All too often, business professors have relied on teaching methods to measure the students' grasp of relatively lower level learning objectives e.g., multiple choice and essay questions to assess basic knowledge and comprehension. This traditional approach asks students to solve problems that are typically too clearly defined but not realistic.

With the decision tree educational process model, instructors have a vehicle with which to meet both behavioral and cognitive learning objectives. By systematically implementing the decision tree approach in their courses, educators can significantly increase the likelihood that students will develop the suitable managerial skills that are vitally required for success in today's business world.

Finally, educational researchers may find the model a basis upon which to empirically test relationships between managerial skill level, educational objective, learning assessment, and teaching method. In this manner, the boundaries of learning theory and practice will be extended for the benefit of business students, educators, and practicing managers.

REFERENCES


Gentry, James, Jeffrey Stoltman, and Carol Mehlioff (1992) How Should We Measure Experiential Learning, in Developments in Business Simulation & Experiential Exercises, Jerry Gosenpud and Steven Gold, eds., Stilwater, OK: Oklahoma State University: 54-57.


<table>
<thead>
<tr>
<th>Learning Objective &amp; Description</th>
<th>Assessment</th>
<th>Teaching Method</th>
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<tbody>
<tr>
<td>Evaluation—ability to create standards to judge &amp; measure</td>
<td>Demonstrates consistent logic</td>
<td>Assessment Center</td>
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<tr>
<td>Synthesis—moving beyond existing knowledge and providing new insights</td>
<td>Solution to questions that necessitate novel approaches</td>
<td>Behavioral Simulation</td>
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<tr>
<td>Analysis—problems solved by understanding relationship among element of model</td>
<td>Operates within Critical Assumptions</td>
<td>In-basket Exercise or Possible Alternatives Simulation</td>
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<tr>
<td>Application—discovery of association among concepts</td>
<td>Connection of concepts</td>
<td>Role Play</td>
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<tr>
<td>Comprehension—transformation of data into different symbols</td>
<td>Process information by restating into other words</td>
<td>Oral Presentation</td>
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<tr>
<td>Basic Knowledge—retention of facts and definitions</td>
<td>Responds to Objective Questions</td>
<td>Repetitive Multiple Choice Exercises</td>
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Adapted from Gentry, Stoltman, and Mehlhoff (1992)
Figure 2: Stages in Decision-Tree Framework for Matching Key Educational Process Variables

1. What is Skill to be Developed?
2. What is skill level required?
3. What is Educational Objective?
4. How will Learning be Assessed?
5. What is Experiential Teaching Method?

Letter A - depicts the selected path to accomplish a customer satisfaction learning objective
Letter B - depicts the selected path to accomplish an interfunctional coordination learning objective
Letter C - depicts the selected path to accomplish an organizational goal learning objective