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An Evaluation of the Management Skills

Program at the University of Lethbridge

by

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A THESIS

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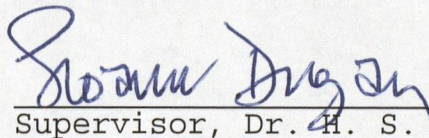
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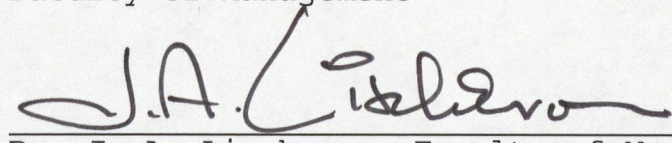
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The undersigned certify that they have read, and
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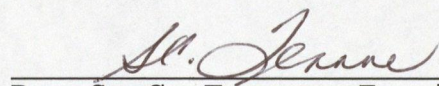for the degree of Master of Business Administration.

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ABSTRACT

This study investigated acquisition of management skills by undergraduate students in a management skills training program. It compared the students' pre and posttest management skills levels, and utilized control groups of management and nonmanagement students. Demographic characteristics, social self-esteem and burnout were used as predictor variables. Management skills were measured with a self-assessment instrument.

The training program did not cause an increase in management skills. The main predictor of posttest management skills level was the pretest score. Among demographic characteristics and social self-esteem, pretest social self-esteem was the strongest predictor of management skills level, and to a lesser extent age. After training, only social self-esteem was a significant predictor of management skills. Training may have removed the effect of life experiences in students' self-assessments. Future research on management skills development should consider individual characteristics, and other intervening variables.

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CHAPTER ONE

INTRODUCTION

Purpose of the Investigation

This research study investigated the acquisition of management skills by a group of undergraduate management students who completed required management skills workshops at the University of Lethbridge. The purpose of the study was to determine whether the current method of delivery actually resulted in an improvement in the management skills level of the students over the 13-week semester. Two control groups were used, from another management program at a second institution and a nonmanagement program at the same institution.

<u>Description of the Workshop Training Program</u>

At the time the evaluation was undertaken, the management skills training program consisted of a series of required noncredit one-day workshops. All students completing either the introductory organizational behaviour or human resource management courses at the University of Lethbridge were required to complete three one-day workshops. The format of these workshops varied, depending on the instructor. Most workshops consisted of some theoretical instruction, practice in application of the particular management skills, and feedback on performance by peers

and/or the instructor. There was no formal evaluation of performance; students were required only to attend.

The workshop topics were chosen partly based on availability of leaders for a particular topic. Generally, the workshop topics reflected the Boyatzis conceptual framework for management skills. Administrators of the program believed that there were clusters of related competencies, and attempted to choose topics representative of several of those clusters. In addition, they chose workshop topics that would be most relevant to the skills believed necessary for success in an entry-level managerial position: Written communication, interpersonal skills, conflict negotiation, and public-speaking.

Rationale

Interest in investigating this topic in an empirical manner occurred because of personal involvement in curriculum administration for the Bachelor of Management program at the University of Lethbridge. Management skills workshops had been an integral part of the program almost continuously since the Spring of 1984. The faculty had strongly supported the program with resources throughout this time. The annual budget for the program was approximately ninety thousand dollars. It employed one full-time academic assistant and two part-time student helpers. Workshop leaders were hired from across the continent, and an assistant dean

received course relief to administer the program.

The management skills program was also a recruiting feature for prospective students, along with small class sizes, and co-operative education and student consulting programs. The faculty frequently received informal feedback from both graduates and their employers that the skills which the students acquired from these workshops were valuable in the workplace. An ethical interest was also involved in choosing to evaluate the program. The researcher actively recruited students for the faculty, stating that the management skills program would improve their management skills and their future employability. However, actual outcomes had not been measured. The study would determine whether these statements were justified.

The Assistant Dean responsible for the skills program was also investigating the possibility of altering the current skills program. Shortly after the data were gathered the program was changed to a credit course format. The same skills were taught, but using faculty instructors, and more extensive practice and formal feedback on skill development. However, this study provided data on the effectiveness of the former workshop format, which will be useful information for any future program changes which the faculty may make.

Objectives, Hypotheses and Research Questions

Management Question

The research problem was whether the workshop format for teaching management skills in the Faculty of Management at the University of Lethbridge actually resulted in an increased level of those skills in the participants. The program was very expensive and labour-intensive to organize and administer in the workshop format. This information would be valuable to the Faculty in deciding whether to make any future alterations in the program. The current research study, therefore, was an evaluation of the management skills program in the Faculty of Management at the University of Lethbridge. Accordingly, the management question was:

Does the Faculty of Management at the University of Lethbridge need to reconsider the current structure of its management skills workshops? That is, does completion of the current management skills workshops at the University of Lethbridge improve student management skills in the areas of leadership, handling conflict, stress management, and so on?

Research Questions

Extracted from this management question, the following hypotheses were tested:

University of Lethbridge students who complete the management skills workshops will score significantly

higher on the skills instrument than University of Calgary students who do not complete the workshops.

University of Lethbridge students who complete the management skills workshops will score significantly higher on the skills instrument than they did prior to completing the workshops.

Investigative Questions

To answer the proposed research questions, the research study collected data about:

1. Are students in the two different Management programs comparable to one another? That is, is self-selection into a particular university a factor which causes the groups of students to differ from one another?

a. Do demographic characteristics differ?

b. Do pretest management skills levels differ?

2. Does posttest skill level vary, depending upon the treatment group, self-esteem, level of burnout, and demographic characteristics of the respondent?

3. How will students' skills change as a result of completing a management skills program?

a. In which skills will students generally show improvement?

b. Will students show improvement in skills which the

program does not purport to teach?

Assumptions

The current research design differed in several ways from those in the research studies cited in Chapter Two. Those studies used a behavioural exam and/or self-assessments of management skills. A behavioural exam was not used for practical reasons, including cost and time considerations, and anticipated difficulty in obtaining student volunteers. Instead, the current study used a paper-and-pencil measure of management skills, called The Competing Values Self-Assessment (CVSA). McEvoy's (1991) findings provided some evidence that scores on a behavioural exam correlate with self-assessments of management skills. Therefore, the self-assessment was meant to substitute for the use of a behavioural exam.

In addition, to provide greater depth and breadth, the current study included groups of students from two different management programs. The research study compared management students currently completing a course which included management skills workshops to a group of management students at another post-secondary institution without such workshop experience. The control group provided data for business students who were not currently completing a management skills program.

Two assumptions followed from this research design.

First, it was assumed that it could be determined whether self-selection into a Management program affected baseline management skills levels. Second, it was assumed that the study would prove that participation in the management skills training program caused a greater change in management skills levels than completion of required courses in organizational behaviour or human resource management.

Delimitations

There were two delimitations which must be stated. First, the current research study did not provide a full program evaluation of the management skills training program at the University of Lethbridge. Instead, the research study provided evidence on whether students completing the program showed significant improvement in the skills which were being taught, and whether that improvement could be attributed to completion of the program. However, since the study involved applied research, there may be other intervening variables which were not included in the data.

Second, the research design cannot entirely control for the problem of self-selection into the study, since convenience sampling was used. The surveys were completed by students registered in certain sections of the appropriate courses. The data collected were influenced by the type of student that registered in the course and section.

Definition of Key Terms

Relevant variables. The variables of interest in the current study were: (a) management skills levels at the beginning and end of the semester, (b) training condition, (c) previous similar training in management skills, (d) social self-esteem, (e) burnout, and (f) various demographic variables, such as age, gender, program of studies, major, years of work experience, and type of work experience.

Management skills. Management skills or competencies are defined as the underlying skills required for success in a managerial position (Boyatzis, 1982). It is generally recognized that these include various interpersonal, organizational, and critical thinking skills.

Training condition. Three groups of students participated in the study. University of Lethbridge **management** students were those students registered in any of the lecture sections of a required organizational behaviour course, or a required human resource management course in the Spring 1993 semester. These students were scheduled to complete three one-day skills workshops as part of the course requirements. (See Appendices A and B for a list of the workshops offered in the Spring 1993 semester).

The **control** group of management students included students registered in two sections of a required organizational behaviour course at the University of Calgary.

Nonmanagement students were those registered in four

sections of a required pre-Education course at the University of Lethbridge in the Spring 1993 semester.

Burnout. Burnout is a psychological construct in the occupational stress field. It is commonly defined as a condition characterized by feelings of depersonalization, lack of personal accomplishment, and emotional exhaustion (Maslach & Jackson, 1981).

Social self-esteem. Social self-esteem is defined as a person's judgement of his or her own self-worth and/or behaviour in social interactions with peers and significant others (Shavelson, Hubner, & Stanton, 1976).

Organization of the Thesis

Chapter Two consists of a literature review of the field of management skills training, including the historical background of the development of the field, and a review of the research evaluating such programs. The literature review also includes a brief review of related research in the areas of burnout and self-esteem. In each case, it first describes the theoretical constructs, and then discusses pertinent research studies.

Chapter Three presents a more thorough description of the research design. Chapter Four presents the data. Chapter Five analyzes the data and presents findings. It also discusses directions for further research. The Appendices contain copies of the noncopyright portions of the

instrument and other pertinent information, such as details on the management skills workshops.

Summary

The purpose of the research study was to provide evidence of the effectiveness of the management skills training workshops at the University of Lethbridge. This Chapter presented the two main research hypotheses. The research study compared the pre and posttest levels of management skills for students who completed the training program. The study also compared these management skills levels to those students who did not complete the program. This chapter also described key assumptions and limitations of the study, to provide the framework for understanding the data presentation and analysis which follows.

CHAPTER TWO

LITERATURE REVIEW

Introduction

Management skills is a relatively new area of instruction in management education. The management literature only recently began to debate seriously the relative merits of behaviourally-based methods, and behavioural educational goals. In the past decade, many training programs and courses have been developed to transmit behavioural skills to management students. However, few research studies have evaluated the success of these programs. As well, no management skills research has included additional constructs such as burnout and self-esteem.

This literature review is divided into three main sections. Each section presents the history and theoretical background in the three main areas of the study: Management skills, burnout, and self-esteem. Each section also summarizes research in each of the three areas, alone and in relation to the other constructs. To narrow the focus, the chapter emphasizes research studies that used university students as subjects.

Management Skills

<u>Overview</u>

The Ford and Carnegie Foundation reports caused many changes to North American management education (Porter & McKibbin, 1988). Management educators professionalised the field by implementing many recommendations of the reports. However, by the early 1980s, American businesses had lost their competitive edge in the global marketplace. As a result, several authors criticized North American management education.

<u>Criticisms of management education</u>. Livingston's (1971) article is an early example of the criticism of formal management education programs. He wrote that students graduating from management education programs did not have the knowledge, skills and traits necessary to succeed as managers. "One reason why highly educated men [<u>sic</u>] fail to build successful careers in management is that they do not learn from their formal education what they need to know to perform their jobs effectively." (p. 82).

Approximately 10 years later, Mandt (1982) wrote that most business graduates have problems because they are unable to apply classroom theory on the job. He said that in the past, education programs overemphasized transmission of knowledge. Consequently, graduates did not develop basic communication and analytical skills.

Cheit (1985) identified two relevant criticisms of

business schools in the literature. First, business schools

placed too much emphasis upon quantitative or technical

models (e.g., Hayes & Abernathy, 1980). Second, they gave

too little emphasis to important areas such as communication

skills.

Behrman and Levin (1984) also argued that business

schools devoted insufficient attention to the development of

interpersonal skills by their graduates. Surveys of man-

agers (Benson, 1983; Hildebrandt, Bond, Miller, & Swinyard,

1982; Murphy & Jenks, 1982; Curtis, Winsor, & Stephens,

1989) and of management educators (Albanese, 1989) have

confirmed the perceived importance of including interper-

sonal and communication skills in the management curriculum.

A British article (Murray, 1988) said that U.S. busi-

ness schools had not focused upon the development, acquisi-

tion and application of management skills.

> [T]o become effective as a manager there is a need to
> work simultaneously on . . . three fronts, on *self*, on
> *skills*, and on *knowledge*. To overemphasize knowledge
> at the expense of overlooking the other two elements is
> both to handicap potential managers and to invite
> criticism and dissatisfaction in their employers. (p.
> 74).

Study by American Association of Collegiate Schools of

Business. Porter and McKibbin's book (1988) provides em-

pirical evidence supporting recommendations for changes to

North American management education. By the late 1970s,
AACSB members realized that management education must be
changed to address the criticisms of the American business
school (A plan to . . ., November, 1979). The AACSB study
evolved out of this realization.

In the late 1970s, four AACSB advisory committees
composed of deans and business people met with business
executives. They developed a list of 123 characteristics
that they believed were possessed by effective managers.
The list was then shortened to six categories: Administra-
tive skills, performance stability, work motivation, inter-
personal skills, values of business, and general ability.
By the late 1970s, the AACSB had hired consultants to exam-
ine various methods for assessing those qualities. One
company, Dimensions Development International (DDI), exam-
ined in-basket testing techniques, while McBer and company,
with which Boyatzis is associated, investigated written
management skills tests.

The AACSB's Futures Committee then conducted research
to evaluate the status of management education, to analyze
the probable future of management education if no changes
were made, and to provide recommendations for the future of
management education. The report on this research became
Porter and McKibbin's book.

The research study collected three types of data.
Besides statistics already available, Porter and McKibbin

gathered interview and questionnaire data. In the interview portion of the study, the authors used nonrandom cluster sampling to select approximately 10 per cent of the AACSB institutions. They also sampled 50 companies, based on two characteristics. First, human resource experts believed most of the companies were leaders in management development activities. Second, most employed many business school graduates. In both the academic and business organizations, the researchers chose interviewees to provide a diverse perspective, from a variety of positions relevant to the objectives of the research study.

The researchers asked all the AACSB member institutions (N=620) to complete the questionnaire. They also asked a broad sample of corporations to participate, although the sample was biased toward larger, more visible firms. The questionnaire content was very similar to that of the interviews. The researchers included other important groups in the survey: Graduating undergraduate and graduate business students, alumni, and managers or owners of small businesses.

The main limitation in generalizing Porter and McKibbin's findings is that the study focused on management education in the United States. The findings may not be totally applicable to the current study for various reasons, including the different nature of postsecondary education in Canada. For example, government grants fund most postsec-

ondary education in Canada. This means that a university education is accessible to most individuals. In the United States, middle class individuals are less likely to attend private universities.

Porter and McKibbin believe that one of their most important findings is the difference in perceptions about the current emphasis on behavioural skills in the management education curriculum. Most of the deans, faculty members and MBA alumni believed that the emphasis on these "soft" skills was appropriate. However, the other respondents were less sure. Most important, the majority of the business people suggested that business schools placed too little emphasis upon behavioural skills.

One part of the questionnaire presented nine different personal skills and characteristics. The survey asked respondents to indicate the curriculum's current emphasis on these skills, and what they believed the emphasis should be. The respondents always rated the current emphasis lower than the desired emphasis. All respondents except the students indicated that oral and written communication skills should receive greater emphasis in the curriculum. However, there were important differences between the groups. The business people placed less emphasis upon analytical skills than deans and faculty members; they believed that there should be greater emphasis on interpersonal communication skills.

Theoretical Background of Management Skills

The study of management skills, and whether they can be learned in a management education program, is based on the belief that effective managers perform certain roles and possess skills that can be identified and accurately measured. This section describes the classical theories on management skills and roles, and their relationship to managerial effectiveness.

Katz's (1974) article is a classic in the field of management skills for two reasons. First, he was among the first to concentrate on skills of successful managers, rather than traits. This is important because, as Katz states, a skill is "an ability which can be developed . . . which is manifested in performance, not merely in potential." (p. 91). Katz recognized that a person could develop skills to become a more effective manager. Managerial ability should not be viewed as innate, but as something that could be improved through training. Also, if research can identify the necessary skills then training can be provided to increase a manager's effectiveness.

Second, Katz's theories are important because he developed an early categorization of managerial skills. These will be described in the next section. In addition, he reviewed the literature, and conducted research to learn whether different skills were more necessary at different organizational levels. Finally, Katz acknowledged the close

relationship between these types of skills. A successful manager uses all the skills together. Other research, mentioned in later sections, substantiates this viewpoint.

Katz outlined several implications for training programs in skill development, which can be applied to management education programs. First, he stated that training programs should focus on transmitting behavioural skills, not knowledge or traits. Higher managerial effectiveness is more likely to result from an improvement in skills than an increase in knowledge.

Second, skill development programs should focus on the skills that are most likely to be required at the person's organizational level. Katz would argue that management education programs should concentrate on teaching skills that are most likely to be required at the lower managerial levels, since most new graduates will begin at that level.

Finally, Katz stated that management skills are best taught through practice. "Different people learn in different ways, but skills are developed through practice and through relating learning to one's own personal experience and background." (p. 98). Katz suggests that the three different skills are best taught with different methods. For instance, we should teach technical skills by transmitting necessary background knowledge, supplemented with practice and experience. Training in human skills, according to Katz, is best conducted at the individual level using

self-management methods or coaching. When training larger
groups, he suggests the use of cases and role-playing.
Finally, Katz recommends coaching by a superior to teach
conceptual skills.

Classification of managerial roles and behaviours.
Katz distinguished three different types of skills. Techni-
cal skills involve proficiency in methods, procedures,
processes or techniques. On-the-job training programs often
include these types of skills.

Human skills are defined as the ability to work as a
team member, to foster a team attitude within a group.
According to Katz, a manager with human skills has self-
awareness about his or her own values and attitudes, but
accepts the attitudes and values of others. An effective
manager always exhibits human skills consistently.

Katz defines conceptual skills as the ability to pic-
ture the organization as a whole entity. The manager can
recognize how changes affect different units within the
organization. In addition, she can conceptualize the organ-
ization's relationship to its external environment. Man-
agers who possess conceptual skills can act in the organiza-
tion's best interests. According to Katz, this is the most
important skill for an effective manager.

Mintzberg's book (1973) is another classic in mana-
gerial role description. He performed a detailed study of
the activities of five experienced head executives of medium

to large-sized organizations. Mintzberg identified common characteristics by focusing his study on the work and its content, instead of the actual individuals. He used a structured observation method, because it allowed for inductive reasoning, considerable detail, and systematic research methods. Mintzberg believed that the detailed data collected, and the systematic methods used, compensated for the small sample size.

First, Mintzberg collected preliminary information, including a one-month summary of appointments, and background information on the manager and the organization. Mintzberg then observed each executive for one week, recording structured and anecdotal data. Mintzberg collected data on the day's activities, mail received and contacts with other people.

Mintzberg argued that for several reasons his data were reliable. First, he found very few differences when he compared the month-long data to that collected in the preliminary stage of the study. Second, the data were very similar, although all the managers worked for different types of organizations. Finally, the managers in Mintzberg's study did work which was similar to that of managers in other studies.

Mintzberg developed 10 roles that all managers perform. The 10 roles can be allocated to three different groups of managerial activities: Interpersonal, informational, and

decisional. The three interpersonal roles result from the manager's formal authority and status: Figurehead, liaison, and leader. Three informational roles result from the information that the manager has access to as he performs the interpersonal roles. They are monitor, disseminator, and spokesman. As a result of performing these six roles, the manager is at the centre of the organization's strategy and decision-making. The four roles that are related to the manager's strategic decision-making are: Entrepreneur, disturbance handler, resource allocator, and negotiator.

Mintzberg emphasized three characteristics of the 10 managerial roles. First, they were all observable. Second, they accounted for all activities observed in his study. Third, they formed an integrated whole; they cannot be isolated from each other.

Mintzberg used a contingency theory to try to explain the differences observed between the managers in his study. He states that variations in skills levels can be attributed to one or more of the four different effects: The job's environment; the level of the position, and function within the organization; personal characteristics of the manager; and the situation.

In discussing the implications of his research, Mintzberg makes several points important to management education. First, management educators have not given enough emphasis to transmitting the necessary management skills. He

believes that "learning is most effective when the student actually performs the skill in as realistic a situation as possible and then analyzes his performance explicitly." (p. 188). This description closely resembles behavioural modelling training methods, which are often used in management skills training programs.

Second, Mintzberg suggests that study of the 10 managerial roles leads to a list of eight managerial skills that educators could teach to management students. These include peer relationships, leadership, conflict resolution, processing of information, decision-making in ambiguous situations, allocation of resources, entrepreneurism, and introspection.

Waters (1980) developed another classification system for managerial behaviours. He distinguishes four managerial behaviours based on two characteristics. That is, managerial behaviours or skills can be categorized by the length of time it requires to learn them, and by how specifically they can be described.

Waters' practice skills can be described in specific behavioural terms, and learned in a short period. These types of managerial skills are easily taught in a training program. Examples of such skills would be active listening, nondirective interviewing, conducting meetings, and public speaking.

Context skills are easily described, but require a

relatively long time to learn. Therefore, since instructors cannot teach these skills easily in a normal training program, they are more likely to be learned on the job. Examples of context skills are planning, time management, how to motivate, and so on.

Insight skills are not easily described in behavioural terms, but the time required to learn them is relatively short. These types of skills are not usually acquired through practice, but through gradual building of insights, as a result of the training program's structure. Examples of insight skills are working with groups, coping with ambiguity, and dealing with authority.

Wisdom, Waters' fourth skill, is not a true management skill. People learn wisdom over long periods of time. Its associated behaviours cannot be described easily. Examples of wisdom include charisma, gaining power, allocating resources, and formulating strategy. According to Waters, these behaviours are more likely to be learned by studying materials that provide insight, such as histories, biographies, and so on.

Boyatzis' (1982) research led to the development of a cluster model of management competencies. His research study included data from more than 2,000 people, representing 12 organizations and 41 managerial positions. The study included four public sector and eight private sector organizations.

Boyatzis used job element analysis and critical incident interviews to develop lists of competencies for the various positions. Participants then completed measures designed to assess those competencies. The study used three criterion measures: Ratings by the supervisor, ratings or nominations by peers of the manager, and work-output measures. The researchers did not gather a complete data set for all the participants. For instance, performance output measures were available for approximately one-half of the participants. As well, only 345 of the managers participated in the job element analysis portion of the research study.

During group sessions, the participants developed a list of characteristics that distinguished effective performers from less effective performers. The participants then evaluated the importance of each of these characteristics, and a weighted score was produced. Boyatzis and his colleagues identified related clusters of characteristics, using factor analysis on the scores.

The researchers identified five distinct clusters of managerial competencies: Goal and action management, leadership, human resource management, directing subordinates, and a focus upon others. The researchers' conclusions match those reached by other authors. First, private and public sector organizations require different competencies. Second, the type and level of competency required for effective

performance is influenced by the level of the managerial position: Entry, middle or executive. Third, discriminant analysis correctly categorized 51 per cent of the managers according to their performance. This compares to a figure of 33 per cent, which would be expected for random assignment of the subjects to the three different performance levels.

Whetten and Cameron (1991) interviewed 402 highly effective managers, chosen on the recommendation of their peers and superiors. The managers in the sample represented several different types of organization, including business, health care, education and state government. In the interview, the managers identified the skills and knowledge that they believed helped make them effective members of their organization. About 60 characteristics were identified. The 10 characteristics listed most often were: Verbal communication skills, time and stress management, decision-making, problem identification and solving, motivating others, delegation, goal setting, self-awareness, building a team, and conflict management.

According to Cameron and Whetten (1983, 1991), these management skills share certain characteristics: They are personal or interpersonal, they have been proven to be characteristic of successful or effective managers, they have behavioural elements that can be taught through training, and they are best learned through training rather than

on the job.

Finally, it is necessary to describe the Competing
Values Framework (CVF) for classification of management
skills and roles (Quinn, 1988; Quinn, Faerman, Thompson, &
McGrath, 1990). The authors of the survey originally devel-
oped the CVF to explain organizational effectiveness (Faer-
man, Quinn, & Thompson, 1987; Rohrbaugh, 1981). However, it
is now also used as a model of managerial competency.

Eight roles are included in the framework. Each role
has three associated managerial competencies or skills.
Four quadrants each contain two of the eight roles and their
associated management skills. The four quadrants are
defined based on two value dimensions: External versus
internal organizational focus, and flexibility versus sta-
bility in structure.

Although pairs of roles appear to have conflicting
purposes, they are related to one another, and therefore
located next to one another in the framework. The effective
manager must perform each of the eight roles, to ensure that
the functions of the organization are accomplished.

With the growing ambiguity and rapid change in which
organizations operate, a manager cannot focus on any one
type of management role. The CVF stresses that different
roles and skills should be emphasized in different situ-
ations. Although they appear to contradict one another, at
different times each of the managerial skills is most appro-

priate.

According to the CVF model, managerial effectiveness is lessened by the singular use of one type of management skill, with its associated values and roles. The model illustrates management's situational nature, and the need for managers to acquire skills in all four quadrants.

Management skills required at different managerial levels. Several authors state that different organizational levels require different managerial skills. For instance, according to Katz (1974), technical skills are most important at lower levels. Conceptual skills are more important at upper levels, where strategy and policy decisions are made. Human relations skills are important for effective management at all levels of the organization, although they are most important at lower levels.

According to Keys and Wolfe (1988), later research has supported Katz's conclusions. Entry-level managers require skills in communication, middle managers in solving problems and managing people, and upper-level managers in stress management, and functional areas such as finance and accounting. However, Katz emphasized technical skills at the lower levels, while Keys and Wolfe state that research shows that basic communication skills are most important.

Management skills required in different types of organizations. Snyder and Wheelen (1981) used Mintzberg's methodology to study the behaviours of two chief executives.

They observed the activities of a school superintendent and a hospital administrator for four working days. Snyder and Wheelen then categorized these activities into Mintzberg's ten managerial roles. However, they had difficulty analyzing and interpreting their data. For instance, they found it difficult to classify activities into only one of the ten managerial roles. Eventually, they assigned the activity to the role that the executive had intended to perform.

The authors also encountered a problem with the leader role. Mintzberg defined the leader role as including activities involving subordinates. Snyder and Wheelen believed the leader role was all-encompassing; they believed that all managerial activities are related to the management of subordinates. Therefore, they assigned no managerial activities to this role.

Snyder and Wheelen tabulated the total time spent on each managerial role. Kendall's tau, performed on the rank-ordering of these activities, indicated significant differences in the high-involvement roles between the two executives. The school superintendent spent more time in the liaison, monitor, disseminator, and disturbance handler roles. This behaviour matches that of the executives in Mintzberg's study.

However, the hospital administrator spent more time engaged in entrepreneurial and negotiator roles. The

authors believed the manager could have delegated these activities to subordinates. They concluded that personal preference must also contribute to a manager's types of activities. Other relevant characteristics of the situation which affect this distribution of time, identified in other research studies, include the industry type, the type of position (line versus staff), the level of management, and so on.

Managerial Effectiveness Literature

The managerial effectiveness literature is closely related to research defining managers' activities and roles. After identifying managerial roles and activities, researchers could try to determine the effectiveness of managers in performing those roles. Hales (1986) defines effective managers simply as those who do what they are supposed to do. Managerial effectiveness can be measured only when researchers identify what managers are supposed to do, and then develop reliable methods of measuring that.

Boyatzis (1982) defines effective job performance as "the attainment of specific results (i.e., outcomes) required by the job through specific actions while maintaining or being consistent with policies, procedures, and conditions of the organizational environment." (p. 12). Managerial competencies are defined as the characteristics or abilities of the individual that allow him or her to dis-

play the appropriate behaviour. A manager is effective when the three parts of the model correspond (outcomes or results, actions and organizational environment).

Campbell, Dunnette, Lawler and Weick (1970) described a model of managerial effectiveness that involves three components: The person, the process and the product. We must consider a person's individual characteristics, job behaviours, and organizational outcomes, when predicting managerial effectiveness. At the same time, the environment interacts with the three components, also influencing the manager's effectiveness. Campbell et al. (1970) emphasize that according to their model, a manager's effectiveness is determined by actual behaviours on the job. As well, several different behaviours can lead to the same outcomes; that is, they recognize the situational nature of managerial effectiveness.

Relationship of managerial effectiveness to organizational type and managerial level. The research of Morse and Wagner (1978) shows the need to consider several variables when evaluating managerial effectiveness. They developed a 51-item survey based upon the managerial roles literature, using Campbell et al.'s (1970) model of managerial effectiveness. However, they wished to focus on process, or behaviours and activities, rather than person or product.

In a factor analysis of survey responses, Morse and Wagner extracted six factors related to the nine managerial

roles that they identified in their literature review. The six factors were: Managing the organization's environment and its resources (I), organizing and coordinating (II), information handling (III), providing for growth and development (IV), motivating and conflict handling (V), and strategic problem solving (VI).

Morse and Wagner used two groups of managers to test the concurrent validity of their instrument. The first group consisted of 231 managers from various offices of one firm. Scores on the questionnaire correlated highly with both organizational effectiveness measures, and superiors' assessments of the managers' effectiveness.

Then Morse and Wagner administered their survey to 29 managers from the head office of a large manufacturer. With this group, they found that the factors loaded in a different order, with a different amount of variance. The authors said that the different results proved the situational nature of managerial effectiveness. To investigate further, they performed multiple regression analyses on the two sets of data.

They found that the most important factors contributing to managerial effectiveness did differ between the two companies. In the first organization, a large data processing company, the most important factors were Information Handling (III), and Strategic Problem Solving (IV). However, the most important factors for the second company

were: Managing the Organization's Environment and its
Resources (I), Organizing and Coordinating (II), and Moti-
vating and Conflict Handling (V). When the organizational
environment is considered, these results are reasonable.
The second company, a manufacturer, was currently expanding
production and trying to increase its market share.

Luthans, Rosenkrantz, and Hennessey (1985) conducted
research to determine the activities which successful man-
agers performed more often. According to the authors, this
was the first study of its type to use a sample size large
enough to allow statistical analysis. It was also the first
study to examine the relationship of particular behaviours
to managerial effectiveness. The authors collected observa-
tional data from 52 managers in three different types of
organizations. They recorded the frequency the managers
performed 11 different types of managerial behaviours.
Managerial success was measured by either a promotion index,
or by the attainment of a top-level position.

The researchers reached two major conclusions. First,
successful managers perform some activities more often than
nonsuccessful managers do. Successful managers performed
networking and conflict management more often, despite mana-
gerial level or organizational type. Top-level managers
performed only two behaviours more often: Decision making
and planning or coordinating.

Second, organizational type was related to some activ-

ities of the successful managers. For instance, in a manu-
facturing organization, lower and middle level managers were
much more likely to display conflict management behaviours.
Successful managers in a state revenue and a campus police
department were less likely to display this type of behav-
iour. As well, top-level managers exhibited different types
of behaviours, depending on their organization. Managers in
the manufacturing plant were less likely to use conflict
management behaviour than those in the revenue and police
departments. The authors attribute the greater use of
conflict management behaviours directly to the amount of
role ambiguity in the position.

It is important to consider the managerial effective-
ness literature when designing a research study on manage-
ment skills for two reasons. First, it emphasizes the need
to consider external factors such as the environment when
measuring effective performance of management skills.
Second, it supports the assertion by most management skills
theorists that the most appropriate roles and behaviours can
vary between persons and environments.

Research Studies with University Students

Few research studies have focused on evaluating manage-
ment skills training in undergraduate or graduate programs.
This section summarizes the most pertinent studies. It
briefly summarizes each study, and describes its importance

to the current study.

Boyatzis and Renio's study (1989) is one that examined the impact of an MBA program on managerial abilities. The authors found that the MBA program appeared associated with improvements in the following areas: Information analysis, planning, quantitative data analysis, technology management, taking action, and entrepreneurship. However, the students showed no improvement in interpersonal skills. We should note that the research design had obvious weaknesses; for instance, pre and posttests were not administered. Instead, recently admitted and graduating students completed surveys, and the researchers then compared the responses of these two groups of students. However, the study is important because it examined management skills that Boyatzis' earlier research had identified. In addition, it found interaction effects between full and part-time status of the students, and the testing group. Therefore, the research provides support for the need to explore the effect of intervening variables on management skills levels after completing an educational or training program.

One recent research study used a pre and posttest research design to compare levels of management skills. The study assessed management skills levels using self-reports of MBA students before and after completing a management skills course (Lee, Adler, Hartwick, & Waters, 1987). During the first stage of their study, the researchers

administered a pre and posttest for self-assessment of management skill levels to first and second-year MBA students. The program required the second-year students to complete a behaviourally-oriented management skills course; therefore, the first-year MBA students served as the control group. The self-assessment survey asked the students to rate their skills in ten different areas on a seven-point scale. At the end of the semester, both groups of students reported an overall increase in their skill levels. However, the greater increases reported by the second-year MBA students, overall and on each of the 10 items individually, were statistically significant.

The researchers also compared the students' self-reported management skill levels to their score on a behaviourally-based examination at the end of the semester. They found no statistically significant relationship. The authors discussed several possible reasons for this lack of correlation, including: A lack of correspondence between the skills being assessed by the two instruments, the influence of the testing situation on students' demonstrated level of skills on the behavioural exam, and the possibility that self-reports may not reflect actual skills levels.

As a result, Lee et al. (1987) developed a more "natural" exam, which was less structured and less "pedagogy-bound". The researchers wished to make it possible for a skilful person to score well on the behavioural exam without

completing the management skills course. They found that using this less structured exam, reliability of the instrument decreased, but validity increased. Significantly, students preferred the earlier, more structured exam. They believed that skills learned in the course were tested by the more structured exam. The students tested with the less structured exam did not believe they were being tested on skills emphasized in the course.

The authors suggested several areas for further research. There is a need to discern whether some part of the students' education, other than a management skills course, caused them to perceive an increase in their skill level. They were also concerned that they found no relationship between students' self-perceptions of their management skills levels and scores on the behavioural exam. The authors concluded that they should use a pretest, posttest research design with a behavioural exam.

A more recent research study provides conflicting results. McEvoy (1991) conducted a study to find the validity of a behavioural testing procedure. The sample included 17 MBA students who were also managers. He collected several pieces of data for each participant: Scores on a behavioural exam; scores on a self-assessment instrument; and peer, supervisor and subordinate ratings of skill levels, both overall and on six different performance dimensions. Both skill assessment surveys addressed the same six

behavioural dimensions (i.e., communication, performance feedback, delegation, conflict management, problem solving, and motivation).

McEvoy found a highly positive, significant correlation between the managers' scores on the behavioural test, and their assessment of their own skills, both as a summary score for the six areas ($r=.80$, $p<.001$) and an overall assessment ($r=.61$, $p<.01$). He found no relationship between the managers' self-assessment scores and evaluations done by the managers' peers and subordinates. However, the managers' self-assessment scores correlated more highly with ratings by their superiors. These correlations were also statistically significant (correlation coefficients ranging from .46 to .82, all with $p<.05$ or better). McEvoy warns that the data must be interpreted with caution, due to the small sample size, and a lack of inter-rater reliability for the peer and subordinate evaluations. However, the study does provide some support for using a non-behavioural self-assessment of management skills.

A third research study (McEvoy & Cragun, 1986-87), also has implications for the current study. McEvoy and Cragun compared two different approaches in management skills instruction at the third-year college level: The experiential exercise approach, and the behaviour modelling approach. The dependent variables in the study were student satisfaction with the course and student performance on a

behaviourally-based examination. The researchers assigned
students in one lecture section to the behaviourally-based
condition, and students in the other section to the
experientially-based condition. Students in the behaviour
modelling section scored significantly higher on the behav-
ioural exam at the end of the course, and on cognitive
learning tests. However, the students were less enthusi-
astic about the behaviour modelling method of instruction
and learning, as measured by variables such as attendance,
satisfaction with class-time use and involvement in class
projects. McEvoy and Cragun (1986-87) suggest that future
research studies should include: Random assignment to
conditions, study of additional methods of skills instruc-
tion, and collection of longitudinal data. The researchers
also believe that we must address the issue of construct
validity of behaviourally-based tests. Perhaps students
learn to be better role-players, rather than displaying a
greater level of management skills.

Mullin, Schaffer, & Grelle's (1991) research provides
important information for the current research study. Their
study evaluated the learning of managerial skills by a group
of business students enroled in either management skills
courses or traditional lecture courses on principles of man-
agement. Instructors taught the management skills sections
with an assessment centre approach. The DDI instrument was
used to measure learning of management skills. Because the

research design included a rigorous, Solomon Four Groups research design, the findings are particularly important.

In the first phase the authors evaluated the gain in management skills levels of a group of 35 junior, senior and graduate business students who completed the management skills course. The study used a one-group, pre and posttest research design. Students showed a significant increase in management skills levels after completing the course. The students' management skills levels increased overall and on two individual scales: Judgement and delegation. However, the researchers decided to conduct a second phase, due to obvious weaknesses of the research design in the first phase. For instance, they could not eliminate learning as a possible intervening factor in the improvement in test scores on the posttest.

The authors conducted a second phase, designed to eliminate other possible effects, and to learn whether other teaching methods would have different effects. They used a Solomon Four Group research design, with four groups formed based on instructional method (assessment centre versus traditional lecture) and testing time (pre and posttest versus posttest only). The research design allowed the researchers to decide whether the training method affected learning of managerial skills, whether students who completed the pretest would score higher on the posttest, and whether the training method affected cognitive learning and

student evaluation of the course.

Since students could not be randomly assigned to the four treatment groups, the authors tested for differences by grade point average. They found no statistical difference between the groups. In addition, they selected two instructors who were very similar in demographic characteristics and experience, qualifications and student ratings. The researchers assigned these instructors to teach one section each of the four different possibilities. They administered pre and posttests of 14 different management skills to the appropriate treatment groups. The students also completed four objective knowledge tests. Finally, all students completed the same course evaluation.

Students in the experimental group, who received the assessment centre managerial skills training, scored significantly better on the posttest, as measured by gain scores. This result supports the findings of the study's first phase. That is; the study proves that basic managerial skills can be taught in the classroom, and that the assessment centre is an effective instructional method.

The authors also found that completing the pretest did not affect posttest performance. They suggest this means there are no learning effects from completion of a pretest, when no feedback is provided to the students on their performance.

The two groups did not perform significantly different-

ly on the cognitive knowledge examination. Students who received training in management skills performed as well as students in the course that focused on instruction in cognitive knowledge. These results indicate that instructors who focus on management skills do not need to worry that academic standards will slip.

Finally, the authors found no significant difference in course evaluations between the control and experimental groups. This result should encourage instructors to try new instructional methods, without worrying that their evaluations will suffer.

Although the research design was very sound, the authors did warn that it had some limitations. First, although the groups did show a significant difference between their overall pre and posttest scores, the difference was very small. When the 16 skills were tested individually, only six differed significantly between treatment groups. These differences were small and inconsistent in direction. Second, the students' skills levels, even after completing the course, were still below those of beginning and middle-level managers. The authors state that this suggests the need for more instruction in management skills in the business curriculum.

Silver, Watkins, & Obremski (1992) report on the first phase of a research study designed to evaluate program changes in the graduate business school at the University of

Denver. The university recently altered its graduate busi-
ness program, to enhance instruction in management skills
and other areas. The first phase of the study provides a
baseline of data about the students' knowledge, skills and
attitudes at the beginning of the program.

Ninety full-time and 30 part-time students, represent-
ing 86 and 67 per cent of the graduate student body respect-
ively, completed the pretest instruments before fall classes
began. The study used three instruments to provide informa-
tion on the students' self-efficacy regarding managerial
tasks, and their levels of creative problem-solving and
interpersonal skills. Although the authors had not gathered
any posttest data at the time the report was written, they
did make some observations based on the pretest data.

First, the students displayed relatively high levels of
self-efficacy about their management skills. This finding
appears to suggest that students enrol in MBA programs to
enhance management skills that they believe they already
possess. Second, the assessment of interpersonal skills
indicated that beginning MBA students tend to rely more on
reflective interpersonal skills when working with others.
However, when the students are managing activities and
developing ideas, they tend to use more active interpersonal
skills.

The authors conclude the analysis of the first phase of
their study by emphasizing the importance of using instru-

ments that assess behavioural skills rather than attitudes or traits. The instruments used by the authors in this study, and in the current research study, assessed <u>self-perceptions</u> of behaviours. In future research, Silver et al. (1992) recommend that research should use behaviourally-based assessment methods, or collect qualitative data.

<u>Relationship of educational experiences to managerial performance</u>. Howard (1986) summarizes the results of a longitudinal study of the relationship between managerial performance and various background and demographic characteristics. She bases her conclusions on data from several different groups of people. First, Howard includes data from two American Telephone and Telegraph (AT&T) longitudinal studies. Managers who graduated in the 1950s and the 1970s participated in these well-known studies. Data included assessment centre scores of abilities, motivation, and personality. The study also included an overall assessment of the subjects' general managerial effectiveness, and a prediction of their future managerial success. Second, Howard used data from a control group of managers from 10 other organizations.

Howard included other characteristics to determine their possible relationship to managerial success: College attendance, college grades, quality of the college, major field of study, number of extracurricular activities in college, and number of leadership positions in extracurricu-

lar activities.

Howard concluded in her literature review that there has been little relationship proven between managerial performance and the various measures of college experiences. Earlier research studies had shown inconclusive results. Howard designed her study to meet four objectives. The first objective was to ensure that managerial performance was being measured in the sample by a common criterion. The author wished to state with some confidence that certain characteristics were or were not related to managerial effectiveness. The second objective of the study was to relate college experiences to specific measures of managerial behaviour, rather than global effectiveness measures. The third objective was to be able to determine the relative contribution of each characteristic in explaining variability in the measure of managerial success. Finally, Howard wished to determine whether characteristics related to managerial success had changed since the original AT&T data were collected.

Howard's study had two major relevant findings. First, three variables accounted for most of the variance in managerial performance, as defined by assessment centre scores and later promotions: College major, participation in extracurricular activities, and enrolment in higher education. Second, students who had majored in the humanities or social sciences performed best overall, especially in inter-

personal and verbal skills.

The managers whose college major was business were assessed as approximately equal in interpersonal skills to those who had majored in the humanities and social sciences. Those who had studied engineering received the lowest scores in interpersonal skills. Business majors scored higher than engineers on several other characteristics related to their managerial skills: Oral communication, personal impact, likeableness, and perception of social cues. However, students who had majored in the humanities or social sciences received the highest scores in these areas.

Howard emphasizes that those managers whose college major had been business usually received lower assessments of interpersonal skills than administrative and intellectual abilities. She believes this suggests that "current business schools may not be giving much attention to the interpersonal area for their students, seeing their charter as primarily the development of cognitive reasoning." (p. 549).

Summary

Several general conclusions about managerial roles and skills can be drawn from the articles and research studies summarized in this section of the literature review. First, research shows that managers perform a common set of roles and behaviours or skills, including analytical and interpersonal skills. Second, an effective manager is one who

performs these skills or competencies well. Third, the skills required for effective managerial performance may vary, depending upon various situational factors, such as type of organization and managerial level. Not all management skills must be used for effective performance in every situation, and some managerial skills are not appropriate in some situations. However, an effective manager possesses skills in all areas, and uses the appropriate skills for the current situation.

A review of relevant research studies assessing other management skills programs has also revealed three patterns. First, the studies show mixed agreement that behaviourally-based evaluation methods assess improvement in management skill levels more accurately than self-perception measures. Second, most previous researchers agree that a pre and posttest research design is most appropriate for this type of program evaluation. Finally, demographic characteristics may be related to effective managerial performance, and should be included as intervening variables in this type of research study.

Burnout

<u>Overview</u>

The study of psychological burnout is a branch of occupational stress research. Stress research began in the early part of this century (Mason, 1975a, 1975b). Hans

Selye, an early stress researcher, hypothesized the exis-
tence of the general adaptation syndrome, a three-staged
reaction to stimuli in the environment. Selye believed that
"diseases of adaptation" could result from an abnormal
adaptation to stressful agents in the environment. Accord-
ing to Mason, since Selye's early work, interest in stress
research has increased in the psychological and social
sciences.

The study of burnout experienced by people in the
workplace is a subarea of stress research. A small group of
researchers has also studied the experience of burnout in
university students. This section presents a brief overview
of the theoretical models of burnout. It will also briefly
describe the most relevant research studies, especially
those that used university students as subjects.

Theoretical Background of Burnout

According to the literature (e.g., Maslach, 1982b;
Burke, 1987; Garden, 1987), burnout can be defined either
broadly or narrowly. Freudenberger (1981) defines it broad-
ly as comparable to stress. Maslach (1982a) defines burnout
narrowly as a psychological condition that occurs in people
who are constantly exposed to very emotional interpersonal
situations on the job (Burke, 1987). However, we can derive
common characteristics of burnout definitions (Maslach,
1982b). Burnout occurs in individuals, rather than at the

organizational level. It is an internal psychological occurrence, which involves attitudes, feelings and motives. Burnout is also a negative experience, causing distress and dysfunction. According to Shirom (1989), burnout is also ongoing and chronic in nature.

Models of burnout. According to Burke (1987), very few burnout research studies have used a comprehensive model or framework. For example, Pines, Aronson and Kafry (1981) simply divided the work environment into internal and external variables that influenced the development of burnout in the individual. Maslach (1982a) categorized variables according to their involvement with people, job setting, or personal characteristics.

However, Cherniss' (1980) model of burnout is more comprehensive. It says that stress can result from an interaction between several variables, including career orientation, support and demands outside the workplace, and work setting characteristics. Different people will cope in different ways; some use active problem solving techniques, while others develop the negative attitudes associated with burnout. Most important, the model views burnout as a process, resulting from negative attitude changes that occur over time in reaction to stressors. More recent research suggests that individual characteristics, such as personality and gender (e.g., Fuehrer & McGonagle, 1988; Hetherington, Oliver, & Phelps, 1989; Meier & Schmeck, 1985; Golem-

biewski & Kim, 1989; Garden, 1989) and situational factors
(Fuehrer & McGonagle, 1988) also contribute to burnout.
This section will describe some of this research later.
Shirom (1989) states that "there is evidence implicating
burnout in bringing about somatic complaints, and possibly
depression . . . [which] provides support for the develop-
mental models of burnout" (p. 40).

Maslach and Jackson (1981) identified three dimensions
to burnout, related to the associated negative attitude
changes. Depersonalization represents the "development of
negative, cynical attitudes and feelings about one's cli-
ents." (p. 99). The person no longer views clients, or the
persons being helped, as individuals with valid problems or
complaints who require assistance. A second component of
burnout is a feeling of lack of personal accomplishment.
The person feels dissatisfied with their achievements on the
job. The third component is emotional exhaustion, or a
depletion of emotional resources. Maslach and Jackson's
Maslach Burnout Inventory (MBI) (1981) provides individual
frequency and intensity scores for each of the three dimen-
sions, and a total burnout score.

Chapter Three provides detailed information on the
validity of the modified version of Maslach and Jackson's
instrument. Several other research studies have found
evidence for the relationship of burnout to physical and
psychological symptoms of distress (e.g., Burke, Shearer, &

Deszca, 1984; Golembiewski & Munzenrider, 1988, 1991; Golem-
biewski & Scherb, 1991; McCarthy, Pretty, & Catano, 1990).
Burnout is clearly a valid individual psychological con-
struct. It is also considered a process that occurs as a
response to environmental stressors.

Phase model of burnout. Golembiewski and others
(Burke, 1987) developed the burnout construct further. They
incorporated the idea that burnout should be studied as a
process. In this model, the researchers assign persons to
one of eight progressive phases of burnout, based on their
three MBI subscale scores. Each score can be dichotomized
as high or low, using the median identified by Golembiewski,
Munzenrider, and Stevenson (1986). The authors identified
the median scores in a research study of employees in a
large American multinational corporation.

The phase model of burnout states that the strongest,
first contributor to burnout is emotional exhaustion, fol-
lowed by lack of personal accomplishment, and then
depersonalization. Therefore, persons scoring in the low
group on all three subscales are assigned to Phase I of
burnout, and individuals scoring in the high range to Phase
VIII. The model defines Phases II through VII based on the
various possible high and low combinations of the three sub-
scales, and their hypothesized strength and order of contri-
bution to burnout. Various authors have shown the validity
of this model (e.g., Burke et al., 1984; Golembiewski,

Munzenrider, & Carter, 1983; Golembiewski & Munzenrider, 1988, 1991; Golembiewski & Scherb, 1991).

There are advantages to using the phase model of burnout, rather than only a total burnout score (Golembiew-ski, et al., 1986). First, it provides an indication of the virulence of burnout experienced. Second, it delineates individual differences, according to subscale scores. Individuals may have a similar total burnout score, but actually be experiencing a higher burnout phase, due to the combination of their scores in the three subscales.

Golembiewski, et al. (1986) present information about the incidence and persistence of the burnout phase, based on data from nine research studies. Most organizations show a bimodal distribution of employee burnout phase, with higher frequencies generally occurring in the low (I through III) and high (VI through VIII) phases. Proportions of employees in high phases ranged from 20 to 60 per cent, while proportions in low phases ranged from 29 to 63 per cent.

Golembiewski et al. (1986) present little empirical data about the persistence of burnout phase. They state that "burnout generally persists over extended periods and hence is more chronic than acute" (p. 137). The authors base this conclusion on the responses of 113 people from a relatively "good" organization, who completed a pre and posttest of burnout approximately one-year apart. In this sample, 39 per cent of the respondents stayed in the same

burnout phase, while 57 per cent moved up or down by only
one phase. As well, placement in the two intermediate
phases (IV and V) tended to be less stable; only 15.4 per
cent of the individuals stayed in one of these two phases,
compared to 80 and 60 per cent respectively for the first
and final burnout phases. Those respondents in the inter-
mediate phases who did move into a new phase were about
equally likely to move up or down.

Some authors have criticized Golembiewski's phase model
of burnout (e.g., Leiter, 1988, 1989). Burke (1989) also
expressed some concerns with the model's methodology. He
states that several research studies have shown a signifi-
cant correlation among the three subscales, ranging from .25
to .60, with a mean intercorrelation of .40. This relation-
ship between the subscales means that assignment to the
various phases is probably influenced. That is, people with
high scores on one subscale are more likely have high scores
on the others. Depersonalization and emotional exhaustion
are the most highly correlated subscales. As expected,
research finds higher frequencies of people experiencing
burnout in the phases with high-high and low-low combina-
tions of those two variables.

However, the strength of the phase model of burnout is
its acknowledgment of the construct's process nature. In
addition, research has shown concurrent validity for the
model. Therefore, it does provide more information than

using only a total burnout score and the three subscale
scores.

Relationship to Management Skills

The literature search identified no research studies
that examined the relationship between management skills
levels and burnout, either in a general population or using
university students as subjects. In addition, two reviews
of the literature (Kahill, 1988; Perlman & Hartman, 1982)
conclude that burnout has not been proven to be linked to
poor job performance. Garden (1991) did not find a rela-
tionship between energy depletion, which she called `burn-
out', and academic performance of graduate students. Ac-
cording to Perlman and Hartman, research has only proven the
relationship of burnout to two outcome variables: Turnover
and job satisfaction.

Burnout Research Studies with University Students

Meier and Schmeck (1985) conducted a study on burnout,
using 120 undergraduate psychology students as subjects.
Their findings are very important to this study for two
reasons. First, the study validated a new measurement of
burnout against student scores on a 22-item version of the
MBI. They found a highly significant, fairly strong corre-
lation between the two total burnout scores ($r=.58$,
$p<.001$, $N=125$). These results show that burnout can be

validly assessed in student populations.

Second, Meier and Schmeck's study is important because it developed a profile of students experiencing burnout. The authors related burnout to various traits associated with student performance: Self-esteem, memory, learning style, vocational self-concept and sensation seeking. The authors warn that their results must be interpreted with caution. Meier and Schmeck found relationships between the variables, but cannot attribute cause. However, they state that students experiencing high burnout are less "active, inquisitive, and interested." (p. 67). Students with high burnout levels are more likely to have lower levels of self-esteem, and may have less-crystallized vocational identities.

A review of the literature identified three other research studies with pertinent findings about correlates and predictors of burnout in undergraduate university students. Two of these articles were related to burnout in student residence assistants, while the third examined the relationship of sense of community to burnout level.

Fuehrer and McGonagle (1988) tried to learn whether earlier research findings on student service professionals could be generalized to students providing service to other students. The authors proposed that student residence assistants (RAs) in universities could be expected to experience some job-related strain.

Fuehrer and McGonagle used an interactive model of burnout. They included three different sets of variables as possible predictors of burnout: Gender, student RAs' perceptions of six job-related stress indicators, and a situational factor. The situational factor was assignment of the RA to a first year or upper-class dormitory. The researchers believed that students assigned to first year dorms would experience different types of stress, and perhaps different levels of burnout, due to the different needs of first year students.

The study found a complex relationship between situational and individual factors predicting burnout among student RAs. The authors conducted two factor analyses of variance; the independent variables were gender and type of dormitory assignment. Dependent variables were six stress indicators and six burnout scores, as measured by the 22-item Maslach Burnout Inventory.

The researchers found a significant relationship between gender and one of the stress indicator scores ($F=6.25$, $p<.05$); females reported more stress in situations involving values development. Female student RAs also reported significantly higher levels of intensity of emotional exhaustion ($F=4.28$, $p<.05$) and lack of personal accomplishment ($F=5.50$, $p<.05$).

The research found no significant relationship between dormitory type and scores on the situational indicators.

However, RAs assigned to first-year dormitories did report higher levels of burnout. Specifically, their scores on frequency and intensity of lack of personal accomplishment were significantly higher.

The ANOVAs also showed an interactive effect between gender and dormitory assignment. Male RAs in upper-class halls and female RAs in first-year dormitories reported higher levels of stress experienced in three types of situations, requiring three types of skills: Emotional resiliency, confrontation, and counselling. In multiple regression analyses, the factors which consistently predicted significant amounts of variance in burnout level were stress in situations requiring environmental adjustment, and dormitory type.

The authors speculate that there is a complex relationship between the explanatory variables and burnout level. Gender did not enter the regression equation. However, they found an interactive relationship between gender and dormitory type, to predict experienced stress in three of the six types of stress indicators. According to the authors, these results show that situational factors cannot be ignored in research studies of this type.

A second research study (Hetherington, Oliver & Phelps, 1989) also examined burnout in student resident assistants at a large mid-western public university. However, this study used a matched group of general students as a control

group. The authors assessed burnout with total scores on the three subscales measured by the 22-item MBI.

Hetherington et al. found a significant relationship between gender and some types of burnout. Male students reported lower levels of personal accomplishment than female students ($F=4.10$, $p<.01$). The emotional exhaustion and depersonalization subscales showed significant interaction effects with gender and student type. Female RAs scored significantly higher than male RAs on the emotional exhaustion subscale ($F=4.02$, $p<.05$). Female students from the general student group scored significantly higher on the depersonalization subscale than their male counterparts ($F=6.94$, $p<.01$).

Finally, student type was significantly related to one burnout dimension. The students in the general group reported a lower level of personal accomplishment than the RA group of students ($F=16.10$, $p<.01$).

The authors explain the greater level of emotional exhaustion reported by female RAs, with the socialization of females in our society "to find worth in their involvement with others" (p. 268). Female RAs were more likely to help others at the expense of their own well-being.

According to the authors, higher levels of personal accomplishment in the RAs could be explained if it is agreed that the RA position provides an opportunity to experience a sense of accomplishment. However, they caution that other

explanations may exist, such as self-selection of students into RA positions. Use of a pre and posttest research design would control for characteristics of students at the beginning of the year.

Finally, a third research study (McCarthy, Pretty & Catano, 1990) examined the relationship between sense of community and student burnout. This study used third-year students from a general population of full-time, regular students. The authors hypothesized that students' feelings of sense of community would influence burnout level. The study did not use a control group, or include any post-testing. Although the study did not control for intervening variables, it did incorporate two measures of burnout vali-dated for use with students, and measures of psychological and physical distress symptoms.

The authors hypothesized that sense of community would decrease as burnout levels increased. They found this to be true. The study proved a significant negative relationship between students' sense of community and both burnout scores, as well as psychological distress symptoms. The authors also found a small negative, significant relation-ship between grade-point-average and both burnout scores.

Multiple regression analyses included scores on the four dimensions of the sense of community instrument and grade point average, to determine predictors of burnout. For both measures of burnout, grade point average entered

the equation first. However, the other variable that explained a significant amount of the variance in burnout differed, depending upon the burnout measure. For one measure, shared emotional connection entered the equation, while for the other, fulfilment of needs entered. This difference suggests that the two burnout measures are sensitive to slightly different environmental factors.

Summary

Burnout is narrowly defined as a psychological condition resulting from stress in the workplace. It is characterized by depersonalization, lack of personal accomplishment feelings, and emotional exhaustion. Several other factors can contribute to the experiencing of burnout, including personality variables and environmental factors. Individuals are assigned to one of eight progressive phases of burnout, based on whether they have high or low scores on the three MBI subscales.

The reviewer described three research studies that used university students as subjects. These studies are important for two reasons. First, they suggest that students experience burnout, and that burnout can be validly measured in student populations. Second, these studies show various factors may be responsible for predicting burnout levels, such as GPA, gender, situational factors, and so on.

Self-Esteem

Research studies can include self-esteem as a predictor, moderator, or outcome variable (Tharenou, 1979). The current study is interested in the predictive or moderating influences which self-esteem may have on performance of management skills. This section of the literature review will define self-esteem, distinguish it from self-concept, and present a brief summary of the generally accepted theoretical framework for self-esteem.

This section of the literature review will also present a summary of related research studies. First, it will summarize research on self-esteem in university students, and its relationship to other variables, such as age, gender, and university major. Second, it will summarize the results of research studies that examined the relationship between self-esteem and the two other variables of interest, management skills and/or burnout.

Overview

The appropriate term must be used when evaluating research studies about self-esteem, especially when reviewing research that is several years old. In the past, researchers often used the terms self-esteem and self-concept interchangeably. However, it is important to make a distinction between the two constructs. Literature defines self-esteem as "a *personal* judgment of worthiness that is

expressed in the attitudes the individual holds toward himself." (Coopersmith, 1967, p. 5). Self-concept is a more comprehensive term than self-esteem. Self-esteem is the evaluative portion of one's self-concept (Brockner, 1988). Self-concept is "the totality of the individual's thoughts and feelings having reference to himself as an object." (Rosenberg, 1979, p. 7). Self-concept is not an evaluative term, as is self-esteem; instead, it is composed of facts and evaluations of oneself.

Researchers believe self-esteem is an important variable, with trait-like characteristics (Blascovich & Tomaka, 1991). Individuals develop their self-esteem in interactions with the environment and significant others, either successful or unsuccessful (Shavelson, Hubner, & Stanton, 1976). The literature suggests that self-esteem develops over several years, and therefore is unlikely to change as the result of isolated incidents or experiences in adulthood. That is, because researchers believe self-esteem is a psychological trait, they also believe it is consistent in adults over time. However, some research studies suggest that self-reported self-esteem can vary over short time-spans. This review describes several of these studies.

Theoretical Background of Self-Esteem

Model of self-esteem. The widely accepted model of self-esteem is hierarchical and multifaceted (Shavelson, et

al., 1976). The model clearly defines self-concept (used here to mean self-esteem), so researchers could compare results of studies and test rival hypotheses. Before self-esteem research could progress, the literature needed to situate the construct in a nomological network.

Shavelson et al. (1976) argue that self-esteem is a hierarchical construct, with many facets. They define general or global self-esteem as the individual's overall judgement of his or her self-worth. Their model divides self-esteem into academic and nonacademic components. Academic self-esteem is composed of self-esteem as related to various academic subgroups, such as subjects. For instance, an individual can have self-esteem in relation to mathematics, science, language, and so on.

The model proposed by Shavelson, et al. (1976) states that there are three types of self-esteem in the nonacademic area: Social, emotional, and physical. Social self-esteem has two subareas: Peers and significant others. Physical self-esteem is comprised of self-esteem related to physical ability and physical appearance.

This hierarchical, multifaceted model of self-esteem is important because it supports the notion that self-esteem levels depend on the situation. A person may have high self-esteem in certain areas, but not in others. For instance, high self-esteem in social settings does not guarantee a high level of academic self-esteem. Several authors

have suggested that research studies should use appropriate self-esteem measures (e.g., Tharenou, 1979; Brockner, 1988). A measure of a certain type of self-esteem (e.g., intellectual, social) may be more appropriate than a global measure. For example, a research study relating academic achievement to self-esteem should use a measure of academic self-esteem, while a study involving interpersonal skills should use a measure of social self-esteem.

Other research studies (e.g., Fleming & Watts, 1980; Fleming & Courtney, 1984; McIntire & Levine, 1984) validate the existence of several distinguishable self-esteem dimensions. Fleming and Watts (1980) verified the existence of three factors, which correspond to three of the four dimensions proposed by Shavelson et al. (1976). The second study (Fleming & Courtney, 1984) replicated these findings, and verified the existence of the two physical factors in Shavelson et al.'s model: Physical appearance and physical abilities.

McIntire and Levine's (1984) findings support the composite model of self-esteem. When the researchers combined scores for the various measures, four distinct factors emerged in factor analyses: Self-esteem measures for academic and athletic tasks, social self-esteem, and chronic (global) self-esteem. The authors found that the scores on the specific measures all correlated at a significant, low level, with the global self-esteem score. However, task-

related self-esteem scores correlated more highly with the related social self-esteem scores. That is, athletic self-esteem scores correlated more highly with athletic social self-esteem scores, than with the measure of global self-esteem.

Relationship to attitudes and behaviours. Self-esteem is related to various attitudes and behaviours. Literature suggests that individuals with low self-esteem are more likely to: Display anxiety, depression, and neurotic behaviours; perform less effectively in stressful conditions; have poorer social skills; be more conforming; and have lower expectations of success (Tharenou, 1979). Several research studies have examined the relationship of self-esteem to work performance. However, according to Tharenou, there is no consistent relationship between global self-esteem and work performance, except under stressful conditions. Other authors (e.g., McIntire & Levine, 1984) suggest that task-specific dimensions of self-esteem may be better predictors of performance than global self-esteem.

Self-esteem in University Students

Some research studies show a relationship between university students' self-esteem and other personality traits and demographic characteristics. Fleming and Watts (1980) found complex relationships among these variables. Their study identified three dimensions of self-esteem:

Self-regard, Social Confidence, and School Abilities. They found that gender did not correlate significantly with any of the three self-esteem dimensions. They did not find a significant relationship between self-reported grade-point average and School Abilities self-esteem. However, the study did find a significant relationship between vocabulary and the academic self-esteem score. Social desirability correlated positively with Social Confidence and negatively with School Abilities, but did not correlate significantly with Self-regard. Situational anxiety was negatively corre-lated with all three factors, but most highly with Self-regard and School Abilities.

Fleming and Courtney (1984) also used university stu-dents in their study. Their study validated the Shavelson et al. (1976) hierarchical model of self-esteem. The researchers found several significant relationships between self-esteem dimensions and demographic characteristics. For instance, gender and the Physical Abilities self-esteem dimension were significantly related; males showed a higher level of this type of self-esteem. The study found a posi-tive correlation between age and two self-esteem dimensions: Self-regard, and Social Confidence. Social Confidence also correlated more highly with certain other nonacademic char-acteristics related to life experience including: Marital status, full-time work experience, and parenthood. Birth order and number of siblings were not significantly related

to self-esteem. Social desirability related significantly only to the Social Confidence self-esteem dimension.

Fleming and Courtney (1984) also found a positive relationship between School Abilities and both grade-point-average and vocabulary. Finally, the measures of personal adjustment (anomie, depression, and anxiety) all had highly negative correlations with the self-esteem scores.

Several research studies with university students have included self-esteem as a <u>predictor</u> variable. For example, Madden, Woods, Dares-Hobbs, and Collins (1987) used self-esteem as a possible predictor of campus involvement of undergraduates at a liberal arts college. Self-esteem was positively correlated with: Concern with status, liking to spend quiet evenings alone, and liking to feel in control of events in one's life. The study found a negative correlation between self-esteem and alienation.

Mooney, Sherman and Lo Presto (1991) used self-esteem in an interactive model, studying predictors of college adjustment. The subjects were first-year female students at an undergraduate liberal arts college. They found that self-esteem and college adjustment were positively correlated. In regression analyses, self-esteem was the second variable to enter the equation as a predictor for the four subareas of college adjustment. Both these studies provide evidence that self-esteem is an important variable in studying the behaviours and attitudes of college students.

Relationship to Management Skills

The literature review identified no research studies that specifically used management skill as the dependent variable, and self-esteem as a moderator, predictor, or outcome variable. However, research on performance may be relevant, if it is agreed that performance in the workplace is related to performance of management skills, particularly interpersonal skills. As some authors state (e.g., Tharenou, 1979), persons with low self-esteem tend to have higher levels of negative behaviours and attitudes, including poorer interpersonal skills. It could be theorized that self-esteem is negatively related to performance of management skills.

Brockner and colleagues (Brockner, Derr & Laing, 1987) conducted two research studies on university students' self-esteem and performance. In the first study, they looked at the influence of feedback on performance, and used self-esteem as a moderating variable. They defined performance as the student's grade on the second midterm exam in a third-year introductory organizational behaviour course. The study defined negative feedback as a grade of C or lower on the first midterm exam. The authors measured self-esteem during the first week of classes; they designated students as high or low self-esteem based on a median split.

Students in the low self-esteem group were much more likely to perform significantly lower on the second midterm

exam if they received negative feedback on the first exam. Students in the high self-esteem group performed slightly lower on average on the second exam, if they had received negative feedback on the first exam. It should be noted that performance on the first exam did not differ between the self-esteem groups. That is, self-esteem did not influence performance until the study combined its effect with negative feedback.

The second study used undergraduates in a speech communication course as subjects. The researchers designed the study to learn whether the interaction between self-esteem and feedback would generalize to different behaviour. (The authors defined this new behaviour as "communication". However, it could perhaps be better described as 'risk-taking', based on the instructions and scenario provided to the students.)

The researchers randomly assigned students to one of three conditions -- control, failure, and threatening failure. Their earlier research findings did generalize to this study. Students in the high self-esteem group made similar decisions, despite the condition the researchers assigned them to. However, the condition significantly affected low self-esteem individuals. Low self-esteem students assigned to either failure condition were less likely to decide to risk recommending a production change. As expected, they were least likely to make a positive recommendation in the

most threatening condition. The authors found an interactive effect between self-esteem level and feedback condition.

Relationship to Burnout

According to Meier and Schmeck (1985), the attributes that Coopersmith (1967) ascribed to persons with low self-esteem (e.g., feelings of powerlessness, isolation, anxiety) have also been ascribed to people experiencing burnout (e.g., Cherniss, 1980; Maslach & Jackson, 1981). Accordingly, there is good reason to consider the relationship of self-esteem to burnout.

However, few research studies have examined the relationship between these two constructs. The studies can be divided into two groups, based on their subjects: Managers or other professionals, and students. This section of the literature review will include the main research findings from both groups, since they add valuable information to an understanding of the relationship between these two constructs.

Managers as subjects. Golembiewski and Kim (1989) conducted an early study designed to examine the relationship of self-esteem to burnout. They used a small volunteer convenience sample of managers enroled in a corporate wellness program. Therefore, results should be interpreted with caution. However, the study is important because it was

among the first to prove a negative correlation between self-esteem and burnout in managers. The researchers found that scores on a global measure of self-esteem covaried as expected with the eight progressive phases of burnout. Subjects' mean self-esteem levels decreased in the higher phases of burnout. However, they could not show causality with their research design.

Rosse, Boss, Johnson and Crown (1991) tried to replicate and extend Golembiewski and Kim's (1989) results. This study also used professionals as the research subjects. However, they had access to a much larger sample and used a more complex research design, with more measures and constructs. Rosse et al. (1991) used two samples, police officers and hospital workers, in large metropolitan cities. The police officers were also participating in a wellness program, while the hospital workers were participating in a long-term project designed to improve the quality of work life (QWL) of the organization.

The data collected varied slightly between the two groups. The authors used slightly different research designs and measures, to try to find whether self-esteem is an antecedent, moderator or outcome of burnout. The police officers completed the measures twice, approximately 28 to 43 months apart. They also completed items designed to assess physical and mental health. The hospital workers, besides self-esteem and burnout measures, completed items

designed to assess the levels of burnout precursors: Quality of interdepartmental communication, leader approachability, intragroup trust, and role ambiguity.

Rosse et al. (1991) also found a negative relationship between burnout and self-esteem, using both burnout phase and the three subscale burnout scores. The authors state that "self-esteem and burnout are related in a consistent, significant, and linear manner." (p. 438). Analyses of variance showed significant differences between the phase groups, and tests for linear trend showed that self-esteem decreased as burnout advanced. Analyses of covariance, using gender as the covariate, found that gender was not a factor in the negative relationship between burnout and self-esteem.

The authors also studied the relationship of self-esteem to burnout. They compared correlations between pre and posttest burnout and self-esteem scores for the police officers. The results suggest self-esteem may be an antecedent and/or an outcome, but not a moderator of burnout.

Rosse et al. (1991) also analyzed the workplace data from the hospital workers. Moderated regression analyses showed that self-esteem was an important predictor of the workplace characteristics, but the interactive effect between self-esteem and burnout was not. The authors obtained similar results in analysis of the psychosomatic data from the police officers. They found that self-esteem

did not moderate the relationship between health disorders and burnout.

  <u>University students as subjects</u>. Meier and Schmeck (1985) studied self-esteem as a possible contributor to burnout in university students. They included other variables in the study, such as memory, learning style, vocational self-concept and sensation seeking. The study used two measures of burnout: The MBI; and the authors' own measure, the Meier Burnout Assessment. The study assessed self-esteem with the short form of Coopersmith's Self-esteem Inventory.

  They used a median split to assign students to high and low burnout groups for data analysis purposes. Analyses of variance suggested that students experiencing high burnout had lower self-esteem. They also found a positive correlation between self-esteem and several of the learning processes. Cause cannot be determined in a correlational study. However, this study is important because it provided evidence of a relationship between self-esteem and burnout in university students.

Summary

  Self-esteem is a hierarchical construct, composed of academic and nonacademic components. Social self-esteem is determined by a person's evaluation of their self-worth in interactions with peers and significant others. Social

self-esteem is more appropriate than global self-esteem,
when studying the relationship of self-esteem to socially-
related management skills.

Self-esteem level is relatively stable by adulthood.
The reviewer hypothesized that self-esteem is related to
performance, because low levels of self-esteem are related
to poorer interpersonal skills. This section of the litera-
ture review also presented research with university students
that shows a positive correlation between low self-esteem
and burnout.

Summary

The literature review provided theoretical frameworks
for all the variables of interest in this study. It also
summarized previous research in management skills, burnout,
and self-esteem, and their interrelationship. Wherever
possible, the literature review has focused on studies using
university students as the subjects, to ensure relevance to
the current study.

Research literature suggests that self-esteem and
burnout are significantly related to one another. It also
suggests that work performance is only slightly related to
both self-esteem and burnout. The current study tried to
find a relationship between self-esteem, burnout, and demo-
graphic characteristics, and students' self-reported skill
in performance of managerial roles and competencies. Previ-

ous studies have addressed the relationship between self-esteem or burnout and student performance in other areas, such as academic achievement. However, no earlier studies focussed specifically on performance on a comprehensive measure of management skills. This research study examined the relationship between self-esteem, burnout, demographic variables, and the increase in management skills levels of university students in a training program.

CHAPTER THREE

RESEARCH DESIGN

Introduction

The study used a quasi-experimental research design, with a nonequivalent control group (Emory & Cooper, 1991). Pre and posttest measures were administered to a treatment and control group of management students at the beginning and end of a 13-week semester. A second control group of nonmanagement students completed only the pretest.

At both times, management skills level, level of burnout, and social self-esteem level were assessed respectively by the Competing Values Self Assessment (CVSA), a modified version of the Maslach Burnout Inventory (MBI), and the Texas Social Behavior Inventory (TSBI). The students completed a second measure of management skills only during the pretest. Both the pre and posttest questionnaires contained the demographic section.

Research Design

Overview. The survey was refined in Fall 1992. In mid-January 1993, it was pilot-tested. All three groups of students completed the pretest during the second half of January 1993. In April 1993, the posttest was administered to the two groups of management students, within two weeks after the treatment group had completed their final manage-

ment skills workshop.

Pilot study. A pilot study in mid-January 1993 refined the instrument and accurately determined the length of time required to complete it. University of Lethbridge students enroled in a fourth-year Management research course participated in the pilot study. In addition to responding to the items, they provided feedback on the demographic portion of the questionnaire. A total of 18 of 21 questionnaires were returned.

Selected findings. The pilot group required approximately 30 minutes on average to complete the questionnaire, with a range of 15 to 35 minutes. Because of comments and questions, several wording changes were made to the demographic portion of the questionnaire. In addition, to reduce the amount of time required to complete the questionnaire, several questions were shortened or eliminated.

The students in the pilot group criticized the length and repetition in the 113-item Competing Values Self-Assessment (CVSA). However, since the developer of the instrument believed it to be more appropriate for use with a student population than the 32-item version, it was decided to use the long form (R. E. Quinn, personal communication, November 1992).

Design of Study

The sample. Details of the research design are shown
in Figure 3.1. The study surveyed three groups of under-
graduates. Two groups of students, one management and one
nonmanagement, were surveyed at the University of Leth-
bridge. The management students completed the survey at the
beginning and end of the 13-week Spring 1993 semester, while
the nonmanagement students completed only the pretest. The
Lethbridge group of management students consisted of approx-
imately 100 students completing the required organizational
behaviour (OB) course, and approximately 150 students com-
pleting the required human resource management (HRM) course.
The program required students in both courses to attend and
participate in three one-day management skills workshops.
The group of nonmanagement students consisted of approxi-
mately 50 students completing an introductory, second-year
course in the five-year combined degree B.Ed. program at the
University of Lethbridge.

A second control group consisted of Management students
attending the University of Calgary. This group was com-
prised of approximately 120 students enroled in two sections
of a required 13-week organizational behaviour course at the
University of Calgary. These two sections were chosen
because they were instructed by the same two professors that
semester, each for one-half of the semester.

The Lethbridge OB and HRM students (management treat-

Figure 3.1

Research Design

Group	Pilot	Pretest	Posttest
Pilot	Demographics, CVSA, Self-assessment, MBI, TSBI	N/A	N/A
Management treatment (Lethbridge OB & HRM)	N/A	Demographics, CVSA, Self-assessment, MBI, TSBI	Demographics, revised CVSA, MBI, TSBI, open-ended question
Management control (Calgary)	N/A	Demographics, CVSA, Self-assessment, MBI, TSBI	Demographics, revised CVSA, MBI, TSBI, open-ended question
Non-management control (Lethbridge, pre-Education)	N/A	Demographics, CVSA, Self-assessment, MBI, TSBI	N/A
Time Frame:	early January 1993	mid to late January 1993	early to mid-April 1993

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ment group) completed the questionnaire in one of three situations: Following an initial information session for the program, before the first Saturday OB workshop, or during one of five OB or HRM lecture sections. In all cases, the questionnaire was completed before the student completed his or her first workshop of the semester. Although various subgroups of the sample completed the questionnaire at different times and places, it is believed the responses provide accurate pretest assessments.

During this period, the pretest questionnaire was administered to the students in the two control groups: The University of Calgary management students, and the University of Lethbridge pre-Education students.

In April 1993, the treatment and control groups of management students completed the posttest questionnaires. The students in the two lecture sections at the University of Calgary completed the posttest questionnaire in mid-April 1993. At approximately the same time, the posttest questionnaire was administered in the five lecture sections of the Lethbridge OB and HRM courses.

Design. The research study used a quasi-experimental research design with a nonequivalent control group (Emory & Cooper, 1991). This design allowed comparisons to be made between the pretest scores of management and nonmanagement students, and between pre and posttest scores for two groups of management students. For practical reasons, the study

could not use a pure experimental research design.
Randomization of subjects to conditions is clearly not
possible when dealing with university programs. Instead,
comparison groups consisted of students enroled in entire
lecture sections.

Weiss (1972) says that for several reasons the use of a
nonequivalent control group is often superior to matching
individuals between the control and experimental groups.
First, the researcher has difficulty deciding characteris-
tics on which to match the participants. Matching based on
pretest scores may be inappropriate if the test is not reli-
able. Second, Weiss believes that it is better when "deal-
ing with nonequivalent controls to compare the measures of
natural groups than to select only extreme cases by match-
ing." (p. 70).

Weiss also argues that when randomized assignment to
groups is not possible, it is preferable to have a
nonequivalent control group than to have none at all. With
this design, one is more likely to be able to discount at
least some possible explanations for the observations.

According to Weiss, cross-program study is worth the
expense and effort only when three conditions are met: (a)
when the issue involves a critical decision between alterna-
tives; (b) when the different programs are quite well-
defined and have similar goals, but use very different
strategies for reaching these goals; and (c) when there is

evidence that the programs are likely to achieve success in reaching their goals.

Clearly, when research is conducted in a new field such as management skills training, with the possibility of many intervening variables, it will often be doubtful that any of Weiss' three conditions will be met. Therefore, the present research design has not used multiple cross-program comparisons. Instead, the study used a control group of students enroled in a similar program in the same province. The control group provided evidence on whether the University of Lethbridge's management skills program might be the cause of an increase in management skills level in the treatment group.

The study used triangulation to provide more confidence in the survey data. According to Jick (1979), triangulation can be narrowly defined as the use of more than one instrument, within the same methodology, to collect data. Accordingly, the research design included two different surveys for assessing the management skills. The first instrument used in the study was the Competing Values Self-assessment (CVSA), developed by Quinn and others (Quinn, 1988; Dipadova, 1990). The second instrument measured the student's self-perception of skills levels in the six different areas in which workshops were offered in Spring 1993: Self-awareness, effective presentations, time and stress management, business writing, effective interviewing, and negotiating.

The instruments did not provide a behavioural assessment of management skills; such an instrument would have been very expensive and time-consuming to develop and to administer. This study used the CVSA for the first time in a research study with students (R. Boudreau, personal communication, 1992), with another measure. A later section presents advantages and disadvantages of the research method.

<u>Measures</u>. Details on the instruments, including scoring procedures, are provided in Table 3.1. The pretest questionnaire consisted of a demographic section, two measures of management skills level, and assessments of burnout and self-esteem. Appendix C contains copies of the demographic section of the questionnaire, and the self-assessment management skills instrument. The questionnaire also invited participants to request feedback on their CVSA scores, and a summary of the study's results.

1. **Demographic Information.** The first part of the questionnaire consisted of questions designed to gather the demographic data. Demographic variables included: Age (in years), program, major, grade-point-average in current program, gender, previous degrees or diplomas, number of postsecondary courses completed in their current program, previous permanent full-time work experience, type of full-time work experience, previous noncredit management skills training, the subject of this previous training, and member-

Table 3.1

Summary of Instruments

Measure	Characteristics	Scoring Procedure
Demographic Questionnaire	12 questions, varying in type - e.g., checklist, yes/no	N/A
CVSA (pre-test)	113 items, using Likert response format, ranging from strongly disagree (1) to strongly agree (7). Higher score indicates higher self-assessment of managerial skill level.	3 items recoded, & mean overall score calculated, as well as mean score for 8 managerial roles & 24 skills
CVSA (post-test)	48 items, using Likert response format, ranging from strongly disagree (1) to strongly agree (7). Higher score indicates higher self-assessment of managerial skill level.	Mean overall score calculated, as well as mean score for 8 managerial roles
Self-perception of management skills (pre-test only)	6 items, using Likert response format ranging from low skill level (1) to high skill level (7). Higher score indicates higher self-assessment of managerial skill level.	Mean score overall, & individual score in each of 6 areas. Range from 1 to 7.

Table 3.1 (cont.)

Summary of Instruments

Measure	Characteristics	Scoring Procedure
Modifed Maslach Burnout Inventory (pre and post-test)	23 items, using Likert response format ranging from very much unlike me (1) to very much like me (7). Higher score indicates higher degree of burnout.	3 subscale scores as sum of responses to items. Depersonalization & Lack of Personal Accomplishment - 8 items; Emotional Exhaustion - 7 items. 8 items recoded, all for PA subscale. Burnout phase determined by high-low combinations of scores on 3 subscales. High-low decided by median values in literature.
Texas Social Behavior Inventory (pre and post-test)	16 items, using Likert response format ranging from not at all characteristic of me (0) to very much characteristic of me (4). Higher score indicates higher level of social self-esteem.	6 items recoded. Mean score for social self-esteem calculated based on responses to all items.

ship in related clubs or organizations.

2. Management skills level. Pretest management skills level was measured with one form of the CVSA instrument (Dipadova, 1990). The "Competing Values Self-Assessment: Managerial Skills" instrument consisted of 113 items. This instrument measured 24 different skills, associated with eight managerial roles. Appendix D lists these roles and competencies (Quinn, et al., 1990). Example items include the following: "39. I always try to look at old problems in new ways.", "72. Delegating work frees up time to do more important things.", and "93. People trust me and come to me for advice.".

The original 113-item instrument, with the rest of the questionnaire, required 30 to 45 minutes for completion by most students. The CVSA was then shortened to 48 items for inclusion on the posttest. Details are provided in Chapter 4.

The pretest also included a second measure of the six management skills taught in the Spring 1993 workshops. The measure was modelled on an instrument used in a research study described in Chapter 2 (McEvoy, 1991). Students were asked to assess their skills level, on a seven-point Likert scale, in each of the six areas included in the University of Lethbridge management skills training program. As discussed in Chapter 4, the total scores on this instrument had high significant correlations with total scores on the CVSA.

As a result, the second assessment of management skills was not included on the posttest.

3. Burnout. Burnout was measured using a revised, 23-item version (Golembiewski & Munzenrider, 1988) of the Maslach Burnout Inventory (MBI) (Maslach & Jackson, 1981). The original version of the MBI asks respondents to indicate for each item both the frequency and intensity that they are experienced. The revised version asks respondents to indicate agreement with the statement on a seven-point scale.

The revised MBI instrument provided a score on three subscales: Depersonalization, personal accomplishment, and emotional exhaustion. Example items for each scale, respectively, are: "4. I feel uncomfortable about the way I have treated some co-workers.", "10. I feel I'm positively influencing my co-workers' lives through my work.", and "14. I feel frustrated by my job.".

The individual's phase of burnout was calculated using scores on these subscales. Higher mean scores on all three subscales suggest a higher degree of reported burnout, since the responses to the items on the personal accomplishment subscale are all recoded.

Golembiewski, Munzenrider and Stevenson (1986) describe the development of the 23-item, modified version of the MBI. The scale was modified in two ways. First, the authors altered the scale so that it no longer requested indications of frequency and intensity experienced for each statement.

Instead, the instrument asks respondents to indicate on a seven-point scale how much the statement is like or unlike them. Second, after an item analysis, one item was deleted from each of two of the subscales.

Golembiewski, et al. (1986) defend their modification of the MBI with several arguments. First, they say that reanalysis of Maslach's data found that the intensity and frequency data shared about 96 per cent of their variance. Therefore, the authors lost little data by deleting this distinction from the instrument. As well, based on data analyzed from 2,869 federal employees at more than 50 sites, they found that the original MBI scale scores had a lower reliability than did those on the modified version. The depersonalization subscale had a reliability of .66 in the original version, but this increased to .76 in the modified version, with one item deleted. The alpha coefficient for the emotional exhaustion subscale decreased slightly, from .87 to .86, with the deletion of one item. However, for the total burnout score, the reliability increased from .85 to .86 with the deletion of both items (Golembiewski, et al., 1986). Figures provided by the authors suggest that further item deletions would lower the reliabilities of the scales for all but one.

In addition, factor analyses of the data from responses to the modified version of the questionnaire resulted in three clear factors. Similar results were obtained from

analysis of the responses of 296 employers of a private
organization. As well, the factorial structures generated
were very similar to those in Maslach's original studies.
Finally, according to Golembiewski et al. (1986), the lack
of correlation among the three subscales suggests that the
three components of burnout make relatively independent
contributions (depersonalization and personal accomplish-
ment, r = .28; depersonalization and emotional exhaustion, r
= .55; personal accomplishment and emotional exhaustion, r =
.27).

4. Social self-esteem. Social self-esteem was measured
using Form A of the Texas Social Behavior Inventory (TSBI),
a 16-item version of the original 32-item questionnaire.
Sample items from the TSBI include the following: "9.
Other people look up to me." and "11. I make a point of
looking other people in the eye.".

Researchers developed the original questionnaire
through factor and item analyses on the responses of 1,000
college students (Blascovich & Tomaka, 1991). According to
these authors, most researchers have used one of the short
forms, since the two scales show correlations of .87 with
each other, and of .97 with the 32-item version. They also
summarize reliability and validity data for the TSBI. They
found no test-retest data; however, Helmreich and Stapp
(1974), the developers of the instrument, reported an alter-
nate-form reliability of .89 for the original 32-item ques-

tionnaire. The long version also has shown Cronbach's alpha of .92, according to McIntire and Levine (1984).

Some convergent and discriminant validity data have also been reported. The instrument is significantly related to locus of control (Sadowski, Woodward, Davis and Elsbury, 1983, cited in Blascovich & Tomaka, 1991), and positively associated with internality. Helmreich and Stapp (1974) reported high positive correlations with masculinity (.81 for males, .83 for females), but lower positive correlations with femininity (.42 for males, .44 for females). McIntire and Levine (1984) reported positive correlations with various subtypes of self-esteem: .76 for performance self-esteem, .40 for academic self-esteem, .25 for athletic self-esteem, .39 academic social self-esteem and .23 for athletic social self-esteem. Finally, two studies found similar correlations between scores on the TSBI and the Marlowe-Crowne Social Desirability Scale: McIntire and Levine (1984) reported a correlation of +.26, while Helmreich and Stapp reported one of +.32.

There is some evidence that responses to the TSBI measure a construct different from intelligence level. Helmreich and Stapp (1974) found no relationship between TSBI scores, and scores on the Scholastic Aptitude Test. However, they did find that TSBI scores predicted attainment of academic and other honours.

Blascovich and Tomaka (1991) suggest that the TSBI is a

better measure of social self-esteem than global or chronic self-esteem. They state that the scale is a "short, simple, and easy-to-use measure of self-esteem, particularly in social situations or environments" (pp. 132-3). This analysis, added to the researcher's opinion that university-level students were unlikely to respond honestly if at all to the types of questions on other, more familiar measures of self-esteem, was the deciding factor in the choice of the TSBI.

The TSBI is coded on a scale from zero to four, with higher responses showing a higher level of self-esteem. For administration purposes, however, the scale was changed to range from one to five. These values were recoded for all items, before the reverse-worded items were recoded. The total self-esteem score ranges in possible value from 0 to 64. A higher score would suggest a higher level of self-esteem.

Assumptions and Limitations

Some limitations of the research design were related to the difficulty of accurately measuring 'management skills.' In particular, no previous research studies had used the CVSA instrument with student populations (R. Boudreau, personal communication, 1992). However, Quinn et al. (1990) cite three research studies that provide validity data for using the CVSA with managers (Quinn, Denison, & Hooijberg, 1989; Pauchant, Nilles, Sawy, & Mohrman, 1989; Quinn, 1988;

all cited in Quinn, et al., 1990). Therefore, it could be
argued that since this instrument is valid for describing
the behaviours of effective managers, it was appropriate for
use in measuring effective managerial behaviours of students
who were training to become managers.

As discussed in the literature review, research in the
area of 'management skills' is relatively new, and there was
no consensus on the best method to use in measuring those
skills. Many researchers had called for behavioural exams,
although they were not proven to be valid or reliable
measures of management skills. There was some support for
self-reported levels of management skills, since McEvoy
(1991) had recently shown that self-assessment scores corre-
late with those obtained with a behavioural test. The use
of a valid paper-and-pencil measure such as the CVSA seemed
an appropriate tradeoff.

There were also limitations imposed by the research
design itself. As Runkel and McGrath (1971) discuss, when
using a pre and posttest design, with control and "experi-
mental" groups, there is a possibility that results will be
invalid due to an interaction between testing and the treat-
ment. In addition, since subjects were not randomly
assigned to the conditions in this research design, there
were other possible threats to internal validity (Emory &
Cooper, 1991). In particular, those with which this
research study contended included history, selection, and

experiment mortality.

As a result of completing the pretest, learning may have occurred that influenced the scores on the post-measures. However, the pre and posttest were separated by approximately 11 to 12 weeks, which included several other testing situations and experiences for the students. There-fore, it was believed that testing effects from the pretest were insignificant.

There was the possibility that some event occurred during the study that confused the relationship between management skills training and the management skills scores. However, the large sample size, and the use of the control group at the University of Calgary, should have helped to offset the possibility that this influenced the responses to the posttest. In addition, the open-ended question on the posttest should have pinpointed any major event that may have influenced several students, in either group of manage-ment students.

As mentioned earlier, it was not possible to assign students randomly to the three different university pro-grams; self-selection into a particular program had taken place earlier. Therefore, the validity of the findings can be questioned unless equivalence between the groups could be statistically demonstrated. The demographic data that were collected was used to decide if there were any differences between the groups of students.

Finally, the composition of the groups likely changed during the semester. In particular, students who were not performing well were more likely to withdraw from the course, thus skewing the results in favour of the higher-achieving student. However, withdrawal rates at this level in a program are relatively low; it was unlikely that more than one or two students in forty would withdraw. In fact, only two of 250 registered students in the University of Lethbridge OB and HRM courses withdrew during the study. It was concluded that the research findings were not unduly affected by experiment mortality, since the withdrawal rate was low.

The possibility that University of Lethbridge students in the management group communicated with those in the nonmanagement group, and thus influenced the data that were collected, was another threat to internal validity. This occurrence was not unlikely, in that the University of Lethbridge had only approximately 4,500 full-time students. However, since the treatment being investigated was not new or unusual, communications of this sort should not have inordinately influenced the data. In addition, the non-management students were included only in the pretest, to provide evidence on whether the initial levels of management skills would differ, depending upon the student's program.

There were also threats to external validity in the research design. The desire was to be able to generalize

the findings to all students at the University of Leth-
bridge. The demographic data could be used to compare the
groups of students to the general student population at
their respective institutions. The perceived external
validity of the data would be strengthened, if the students
were found representative of the population.

As well, this research design did not generate findings
that were generalizable to management skills programs that
use other models. However, this was not a matter of con-
cern, since the present research study was interested only
in the current method of program delivery at the University
of Lethbridge.

The research design did deal with the final concern
related to external validity. Two different measures of
management skills, and an open-ended question, were used to
collect the data. This should have reduced the risk that
findings would change if the present study used different
instruments and modes of gathering data.

Finally, the design did not ignore the issue of alter-
nate explanations of the findings. As previously described,
several possibly related pieces of demographic information
were collected, such as type of previous full-time work
experience, and other related training and education. In
addition, data from an open-ended question supplemented this
information. Therefore, if they were present, the study
should have discovered alternate explanations for any rela-

tionship between attendance at the management skills work-
shops, and improvement in management skills scores.

In summary, the research design addressed the research
questions and hypotheses quite well. Specifically, various
types of data were gathered through different sources, to
improve the validity of the information. Also, the research
design examined possible intervening variables through the
demographic information and the measures of burnout and
self-esteem. Therefore, the data gathered with this
research design allowed the rejection or acceptance of the
research hypotheses.

Data Analysis

The data gathered for this research were almost entire-
ly quantitative. Only the responses to the open-ended
question could possibly be considered qualitative data.
These data provided information on possible intervening
variables in the study.

The quantitative data was entered twice and verified,
using programs on a VAX/VMS Version A5.5-1 mainframe com-
puter. The quantitative data were then analyzed using the
SPSS° package (1990), also on a mainframe computer. Results
of this analysis provided answers to the investigative ques-
tions listed in Chapter One, page 4. Chapter 4 provides
further details of the specific statistics used to address
each question. Responses to the open-ended question were

summarized into general areas to support or refute the quantitative data analysis results.

CHAPTER FOUR

PRESENTATION OF THE RESULTS

Introduction

The results of the research study are presented in Chapter Four. First, the sample is described and descriptive statistics for each instrument are provided. The chapter then presents the data used to develop the posttest instrument, and introduces the reliability values for the three instruments. Finally, it provides answers to the investigative questions outlined in Chapter One.

Description of the Sample

Table 4.1 contains a summary of the demographic characteristics of all students who wrote either the pre or posttest. The table groups the demographic data into four areas: Personal, current program information, previous education, and previous related experience. Nine students in the treatment group did not provide their name on the questionnaire. Therefore, one pretest and eight posttest questionnaires are excluded from the multivariate analyses. Their previous completion of the management skills workshop training could not be determined. Since this is an independent variable in many of the analyses, the questionnaires are of little use after the initial factor analyses and calculation of reliabilities for the CVSA pretest responses.

Table 4.1

Demographic Characteristics of the Sample

	Treatment (no labs) (N=109)		Treatment (some labs) (N=81)		Control (Management) (N=112)		Control (Nonmanagement) (N=49)		Total (N=351)	

Personal Data

Age (years):

	Treatment (no labs)	Treatment (some labs)	Control (Management)	Control (Nonmanagement)	Total
N	106	72	110	49	337
Mean	24.99	24.97	20.82	22.02	23.19
S.D.	6.23	6.02	3.24	3.81	5.39

Gender:

	N	%	N	%	N	%	N	%	N	%
Female	41	37.6	32	39.5	52	46.4	36	73.5	161	45.9
Male	64	58.7	41	50.6	58	51.8	13	26.5	176	50.1
Missing	4	3.7	8	9.9	2	1.8	0	0.0	14	4.0
	109	100.0	81	100.0	112	100.0	49	100.0	351	100.0

Current Program

Number Courses Completed, Current Program:

	Treatment (no labs)	Treatment (some labs)	Control (Management)	Control (Nonmanagement)	Total
N	102	68	105	48	323
Mean	20.18	25.71	15.68	18.90	19.69
S.D.	10.14	8.14	7.26	6.87	9.11

Table 4.1 (cont.)

Type of Program:	Treatment (no labs) (N=109)		Treatment (some labs) (N=81)		Control (Management) (N=112)		Control (Nonmanagement) (N=49)		Total (N=351)	
	N	%	N	%	N	%	N	%	N	%
Mgt./Commerce	74	67.9	66	81.5	64	56.1	0	0.0	204	58.1
Arts & Science	4	3.7	1	1.2	25	22.3	6	12.2	36	10.3
Education	0	0.0	0	0.0	1	.9	6	12.2	7	2.0
Other degree	6	5.5	0	0.0	10	8.9	1	2.0	17	4.8
Comb. Deg.-Mgt.	6	5.5	2	2.5	10	8.9	0	0.0	18	5.1
Comb. Deg.-Ed/A&S	1	.9	0	0.0	0	0.0	35	71.4	36	10.3
Comb. Deg.-other	0	0.0	0	0.0	0	0.0	1	2.0	1	.3
Mgt Certificate	15	13.8	4	4.9	0	0.0	0	0.0	19	5.4
Missing	3	2.8	8	9.9	2	1.8	0	0.0	13	3.7
	109	100.1	81	100.0	112	99.9	49	99.8	351	100.0

Major in Current Program:

	N	%	N	%	N	%	N	%	N	%
Mgt-quantitative	65	59.6	61	75.3	30	26.8	0	0.0	156	44.4
Mgt-nonquant.	23	21.1	8	9.9	3	2.7	0	0.0	34	9.7
Hum/Fine Arts	1	.9	2	2.5	2	1.8	22	44.9	27	7.7
Social Science	6	5.5	0	0.0	16	14.3	11	22.4	33	9.4
Science	5	4.6	0	0.0	7	6.3	7	14.3	19	5.4
Missing	9	8.3	10	12.3	54	48.2	9	18.4	82	23.4
	109	100.0	81	100.0	112	100.0	49	100.0	351	100.0

Grade-point-average:

N	90	71	106	47	314
Mean	2.94	2.96	2.92	2.85	2.92
S.D.	.50	.47	.42	.39	.45

Table 4.1 (cont.)

	Treatment (no labs) (N=109)		Treatment (some labs) (N=81)		Control (Management) (N=112)		Control (Nonmanagement) (N=49)		Total (N=351)	
Previous Education										
Previous degree or diploma:	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
Yes	22	20.2	15	18.5	4	3.6	8	16.3	49	14.0
No	84	77.1	58	71.6	90	80.4	41	81.6	272	77.5
Missing	3	2.8	8	9.9	18	16.1	1	2.0	30	8.5
	109	100.0	81	100.0	112	100.1	49	100.0	351	100.0
Type of Previous Degree or Diploma:										
Mgt/Commerce	0	0.0	1	6.7	0	0.0	0	0.0	1	2.0
Arts & Science	5	22.7	5	33.3	0	0.0	4	50.0	14	28.6
Education	2	9.1	0	0.0	0	0.0	0	0.0	2	4.1
Nursing degree	6	27.3	0	0.0	0	0.0	0	0.0	6	12.2
B.Sc./B.Ed.	1	4.5	0	0.0	0	0.0	0	0.0	1	2.0
Business diploma	5	22.7	6	40.0	1	25.0	0	0.0	12	24.5
Other diploma	3	13.6	2	13.3	3	75.0	4	50.0	12	24.5
Mgt. certificate	0	0.0	1	6.7	0	0.0	0	0.0	1	2.0
Missing	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	22	99.9	15	99.0	4	100.0	8	100.0	49	99.9

Table 4.1 (cont.)

	Treatment (no labs) (N=109)		Treatment (some labs) (N=81)		Control (Management) (N=112)		Control (Nonmanagement) (N=49)		Total (N=351)	
Major in Previous Degree or Diploma:	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Mgt-quantitative	3	13.6	4	26.7	1	25.0	0	0.0	8	16.3
Mgt-nonquant.	2	9.1	1	6.7	0	0.0	0	0.0	3	6.1
Hum./Fine Arts	0	0.0	2	13.3	0	0.0	1	12.5	3	6.1
Social Science	0	0.0	1	6.7	0	0.0	2	25.0	3	6.1
Science	6	27.3	2	13.3	0	0.0	0	0.0	8	16.3
Missing	11	50.0	5	33.3	3	75.0	5	62.5	24	49.0
	22	100.0	15	100.0	4	100.0	8	100.0	49	99.9

Previous Management-skills Related Experience

Membership in Related Clubs & Organizations:

Yes	40	36.7	37	45.7	51	45.5	27	55.1	155	44.2
No	60	55.0	33	40.7	55	49.1	20	40.8	168	47.9
Missing	9	8.3	11	13.6	6	5.4	2	4.1	28	8.0
	109	100.0	81	100.0	112	100.0	49	100.0	351	100.1

Permanent Full-time Work Experience:

Yes	52	47.7	33	40.7	30	26.8	15	30.6	130	37.0
No	54	49.5	38	46.9	80	71.4	34	69.4	206	58.7
Missing	3	2.8	10	12.3	2	1.8	0	0.0	15	4.3
	109	100.0	81	100.0	112	100.0	49	100.0	351	100.0

Table 4.1 (cont.)

	Treatment (no labs) (N=109)		Treatment (some labs) (N=81)		Control (Management) (N=112)		Control (Nonmanagement) (N=49)		Total (N=351)	
Most Recent Full-Time Position:	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Unskilled	22	20.2	11	13.6	22	19.6	20	40.8	75	21.4
Semi-skilled	15	13.8	10	12.3	19	17.0	3	6.1	47	13.4
Degree/Diploma or More Mgt Skills Required	25	22.9	18	22.2	13	11.6	4	8.2	60	17.1
Missing	47	43.1	42	51.9	58	51.8	22	44.9	169	48.1
	109	100.0	81	100.0	112	100.0	27	100.0	351	100.0
Previous Noncredit Management Skills Training[a]:										
Time Management	20	18.3	30	37.0	19	17.0	9	18.4	78	22.2
Public-speaking	19	17.4	32	39.5	19	17.0	13	26.5	83	23.6
Communication	20	18.3	31	38.3	20	17.9	16	32.7	87	24.8
Self-awareness	18	16.5	26	32.1	8	7.1	8	16.3	60	17.1
Negotiating	9	8.3	19	23.5	3	2.7	3	6.1	34	9.7
Business writing	5	4.6	20	24.7	6	5.4	0	0.0	31	8.8
Other	2	1.8	3	3.7	6	5.4	2	4.1	13	3.7

Note. Per cents will not always total to 100, due to rounding.
[a] Per cents do not total to 100, as respondents could indicate more than one response.

After an examination of the treatment group's previous completion of the management skills workshops, these students were subdivided into two groups: Students who had completed <u>no</u> previous workshops, and students who had completed <u>some</u> previous workshops. (A summary of the numbers of students in each treatment and control group is given in Table 4.2). Students in the first treatment group were currently completing one or both sets of workshops at the time of the study. They had not completed any of the workshops in earlier semesters. Students in the second group had previously completed <u>either</u> the three OB workshops <u>or</u> the three HRM workshops. They were enroled in the other workshops during the study.

No tests were conducted to determine statistically significant differences between groups on each of the demographic characteristics. However, a few general differences are evident from the information in Table 4.1. First, the students in the two treatment groups are slightly older than those in the management control group. Second, there were more female students in the management control group than the treatment groups. The majority (75 per cent) of students in the nonmanagement control group were female. This group consisted of students enroled in a second-year Education course. Third, the students in the treatment group have completed approximately five to ten more courses in their current program than students in either of the two

Table 4.2

Summary of Management Skills Workshop Enrolments for
Students Who Completed Pre and/or Posttests

Treatment - No Previous Workshops:	N	%	N	%
In MGT 3030 workshops	41	11.7		
In MGT 3050 workshops	46	13.1		
In both sets of workshops	22	6.3		
Total			109	31.0
Treatment - Some Previous Workshops:				
In MGT 3030, done 3050 in past	27	7.7		
In MGT 3050, done 3030 in past	54	15.4		
Total			81	23.1
Total in treatment conditions:			190	54.1
Control Group - No Workshops:				
Management			112	31.9
Nonmanagement			49	14.0
Total in control condition:			161	45.9
TOTAL			351	100.0

control groups. Students in the treatment groups are also more likely to have a previous degree or diploma, and previous permanent full-time work experience.

The students' most recent full-time position is categorized into one of three categories: Unskilled/manual labour; Semiskilled, but requiring little management skills; and positions requiring a degree or diploma and/or the use of management skills. These data should be interpreted with caution, since they often involve a subjective judgement. Students in the treatment groups are more likely to report a most recent position that probably required the use of some management skills.

There is little difference in past membership in management skills-related clubs or organizations. However, students in the first treatment group, who had completed no previous management skills labs, are least likely to report such activity in the past. The students in the nonmanagement control group are most likely to have belonged to such a club or organization.

Finally, the students were asked to indicate areas in which they had received previous noncredit management skills training. These percentages do not add to 100, since the students could list more than one response. Six categories were given on the questionnaire, matching the six workshops currently included in the program. The questionnaire also gave students the opportunity to indicate other subjects,

but only twelve did. Examples of other responses received include: Networking, supervision and goal setting.

The respondents are more likely to indicate previous noncredit training in time-management, public-speaking and communication, although these responses differ between the groups. This question was intended to capture previous completion of any of the management skills workshops. However, students in the second treatment group obviously did not perceive this. The number of positive responses from this group of students is not as high as expected, since they have already completed at least half the management skills workshops. Therefore, analysis based on the students' previous management skills training should also be interpreted with caution.

Summary of Responses to the Instruments

Summaries of responses to the pre and posttest instruments are presented overall and by group in Appendices E to J. Responses are summarized twice for each instrument. First, the appendices show pre and posttest responses for all students who wrote either the pre or posttest questionnaire. Second, the appendices summarize pre and posttest responses only for those students who wrote both the pre and posttest. These figures are the best indication of the responses most likely to be included in many of the multivariate analyses.

Development of Posttest Skills Instrument

<u>CVSA</u>

The CVSA was shortened on the posttest, to reduce the amount of time required completing the questionnaire. To accomplish this, Cronbach's alpha reliability scores were calculated for the 24 management skills measured by the CVSA. These are based on the responses of all students who completed a valid pretest. Several scale scores for the 24 skills have low reliabilities. The reliabilities range from .40 (delegating effectively) to .95 (presenting ideas), with most in the .8 range. However, it was difficult to decide which items to omit for many skills, as the Cronbach's alpha usually decreased with the exclusion of most items. However, using Cronbach's alpha for the eight managerial roles, several items could be excluded with little decrease in the scale's reliability.

The CVSA was shortened to 48 items, with six items included for each of the eight managerial roles. Items were selected for inclusion using factor loadings from a principal components, varimax rotation factor analysis, along with Cronbach's alpha reliability values. Usually, the six items with the highest reliability for each role were selected. However, when these figures were very close, the factor analysis information was used. That is, it was decided to include the item that had the highest loading for the factor into which most of the other items in that scale had first

loaded. Factor loading, rather than slight differences in reliability scores, was the final deciding factor in choosing items. Table 4.3 presents reliability data and information on the factor loadings for the 48 items included on the posttest CVSA.

Self-assessment of Management Skills

It was also necessary to decide whether to include the self-assessment of management skills on the posttest questionnaire. The total pretest scores on this instrument had high significant correlations with total pretest scores on the CVSA. There were also fairly high, significant positive correlations between each of the six individual items and the corresponding skills score on the CVSA (Table 4.4). Since responses on the two measures were highly related, it was decided that they were probably measuring the same construct -- management skills level. Therefore, the posttest did not include the second assessment of management skills.

Reliability of the Instruments

Reliability and factor loadings for the posttest responses on the CVSA appear in Table 4.5. (Table 4.3 contains the corresponding pretest figures.) The table shows factor loadings that were .3 or higher. However, sometimes the loadings for one or more items in a role are

Table 4.3

Reliability and Factor Loadings for CVSA Items
(Pretest, N=297)

CVSA Role/ Item	Corrected Item-Total Correlation	Factor Loadings (Rotated Matrix)							
		I	II	III	IV	V	VI	VII	VII
Director									
33	.57			44			30		
56	.65		34		38		36		
80	.59						31	34	32
88	.54		40				38		
89	.51	60	33				26		
105	.63						54		
Producer									
2	.62						56		
55	.63				43		43		
58	.65						52		
79	.63						47		
87	.64		44				42		
106	.67						53		
Coordinator									
35	.61	60							
43	.63	66							
59	.63	72							
70	.70	79							
95	.71	81							
99	.76	80							
Monitor									
20	.50	38		23					
53	.51			60					
69	.53			20	38				
77	.63			69					
100	.61			78					
107	.52	70		07					

Table 4.3 (cont.)

Reliability and Factor Loadings for CVSA Items
(Pretest, N=297)

CVSA Role/ Item	Corrected Item-Total Correlation	Factor Loadings (Rotated Matrix)							
		I	II	III	IV	V	VI	VII	VII

Mentor

CVSA Role/ Item	Corrected Item-Total Correlation	I	II	III	IV	V	VI	VII	VII
45	.58		47						
61	.67		77						
68	.56		44				49		
84	.61		69						
93	.65		57						
108	.60		60						

Facilitator

30	.74	36	44						
46	.65	25	61						
51	.74	50	36						
75	.70	43	40						
92	.74	46	52						
102	.68	34	54						

Innovator

47	.62	67			32				
66	.63	70	25			24			
74	.62	22	22		66				
82	.63		55		38				
91	.62	66	30			27			
109	.66	24	37		37		38		

Broker

24	.68					85			
48	.76					87			
49	.68		43			40			
65	.76					82			
90	.76					82			
110	.70					80			

Table 4.4

Correlations Between Two Pretest Measures of
Management Skills: Self-Perception and the CVSA

Management Skill	r^*
Self-Awareness with Understanding Yourself and Others	.49
Effective Presentations with Presenting Ideas (Oral Presentations)	.84
Time and Stress Management with Time and Stress Management	.53
Business Writing with Presenting Information (Writing Effectively)	.56
Communication with Interpersonal Communication	.35
Successful Negotiating with Negotiating Agreement and Commitment	.57

Overall

Self-Perception with 113 item CVSA	.77
Self-Perception with 48 item CVSA	.75

$*$ $p < .01$

Table 4.5

Reliability and Factor Loadings for CVSA Items
(Posttest, N=244)

CVSA Role/ Item	Corrected Item-Total Correlation	Factor Loadings (Rotated Matrix)							
		I	II	III	IV	V	VI	VII	VII

(pre/post)

Director

33/6	.54				55	30			
56/18	.71				54	30			
80/29	.68		47		44	33			
88/33	.62		58		27				
89/34	.61	41	56		14				
105/43	.69		40		66				

Producer

2/1	.64				74				
55/17	.67				58	37			
58/19	.70		57		40				
79/28	.74		31		72				
87/32	.72	36	53		28		30		
106/44	.76	36	60	30	30				

Coordinator

35/7	.58	63					36		
43/9	.70	63							
59/20	.60	69							
70/24	.72	60						39	
95/39	.68	71	31						
99/40	.81	70	30						

Monitor

20/2	.44	26		29				64	24
53/16	.52	33		25	29				56
69/27	.66							21	80
77/31	.52	37	30		40		37	36	
100/41	.61				22				83
107/45	.58	52	40		26		27	28	

Table 4.5 (cont.)

Reliability and Factor Loadings for CVSA Items
(Posttest, $N=244$)

CVSA Role/ Item	Corrected Item-Total Correlation	Factor Loadings (Rotated Matrix)							
		I	II	III	IV	V	VI	VII	VII

(pre/post)

Mentor

45/8	.58					44	54		
61/10	.65	31	31			37	39		
68/21	.70						66		
84/30	.57						72		
93/38	.67		38				54		
108/46	.61		40				51		31

Facilitator

30/3	.62		24			23		66	
46/5	.82	30	28	30		41	21	47	
51/15	.75	33	20	20		54	30	39	
75/26	.75	30	44	29		41		29	23
92/37	.78	27	50	24			20	51	
102/42	.67	28	49	28			25	29	

Innovator

47/11	.66	49				37			
66/14	.67				31	76			
74/23	.65	50						35	
82/25	.74					74			
91/36	.74	52	39			29			
109/47	.62	33	41		34	26			

Broker

24/4	.74			83					
48/12	.86			82					
49/13	.46		37	19		47		47	
65/22	.85			79					
90/35	.83		33	81					
110/48	.71			77					

not particularly strong on the factor that is most dominant for the other items in that role. In such cases, that factor loading is also provided for comparative purposes. The Coordinator and Mentor roles show the best pattern of factor loadings, while the Monitor role displays the worst.

Pre and posttest reliability scores for the CVSA are given in Table 4.6. Cronbach's α for the eight managerial roles ranges from .79 to .90. Reliabilities increase slightly on the posttest for six of the eight roles.

Tables 4.7 and 4.8 contain a comparison of pre and posttest reliabilities for the Maslach Burnout Inventory and the Texas Social Behavior Inventory. For the MBI, the lack of personal accomplishment subscale has the lowest α value: .71 on the pretest, and .73 on the posttest. The TSBI has a high α value of .86 for both the pre and posttest.

Treatment of Missing Values
in the Multivariate Analyses

Listwise deletion of cases with missing values would result in relatively small sample sizes for many of the multivariate analyses. In a procedure recommended by Tabachnik and Fidell (1989), group means are substituted for missing values, but only if more than five per cent of the values for the variable are missing for the cases included in that analysis. The following sections will identify the variables treated this way.

Table 4.6

Reliability of Pre and Post Role Scores on CVSA
(Cronbach's Alpha)

Role	Pretest (N = 297)		Posttest (N = 244)	
	α	n	α	n
Director	.82	286	.85	243
Producer	.85	288	.89	243
Coordinator	.89	276	.87	242
Monitor	.74	287	.79	243
Mentor	.84	290	.85	243
Facilitator	.88	286	.90	242
Innovator	.84	285	.88	241
Broker	.93	292	.90	243

Note. Based on 48 items used on posttest.

Table 4.7

Reliability of Pre and Post Scores
on Maslach Burnout Inventory (Cronbach's Alpha)

Scale	Pretest ($N = 297$)		Posttest ($N = 244$)	
	α	n	α	n
Depersonalization	.77	284	.82	238
Lack of Personal Accomplishment	.71	283	.73	242
Emotional Exhaustion	.84	286	.85	241
Total	.66	279	.74	237

Table 4.8

Reliability of Pre and Post Scores
on Texas Social Behavior Inventory
(Cronbach's Alpha)

	Pretest ($N = 297$)		Posttest ($N = 244$)	
	α	n	α	n
Overall (16 items)	.86	267	.86	235

Differences Between Treatment and

Control Group Characteristics

Investigative questions 1a and 1b ask whether students in the treatment and control groups differ significantly from one another in demographic and personality characteristics, and initial management skills levels. The results of discriminant function analyses address these questions. Three groups are used in these analyses: Both treatment groups, management control, and nonmanagement control. The analysis uses the initial size of the group to predict possible group membership. It does not assume that there is an initial one-third probability of belonging to either of the three groups.

Demographic and Personality Characteristics

Investigative question 1a asks whether students in the three programs differ based on their demographic and personality characteristics. This is an important issue, since self-selection into a program may mean that students differ in important ways, possibly influencing pre and posttest management skills scores. A discriminant function analysis is used to learn whether program membership can be predicted based on demographic characteristics, and burnout and social self-esteem levels.

Nine demographic characteristics are included in the analysis: Age, gender, previous degree or diploma, number

of courses completed in the current program, previous train-
ing in management skills, membership in related clubs or
organizations, the current program of study, self-reported
grade-point average in current program, and previous full-
time work experience. The analysis uses two other pretest
scores as possible predictors in the analysis: Social self-
esteem, and phase of burnout. (The analysis does not
include the three MBI subscale scores, since those scores
are used to decide the phase of burnout.)

Mean group values are substituted for missing values
for the following predictor variables: Grade-point-average,
pretest CVSA score, and pretest social self-esteem. In
addition, group mean scores for the three subscales of the
Maslach Burnout Inventory (MBI) are used to calculate a
burnout phase for students with missing values on one or
more of the scales. With these substitutions, 22 cases
still have one or more missing values in one predictor vari-
able, and so are deleted from the analysis. Therefore, the
discriminant function analysis includes 254 of the 276 valid
pretest questionnaires.

Several univariate outlying variable values are pres-
ent. However, the numbers are relatively small compared to
the size of the sample. Therefore, the researcher did not
delete any cases or change any scales of variables. In
addition, no multivariate outliers with $p < .001$ are pres-
ent.

The Box's M test statistic for homogeneity of variance-covariance is above the critical value. This is of concern since groups are unequal in size, and the smallest groups have fewer than 70 cases. However, according to Tabachnik and Fidell (1989), Box's M is ". . . a notoriously sensitive test of homogeneity of variance-covariance matrices . . . ." (p. 379). An examination of the matrices shows that the treatment group cell variances and covariances are usually greater than those of the smallest, nonmanagement control group. The management control group variances are generally, although not always, greater than those of the smaller group. (The analysis was run again with randomly chosen samples from the treatment and management control groups, to equalize the size of the groups. The Box's M value was still above the desired critical value.) Therefore, it was decided to ignore the Box's M test, and assume homogeneity of the variance and covariance matrix.

The analysis results in two discriminant functions, with a combined $X^2_{(22)}=394.25$, $p<.000$. When the first function is removed, the groups and predictor variables still show a strong association ($X^2_{(10)}=87.509$, $p=<.000$). The first discriminant function accounts for 85.3 per cent of the variability between the groups, while the second accounts for 14.7 per cent.

Figure 4.1 graphs the group centroids on the two discriminant functions. The first function separates the
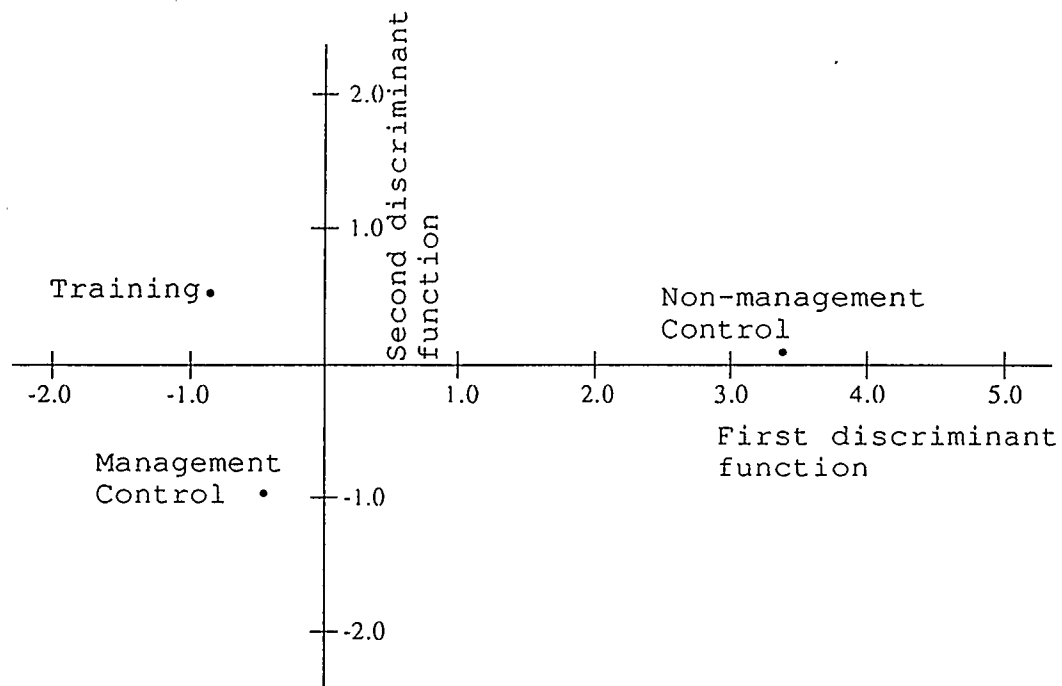
Figure 4.1

Group Centroids on Two Discriminant
Functions Based on Nine Demographic
and Two Personality Characteristics

nonmanagement control group from the treatment and manage-
ment control groups. The second discriminant function shows
the separation between the treatment management group, and
the control management group.

Table 4.9 presents the loading matrix of correlations
between the discriminant functions and predictor variables.
Program of study is the best predictor of membership between
the nonmanagement control group and the two management
groups; it is the only predictor with a loading of .5 or
higher. Most respondents in the nonmanagement control group
indicate that they are pursuing an Education and/or Arts and
Science degree. Most of the students in the two other
groups are enroled in Management or Commerce programs at
their respective institutions (see Table 4.1).

In the second discriminant function, age is the only
variable with a loading above .5. Therefore, according to
this analysis, age is the best predictor of group membership
between the two management groups. The treatment group's
mean age is 25.26, while the control group's mean age is
20.44. Although all other variables loading into the second
discriminant function have highly significant F-values, the
factor loading is not sufficiently high to be considered a
strong predictor of program membership.

These variables are strong predictors of program mem-
bership. The discriminant function analysis correctly
classified approximately 80 per cent (79.92 per cent) of the

Table 4.9

Results of Discriminant Function Analysis of
Demographic Characteristics, Social Self-Esteem
and Burnout as Predictors of Program

Predictor variable	Correlations of Predictor Variables with Discriminant Functions		Univariate $F_{(2,251)}$
	1.	2.	
Program of study	.87	.22	247.2 **
Gender	-.14	.00	5.83 *
Skills-related clubs/organizations	-.06	.03	1.26
Burnout phase	-.06	.05	1.14
Grade-point-average	-.05	.03	.81
Age	-.10	.65	25.48 **
Courses completed in program	-.04	.41	9.73 **
Previous degree/diploma	.03	-.38	8.20 **
Previous skills training	.01	.32	5.46 *
Full-time work experience	.06	-.29	5.69 *
Social self-esteem	.09	-.21	4.91 *

* $p<.01$, ** $p<.001$, $N=254$.

cases: 84.4 per cent of the nonmanagement group, 82.1 per cent of the management control group, and 76.8 per cent of the management treatment group.

Pretest Management Skills Level

ANOVAs. Investigative question 1b asks whether the students in the treatment and control groups have significantly different pretest management skills levels. Two analyses address this question. First, one-way ANOVAs on both the 113-item and 48-item pretest CVSA scores use group membership as the dependent variable. Both tests are statistically significant. (For the 113-item CVSA score, $F_{(3,251)}=3.55$, $p<.02$; for the 48-item CVSA score, $F_{(3,258)}=3.36$, $p<.02$.).

Students in the two treatment groups have significantly different initial management skills levels. In both cases, students with some previous workshop training have significantly higher pretest scores than those with no previous training. The students with some previous training also have slightly higher pretest CVSA scores than those in the two control groups, but these differences are not statistically significant, according to post hoc Scheffe analyses.

Discriminant function analysis. Then, the discriminant function analysis was rerun, adding the pretest CVSA score as another predictor variable, besides the demographic and personality characteristics. For both CVSA scores (113-item

and 48-item), pretest management skills level is <u>not</u> a strong predictor of group membership. Therefore, the ANOVAs and discriminant function analysis indicate that there is no significant difference between pretest management skills levels of students in the treatment group and the two control groups.

Characteristics Related to Posttest
Management Skills Level

Simple regression analyses are used to find which characteristics explain the most variance in the posttest management skills score (CVSA). Simple regression is more appropriate than hierarchical regression, because the purpose of the analysis is to look at the relationship among variables, not to test hypotheses about the relative importance of the variables. The analyses are described in detail in the following sections.

Missing values are treated as described above for the discriminant analyses. Variables with more than five per cent missing values were identified, and the group mean for that variable was substituted for missing values.

Univariate outliers were also identified. In all cases, univariate outliers are insufficient in number to warrant manipulation of the data. However, cases with multivariate outliers are removed from the analysis.

Regressions Using Pretest Social SE and Burnout levels,

Demographic Characteristics and Treatment Group Membership

as Predictors

A standard multiple regression uses the posttest CVSA score as the dependent variable, and pretest social SE and the burnout phase as predictor variables. The other predictor variables include nine demographic variables: Age, gender, previous skills training, club/group membership, courses completed in current program, previous degrees/diplomas, GPA, program of study and treatment group. A small number of univariate outliers are present, but were not removed because the number is small when compared to the sample size. No multivariate outliers are present at the $p<.05$ level. The group mean is substituted for variables having more than five per cent missing values: GPA, number of courses, previous degree or diploma, club/group memberships, program of study, and previous full-time work experience.

Table 4.10 presents the results of the regression, including the correlations between the DV and the IVs that enter the equation. The R is significantly different from zero ($F_{(12,144)}=7.25$, $p<.000$). Only two IVs enter the equation: Pretest social SE and age. Pretest social SE explains 17 per cent of the variance in R, while age explains two per cent. All the IVs together contribute 19 per cent of the variability in R. Overall, 38 per cent (32 per cent

Table 4.10

Standard Multiple Regression of Demographic Characteristics, Pretest Social Self-esteem
and Burnout as Predictors of Posttest Management Skills,
as Measured by the CVSA (48 Items) ($N=157$)

Variables	Management Skills (D.V.)	1.	2.	B	β	sr^2 (unique)
1. Social self-esteem (pretest)	.55[*]	1.00		.68	.49	.17
2. Age	.21[**]	-.02	1.00	.03	.19	.02
					Intercept=2.42	
Mean	5.07	2.60	23.45			
Standard deviation	.77	.56	5.72			R^2=.38[a]
					Adjusted R^2=.32	
					R=.61[**]	

[*] $\underline{p} < .000$ [**] $\underline{p} < .01$ [***] $\underline{p} < .000$, $\underline{F}_{(12,144)}$=7.25.
[a] unique variability = .19.

Note. IVs which did not enter the regression equation are not shown. Skills-related
club/group membership, burnout, and previous full-time work experience all had
significant but low correlations with the DV. Previous training had a significant
but low positive correlation with the DV.

adjusted) of the variability in the posttest CVSA score is contributed by the values of the IVs.

Regressions Using Posttest Social SE and Burnout levels, Demographic Characteristics and Treatment Group Membership as Predictors

After removal of ten cases with multivariate outliers, a simple regression analysis was conducted to identify predictors of posttest management skills levels. Only those students who completed the posttest and provided demographic data are included in the analysis (N=200). Predictors include: Posttest social SE and burnout phase, the usual demographic characteristics and treatment group membership. Group mean values are substituted for missing values in the following variables: GPA, number of courses completed in current program, previous degree or diploma, previous management skills-related club or group membership, the current program of studies, and previous full-time work experience.

Only one IV, posttest social SE, enters the regression equation at the p<.05 level. As Table 4.11 shows, posttest social SE and management skills levels are highly positively correlated (r=.62, p<.001). Club membership and grade-point average have t-values which are not quite sufficient for inclusion in the regression equation (t=-1.9, p<.056, and t=1.83, p<.068, respectively).

Seven of the IVs have significant but low correlations

Table 4.11

Standard Multiple Regression of Demographic Characteristics, Posttest Social Self-esteem and Posttest Burnout as Predictors of Posttest Management Skills, as Measured by the CVSA (48 Items) (N=200)

Variables	Management Skills (D.V.)	1.	B	β	sr^2 (unique)
1. Social self-esteem (posttest)	.62[*]	1.00	.82	.53	.20
				Intercept=2.90	
Mean	4.99	2.69			
Standard deviation	.78	.50			R^2=.44[a]
				Adjusted R^2=.41	
				R=.66[**]	

[*] p < .001 [**] p < .000, $F_{(12,187)}$=12.33.
[a] unique variability = .20.

Note. IVs which did not enter the regression equation are not shown. Age, previous degree or diploma, skills-related club/group membership, burnout, GPA, and previous full-time work experience all had significant but low correlations with the DV.

with posttest management skills level. The only IV that is highly correlated with the DV is the posttest social SE score. Two predictor variables are correlated with posttest skills level at approximately -.3: Club membership (r=-.27, p<.00) and posttest burnout phase (r=-.28, p<.00). Treatment group or control group membership is not a significant predictor of posttest management skills level.

Relationship of Treatment Condition
to Improvement in Management Skills Levels

Investigative question 2 asks whether there is a significant difference between the treatment groups on their posttest management skills score. The data presented in the preceding section addresses the possible contribution of treatment group, social SE and burnout, and demographic characteristics to posttest management skills levels. This section addresses whether students in the different treatment groups display different levels of management skills on the posttest, if pretest management skills level is controlled. An analysis of covariance (ANCOVA) is used to determine this. The dependent variable is the posttest score on the 48-item CVSA. The overall pretest score for the same 48 items is the covariate, while the IV is the treatment/control group. Three groups are used: Management control group, treatment with no previous workshops, and treatment with some previous workshops.

Valid pre and posttest CVSA scores are available for 162 students. Nineteen students (10.6 per cent) who completed both pre and posttests have missing values for one or both of the pre and posttests. Univariate outliers are not large in number when compared to the sample size. One multivariate outlying case is removed from the analysis.

Results of the ANCOVA are presented in Table 4.12. After posttest management skills scores are adjusted by pretest score, they do not differ significantly for students in the different lab completion groups (F=.297, p=.74). Pretest score is the primary determinant of posttest score.

Subgroups of the Treatment Group

There are several different possible combinations of lab completion in the treatment group. Therefore, the ANCOVA is repeated using two subgroups of students from the treatment group: Students currently completing the OB workshops, with no previous workshops; and students currently completing the HRM workshops, after completion of the OB workshops. The analysis also includes the control group of management students. The posttest CVSA score is the dependent variable, and the pretest CVSA score (48-item) is the covariate. No multivariate outliers are present.

Again, after the posttest management skills scores are adjusted by pretest score, they do not differ significantly

Table 4.12

Analysis of Covariance of Posttest
Overall CVSA Score (48-items)
(N=162)

Source of Variation	SS	df	MS	F
Pretest CVSA Score	31.51	1	31.51	90.18*
Lab Completion Group	.21	2	.10	.30
Explained	31.72	3	10.57	30.26*
Residual	54.86	157	.35	
Total	86.58	160	.54	

* p<.000.

for students in the different lab completion groups (F=1.57, p=.21, N=120). The pretest CVSA score is the main determinant of the posttest CVSA score (F=65.22, p<.00), even when using treatment subgroups defined more strictly according to previous lab completion.

Change in Management Skills Levels
of Students in Training Program

Investigative question 3 asks how students' management skills levels will change after completing the training program. Table 4.13 compares pre and posttest scores, overall and for the eight managerial roles, for students in the treatment group. T-values appear in the far right column.

Students who completed the management skills training have significantly higher posttest scores, overall and on five of the eight managerial roles. (The skills corresponding to those roles are listed in Appendix D.) The students' scores improve in two roles that include management skills specifically included in the training program: Producer (time management), and Mentor (self-awareness).

The students did not improve in three roles: Monitor, Facilitator, and Broker. These three roles all include at least one management skill or competency that was included as a workshop subject in the training program. Effective writing, one skill in the Monitor role, is a workshop topic.

Table 4.13

Comparison of Pre and Post Management Skills Levels
of Students Who Completed the Training

| Role | N | Pretest | | Posttest | | |
		Mean	S.D.	Mean	S.D.	t
Director	103	4.40	.82	5.28	.90	−9.39**
Producer	103	4.43	.79	5.14	.89	−7.48**
Coordinator	104	4.46	.89	4.79	.92	−3.32**
Monitor	103	4.95	.71	4.98	.91	−.45
Mentor	103	4.56	.91	5.38	.93	−10.64**
Facilitator	103	4.99	.86	4.97	.86	.19
Innovator	100	4.64	.74	5.21	.81	−7.07**
Broker	103	4.46	.80	4.51	1.21	−.47
Total	93	4.43	.83	5.01	.81	−8.40**

*$p < .001$

Conflict management, a competency in the Facilitator role, is quite similar to negotiation, also a workshop topic. Finally, the Broker role contains two competencies that are workshop topics: Negotiating, and presenting ideas.

The lack of improvement in these management skills could be an example of sensitization to the subject. After some training in these areas, perhaps students realize they are in need of further improvement, and tend to rate themselves lower than they would have without the training.

The six managerial competencies included in the training program are divided unequally among the eight managerial roles assessed by the CVSA (Table 4.14). Therefore, it cannot be stated with certainty that actual improvement in those specific skills did not take place. The role score may be confounded by the lack of improvement in other skills in the role. An analysis of the responses to the open-ended question was undertaken to decide whether there are differences between the students in the treatment and control groups. The responses are categorized to indicate whether the students had an opportunity to use these management skills in the last three months, what types of skills they used, and the setting in which they used the skill.

Analysis of Responses to Open-ended Question

The posttest questionnaire included an open-ended question immediately following the revised CVSA. The ques-

Table 4.14

Workshop Subjects Matched to CVSA Roles

Workshop Subject	CVSA Role
MGT 3030 Workshops (OB)	
Self-awareness	Mentor
Effective presentations	Broker
Time/Stress management	Producer
MGT 3050 Workshops (HRM)	
Business writing	Monitor
Effective interviewing	Mentor (?)
Negotiating successfully	Broker & Facilitator

tion asked:

> Have you been able to use any of these management
> skills in the past three months? If yes, please give
> an example.

Responses are presented in Table 4.15. They are cat-
egorized in three areas according to treatment/control
group. First, the table shows the numbers of students in
each group who answered the first part of the question
affirmatively, negatively or not at all. Second, the table
summarizes the type of management skill or competency men-
tioned. Third, the responses are categorized according to
the setting in which the student suggested they had used the
management skill. The numbers in the second and third parts
of the table will not add to the total number of affirmative
responses, since several students gave multiple responses.

Although most students did not respond to the question,
some general trends are evident. Of those who responded,
most had some opportunity to use management skills during
the semester. There is little difference between the treat-
ment and control groups in this regard.

Students are much more likely to mention using these
skills in the school setting than at work or home. There
are several possible explanations. For instance, the stu-
dents in the control group had recently completed a group
exercise, simulating a labour relations negotiation between
management and union representatives. (The simulation had
taken place the week before the posttest was administered,

Table 4.15

Responses to Open-ended Question on Posttest
($N=244$)

Have you been able to use any of these management skills in the past three months?

	Treatment- No Labs		Treatment- Some Labs		Control- Management	
	N	**%**	**N**	**%**	**N**	**%**
Yes	28	31.5	22	34.4	33	39.8
No	9	10.1	2	3.1	1	1.2
No response	52	58.4	40	62.5	49	59.0
	89	100.0	64	100.0	83	100.0

If yes, please give an example.

Management Skill:

	N	**%**	**N**	**%**	**N**	**%**
Presentations	10	38.5	13	39.4	4	9.5
Group work/ meetings	4	15.3	6	18.2	11	26.2
Negotiating	3	11.5	1	3.0	15	35.7
Communication	2	7.7	4	12.1	4	9.5
Time management	1	3.8	4	12.1	1	2.4
Organizing paperwork/tasks	2	7.7	1	3.0	1	2.4
Conflict mgt.	2	7.7	0	0.0	1	2.4
Effective writing	0	0.0	1	3.0	2	4.8
Interviewing	1	3.8	1	3.0	0	0.0
Delegation	0	0.0	1	3.0	1	2.4
Managing change	1	3.8	0	0.0	1	2.4
Motivating others	0	0.0	1	3.0	0	0.0
Feedback	0	0.0	0	0.0	1	2.4
	26	99.8	33	99.8	42	100.1

Situation:

	N	**%**	**N**	**%**	**N**	**%**
Home/Personal	5	18.5	1	4.0	2	5.6
School setting	11	40.7	17	68.0	26	72.2
Work setting	7	25.9	3	12.0	6	16.7
Other	3	11.1	2	8.0	1	2.8
Not specific	1	3.7	2	8.0	1	2.8
	27	99.9	25	100.0	36	100.1

Note. Some students mentioned more than one skill and setting.

with the group paper due the same day that the students completed the posttest.) Many students in the control group wrote that they had used interpersonal, organizational and negotiation skills to prepare for the group simulation exercise. Across the three groups, the most commonly mentioned management skills that had been used are those that are most likely to be used in second and third-year management courses: Oral presentations, managing groups, running meetings, and negotiating.

Several students also report using negotiating in their personal lives. Two students wrote that they had used negotiating skills in buying or selling a car within the past few weeks. One student stated that she or he had used those skills working with a church group of young children. The students are also most likely to mention oral presentations in the university setting. However, a handful of students did say that they had used those skills recently in other settings, such as the workplace or a club.

In general, the students are using certain skills more often than others, and are transferring the use of these skills to settings outside the classroom. It also appears that students in the control group are slightly less likely to report using management skills. If the responses referring to the negotiation exercise are ignored, the control group's affirmative responses are noticeably fewer than those of the treatment group.

CHAPTER FIVE

DISCUSSION

Introduction

The first section of Chapter Five will present a brief overview of the findings, and discuss the relationship of the findings to existing studies described in the literature review. Succeeding sections will outline implications for current theory and practice, discuss the findings that fail to support the research hypotheses, and the limitations of the study. Finally, the chapter will give recommendations for future research.

Overview of the Findings

Differences Between Treatment and Control Groups

Demographic characteristics. Discriminant function analyses show that the treatment group does not differ substantially from the two control groups. Pretest management skills level, as measured by the CVSA, is not a predictor of group membership. Students in the nonmanagement control group are distinguished from the two groups of management students only by program of studies. The treatment and control groups of management students differ only by their age. The students enroled in the management skills training program tend to be older than the students in the management control group. Therefore, the students in the control

groups do not differ significantly from those in the group that received training.

Management skills level. An analysis of pretest management skills levels shows that students in the treatment group who completed some training have significantly higher scores than treatment group students who had not yet completed any of the training workshops. Their scores are also higher than those of the students in the two control groups. However, this difference is not significant. Therefore, it is concluded that the students in the treatment (training) groups and control groups had approximately equal initial levels of management skills.

Characteristics Related to Posttest Management Skills Level

No demographic and program-related characteristics except age predict posttest management skills levels. This contradicts Howard's (1986) results. She found that college major is a significant predictor of managerial performance. In her study, students majoring in the humanities and social sciences displayed the highest overall interpersonal and verbal skills, as measured by an assessment centre. This difference could be due to the difference in sample populations. Howard's study includes managers, while the present study examines management skills levels of students. Perhaps if the students in the present study were surveyed after obtaining several years of managerial experience,

using criterion measures similar to Howard's, results would be similar.

Pretest social SE and burnout scores. Training condition is not a significant predictor of management skills level at the end of the semester. Pretest social SE and age are the only significant predictors of posttest management skills level. Of these two predictors, pretest social SE is the most important. (Age predicts only two per cent of the variability in posttest CVSA score.) The importance of social SE in predicting management skill levels supports research findings that state that persons with low self-esteem tend to exhibit poorer interpersonal skills (Tharenou, 1979).

The CVSA is a self-assessment of skill level. Therefore, it is not surprising that social SE is such a strong predictor of posttest CVSA score. It is expected that students with a higher level of social SE will rate themselves more highly on skills that involve a great degree of interpersonal interaction.

As reported in the literature review, there is a relationship between burnout and SE. For instance, Meier and Schmeck (1985) found a significant negative relationship between student burnout and global SE. In that study, students experiencing high burnout exhibited lower levels of global SE.

Burnout is not a significant predictor of management

skills level in the present study. This agrees with previous related research. According to the literature, burnout is not associated with poor job performance (Kahill, 1988; Perlman & Hartman, 1982) or with academic performance (Garden, 1991). Therefore, it is not surprising that burnout is not a significant predictor of management skills levels.

Posttest SE and burnout scores. Results differed slightly when the analyses use the posttest SE and burnout scores rather than pretest scores. Only posttest SE is a significant predictor of management skills level at the end of the semester. Treatment/control group, demographic variables, and burnout do not enter the regression equation. Completion of the management skills training program is not a significant factor in explaining the variability in posttest management skills levels. However, the three-month lapse during the program may have indirectly 'levelled the playing field' for younger students. Age, and its accompanying life experiences, do not contribute to management skills level when posttest SE and burnout scores are used.

Treatment Condition and Improvement in Management Skills

Completion of the training program alone does not cause an increase in management skills. Pretest management skills level is the main determinant of posttest management skills level. When individual role scores for the treatment group students are analyzed separately, there is some evidence

that they may have experienced a significantly greater increase in certain individual skills, such as time management. However, there are three skills in each role; the study gathered posttest scores only for each of the eight roles, not for the 24 competencies or skills. Therefore, it cannot be stated with certainty that students who complete the training program do show significant improvement in the skills for which they receive training.

Responses to the open-ended question suggest that in the previous three months students were most likely to apply management skills to complete school assignments: Oral presentations, time management of course work, interpersonal relations within groups, and so on. Many students in the management control group wrote about a group project that was due the same day they completed the posttest. Perhaps the increase in management skills shown by the students in the control groups can be attributed to timing of the post-test. Other factors could also be involved, such as a management skills emphasis by their instructors, or sensitization to the subject matter through their other courses or outside experiences.

Boyatzis and Renio (1989) also found no improvement in management skills among university students after completion of an MBA program. Their study employed a self-assessment instrument, similar to that used in the present study.

Other researchers (e.g., Lee et al., 1987; McEvoy &

Cragun, 1986-87; Mullin, et al., 1991) reported that students completing a management skills training course or program did show significant improvement in those skills. However, these authors warn the reader that situational factors and other intervening variables may also have been involved.

In addition, Mullin et al. (1991) state that the improvement was small and inconsistent in direction on the 16 management skills included in their study. Lee et al. (1987) observed that the control group of students also showed an increase in self-reported management skills levels. In the present study, the researcher found that students in the management control group also report an increase in management skills levels. It is important to consider possible intervening factors, and the initial management skill level, when interpreting the results of a research study. Responses to the open-ended question provide some indication of possible intervening factors in the present study: Student association experiences, work experiences, and other class experiences.

Findings That Failed to Support the Research Hypotheses

The first research hypothesis (p. 3, Chapter 1) is not supported by the data. The students completing the management skills training do not score significantly higher on the posttest CVSA than the students in the management con-

trol group. These two groups of students differ signifi-
cantly only in their age. Regression analyses do not find
age to predict a large portion of the posttest management
skills score. Therefore, the researcher must conclude that
the training program does not result in improved levels of
management skills.

The rejection of this hypothesis is not surprising.
The management skills training program was comprised of only
three one-day workshops during the semester for most par-
ticipants. Students in both the treatment and control
groups were also spending at least 39 hours in the OB or HRM
course lectures, and additional time in lectures and assign-
ments for other courses. Several students were also
employed or belonged to student associations. Experiences
in those other settings probably also influenced their
responses to the instrument, as shown by their responses to
the open-ended question.

Finally, the importance of social SE levels suggests
that the management skills construct is complex. There may
be many intervening variables that the study does not
include. An example is the labour arbitration negotiation
assignment that the control group completed just before the
posttest data collection. The placement of this assignment,
and its close topical relationship to several items on the
CVSA instrument, probably greatly influenced posttest
responses for the students in the control group. Many

students in the treatment groups also completed a conflict negotiation workshop late in the semester. However, it could be argued that the group exercise and paper completed by the control group was equal in impact to the one-day workshop completed by students in the treatment group.

Implications for Current Theory

There are several implications of the present study for the current theoretical frameworks most often used to study management skills education. Factor analyses of the participants' pre and posttest responses do not provide strong support for the Competing Values Framework for management skills. Eight separate factors do not clearly emerge. However, the results do support Boyatzis' management skills clusters. Some skills from different roles load into the same factor, supporting Boyatzis' assertion that some management skills are more closely related to others and form clusters of competencies.

The study also has implications for theory at another level. The study of management skills has tended to focus at the organizational rather than individual level. For instance, several research studies have been conducted on the skills required for success in different industries and organizations, and at the various organizational levels.

The researcher identified few studies that concentrated on individuals, and even fewer that attempted to include

other individual characteristics. However, the present study provide clear evidence that practitioners must consider the individual's characteristics when designing and evaluating management education and training program for management skills. Other implications for practice are presented in the next section.

Implications for Current Practice

The findings of the present study also suggest several implications for current practice. For purposes of discussion, these implications are separated into two sections, based on primary stakeholder groups: Management educators and managers.

Implications for Management Educators

The literature review shows that most stakeholders (e.g., instructors, future employers) agree that management education's current emphasis on management skills training is less than it should be (e.g., Porter & McKibbin, 1988). It is also generally agreed that an increase in managerial effectiveness is more likely to occur when training focuses on skills improvement rather than increase in knowledge (Katz, 1974). It is clear that management education programs should include management skills training.

However, it should be stressed that it will be difficult to prove educational outcomes. For example, in a

management program the format of the training, and its placement in the student's program will influence educators' ability to measure any improvement in management skills levels. In addition, researchers (e.g., Lee, et al., 1987) argue that behavioural exams rather than self-assessments should be used to measure management skills. Lee et al. (1987) state that self-reports may not indicate actual management skills levels. Boyatzis and Renio (1989) found that part-time versus full-time enrolment was an important variable in their study examining the increase in management skills levels of MBA students. This suggests that other intervening variables must be identified and examined. Until these measurement issues are resolved, it will be difficult to measure outcomes.

The link between knowledge and skills should not be ignored. These two concepts cannot be separated in a management education program. It could be argued that until a basic level of knowledge is achieved, management skills cannot be taught nor improved.

The student also plays an important role. Waters (1980) describes wisdom as one of the four types of management skills. Wisdom, which includes behaviours such as charisma and strategy formulation, is learned over long time periods. Waters suggests that these behaviours are best learned through studying materials such as histories and biographies. Management education programs could incorpor-

ate these types of materials into courses. When students are introduced to these materials in their college years, they may develop an appreciation for them, and become more likely to continue to refer to them after graduation. However, management educators cannot be sure that this interest will develop. The student's desire to continue to develop after graduation is an important variable in their continued growth as a manager.

The current climate for postsecondary education in the Province of Alberta focuses on accountability and proof of positive outcomes. Business faculties are struggling with issues such as whether their programs should be content or student-centred. Some faculty members may argue that to show accountability, they must graduate students who are knowledgeable in terms of subject matter. However, other faculty members will argue that well-rounded graduates will be students who possess basic subject knowledge, but also the interpersonal/management skills which allow them to interact successfully in organizations. This issue is closely related to that of whether the primary teaching role of faculty is as development/resource people, or as simple conveyors of cognitive knowledge. Since effective managers must possess a certain level of management skills, to display accountability to organizations, it could be argued that business faculty are responsible for providing training in knowledge and skills.

<u>Importance of self-esteem</u>. The present study also provides evidence of the importance of social SE to management education programs. This is surprising, since the literature review determined that there is no consistent relationship between global SE and work performance except under stressful conditions (Tharenou, 1979). Since social SE is a predictor of management skills level in the present study, one could argue that management education programs and policies should be adjusted.

For instance, perhaps a measure of social SE could be used as a selection tool for admission to management programs. Students with higher levels of social SE would receive priority for admission. Postsecondary programs are currently asked to show improved accountability to their professional stakeholders. Better admission screening of students might ensure graduates which are more likely to succeed as managers. However, one could argue that the use of social SE as an admission screening device is unfair. Research shows that SE changes very little after childhood; to screen applicants based on a trait over which they had no control would seem unfair. Instead, perhaps students should be supplied with this information, and low social SE individuals encouraged to pursue alternative careers in technical fields.

The link between social SE and management skills levels has important implications for skills training in management

education programs. Students should be informed of this link. Indeed, such a discussion would relate well to self-awareness, a topic which is often included in management skills training programs.

Management education cannot ignore research findings (Brockner, et al., 1987) about the connection between feedback and SE, and its effect on performance. Management educators in the skills area must consider the deleterious effect which negative feedback has on performance for students with low SE. Perhaps management skills courses or programs should be graded on a pass/fail basis. Instructors should also be encouraged to provide constructive comments and encouragement in their feedback to all students, but particularly to those with low SE.

Importance of burnout. The literature review also found a link between burnout and SE; managers experiencing higher phases of burnout tend to have lower levels of SE (Golembiewski & Kim, 1989; Meier & Schmeck, 1985; Rosse, et al., 1991). The present study did not find burnout to be a predictor of management skills level in students. However, the literature review suggests that low SE is related to poorer social skills (Tharenou, 1979). Since there is a link between burnout and SE, one could argue that these variables must be considered in management education programs.

Burnout has not been linked to poor job performance in

the workplace (Kahill, 1988; Perlman & Hartman, 1982), nor to poor academic performance of graduate students (Garden, 1991). However, it has been linked in the workplace to turnover and job satisfaction (Perlman & Hartman, 1982). Perhaps students experiencing burnout are more likely to drop out, or feel dissatisfied with their programs. Management educators who are aware of this possible link could consider program changes. For instance, programs could be altered to reduce the likelihood of burnout among students. Students could be given more control over workloads and more choice in type and timing of assignments. Alternatively, low-self-esteem individuals could receive assistance, such as time management information and study techniques. This could reduce the likelihood that they will progress to higher stages of burnout during their program.

Implications for Managers

The findings of the present study suggest similar implications for recruitment and training in the workplace. Related literature states that effective managers do what they are supposed to do (Hales, 1986). That is, they perform the necessary management roles and skills to accomplish their goals. There is general agreement that a common set of management skills exists which cannot be isolated from one another (e.g., Mintzberg, 1973). All managers must perform all roles or skills at some time to be effective in

the long-term. The skills required <u>can</u> vary, depending on the situation, and factors such as managerial level, type of organization, and so on. Luthans et al. (1985) argue that networking and conflict management skills are important for all managers, regardless of managerial level or organizational type.

Therefore, training programs in the workplace must include 'soft' interpersonal skills, such as conflict negotiation, as well as 'hard' technical skills, such as budgeting. Training topics should vary, depending on the managerial level of the participants, as well as the type of organization. However, all managers should receive management skills training in networking and conflict management.

<u>Importance of self-esteem</u>. Organizations could consider using SE measures as selection tools. The same ethical arguments against this procedure for admission to management programs would apply to this situation. However, in the present study, social SE is a strong predictor of management skills levels of students. This finding indicates that organizations should consider measuring this trait during selection. The information would be useful when selecting candidates for positions requiring strong interpersonal skills, such as managerial positions.

As discussed earlier, the present study found that social SE is a predictor of management skills levels, even though earlier research indicates that global SE is not

consistently related to work performance. This is somewhat surprising, unless it is recognized that persons with high SE usually also demonstrate good interpersonal skills.

Organizations could use this information in several ways. For example, when designing work-teams, managers could endeavour to balance teams with low and high SE individuals. The interpersonal skills of high social SE individuals could possibly balance any deficiencies of those with low social SE.

The relationship between feedback and SE on performance (Brockner, et al., 1987) also has possible implications for performance evaluation. Managers should consider this relationship when evaluating individuals with low social SE. A very negative performance evaluation of such an employee may actually cause poorer job performance. Managers with low SE also need to be aware of this tendency on a personal level. If they receive negative performance feedback from colleagues or superiors, they can attempt to minimize its possible negative impact on their future performance.

Importance of burnout. In the present study, burnout is not a predictor of management skills levels. However, as discussed earlier, there is a negative relationship between SE and burnout (Golembiewski & Kim, 1989; Meier & Schmeck, 1985; Rosse, et al, 1991). Although burnout is not linked to poorer job performance (Kahill, 1988; Perlman & Hartman, 1982), individuals with lower SE usually have poorer social

skills (Tharenou, 1979). It can be speculated that individuals with low SE are more likely to experience burnout, since Rosse, et al. (1991) found that low SE is either an antecedent or an outcome of burnout.

It is recognized that managerial positions require strong interpersonal skills. Managers should not ignore the relationship between SE and burnout; persons with low SE, who may also be more likely to experience burnout, are more likely to display negative behaviours in the workplace. In addition, research has found burnout to be related to turn-over and job satisfaction (Perlman & Hartman, 1982). Therefore, for moral and financial reasons, an organization should be interested in reducing burnout among its managers and other employees.

Since individuals with low SE may be more likely to experience burnout, organizations should identify at-risk employees, and ensure that appropriate assistance is provided. Organizations can provide an environment which is less likely to cause burnout by acknowledging the need for a balanced lifestyle, and designing positions which provide individuals with a sense of control over their work. Organizations can also provide training in stress and time management, to assist employees in coping with increasing job demands and workloads.

Response to the Management Question

Since students in both the treatment and control groups show increases in management skills levels on the posttest, improvement in the treatment group's management skills cannot be attributed to completion of the workshop training program. In addition, the pattern of managerial roles in which improvement occurred suggests that improvement cannot be attributed to the training. In response to the management question posed in Chapter 1, it is concluded that the University of Lethbridge should alter the format of the management skills training program. The cost of the workshop program does not justify retaining it in its current form.

Limitations of the Study

Responses to the CVSA must be interpreted with caution, since a behavioural checklist of management skills performance was not used. In addition, the instrument may contain too much 'jargon' to be used effectively with students, especially those in the nonmanagement control group. However, the high correlation of the pretest CVSA with the overall self-assessed management skills score suggests that the instrument probably did assess management skills levels. As discussed in Chapter 2, McEvoy (1991) has shown a correlation between a self-assessed management skills score and a behavioural examination score.

Results of the study cannot be generalized to other populations. A quasi-experimental research design was used. Although there are few differences between the control and treatment groups of management students, the results are not generalizable to all management or commerce programs. As well, since the research was not conducted with an experimental design, causality cannot be stated. Instead, the design and the statistical tests performed can only indicate relationships between the variables in the study, if and where they occur.

Recommendations for Further Research

Several recommendations for further research arise from the present study:

1. The link between self-esteem and management skills training should be investigated further. The present study uses an instrument that researchers believe assesses social self-esteem, not global self-esteem. Further research could investigate whether global self-esteem is also strongly related to performance of management skills. The literature suggests that there is no relationship between self-esteem and performance. However, the present study provides evidence that social self-esteem predicts managerial skills level. This finding should be studied further.

2. The relationship of other personality traits or charac-

teristics to management skills levels could also be investigated. For instance, researchers believe self-efficacy is strongly related to self-esteem. Therefore, it is suspected that self-efficacy would also show a positive relationship to performance and achievement.

3. A longitudinal study could be conducted, assessing the management skills of students after graduation and completion of some managerial work experience. Do their overall levels of management skills increase as they gain further work experience? Do the students improve most in the areas required for their position (e.g., budgeting and controlling, for an accountant)?

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Appendix A

Management 3030 (OB) Workshops

**The
University of
Lethbridge**

FACULTY OF MANAGEMENT
SKILLS WORKSHOPS, SPRING 1993

MANAGEMENT 3030 (O.B.) WORKSHOPS

```
TIME:     8:30 a.m. - 3:30 p.m.
PARKING:  Please Park in the lot where you have a permit
LOCATION: Piikani House (P200), Kainai House (K200), and Boardroom
          (W646)
MANUALS:  Can be purchased in room E562.
```

Skill Topic	Friday	Saturday	Section	Workshop Leader	Location
Self-Awareness	Jan. 22		A B	S. Faerman L. DiPadova	Piikani Kainai
		Jan. 23	C D	S. Faerman L. DiPadova	Piikani Kainai
Effective Presentations	Jan. 29		E F	J. Chow J. Clark	Piikani Kainai
		Jan. 30	G H	J. Chow J. Clark	Piikani Kainai
Time & Stress Management	Feb. 5		E. F	R. Schulz A. Kilpatrick	Piikani Kainai
		Feb. 6	F G	R. Schulz A. Kilpatrick	Piikani Kainai

Appendix B

Management 3050 (HRM) Workshops

The
University of
Lethbridge

FACULTY OF MANAGEMENT
SKILLS WORKSHOPS, SPRING 1993

MANAGEMENT 3050 (Personnel) WORKSHOPS

TIME: 8:30 a.m. - 3:30 p.m.
PARKING: Please Park in the lot where you have a permit
LOCATION: Piikani House (P200), Kainai House (K200), and Boardroom
            (W646)
MANUALS: Can be purchased in room E562.

Skill Topic	Friday	Saturday	Section	Workshop Leader	Place
Business Writing	Feb. 5		AA	H. Klauser	Boardroom
		Feb. 6	BB	H. Klauser	Boardroom
	March 5		CC DD	K. Slaughter H. Klauser	Piikani Kainai
		March 6	FF GG	K. Slaughter H. Klauser	Piikani Kainai
Effective Interviewing	March 12		HH II	S. Horton B. Savard	Piikani Kainai
		March 13	JJ KK	S. Horton E. Savard	Piikani Kainai
	March 19		LL	M. Howard	Piikani
		March 20	NN	M. Howard	Piikani
Negotiating Successfully	March 26		OO PP	T. Watkins A. Zanzi	Piikani Kainai
		March 27	QQ RR	T. Watkins A. Zanzi	Piikani Kainai
	April 2		SS	T. Watkins	Piikani
		April 3	UU	T. Watkins	Piikani

Appendix C

Noncopyright Portions of Instruments

Name _____
ID Number _____
Date _____

Evaluation of a Management Skills Program

This questionnaire is part of a study entitled **Evaluation of a Management Skills Program**. The questionnaire and methodology have been approved through the University of Lethbridge's research ethics committee.

The first portion of this questionnaire is being used to collect demographic information about the participants in that study. Your name is requested on this questionnaire, but please be assured that all information will be treated with utmost confidentiality. All written documents describing or discussing the results of this questionnaire will present information in summary form only. Data for individuals will not be reported.

If you would like to receive a summary of the results of this questionnaire, please provide an address in the space provided on the last page of this questionnaire.

Thank you for your participation in this study!

SECTION I

Educational Background

1. Number of post-secondary <u>courses</u> completed to date, in your <u>current</u> degree or certificate program:

    _____ courses

2. **For U of L students only:**

    Currently registered in: (check all that apply)

    _____ MGT 3030 - Organizational Behaviour, Theory & Design
    _____ MGT 3050 - Human Resource Management & Labour Relations

Previously completed (at U of L, or transfer institution):
(check all that apply)

____ MGT 3030 - Organizational Behaviour, Theory & Design
____ MGT 3050 - Human Resource Management & Labour Relations

3. Have you completed any previous degrees or diplomas?
   (please check one)

   ____ yes   ____ no

   If yes, please indicate the following, for the most
   recent degree or diploma which you have completed:

a) Type of degree or diploma: _____
b) Major field of study: _____

Previous Management Skills Experience

4. Do you have full-time work experience, other than
   summer employment?

   ____ yes   ____ no

5. For your <u>most recent</u> full-time position, please
   indicate the type of position.

   _____

6. Indicate any <u>non-credit</u> training you have completed in
   the following areas:

   ____ time management
   ____ public-speaking
   ____ communication skills
   ____ self-awareness
   ____ negotiating
   ____ business writing
   ____ other - please specify: _____

7. Have you belonged to any clubs or organizations, which
   enabled you to develop any of these skills? (please
   check one)

   ____ yes   ____ no

General Background

8. Age: _____ years

9. Gender (please check one): ____ female ____ male

10. <u>Current</u> program of studies (please check all that apply, if you are enroled in a combined degree program):

     _____ Management/Commerce degree
     _____ Management Development Certificate
     _____ Arts & Science
     _____ Education
     _____ Other _____ (please specify the program)

11. Major field of study in current program: (e.g. Finance, for a B.Mgt. or B. Comm. degree program; Business Education for a B. Ed. degree program)

                                 _____

12. Cumulative grade point average in current program: _____

SECTION II.

The Competing Values Self-Assessment is not reproduced because it is protected by copyright.

SECTION III.

This section of the questionnaire assesses your perception of your **current** level of competence in six different types of management skills. Please indicate your <u>current</u> level of skilfullness, <u>at work or at school</u>, by circling the appropriate number on the seven-point scale. For example, circling the "1" would indicate that you believe your current skilfullness in that area to be very low. Circling the "7" would indicate that you believe yourself to have a high skill level in that area.

---

1. **Self-Awareness** – you know a lot about yourself; you have a highly developed self-concept; you continuously try to grow as a person.

low   high
skill   1   2   3   4   5   6   7   skill
level   level

2. **Effective Presentations** - you are able to verbally present your ideas comfortably to a group of people; you develop an effective strategy for communicating your message; you are able to competently field questions from your audience.

low   high
skill   1   2   3   4   5   6   7   skill
level   level

3. **Time/Stress Management** - you use your time effectively; you make lists; you prioritize tasks or chores.

low   high
skill   1   2   3   4   5   6   7   skill
level   level

4. **Written Communication** - you present written information clearly and effectively; you know how to organize your written communications.

low   high
skill   1   2   3   4   5   6   7   skill
level   level

5. **Effective Interviewing** - you plan and then conduct interviews to meet the intended purpose; you formulate well-worded questions; you encourage a suitable climate for the interview.

low   high
skill   1   2   3   4   5   6   7   skill
level   level

6. **Successful Negotiating** - you establish goals during a negotiation; you ask for any necessary clarification; you do not tolerate unwanted actions in order to avoid conflict.

low   high
skill   1   2   3   4   5   6   7   skill
level   level

Appendix D

The Competing Values Framework –
The Eight Managerial/Leadership Roles
and Their Key Competencies

Director Role	1. Taking initiative 2. Goal setting 3. Delegating effectively
Producer Role	1. Personal productivity and motivation 2. Motivating others 3. Time and stress management
Coordinator Role	1. Planning 2. Organizing and designing 3. Controlling
Monitor Role	1. Reducing information overload 2. Analyzing information with critical thinking 3. Presenting information; writing effectively
Mentor Role	1. Understanding yourself and others 2. Interpersonal communication 3. Developing subordinates
Facilitator Role	1. Team building 2. Participative decision making 3. Conflict management
Innovator Role	1. Living with change 2. Creative thinking 3. Managing change
Broker Role	1. Building and maintaining a power base 2. Negotiating agreement and commitment 3. Presenting ideas

Source: Quinn, R. E., Faerman, S. R., Thompson, M. P., & McGrath, M. R. (1990) Becoming a master manager: A competency framework, Toronto: John Wiley & Sons, p. 21.

Appendix E

Summary of Responses to CVSA for all Respondents

Table 1

Pre and Post Management Skills of University Students
as Measured by the CVSA ($N = 351$)

Role/Managerial Skill	Pretest			Posttest		
	N	Mean	S.D.	N	Mean	S.D.
Director	292	4.54	.82	236	5.24	.89
Taking initiative	292	5.07	.85			
Goal setting	291	4.81	.90			
Delegating Effectively	289	4.48	.85			
Producer	293	4.48	.80	236	5.11	.89
Personal Productivity	289	5.22	.94			
Motivating Others	288	4.51	.93			
Time/Stress Management	290	4.18	1.03			
Coordinator	294	4.50	.85	235	4.76	.95
Planning	293	4.83	.96			
Organizing & Designing	275	4.09	1.01			
Controlling	286	3.76	1.13			
Monitor	292	5.10	.74	236	4.97	.88
Reducing Information Overload	292	4.81	1.18			
Analyzing Information with Critical Thinking	283	4.57	.87			
Written Presentation	292	4.31	1.12			
Mentor	294	4.70	.92	236	5.40	.85
Understanding Self and Others	291	5.48	.79			
Interpersonal Communication	289	5.27	.94			
Developing Others	292	4.96	.97			

Table 1 (cont.)

Pre and Post Management Skills of University Students
as Measured by the CVSA (*N* = 351)

Role/Managerial Skill	Pretest			Posttest		
	N	Mean	S.D.	N	Mean	S.D.
Facilitator	294	5.17	.78	235	4.95	.94
Team Building	290	4.50	.99			
Participative						
Decision-making	290	4.77	.93			
Conflict Management	292	4.53	1.00			
Innovator	290	4.75	.76	234	5.07	.89
Living with change	289	5.22	.84			
Creative thinking	290	4.90	.88			
Managing change	282	4.15	1.01			
Broker	290	4.60	.80	236	4.51	1.24
Power Base	289	4.78	.89			
Negotiating	293	4.59	.97			
Oral Presentation	291	4.00	1.55			
Overall -- 113 items	255	4.66	.70			
Overall -- 48 items	262	4.52	.80	232	5.00	.80

Note. Means are based on a 7-point scale, where a higher
score indicates a higher skill level. Role scores
are based on pre and posttest responses to the six
items included on the posttest.

Table 2

Pre and Post Management Skills of University Students
in Treatment Group with No Previous Labs,
as Measured by the CVSA (*N* = 109)

Role/Managerial Skill	Pretest			Posttest		
	N	Mean	S.D.	N	Mean	S.D.
Director	86	4.35	.89	89	5.21	.94
Taking initiative	87	4.96	.98			
Goal setting	86	4.53	.97			
Delegating Effectively	85	4.43	.84			
Producer	85	4.38	.83	89	5.08	.93
Personal Productivity	85	5.14	1.06			
Motivating Others	84	4.33	.99			
Time/Stress Management	86	3.96	.97			
Coordinator	87	4.40	.93	89	4.75	.92
Planning	85	4.55	1.03			
Organizing & Designing	79	4.06	.99			
Controlling	83	3.78	1.05			
Monitor	86	4.91	.79	89	4.90	.88
Reducing Information Overload	86	4.44	1.21			
Analyzing Information with Critical Thinking	83	4.47	.96			
Written Presentation	87	4.30	1.24			
Mentor	86	4.57	1.00	89	5.29	.94
Understanding Self and Others	85	5.27	.95			
Interpersonal Communication	85	4.94	1.02			
Developing Others	87	4.71	1.10			
Facilitator	86	4.97	.84	88	4.92	.95
Team Building	85	4.26	1.05			
Participative Decision-making	85	4.59	.98			
Conflict Management	86	4.32	1.08			

Table 2 (cont.)

Pre and Post Management Skills of University Students
in Treatment Group with No Previous Labs,
as Measured by the CVSA (*N* = 109)

Role/Managerial Skill	Pretest			Posttest		
	N	Mean	S.D.	N	Mean	S.D.
Innovator	83	4.56	.80	88	5.14	.89
Living with change	86	5.10	.89			
Creative thinking	85	4.76	.96			
Managing change	81	4.05	1.00			
Broker	85	4.38	.86	89	4.54	1.23
Power Base	85	4.60	.96			
Negotiating	87	4.43	.99			
Oral Presentation	86	3.72	1.59			
Overall -- 113 items	71	4.45	.79			
Overall -- 48 items	74	4.30	.89	87	4.97	.83

Note. Means are based on a 7-point scale, where a higher
score indicates a higher skill level. Role scores
are based on pre and posttest responses to the six
items included on the posttest.

Table 3

Pre and Post Management Skills of University Students
in Treatment Group with Some Previous Labs,
as Measured by the CVSA (*N* = 81)

Role/Managerial Skill	Pretest			Posttest		
	N	Mean	S.D.	N	Mean	S.D.
Director	54	4.66	.72	64	5.30	.88
Taking initiative	54	5.10	.82			
Goal setting	54	4.91	.75			
Delegating Effectively	54	4.68	.80			
Producer	54	4.59	.73	64	5.08	.89
Personal Productivity	54	5.18	.87			
Motivating Others	54	4.57	.83			
Time/Stress Management	54	4.45	.97			
Coordinator	54	4.66	.74	64	4.70	.91
Planning	54	4.93	.96			
Organizing & Designing	54	4.50	.96			
Controlling	54	4.22	1.06			
Monitor	54	5.12	.70	64	5.01	.97
Reducing Information Overload	54	4.92	1.05			
Analyzing Information with Critical Thinking	54	4.75	.80			
Written Presentation	54	4.56	1.02			
Mentor	53	4.78	.80	64	5.42	.93
Understanding Self and Others	54	5.59	.75			
Interpersonal Communication	54	5.33	.79			
Developing Others	54	5.08	.74			
Facilitator	54	5.13	.80	64	4.91	.89
Team Building	53	4.61	.84			
Participative Decision-making	54	5.07	.84			
Conflict Management	54	4.68	.86			

Table 3 (cont.)

Pre and Post Management Skills of University Students
in Treatment Group with Some Previous Labs,
as Measured by the CVSA (N = 81)

Role/Managerial Skill	Pretest			Posttest		
	N	Mean	S.D.	N	Mean	S.D.
Innovator	54	4.92	.74	63	5.07	.86
Living with change	54	5.22	.76			
Creative thinking	54	4.97	.72			
Managing change	54	4.60	1.01			
Broker	54	4.78	.71	64	4.32	1.25
Power Base	54	4.87	.86			
Negotiating	54	4.79	1.00			
Oral Presentation	54	3.97	1.48			
Overall -- 113 items	53	4.84	.61			
Overall -- 48 items	53	4.74	.68	63	4.98	.80

Note. Means are based on a 7-point scale, where a higher
score indicates a higher skill level. Role scores
are based on pre and posttest responses to the six
items included on the posttest.

Table 4

Pre and Post Management Skills of University Students
in Management Control Group,
as Measured by the CVSA (*N* = 112)

Role/Managerial Skill	Pretest			Posttest		
	N	Mean	S.D.	N	Mean	S.D.
Director	106	4.59	.79	83	5.23	.84
Taking initiative	105	5.21	.78			
Goal setting	104	4.91	.82			
Delegating						
Effectively	104	4.38	.88			
Producer	106	4.66	.75	83	5.15	.84
Personal Productivity	105	5.29	.94			
Motivating Others	103	4.54	.89			
Time/Stress						
Management	104	4.20	1.02			
Coordinator	106	4.57	.85	82	4.82	1.03
Planning	106	5.09	.79			
Organizing &						
Designing	99	4.02	1.02			
Controlling	104	3.70	1.17			
Monitor	105	5.22	.74	83	5.02	.82
Reducing Information						
Overload	104	5.11	.98			
Analyzing Informa-						
tion with Critical						
Thinking	101	4.59	.84			
Written Presentation	105	4.34	1.14			
Mentor	106	4.71	.95	83	5.49	.66
Understanding Self						
and Others	105	5.52	.70			
Interpersonal						
Communication	104	5.40	.88			
Developing Others	105	5.01	.96			
Facilitator	106	5.25	.75	83	5.01	.97
Team Building	104	4.56	.98			
Participative						
Decision-making	104	4.72	.94			
Conflict Management	105	4.60	1.03			

Table 4 (cont.)

Pre and Post Management Skills of University Students
in Management Control Group,
as Measured by the CVSA (N = 112)

Role/Managerial Skill	Pretest			Posttest		
	N	Mean	S.D.	N	Mean	S.D.
Innovator	105	4.83	.76	83	5.00	.92
Living with change	104	5.28	.92			
Creative thinking	104	4.87	.90			
Managing change	102	4.10	.96			
Broker	103	4.70	.79	83	4.62	1.23
Power Base	103	4.86	.94			
Negotiating	106	4.64	.98			
Oral Presentation	103	4.10	1.63			
Overall -- 113 items	93	4.72	.69			
Overall -- 48 items	95	4.57	.78	82	5.04	.77

Note. Means are based on a 7-point scale, where a higher score indicates a higher skill level. Role scores are based on pre and posttest responses to the six items included on the posttest.

Table 5

Pretest Management Skills of University Students
in Nonmanagement Control Group,
as Measured by the CVSA (*N* = 49)

Role/Managerial Skill

	N	Mean	S.D.
Director	46	4.64	.82
Taking initiative	46	4.92	.76
Goal setting	47	5.02	.98
Delegating			
Effectively	46	4.58	.84
Producer	48	4.12	.78
Personal Productivity	45	5.26	.79
Motivating Others	47	4.72	.96
Time/Stress			
Management	46	4.20	1.15
Coordinator	47	4.36	.80
Planning	48	4.65	1.01
Organizing &			
Designing	43	3.76	.95
Controlling	45	3.32	1.08
Monitor	47	5.15	.63
Reducing Information			
Overload	48	4.67	1.44
Analyzing Information with Critical			
Thinking	45	4.50	.83
Written Presentation	46	3.96	.90
Mentor	49	4.81	.84
Understanding Self			
and Others	47	5.63	.63
Interpersonal			
Communication	46	5.50	.97
Developing Others	46	5.18	.90
Facilitator	48	5.40	.65
Team Building	48	4.65	1.02
Participative			
Decision-making	47	4.88	.86
Conflict Management	47	4.60	.88

Table 5 (cont.)

Pretest Management Skills of University Students
in Nonmanagement Control Group,
as Measured by the CVSA (N = 49)

Role/Managerial Skill

	N	Mean	S.D.
Innovator	48	4.70	.69
Living with change	45	5.28	.66
Creative thinking	47	5.13	.80
Managing change	45	3.88	1.01
Broker	48	4.58	.74
Power Base	47	4.83	.61
Negotiating	46	4.54	.81
Oral Presentation	48	4.30	1.36
Overall -- 113 items	38	4.70	.63
Overall -- 48 items	40	4.52	.76

Note. Means are based on a 7-point scale, where a higher
score indicates a higher skill level. Role scores
are based on pre and posttest responses to the six
items included on the posttest.

Appendix F

Summary of Responses to CVSA for Respondents

Who Completed Both Pre and Posttest

Table 1

Pre and Post Management Skills of University Students Who
Wrote Both the Pre and Posttest,
as Measured by the CVSA (*N* = 181)

Role/Managerial Skill	Pretest			Posttest		
	N	Mean	S.D.	N	Mean	S.D.
Director	180	4.50	.83	181	5.26	.86
Taking initiative	180	5.13	.82			
Goal setting	179	4.80	.88			
Delegating						
Effectively	179	4.43	.83			
Producer	180	4.54	.77	181	5.16	.85
Personal Productivity	180	5.25	.94			
Motivating Others	176	4.42	.90			
Time/Stress						
Management	179	4.22	.99			
Coordinator	181	4.53	.86	180	4.82	.96
Planning	179	4.89	.94			
Organizing &						
Designing	172	4.10	.99			
Controlling	176	3.80	1.10			
Monitor	180	5.07	.72	181	4.99	.86
Reducing Information						
Overload	179	4.87	1.14			
Analyzing Informa-						
tion with Critical						
Thinking	174	4.54	.88			
Written Presentation	180	4.38	1.14			
Mentor	180	4.62	.89	181	5.44	.82
Understanding Self						
and Others	179	5.44	.82			
Interpersonal						
Communication	178	5.15	.95			
Developing Others	180	4.86	.98			

Table 1 (cont.)

Pre and Post Management Skills of University Students
Who Wrote Both the Pre and Posttest,
as Measured by the CVSA (N = 181)

Role/Managerial Skill	Pretest			Posttest		
	N	Mean	S.D.	N	Mean	S.D.
Facilitator	181	5.13	.81	180	5.02	.88
Team Building	178	4.42	.93			
Participative						
Decision-making	178	4.68	.92			
Conflict Management	179	4.45	1.01			
Innovator	177	4.74	.75	180	5.14	.82
Living with change	179	5.23	.84			
Creative thinking	178	4.82	.87			
Managing change	173·	4.16	.95			
Broker	177	4.55	.78	181	4.60	1.19
Power Base	177	4.74	.88			
Negotiating	181	4.53	.99			
Oral Presentation	178	3.86	1.58			
Overall -- 113 items	159	4.63	.70			
Overall -- 48 items	164	4.49	.79	178	5.05	.76

Note. Means are based on a 7-point scale, where a higher
score indicates a higher skill level. Role scores
are based on pre and posttest responses to the six
items included on the posttest.

Table 2

Pre and Post Management Skills of University Students
in Treatment Group with No Previous Labs,
as Measured by the CVSA ($N = 67$)
(Excludes Those Who Did Not Write Both Tests)

Role/Managerial Skill	Pretest			Posttest		
	N	Mean	S.D.	N	Mean	S.D.
Director	66	4.34	.88	67	5.24	.94
Taking initiative	67	4.97	.97			
Goal setting	67	4.58	.99			
Delegating Effectively	65	4.36	.82			
Producer	66	4.40	.83	67	5.16	.93
Personal Productivity	67	5.17	1.05			
Motivating Others	65	4.34	.99			
Time/Stress Management	67	4.01	.98			
Coordinator	67	4.41	.95	67	4.79	.95
Planning	65	4.58	1.04			
Organizing & Designing	62	4.12	.94			
Controlling	64	3.80	.97			
Monitor	66	4.92	.76	67	4.90	.90
Reducing Information Overload	67	4.47	1.21			
Analyzing Information with Critical Thinking	65	4.50	.99			
Written Presentation	67	4.25	1.20			
Mentor	67	4.55	1.01	67	5.32	.98
Understanding Self and Others	66	5.28	.98			
Interpersonal Communication	66	4.90	1.08			
Developing Others	67	4.63	1.10			
Facilitator	67	4.98	.88	66	4.95	.93
Team Building	66	4.23	1.04			
Participative Decision-making	66	4.58	.99			
Conflict Management	66	4.31	1.13			

Table 2 (cont.)·

Pre and Post Management Skills of University Students
in Treatment Group with No Previous Labs,
as Measured by the CVSA ($N = 67$)
(Excludes Those Who Did Not Write Both Tests)

Role/Managerial Skill	Pretest			Posttest		
	N	Mean	S.D.	N	Mean	S.D.
Innovator	64	4.57	.79	66	5.20	.90
Living with change	67	5.15	.90			
Creative thinking	66	4.74	.96			
Managing change	63	4.07	.98			
Broker	66	4.38	.87	67	4.58	1.27
Power Base	66	4.64	.96			
Negotiating	67	4.46	1.02			
Oral Presentation	67	3.68	1.59			
Overall -- 113 items	55	4.47	.81			
Overall -- 48 items	58	4.32	.91	65	5.01	.84

Note. Means are based on a 7-point scale, where a higher
score indicates a higher skill level. Role scores
are based on pre and posttest responses to the six
items included on the posttest.

Table 3

Pre and Post Management Skills of University Students
in Treatment Group with Some Previous Labs,
as Measured by the CVSA ($N = 37$)
(Excludes Those Who Did Not Write Both Tests)

Role/Managerial Skill	Pretest			Posttest		
	N	Mean	S.D.	N	Mean	S.D.
Director	37	4.53	.72	37	5.32	.82
Taking initiative	37	5.10	.74			
Goal setting	37	4.87	.76			
Delegating Effectively	37	4.57	.69			
Producer	37	4.49	.71	37	5.13	.82
Personal Productivity	37	5.20	.84			
Motivating Others	37	4.39	.82			
Time/Stress Management	37	4.43	1.06			
Coordinator	37	4.55	.76	37	4.81	.87
Planning	37	4.88	.99			
Organizing & Designing	37	4.24	.92			
Controlling	37	3.99	1.10			
Monitor	37	5.00	.64	37	5.12	.92
Reducing Information Overload	37	4.95	1.09			
Analyzing Information with Critical Thinking	37	4.58	.75			
Written Presentation	37	4.55	1.01			
Mentor	36	4.57	.70	37	5.53	.82
Understanding Self and Others	37	5.58	.70			
Interpersonal Communication	37	5.27	.71			
Developing Others	37	5.01	.71			
Facilitator	37	5.01	.81	37	5.02	.75
Team Building	36	4.41	.77			
Participative Decision-making	37	4.90	.78			
Conflict Management	37	4.49	.78			

Table 3 (cont.)

Pre and Post Management Skills of University Students
in Treatment Group with Some Previous Labs,
as Measured by the CVSA (N = 37)
(Excludes Those Who Did Not Write Both Tests)

Role/Managerial Skill	Pretest			Posttest		
	N	Mean	S.D.	N	Mean	S.D.
Innovator	37	4.76	.64	37	5.18	.66
Living with change	37	5.18	.74			
Creative thinking	37	4.83	.67			
Managing change	37	4.35	.97			
Broker	37	4.60	.63	37	4.43	1.13
Power Base	37	4.65	.70			
Negotiating	37	4.54	.91			
Oral Presentation	37	3.64	1.47			
Overall -- 113 items	36	4.72	.58			
Overall -- 48 items	36	4.61	.64	37	5.07	.69

Note. Means are based on a 7-point scale, where a higher
score indicates a higher skill level. Role scores
are based on pre and posttest responses to the six
items included on the posttest.

Table 4

Pre and Post Management Skills of University Students
in Management Control Group,
as Measured by the CVSA ($N = 77$)
(Excludes Those Who Did Not Write Both Tests)

Role/Managerial Skill	Pretest			Posttest		
	N	Mean	S.D.	N	Mean	S.D.
Director	77	4.62	.82	77	5.25	.82
Taking initiative	76	5.30	.69			
Goal setting	75	4.95	.79			
Delegating						
Effectively	77	4.42	.91			
Producer	77	4.69	.73	77	5.17	.81
Personal Productivity	76	5.35	.89			
Motivating Others	74	4.50	.84			
Time/Stress						
Management	75	4.29	.94			
Coordinator	77	4.62	.82	76	4.86	1.01
Planning	77	5.14	.75			
Organizing &						
Designing	73	4.01	1.06			
Controlling	75	3.72	1.21			
Monitor	77	5.23	.71	77	5.02	.78
Reducing Information						
Overload	75	5.18	.98			
Analyzing Informa-						
tion with Critical						
Thinking	72	4.56	.85			
Written Presentation	76	4.40	1.14			
Mentor	77	4.70	.87	77	5.49	.66
Understanding Self						
and Others	76	5.51	.69			
Interpersonal						
Communication	75	5.32	.89			
Developing Others	76	4.98	.96			
Facilitator	77	5.32	.72	77	5.08	.91
Team Building	76	4.59	.88			
Participative						
Decision-making	75	4.65	.90			
Conflict Management	76	4.55	.98			

Table 4 (cont.)

**Pre and Post Management Skills of University Students
in Management Control Group,
as Measured by the CVSA (*N* = 77)
(Excludes Those Who Did Not Write Both Tests)**

Role/Managerial Skill	Pretest			Posttest		
	N	Mean	S.D.	N	Mean	S.D.
Innovator	76	4.89	.75	77	5.07	.82
Living with change	75	5.33	.82			
Creative thinking	75	4.89	.88			
Managing change	73	4.13	.92			
Broker	74	4.67	.74	77	4.69	1.15
Power Base	74	4.86	.88			
Negotiating	77	4.60	1.02			
Oral Presentation	74	4.12	1.60			
Overall -- 113 items	68	4.72	.65			
Overall -- 48 items	70	4.58	.74	76	5.08	.72

Note. Means are based on a 7-point scale, where a higher
score indicates a higher skill level. Role scores
are based on pre and posttest responses to the six
items included on the posttest.

Appendix G

Self-assessed Management Skills

Table 1

Self-assessed Management Skills of University Students – Pretest Only ($N = 295$)

	Treatment – no labs			Treatment – some labs			Control – management			Control – nonmanagement			Total		
	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.
Self-awareness	86	5.29	1.13	54	5.57	1.19	104	5.47	.96	49	5.71	.74	293	5.48	1.03
Effective Presentations	86	3.76	1.61	54	4.17	1.49	104	4.39	1.55	49	4.69	1.28	293	4.22	1.54
Time/Stress Management	86	4.27	1.48	54	4.67	1.37	104	4.88	1.44	49	4.96	1.55	293	4.68	1.48
Written Communication	86	4.45	1.28	54	4.83	1.27	104	4.99	1.33	49	5.45	1.23	293	4.88	1.33
Effective Interviewing	85	3.91	1.44	54	4.20	1.43	101	4.31	1.32	47	4.53	1.12	287	4.21	1.36
Successful Negotiating	86	4.07	1.24	54	4.57	1.33	103	4.70	1.14	49	4.74	1.02	292	4.50	1.21
Total	85	4.28	.85	54	4.67	.83	101	4.81	.78	47	5.00	.70	287	4.66	.84

Note. Based on responses to a 7-point scale, where 7 indicates a higher self-perceived management skill level.

Table 2

Self-assessed Management Skills of University Students at Time of Pretest –
Those Students Who Wrote Both Tests ($N = 181$)

	Treatment – no labs			Treatment – some labs			Control – management			Total		
	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.
Self-awareness	67	5.36	1.14	37	5.51	1.35	75	5.41	.97	179	5.41	1.12
Effective Presentations	67	3.70	1.61	37	3.81	1.49	75	4.25	1.54	179	3.96	1.57
Time/Stress Management	67	4.33	1.44	37	4.76	1.44	75	5.04	1.45	179	4.72	1.47
Written Communication	67	4.42	1.28	37	4.92	1.23	75	5.07	1.31	179	4.79	1.31
Effective Interviewing	66	3.80	1.44	37	3.92	1.44	72	4.28	1.36	175	4.02	1.41
Successful Negotiating	67	4.07	1.25	37	4.32	1.23	74	4.64	1.10	178	4.36	1.20
Total	66	4.27	.85	37	4.54	.86	72	4.80	.77	175	4.55	.85

Note. Based on responses to a 7-point scale, where 7 indicates a higher self-perceived management skill level.

Appendix H

Subscale Scores on Maslach Burnout Inventory

Table 1

University Students' Pretest Scores on Subscales of Maslach Burnout Inventory (N = 295)

	Treatment – no labs			Treatment – some labs			Control – management			Control – nonmanagement			Total		
	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.
Depersonal-ization	86	21.15	6.66	54	20.11	6.73	96	20.15	7.57	47	17.19	5.86	283	19.95	6.97
Lack of Pers-onal Accomp-lishment	86	27.48	6.47	54	25.39	5.31	95	25.89	6.25	47	23.77	6.03	282	25.93	6.21
Emotional Exhaustion	86	23.09	7.64	54	22.68	6.88	98	21.52	7.59	48	21.15	7.77	285	22.15	7.51

Note. A higher score on each subscale indicates a higher degree of burnout. Possible ranges for each subscale are: depersonalization, 7 to 56; lack of personal accomplishment, 7 to 56; and emotional exhaustion, 7 to 49.

Table 2

University Students' Posttest Scores on Subscales of Maslach Burnout Inventory (N = 244)

	Treatment – no labs			Treatment – some labs			Control – management			Total		
	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.
Depersonal- ization	88	23.88	8.80	63	20.98	8.45	81	20.90	6.88	232	22.05	8.17
Lack of Pers- onal Accomp- lishment	89	26.66	7.34	64	24.89	5.61	83	25.32	5.75	236	25.71	6.38
Emotional Exhaustion	89	23.39	8.06	64	23.27	8.23	82	23.43	8.22	235	23.37	8.13

Note. A higher score on each subscale indicates a higher degree of burnout. Possible ranges for each subscale are: depersonalization, 7 to 56; lack of personal accomplishment, 7 to 56; and emotional exhaustion, 7 to 49.

Table 3

University Students' Pretest Scores on Subscales of Maslach Burnout Inventory
for Those Who Wrote Both Tests (N = 181)

	Treatment – no labs			Treatment – some labs			Control – management			Control – nonmanagement		
	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.
Depersonal-ization	67	21.49	7.01	37	19.40	6.73	70	19.61	7.06	174	20.29	7.00
Lack of Personal Accomplishment	67	27.58	6.15	37	25.57	5.23	69	26.17	6.29	173	26.59	6.05
Emotional Exhaustion	66	22.15	7.16	37	21.97	7.22	71	21.79	6.91	174	21.97	7.03

Note. A higher score on each subscale indicates a higher degree of burnout. Possible ranges for each subscale are: depersonalization, 7 to 56; lack of personal accomplishment, 7 to 56; and emotional exhaustion, 7 to 49.

Table 4

University Students' Posttest Scores on Subscales of Maslach Burnout Inventory
for Those Who Wrote Both Tests ($N = 181$)

	Treatment – no labs			Treatment – some labs			Control – management			Total		
	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.	N	$\overline{X}$	S.D.
Depersonal- ization	66	22.88	8.78	37	19.89	8.41	75	21.01	6.76	178	21.47	7.95
Lack of Pers- onal Accomp- lishment	67	25.92	7.12	37	25.03	5.96	77	25.36	5.83	181	25.50	6.34
Emotional Exhaustion	67	23.22	8.28	37	23.08	8.55	76	23.45	8.02	180	23.29	8.18

Note. A higher score on each subscale indicates a higher degree of burnout. Possible
ranges for each subscale are: depersonalization, 7 to 56; lack of personal
accomplishment, 7 to 56; and emotional exhaustion, 7 to 49.

Appendix I

<u>Summary of Phases of Burnout Using Maslach Burnout Inventory</u>

Table 1

Summary of University Students' Phases of Burnout
According to Pretest Responses to Maslach Burnout Inventory (N = 295)

Phase of Burnout	Treatment – no labs		Treatment – some labs		Control – management		Control – nonmanagement		Total	
	N	%	N	%	N	%	N	%	N	%
I	13	15.3	17	31.5	24	25.8	18	39.1	72	25.9
II	11	12.9	9	16.7	14	15.1	3	6.5	37	13.3
III	11	12.9	3	5.6	4	4.3	6	13.0	24	8.6
IV	13	15.3	5	9.3	10	10.8	2	4.3	30	10.8
V	6	7.1	2	3.7	8	8.6	3	6.5	19	6.8
VI	8	9.4	7	13.0	9	9.7	5	10.9	29	10.4
VII	3	3.5	4	7.4	7	7.5	4	8.7	18	6.5
VIII	20	23.5	7	13.0	17	18.3	5	10.9	49	17.6
Total	89		54		93		46		278	

Table 2

Summary of University Students' Phases of Burnout
According to Posttest Responses to Maslach Burnout Inventory ($N = 244$)

Phase of Burnout	Treatment – no labs		Treatment – some labs		Control – management		Total	
	N	%	N	%	N	%	N	%
I	16	18.2	18	28.6	17	21.3	51	22.1
II	11	12.5	4	6.3	12	15.0	27	11.7
III	6	6.8	4	6.3	5	6.3	15	6.5
IV	16	18.2	4	6.3	8	10.0	28	12.1
V	2	2.3	5	7.9	10	12.5	17	7.4
VI	12	13.6	12	19.0	10	12.5	34	14.7
VII	1	1.1	3	4.8	2	2.5	6	2.6
VIII	24	27.3	13	20.6	16	20.0	53	22.9
Total	88		63		80		231	

Table 3

Summary of University Students' Phases of Burnout
According to Pretest Responses to Maslach Burnout Inventory
- Those Students Who Completed Both Tests (N = 181)

Phase of Burnout	Treatment - no labs		Treatment - some labs		Control - management		Total	
	N	%	N	%	N	%	N	%
I	12	18.2	15	40.5	16	23.5	43	25.1
II	8	12.1	7	18.9	11	16.2	26	15.2
III	10	15.2	2	5.4	3	4.4	15	8.8
IV	11	16.7	4	10.8	7	10.3	22	12.9
V	4	6.1	0	0.0	7	10.3	11	6.4
VI	4	6.1	1	2.7	7	10.3	12	7.0
VII	1	1.5	3	8.1	6	8.8	10	5.8
VIII	16	24.2	5	13.5	11	16.2	32	18.7
Total	66		37		68		171	

Table 4

Summary of University Students' Phases of Burnout
According to Posttest Responses to Maslach Burnout Inventory
— Those Students Who Completed Both Tests ($N = 181$)

Phase of Burnout	Treatment – no labs		Treatment – some labs		Control – management		Total	
	N	%	N	%	N	%	N	%
I	15	22.7	13	35.1	15	20.3	43	24.3
II	7	10.6	1	2.7	11	14.9	19	10.7
III	4	6.1	3	8.1	5	6.8	12	6.8
IV	12	18.2	1	2.7	8	10.8	21	11.9
V	2	3.0	3	8.1	9	12.2	14	7.9
VI	10	15.2	6	16.2	10	13.5	26	14.7
VII	1	1.5	2	5.4	2	2.7	5	2.8
VIII	15	22.7	8	21.6	14	18.9	37	20.9
Total	66		37		74		177	

Appendix J

Summary of Self-esteem Levels

Table 1

Summary of Pre and Post Social Self-esteem Scores
as Measured by the Texas Social Behavior Inventory (*N* = 351)

	Pretest			Posttest		
	N	Mean	S.D.	N	Mean	S.D.
Treatment-no labs	84	2.49	.58	87	2.65	.50
Treatment-some labs	50	2.62	.51	61	2.67	.55
Control-management	84	2.72	.57	81	2.71	.57
Control-nonmanagement	48	2.74	.51		N/A	
Total	266	2.63	.56	229	2.68	.54

Table 2

Summary of Pre and Post Social Self-esteem Scores
as Measured by the Texas Social Behavior Inventory
- for Those Who Wrote Both Tests (*N* = 181)

	Pretest			Posttest		
	N	Mean	S.D.	N	Mean	S.D.
Treatment-no labs	65	2.49	.58	65	2.65	.51
Treatment-some labs	33	2.54	.51	35	2.68	.46
Control-management	64	2.69	.56	75	2.75	.50
Total	162	2.58	.56	175	2.70	.49

Note. Scores range from 0 to 4, where 4 represents a higher
level of social self-esteem.