Occasional Papers: Current Issues in Business

Janice Rowan

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CURRENT ISSUES IN BUSINESS

SPRING 1996

THE HOLLYBUSH SERIES

ROWAN COLLEGE OF NEW JERSEY
About the Cover

In 1849, Thomas and Samuel Whitney, glassmakers of Glassboro, New Jersey, built Hollybush, an eighteen-room mansion constructed from brown fieldstone. The mid-Victorian gingerbread house has sheltered such distinguished visitors as Colonel Theodore Roosevelt and President Taft.

In 1917, the State of New Jersey purchased Hollybush and twenty-five acres around it. Hollybush serves as the campus home of the presidents of Rowan College of New Jersey. Dr. Herman James and his family currently reside there.

On June 23, 1967, Hollybush was the site of the first summit conference between a President of the United States and a Premier of the Soviet Union, Lyndon B. Johnson and Alexei N. Kosygin.

About the Cover Artist

Dr. George Neff, Professor of Art at Rowan, created his first drawing of Hollybush, in pencil, several years before the summit. From this original work, two drawings were rendered in pen and ink during the conference.

Dr. Neff presented the first pen-and-ink drawing to President Johnson at the White House on July 12, 1967. That August, as a member of a delegation of Glassboro citizens touring Russia, he presented a second drawing to a representative of Premier Kosygin in Moscow.
Occasional Papers:
Current Issues in Business
The dogmas of the quiet past
are inadequate to the stormy present....
As our case is new, so must we think anew
and act anew.

—Abraham Lincoln
THE HOLLYBUSH SERIES

Occasional Papers: Current Issues in Business

A Collection of Essays by Faculty of Rowan College of New Jersey

Janice Rowan
Editor

Spring 1996
Vol. 5
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Preface

The dogmas of the quiet past are inadequate to the stormy present . . . .
As our case is new, so must we think anew and act anew.

A. Lincoln, 1862

Civilization is not static: periods of stability are succeeded by periods of tumult, disorganization, struggle, and change. Eternal verities are not necessarily so eternal. Once, the Roman Empire must have seemed invincible. Once, the sun never set on the British Empire. And once, America was the indisputed "Kingdom of Commerce." Until very recently, the military-industrial complex, fueled by the Cold War, was the engine of an almost sui generis economy; America, protected by tariffs and duties, enjoyed virtual economic independence, mining its own resources, processing these with its own labor, selling its goods to its own population. But that world is gone, gone as surely as the Roman Empire.

The Berlin Wall fell to rubble, statues of Marx and Lenin tumbled from their pedestals, and Kentucky Fried Chicken opened in Beijing. GATT, NAFTA, the PRC, the Information Highway—words not even in our vocabulary a blink ago—are now dominant facts of life. "The dogmas of the quiet past are inadequate to the stormy present." In business and in business education, our case is dramatically new, "so we must think anew and act anew."

We live in a world in which, perhaps, the greatest change is the rate of change. This fact has taken a severe toll on the
traditional relationship between the worlds of business and academia. Our two worlds have become gears that no longer mesh.

The pipeline has become too long. Historically, business schools researched the world of business, developed principles, embedded them in the curriculum, and inculcated them into students. These students then graduated into industry and worked their way to positions of power and influence. At last they could deploy strategies based on the principles they had studied. Well, Asia, Europe, the PRC, and other emerging nations in the global market will simply no longer wait for us to learn and teach and deploy the principles we need to compete globally.

If American business is to compete successfully, and if American business schools are to remain relevant, the relationship paradigm between business and business schools must change from sequential to simultaneous. The two worlds must come together; they must cease to be parallel universes. Today's corporate leaders cannot employ principles based on yesterday's reality to address the challenges of today's reality.

Continuous, lifelong education must be a part of a new paradigm of symbiosis and synchronicity. "Lifelong learning" cannot remain a platitude. Our graduates must commit to continuous training and education as they enter the business world and move up the corporate pyramid. They must not only remain current in their original disciplines but also broaden their studies to include subjects relevant to their new and expanded responsibilities.

Have business and business schools ever faced bigger challenges, more exciting horizons, more interesting new relationships?

I am proud to present this first in a series of Occasional Papers from the School of Business at Rowan College as a testament to our efforts to "think anew and act anew."

*Steven A. McNeil*

Dean, School of Business
Introduction

In our fifth volume of *Occasional Papers*, a dozen faculty from Rowan College's School of Business Administration present their current research on a variety of business topics. This collection of articles holds a double appeal: some essays focus on education and enhancing the curriculum; others deal with challenging subjects of particular interest to the business community.

The first group of articles, which address new perspectives on business education, includes a study by Drs. Berhe Habte-Giorgis and Jooh Lee, in which they explore the application of Total Quality Management principles to higher education. Also, Drs. Larissa Kyj and Carol Welsh investigate the communications and math apprehensions of Accounting students, and Dr. George Romeo and Prof. Daniel Davis analyze skills crucial to the academic success of Rowan's Business Administration students. Dr. William Enslin proposes an integrated approach to skill development in Management Practicum. And, finally, Dr. Razelle Frankl presents portfolios as an important tool for involving and assessing students in business courses.
In their articles, the second group of contributors takes us beyond the classroom and into the world of business practitioners. Dr. Thomas Michael probes the possibilities of social dreaming as a technique for business consulting. Drs. Larissa Kyj and Robert Pritchard consider applications of activity-based cost accounting. Dr. William Trainor discusses return-risk tradeoffs for investments in T-bills, T-notes, and T-bonds, and Dr. Robert Fleming evaluates the impact of LANs on small, medium, and large businesses.

Together, then, these nine articles provide significant insights into business as an academic discipline and as a profession. These authors, thoughtful teachers and active practitioners, along with the other members of the School of Business Administration, demonstrate an ongoing commitment to refining and continuously improving the academic preparation of Rowan Business students. Likewise, they show us their desire to meet the challenges of the business world and to build bridges between the classroom and the workplace.

Acknowledgments

Special thanks to our collaborators on this volume of Occasional Papers: to Steven McNeil, Dean of the School of Business Administration, for generously funding this publication and for providing a forum for his faculty's ideas; to Kimble Byrd, Associate Dean of the School of Business Administration, for his strong and congenial support of this project and for his work as our chief liaison between the Business School and our staff; and to Pat Alexy Stoll, Susan Breen, Sandy Carnuccio, Mary Dovey, and Lucille Branco for obtaining photographs for this issue.

Thanks also to our very able editorial board—Kimble Byrd, Ben Christy, Christy Faison, Razelle Frankl, Tom Kloskey, Harold Lucius, and Robert Pritchard; and to our authors, whose expertise in and dedication to the worlds of business and education are powerfully reflected in these papers.
A very special thank you to Tom Kloskey, whose linguistic and computing talents are invaluable to the preparation of Occasional Papers.

Thanks once more to George Neff, whose Hollybush sketch graces our cover; to our Communications Department colleagues and secretary for helping with final proofreading; and to Rowan President Herman James, for his continuing encouragement and for permission to use the Hollybush name for our essay series.

Janice Rowan
Editor

Henry M. Rowan (left) is Chairman and CEO of Inductotherm Industries and benefactor of Rowan College. At right is Rowan College President Herman James. Mr. Rowan participated in the School of Business Administration’s 20th Anniversary Celebration as the luncheon speaker for the Business-Campus Connection, April 14, 1993.
About the Authors

Dr. Berhe Habte-Giorgis, Associate Professor in Marketing, has a B.B.A. from Haile Selassie University in Ethiopia, an M.S. from Loyola University, and a D.B.A. from Louisiana Tech University. His research includes marketing strategy and performance, and the application of marketing in the economic development of Third World countries. On breaks, he helps his native country of Eritrea as a consultant in the areas of civil service reform and the revitalization of the private sector.

Dr. Jooh Lee, Associate Professor of Management and MIS, holds a B.B.A. from Kook-Min University, and an M.S. and a Ph.D. in Management. He has published in such areas as strategy and policy, operations strategy, and R&D in the hi-tech industry. His primary research interests are executive compensation, product differentiation, and comparative studies across countries, particularly with respect to the U.S., Japan, and Korea.
Implications of Total Quality Management in Higher Education

Berhe Habte-Giorgis and Jooh Lee

Abstract
The article reviews the literature in the development of Total Quality Management (TQM) as a philosophy of management to meet the shifts of business and government organization and management. The purpose is to see its application to higher education.

Although TQM has helped American companies close the quality gap vis-a-vis their foreign competitors, its incremental nature makes its usefulness limited. The time has come for fundamental change, such as re-engineering of the organization. Similarly, in higher education, TQM can serve as a stepping stone towards drastic change in the content and delivery system.

Introduction
The 1980 NBC TV story “If Japan Can, Why Can’t We?” kindled American business interest in quality management. The program helped America discover Edward Deming, considered by many the guru of quality management. Deming’s statistical approach to quality control, known as TQM (Total Quality Management), helped Japanese manufacturers improve the quality of their products and succeed in the world market. American manufacturers, especially those in the automobile industry, adapted TQM, and within one decade closed the quality gap between Japanese and American cars.
During the same period, another revolution was taking place in American government. This movement, spurred by tax revolt, strove for small government. Initially, the goal was reducing the size and power of government. Soon, it was realized that reduction or downsizing alone was no guarantee of acceptable performance. Quality management was slowly introduced into government (Osborne & Gaebler, 1993; Hunt, 1993).

Pressure to change has also been building in higher education. Many institutions realized that unless they provided quality service to their clientele, their survival would be at stake. TQM is emerging as the tool of choice of most educational institutions. The purpose of this paper is to examine the usefulness of TQM and to outline the process for its implementation.

**Causes of Change**

Both business and government sectors had to change when the paradigm on which thinking and practice in their respective areas shifted. The same principle applies to higher education.

The modern economic organization of industrial society is barely two hundred years old. At the beginning of the Industrial Revolution, Adam Smith introduced the concept of division of labor to increase productivity. Work was to be planned and supervised from the top, and workers performed repetitive tasks. Thus, the hierarchical model of business organization emerged.

Underlying the old paradigm of business was a major societal paradigm, which viewed the “universe as a mechanical system composed of elementary building blocks (the influence of Cartesian philosophy and Newtonian physics)” (Capra, 1993).

Frederick Taylor, an engineer with a railway company, developed time and motion studies to increase productivity. His approach, known as scientific management, treated the worker as a cog in the giant industrial machine, whose job could be defined and directed by appropriately educated man-
agers, administering a set of rules. That is, workers did not need to exercise any imagination or individual innovation because such actions would only serve to disrupt the process carefully set by management (Bonstingl, 1992).

Henry Ford’s assembly line process and the management and organization to make huge plants function as smoothly as clockwork are the culmination of the development of the division of labor. General Motors’ Sloan created the division form of organizational structure to enable him to effectively manage many plants and divisions. The combination of Adam Smith’s division of labor, Taylor’s scientific management, Ford’s assembly line, and GM’s organization dominated American and global management thinking for a long time. The superiority of American products went unchallenged until the Japanese began to produce high-quality but low-priced products in the 1960s. That is when signs of paradigm shift started appearing.

According to the new paradigm of business, hierarchy is being transformed into “internal enterprise units.” Divisions and departments in the hierarchical system are reengineered to serve internal and external customers. The new organizations achieve accountability for results while “creative entrepreneurship is encouraged to flourish” by using strict financial control but granting operational autonomy (Halal, 1994).

Paradigm shift was not limited to the business sector. The classical hierarchical form of Weberian organization and management of government was changing fast with the American tax rebellion and the view that less government is better.

Osborne and Gaebler view the present state in American government as a crisis that takes place when a shift is about to take place. As they maintain, “hierarchical, centralized bureaucracies do not function well in the rapidly changing, information-rich, knowledge-intensive society and economy of the 1990s. They are like luxury ocean liners in an age of supersonic jets: big, cumbersome, expensive, and extremely difficult to turn around” (1993). Political thought is divided between the New Deal paradigm and the laissez-faire para-
The two chief American parties are trying to bring solutions to the country's problems by resorting to old methods; however, the two approaches do not address the public's need for quality and choice.

Academia is experiencing its own version of paradigm shift. The old paradigm was teaching-oriented. Quality was measured by performance on examinations. Specifying the number of course hours a student must take to complete a program became a major control tool and was used as a surrogate measurement of learning. This academic situation is similar to the hierarchical organization of business, in which control is the focus—and not customer satisfaction.

Change in business and government paradigms is forcing change in academia. Quality-oriented businesses are very particular about the quality of people they hire. If schools do not train prospective employees with the requisite skills, then business will have to find its own means of training its employees. When businesses are concerned about cutting costs, there are fewer corporate donations for research and for academic programs. Government budget cuts mean less money for higher education. Colleges will have to find means of controlling their costs because there is a limit to which tuition can be increased without denying accessibility to the majority of American students.

College tuition increases have been 25% higher than the Consumer Price Index for the years between 1980 and 1993. By 2001, annual tuition is expected to be $3,728 at four-year public colleges. In the same year, tuition, room and board for the top private universities is expected to reach $36,297 (Gales, 1994).

Innovations in the delivery of education are, perhaps, the most serious challenge to the existing system of higher education. Distance learning, now in its introductory stage, will grow at an exponential rate. About twenty universities are offering degree programs on the internet (CNN, Headline News, Nov. 29, 1995). National Technological University (NTU), a graduate engineering university without a campus,
offers engineering courses to 100,000 subscribers via digital video satellite at one fourth the cost in traditional settings. It may not be too long before prestigious schools—with money, technical capability, and support—undertake such instructional systems at affordable prices. When this happens, many colleges and universities will become obsolete (Gales).

What is happening in the academic world is beyond TQM or incremental change in quality and process. Distance learning involves total reengineering of the process. In the information era, it is to be expected that the most fundamental change will take place in the area of information. Education is a process of learning, which can be loosely defined as accumulation of information. Thus, although TQM was successfully used in business and government to meet the demands of shift in paradigms, up to a certain extent, they now have to resort to more drastic tools of reengineering their process and management (Hammer & Champy, 1994). Hence, TQM will be analyzed here for its usefulness as a stepping stone towards fundamental change in the content and delivery of higher education.

What Is TQM?
The definition of TQM varies according to the background and expectations of the people using it (Gehani, 1993). Although TQM is associated with Deming, many standard processes in TQM include the contributions of Juran, Crosby, Ishikawa, and others. Using common features in all its variations, TQM can be defined as a philosophy of management—having its own set of tools and techniques—which strives to produce high quality products to satisfy customer needs on a continuous basis.

Hunt (1993) combined Deming's 14 points (1982), Crosby's 14 steps (1979), and Juran's 7 points (1988) into people-oriented and technical tasks. People-oriented tasks include building top-management commitment, initiating teamwork, and improving quality awareness. Technical tasks include measurement of quality, recognition of cost of quality, taking
corrective action, and continuous improvement of process.

Defining features of TQM are customer orientation, the use of specific tools, and culture. One major difference between TQM and ordinary quality control tools is TQM's focus on meeting customer expectations. Quality may be defined by various groups, including the producers, distributors, and end-users. All these groups, including suppliers, are defined as markets for TQM purposes. When it comes to determining quality, the final customer prevails.

TQM relies on statistical quality control, out of which it evolved. Specific data reduction and display tools that have been found useful are the control chart, the Pareto chart, the fishbone diagram, the run chart, the histogram, the scatter plot, and the flow chart. These tools help identify problems and their causes. Using better tools is not in any way precluded.

Culture refers to the values held by all members of the organization. In the final analysis, the outcome of TQM will depend on whether TQM culture gets deeply embedded in the organization or not. To be effective, the ideals of meeting customer needs by subscribing to TQM must become the "guiding principles." Leadership by top management is needed to define the philosophy of the organization. This philosophy is later translated into policies and programs. Top management can promote a TQM culture by setting the example (Sashkin & Kaiser, 1993).

Despite its widespread use, TQM is criticized for its shortcomings. The first concern, expressed by academics, is the lack of a theoretical basis. To them, TQM is simply "the transformation and improvement of management. No theory describing, explaining, and predicting the impact of the Deming management method has been presented" (Anderson, Rungtusanatham, & Schroeder, 1994).

Proponents of process reengineering blame it for not going far enough to address the need to change or eliminate processes, if the situation demands. TQM involves "fixing the pieces instead of redesigning the process by which the company's work gets done" (Hammer & Champy, 1993; Long & Vickers-Koch, 1995).
TQM is also criticized for being production-oriented, and, though claiming to meet customer expectations, it still remains an inward looking engineering tool. TQS (Total Quality Service) is the tool that “gives customer satisfaction highest priority.” Hence, service-rendering organizations, such as institutions of higher learning, should apply TQS and not TQM (Perotti, 1995; Choppin, 1994; Troy & Schein, 1995).

**Implementation of TQM**

TQM requires a concerted effort by the whole organization. To give it credibility and effectiveness, the CEO of the organization has to be directly involved in guiding the program (Sashkin & Kaiser, 1993; Jablonski, 1993).

The first step requires the creation of a “Blue Ribbon Committee” headed by the CEO and usually assisted by a consultant. The Committee conducts an in-depth quantitative and qualitative study of the organization, its culture, and how it is compatible with TQM. The outcome of the Committee’s work is a report with recommendations on whether the organization should pursue TQM. If the decision is to adopt TQM, a long-term council, headed by the CEO, is created to develop plans and ensure implementation. Usually, top-level managers and staff from various levels of the organization, including union representatives, are council members.

The council defines quality standards and objectives to be achieved. In the case of an institution of higher learning, the faculty have to focus their attention on excellence and how to achieve it. This is probably one of the most difficult stages. Faculty reaction “that everything is being done to achieve excellence” is a sign of resistance to the proposed change. The most effective way to combat such resistance is by creating awareness. Speakers from other universities and from within may conduct seminars and workshops on quality management (Cyert, 1993; Barrier, 1994).

Cross-functional teams are created to tackle problems identified in the study. Membership of the teams should include people with expertise in the various aspects related to quality
management. At least one person from the activity or area that is the subject of the team’s work should be included in the team.

No matter how effective the various committees are, TQM’s success eventually depends on the participation of the rank and file. All employees should be empowered with the authority, information, and resources they need to identify problems and develop solutions. Training of existing employees and care in hiring only employees who will fit the requirements of the job are essential for TQM’s success.

Application of TQM in Education

If colleges and universities wish to continue to use TQM effectively, they must connect TQM to the processes of teaching and learning, faculty research, and institutional management. In the areas of education and research, TQM is not included in the courses that professional schools offer because it is not considered worthy of academic attention. As a result, “instead of providing leadership to business firms in this area, the American academic institutions, including most business, public affairs, and engineering schools, are tending to follow practice rather than lead it” (Cyert, 1993).

College and university administration should have little problem applying TQM because of the similarity between its work and that of business management. Administration here includes resources that may be located within the academic division.

Successful implementation of TQM requires that terminologies used in TQM not be taken literally when applying them to the academic environment. They may have to be modified to fit the campus context. Once an understanding is reached on the definition of principles, then the process will lead in the right direction (Bosner, 1992; Likins, 1993). Otherwise, troublesome issues, such as whether we refer to students as customers, will consume valuable time and energy.

Many schools are experimenting with one form of quality improvement program or another. However, there is little documentation available that shows the process they followed
and their achievements. The AACSB has embarked on a massive benchmarking program for schools of business. When the results are known, it may be possible to discover the success of the quality improvement programs followed by schools in the study.

The U.S. government has followed the example of the Japanese by initiating award programs that recognize companies that demonstrate superior improvement in quality. The Malcolm Baldrige National Quality Award was created by the U.S. Government in 1987 to recognize companies that achieve high quality performance. The award is given to the best in manufacturing, service, and small business. Seven evaluation criteria are used: leadership, information and analysis, strategic quality planning, human resources development and management, management of process quality, quality and operational results, and customer focuses and satisfaction. Each criterion is assigned points, with the maximum (30%) allocated for consumer satisfaction (Jablonski, 1993).

The International Standards Organization's ISO 9000 established by European Community countries tried to assure quality of products traded between member countries. Companies are required to have a quality control system in place that is working effectively. Also, they have to prove that their suppliers are accredited under ISO 9000. Now, many non-EC countries, such as the U.S., subscribe to these standards, making them de facto international standards (Riswadakar, 1995).

Emphasis on quality has gone far beyond the business sector. In the federal government, the President's Award for Quality was created for recognizing government agencies that render quality service (Hunt, 1993; Jablonski, 1993). Beginning in 1996, institutions of higher learning will be included in the competition for the Malcolm Baldrige Quality Award. Many schools are already making intense preparations to earn this recognition.

An important national recognition of quality education is the accreditation for business programs by AACSB. Recently, the
group changed its emphasis from assessing by means of specific numeric standards to measuring continuous improvement. The new approach, although not strictly TQM or TQS, is mission driven and includes many TQM principles.

References


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Leo Beebe, Founding Dean of the School of Business Administration, served as Dean from 1977 to 1985. He is Chairman of the Board and CEO of K-Tron International, Inc.
Dr. Robert S. Fleming, Associate Professor of Management and MIS at Rowan College, has a B.S. from Philadelphia College of Textiles and Science, an M.A.R. from Eastern Baptist Theological Seminary, an M.G.A. from the University of Pennsylvania, and an M.B.A., two M.S. degrees, and an Ed.D. from Temple University. Bob's numerous certifications include Certified Network Administrator, Certified Network Engineer, Enterprise Certified Network Engineer, and Master Certified Network Engineer.

At Rowan College, he has taught a variety of undergraduate and graduate courses in management and MIS.

Bob is a frequent speaker at conferences and professional meetings, including PC Expo and Networld. He is actively involved in professional and community service and serves as a board member of a number of regional and national organizations.
The Impact of Computer Networking on Business Organizations

Robert S. Fleming

Abstract
The purpose of this spring 1995 study was to gain an understanding of the impact on organizational behavior of the implementation of a local area network (LAN) within an organization. Survey subjects were from a variety of business organizations that previously installed such a network. Each participant in the survey had job responsibilities that involved frequent use of the LAN.

The survey population of 457 subjects responded to a series of 41 questions concerning how the implementation of a LAN had changed individual, group, and organizational behavior.

The findings of this study reveal a number of behavioral dimensions that should be considered during the planning and implementation of a LAN.

The world has changed dramatically in the past decade and promises to change no less remarkably in the coming decade. Innovative technologies have been pioneered in the laboratory, then commercialized, and finally institutionalized in contemporary organizations. The implementation of new telecommunications and computer networking technologies has revolutionized the way most contemporary organizations transact business.

This paper provides a basic introduction to computer networking. It relates networking technologies to organizational
behavior in the areas of group dynamics, leadership, motivation, communication, and decision making. The paper focuses on the challenges these new technologies offer two groups: organizational behavior and systems professionals, and college and university faculty preparing these practitioners.

**Computer Networking**

Most contemporary organizations make extensive use of computers. As a result of the rapid development and commercialization of computers in recent years, computers that are smaller in physical size and have extensive processing and storage capabilities are now available at reasonable prices.

The contemporary manager can have a microcomputer available on his or her desk, operating in a stand-alone mode, in a network configuration with other microcomputers, as a terminal in a minicomputer or mainframe computer system, or as a tool to access larger networks outside the organization. Many contemporary organizations, both small and large, are using local area networks (LANs) to network their microcomputers.

A LAN permits the sharing of hardware, software, and data resources. A LAN allows a number of microcomputers to share the use of hardware devices, such as printers, plotters, hard disks, and modems. Software sharing allows multiple users to access software packages, such as word processing, spreadsheet, database management, graphics, communication or electronic mail, and organization-specific programs. Data sharing includes the sharing of data files and electronic file transfer and can lead to significant productivity increases within the organization.

**Organizational Behavior**

Three dimensions of organizational behavior exist within an organization. *Individual dimensions* involve the behavior of individuals who perform organizational work within the context of a workgroup. *Group dimensions* involve behavior within and between groups. *Organizational dimensions* involve the
overall functioning of the organization.

Job design, motivation, and job satisfaction are individual dimensions. The successful organization must design jobs so that all essential organizational work is performed effectively and efficiently. Job design incorporates division of work and labor specialization. Job design and organizational staffing attempt to create a meaningful work experience that contributes to individual motivation and job satisfaction. Ideally, job satisfaction should lead to improved job performance, which in turn should contribute to job satisfaction.

The group dimensions include intragroup behavior, inter-group behavior, leadership, and power. Topics of interest related to intragroup behavior are group norms, roles, status, and leadership. Group cohesiveness, where group members share a common bond and work well together, is a desirable group attribute. Intergroup behavior is behavior between groups. Two important aspects of group behavior are power and conflict. The extent of task interdependence within and between groups will determine the extent to which conflict can be detrimental.

Communication, decision making, and organizational structure are three important organizational dimensions that influence organizational effectiveness and efficiency. Communication and decision making are fundamental to all managerial functions. The organizational structure dictates the framework within which the work of the organization is performed.

Methodology

The intent of this study was to gain an understanding of the impact on organizational behavior resulting from the implementation of a local area network within an organization. An earlier study established the relevant aspects of organizational behavior for the present study.

The survey population in the earlier exploratory study consisted of 50 subjects, representing small, medium, and large organizations. All participants were from organizations that had implemented a LAN. Each individual in the survey had job
responsibilities that involved the frequent use of the LAN.

Each survey participant was provided with a basic understanding of LAN technology and the potential organizational benefits of using a LAN. Each survey participant was also provided with an understanding of the basic concepts of organizational behavior.

After receiving this conceptual presentation from the researcher, each survey participant was asked to reflect upon his or her experience regarding the implementation of an organizational LAN. Each was asked to formulate a response to the question, "How has implementation of a LAN changed individual, group, and organizational behavior within your organization?" This open-ended question was intentionally used to ensure that survey participants would have latitude in responding to the question.

The researcher then interviewed the study participants. During the first half of the interview, participants were given the opportunity to respond to the above question. The researcher served as a recorder during this part of the interview. After affording the survey respondent the opportunity to provide a comprehensive response to the question, the researcher utilized appropriate interview questions to clarify the subject's response. The researcher added clarifying comments to the interview record.

Responses were categorized according to ten organizational behavior dimensions, and a 41-question survey instrument was developed. This instrument was used in the data collection for the present research study.

The present study of 457 survey respondents represented three sizes of organization: small (138 respondents), medium (167 respondents), and large (152 respondents). Small organizations had fewer than 100 employees, while medium organizations had between 100 and 1000 employees, and large organizations had more than 1000 employees.

All the organizations had implemented a LAN within the past three years. In all cases the LAN had been in operation for at least one year. All participants selected for the survey had
worked in the organization before and after the installation. Each survey participant was provided with a basic understanding of LAN technology, the potential organizational benefits of using a LAN, and an understanding of the basic concepts of organizational behavior.

Each participant answered 41 survey questions. Data collection took place during spring 1995. The following findings derive from analysis of 457 completed surveys.

Findings
Summarized survey results are presented by organizational size as a percentage of total responses within size classification and as an overall percentage of those responding to the survey.

Individual Dimensions
Responses related to individual behavior dimensions are reported in three categories: job design, motivation, and job satisfaction. These results are presented in Table 1.

<table>
<thead>
<tr>
<th>Individual Dimensions</th>
<th>Small</th>
<th>Medium</th>
<th>Large</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Job Design:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased Required Technical Knowledge</td>
<td>73.9</td>
<td>58.1</td>
<td>51.3</td>
<td>60.6</td>
</tr>
<tr>
<td>Changed Job Responsibilities</td>
<td>84.1</td>
<td>74.9</td>
<td>69.1</td>
<td>75.7</td>
</tr>
<tr>
<td>Provided Useful Tool</td>
<td>87.7</td>
<td>85.6</td>
<td>86.8</td>
<td>86.7</td>
</tr>
<tr>
<td>Changed Work Interactions</td>
<td>56.5</td>
<td>71.9</td>
<td>87.5</td>
<td>72.4</td>
</tr>
<tr>
<td><strong>Motivation:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased Sense of Teamwork</td>
<td>62.3</td>
<td>61.7</td>
<td>81.6</td>
<td>68.5</td>
</tr>
<tr>
<td>Provided Learning Opportunity</td>
<td>57.2</td>
<td>55.1</td>
<td>55.3</td>
<td>55.8</td>
</tr>
<tr>
<td>Identified Task Contribution</td>
<td>33.3</td>
<td>45.6</td>
<td>79.6</td>
<td>53.2</td>
</tr>
<tr>
<td>Provided New Challenges</td>
<td>48.6</td>
<td>50.9</td>
<td>48.7</td>
<td>49.5</td>
</tr>
<tr>
<td>Increased Feeling of Self-Worth</td>
<td>54.3</td>
<td>44.3</td>
<td>58.6</td>
<td>52.1</td>
</tr>
<tr>
<td>Caused Frustrations</td>
<td>71.1</td>
<td>67.1</td>
<td>51.3</td>
<td>63.1</td>
</tr>
<tr>
<td><strong>Job Satisfaction:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identified Tangible Results</td>
<td>76.8</td>
<td>71.2</td>
<td>84.2</td>
<td>77.2</td>
</tr>
<tr>
<td>Provided Feeling of Accomplishment</td>
<td>69.6</td>
<td>68.2</td>
<td>79.6</td>
<td>72.4</td>
</tr>
<tr>
<td>Provided Opportunity to Use Skills</td>
<td>63.1</td>
<td>55.7</td>
<td>71.1</td>
<td>63.1</td>
</tr>
</tbody>
</table>

Note: All figures represent percentages.
Job Design
Subjects were asked if the implementation of a LAN had:

- resulted in an increase in their required technical knowledge. An inverse relationship between organization size and the increase in required technical knowledge was found.
- resulted in a change in their job responsibilities. An inverse relationship between organization size and the change in job responsibilities was found.
- provided them with a useful tool for performing their work. The majority of respondents indicated that the LAN had proved to be a useful tool. There was no significant difference based on organization size.
- resulted in a change in their work-related interactions with others. A direct relationship between organization size and the change in work-related interactions with others was found.

Motivation
Subjects were asked if the implementation of a LAN had:

- resulted in an increased sense of teamwork within their organization. The majority of respondents indicated that the LAN had increased teamwork. The increase in teamwork was significantly greater in large organizations.
- provided them with the opportunity to learn and utilize new skills. The majority of respondents indicated that the LAN had provided this opportunity. There was no significant difference based on organization size.
- provided them with an understanding of how a given task contributes to the overall work of the organization. A direct relationship was revealed between organization size and this new understanding.
- provided them with new challenges. There was no significant difference based on organization size.
- increased their feeling of self-worth. There was no signifi-
cant difference based on organization size.
• caused frustrations during system implementation. An inverse relationship between organization size and the change in job responsibilities was found.

Job Satisfaction
Subjects were asked if the implementation of a LAN had:

• enabled them to see tangible results of their contribution. There was no significant difference based on organization size.
• resulted in a feeling of personal accomplishment. There was no significant difference based on organization size.
• provided an opportunity to use their skills. There was no significant difference based on organization size.

While none of the three survey questions in this category resulted in a significant correlation with organization size, they all received an affirmative response from a majority of survey participants.

Group Dimensions
Responses related to group behavior dimensions are reported in four categories: intragroup behavior, intergroup behavior, leadership, and power. These results are presented in Table 2.

Table 2

<table>
<thead>
<tr>
<th>Group Dimensions</th>
<th>Small</th>
<th>Medium</th>
<th>Large</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intragroup Behavior:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reinforced Group Norms</td>
<td>48.6</td>
<td>52.1</td>
<td>67.8</td>
<td>56.2</td>
</tr>
<tr>
<td>Reduced Direct Workgroup Interaction</td>
<td>39.1</td>
<td>46.7</td>
<td>84.2</td>
<td>55.8</td>
</tr>
<tr>
<td>Reduced Group Cohesiveness</td>
<td>34.8</td>
<td>40.1</td>
<td>65.1</td>
<td>46.9</td>
</tr>
<tr>
<td>Facilitated Interaction of Separated Workgroups</td>
<td>49.3</td>
<td>52.1</td>
<td>89.5</td>
<td>63.7</td>
</tr>
<tr>
<td>Intergroup Behavior:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facilitated Interaction of Groups Connected to LAN</td>
<td>84.8</td>
<td>87.4</td>
<td>87.5</td>
<td>86.7</td>
</tr>
<tr>
<td></td>
<td>Small</td>
<td>Medium</td>
<td>Large</td>
<td>Total</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>-------</td>
<td>--------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>Discouraged Interaction of Groups</td>
<td>56.6</td>
<td>55.7</td>
<td>82.2</td>
<td>64.8</td>
</tr>
<tr>
<td>Not Connected to LAN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identified Design Considerations</td>
<td>76.9</td>
<td>73.1</td>
<td>75.6</td>
<td>75.1</td>
</tr>
<tr>
<td>Encouraged Exclusion of Individuals and Groups Not Connected to LAN</td>
<td>56.6</td>
<td>58.1</td>
<td>86.9</td>
<td>67.2</td>
</tr>
</tbody>
</table>

**Leadership:**
- Facilitated Situational Leadership: 39.1  52.1  49.3  47.3
- Enabled Leadership of Users Connected to LAN: 73.9  84.4  86.9  82.1
- Changed Leadership Patterns: 42.1  47.3  69.1  52.9
- Provided Timely Feedback: 62.3  62.3  79.6  68.1

**Power**
- Facilitated Power Acquisition Through Expert Power: 83.3  86.9  86.9  85.8
- Demonstrated Legitimate Power Dictates LAN Privileges and Access: 55.1  64.1  82.9  67.6
- Diminished Personal Power: 47.1  55.1  84.9  62.6

*Note: All figures represent percentages.*

**Intragroup Behavior**
Subjects were asked if the implementation of a LAN had:

- reinforced group norms within their organization. A direct relationship was revealed between organization size and reinforcement of group norms.
- resulted in a reduction of direct interaction with the members of their work/reference group. A direct relationship was revealed between organization size and this reduction of direct interaction.
- resulted in a loss of group cohesiveness. A direct relationship was revealed between organization size and this reduction in group cohesiveness.
- facilitated effective group work when group members are physically separated. A direct relationship was revealed between organization size and facilitation of physically separated workgroups.
**Intergroup Behavior**

Subjects were asked if the implementation of a LAN had:

- facilitated intergroup interaction between groups connected on the network. While the majority of respondents provided an affirmative response, there was no significant difference based on organization size.
- discouraged intergroup interaction between groups not connected on the network. While there was no significant difference based on organization size between small organizations and medium organizations, the majority of those responding from large organizations agreed that it had discouraged interaction.
- revealed the need to consider necessary group interdependencies when designing the network and granting access rights. While the majority of respondents provided an affirmative response, there was no significant difference based on organization size.
- encouraged the exclusion of individuals and groups not connected to the network. While there was no significant difference based on organization size between small organizations and medium organizations, the majority of those responding from large organizations agreed that the LAN had encouraged exclusion.

**Leadership**

Subjects were asked if the implementation of a LAN had:

- facilitated situational leadership. There was no significant difference based on organization size.
- enabled network users to exert leadership. While the majority of respondents provided an affirmative response, there was no significant difference based on organization size.
- changed established leadership patterns. A direct relationship was revealed between organization size and this change in established leadership patterns.
provided timely feedback to organizational leaders. While there was no significant difference based on organization size between small organizations and medium organizations, the majority of those responding from large organizations agreed that feedback was timely.

Power
Subjects were asked if the implementation of a LAN had:

- facilitated power acquisition through expert knowledge of system use. While the majority of respondents provided an affirmative response, there was no significant difference based on organization size.
- revealed the fact that the legitimate power of an individual determines his or her system privileges and access. A direct relationship was revealed between organization size and the level of system privileges and access.
- resulted in diminished personal/referent power as a consequence of the impersonal nature of network communications. A direct relationship was revealed between organization size and this reduction of personal/referent power.

Organizational Dimensions
Responses related to organizational dimensions are reported in three categories: communication, decision making, and organizational structure. These results are shown in Table 3.

Table 3

<table>
<thead>
<tr>
<th>Organizational Dimensions</th>
<th>Small</th>
<th>Medium</th>
<th>Large</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facilitated Timely Communication</td>
<td>74.6</td>
<td>82.6</td>
<td>98.1</td>
<td>85.3</td>
</tr>
<tr>
<td>Reduced Communication Formality</td>
<td>55.1</td>
<td>70.7</td>
<td>96.7</td>
<td>74.7</td>
</tr>
<tr>
<td>Facilitated Communication</td>
<td>73.9</td>
<td>86.8</td>
<td>92.8</td>
<td>84.9</td>
</tr>
<tr>
<td>Lessened Status Barriers</td>
<td>40.6</td>
<td>61.1</td>
<td>90.8</td>
<td>64.8</td>
</tr>
<tr>
<td>Facilitated Communication Feedback</td>
<td>65.2</td>
<td>72.5</td>
<td>82.2</td>
<td>73.6</td>
</tr>
<tr>
<td>Increased Premature Communication</td>
<td>61.6</td>
<td>74.3</td>
<td>85.6</td>
<td>74.2</td>
</tr>
</tbody>
</table>
Decision Making:
- Facilitated Group Decision Making
  - Small: 67.4
  - Medium: 68.3
  - Large: 84.2
  - Total: 73.3
- Facilitated Timely Decision Making
  - Small: 73.2
  - Medium: 76.1
  - Large: 90.8
  - Total: 80.1
- Facilitated Group Involvement in Decision Making
  - Small: 59.4
  - Medium: 70.1
  - Large: 89.5
  - Total: 73.3
- Resulted in Premature Decisions
  - Small: 48.6
  - Medium: 51.5
  - Large: 51.3
  - Total: 50.5

Organizational Structure:
- Resulted in No Formal Organizational Change
  - Small: 91.3
  - Medium: 92.2
  - Large: 96.7
  - Total: 93.4
- Created Informal Organizational Structure
  - Small: 85.5
  - Medium: 73.7
  - Large: 89.5
  - Total: 82.5
- Facilitated Boundary Spanning
  - Small: 68.1
  - Medium: 76.1
  - Large: 96.1
  - Total: 80.3

Note: All figures represent percentages.

Communication
Subjects were asked if the implementation of a LAN had:

- Facilitated more timely communication within their organizations. A direct relationship was revealed between organization size and this increase in the timeliness of communication.
- Resulted in less formal communications. A direct relationship was revealed between organization size and this reduction of formal communications.
- Made it easier to communicate. A direct relationship was revealed between organization size and this increase in the ease of communication.
- Lessened status barriers that can reduce communication effectiveness. A direct relationship was revealed between organization size and this reduction of status barriers.
- Facilitated two-way communication and feedback. A direct relationship was revealed between organization size and this increase in two-way communications.
- Resulted in the sending of messages before thoroughly thinking them through. A direct relationship was revealed between organization size and this premature sending of messages.
Decision Making
Subjects were asked if the implementation of a LAN had:

- facilitated group decision making. While there was no significant difference based on organization size between small organizations and medium organizations, a majority of those responding from large organizations agreed that it facilitated group decision making.
- facilitated more timely decision making. While there was no significant difference based on organization size between small organizations and medium organizations, the majority of those responding from large organizations agreed that it had facilitated more timely decision making.
- facilitated group involvement in decision making. A direct relationship was revealed between organization size and this increase in group decision making.
- resulted in making premature decisions before necessary information was available. There was no significant difference based on organization size.

Organizational Structure
Subjects were asked if the implementation of a LAN had:

- changed the formal organization structure. The majority of respondents indicated that there had not been a change in the formal organizational structure, and there was no significant difference based on organization size.
- created an informal organizational structure of network users. While the majority of respondents indicated that this informal organizational structure had developed, there was no significant difference based on organization size.
- facilitated the spanning of departmental boundaries. A direct relationship was revealed between organization size and this boundary spanning.
Conclusions

The findings of this study indicate that the implementation of a LAN can have a significant impact on behavior at all three levels within the organization.

At the individual level, a LAN can change the nature of the job and the resulting motivation and job satisfaction of the job incumbent. Both intragroup and intergroup behavior can change at the group level. In addition, the implementation of a LAN can result in changes in leadership and power, thus creating the potential for conflict.

While the implementation of a LAN seldom changes the formal organizational structure of an organization, it often results in the development of a network-based informal organizational structure. It is at the organizational level that the greatest advantages of computer networking can be realized. These advantages typically involve increases in the effectiveness and efficiency of organizational communication and decision making.

The results of this study provide organizational behavior and systems professionals with important insights. While there are certain themes that are consistent in all organizations, regardless of size, it should be noted that the significance of some of the findings of this study is closely related to organization size.
Dr. Razelle Frankl, Professor of Management, has taught Human Resources Management and Organizational Behavior at Rowan for eighteen years. Her research concentrates on changing modes of religious broadcasting as they relate to the management and structure of religious organizations. Best known for her 1987 book, Televangelism, her more recent scholarship documents innovations in teaching content and skills in Management courses.

Razelle serves on many campus committees, including Write to Learn, the Library Committee, and, most recently, the Curriculum Development Group in the School of Business. Her interest in not-for-profit organizations has led her to work with the Anti-Violence Partnership of Philadelphia, of which she has been Board Chairperson for six years.
Advantages of Student Portfolios in Business Courses

Razelle Frankl

Abstract
Portfolios can be used in the Human Resources Management classroom to accomplish a number of evaluative and feedback functions. First, students (and teachers) observe progress in students’ acquisition of higher-order thinking skills. Second, portfolios provide a vehicle for students to acquire critical skills, such as giving and receiving feedback, applying concepts, learning writing skills, and developing teamwork. Third, portfolios can be used as guidance and counseling tools to improve student work. And fourth, students gain both a sense of closure and a feeling of accomplishment. For programs seeking accreditation, portfolios could easily serve as continuous improvement measures in management courses.

The Teaching Problem: Portfolios as Part of the Solution

Learning is not a unitary concept. Yes, it does involve the acquisition of knowledge, skills, and information. But it also presents a multifaceted challenge for each of us. Teaching can be an attempt to impart knowledge, create a sense of method, facilitate the development of and support the acquisition of skills. If we are among the fortunate, we may even see the fruits of our students’ creations. (Hall, 1994)

Portfolios have been used by artists, photographers, and orth-
odontists (to name a few professions) as a practical way to demonstrate capability to employers, potential clients, and admissions committees. For over five years, I have used portfolios in Human Resources Management and Organizational Behavior as a tool to measure student development and learning. However, over the years I discovered many unintended consequences for me and for the students. Initially I intended to “measure” learning, but in fact the portfolio has functioned to summarize and integrate for the student a body of Human Resources knowledge acquired over a semester. Students see the end result, which they were responsible for creating. This gives them both a sense of closure and a feeling of accomplishment. Second, students (and teachers) observe progress—as with a good investment portfolio—over a period of time in students’ higher-order thinking skills. Third, portfolios provide a vehicle for students to acquire critical skills, such as giving and receiving feedback, applying concepts, learning writing skills, and working in teams. And fourth, portfolios can be used as guidance and counseling tools to improve student work. In addition, for those programs seeking accreditation, portfolios could easily serve as continuous improvement measures in management courses.

Students assume control of their productivity, and they learn to see where and what they need to improve. They also control and manage their time over the semester, as they know from the first day what is required. They amaze themselves and take a vested interest in work and class discussions. In practice, portfolios are used as a measure of student learning in the sense that students receive a number grade for the components of their portfolio (50% for newspaper memos and cases and 50% for the research report). I tell the students their grade
is not additive; rather, I am looking for progress over the semester. I know this may differ from my colleagues' methods of grading, but my conscious goal is to encourage and push students to keep trying to improve their answers and their research paper. I want to stimulate their need to achieve by giving them reliable and frequent feedback as well as challenging tasks. Portfolios enable me to integrate course content and skills.

The question then is, on what basis does a teacher give a grade? Although traditionally grading has been a criterion-referenced approach, the grade is in part a valuing statement because writing proficiency, growth, and development are measured as well. The dilemma here is to set up outcomes very clearly, benchmarks of proficiency that have specific observable outcomes, no matter the growth. Indeed, most students improve by the end; however, students must reach certain levels, or they fail the course. (Table 1 below illustrates how tasks and skills combine in the preparation of their research reports.)

<table>
<thead>
<tr>
<th>Week 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needs assessments completed (Skills Required of Manager). Results shared in class. Skills and usefulness explained.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Weeks 2 and 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topics selected from list.</td>
</tr>
<tr>
<td>• Teacher monitors list (no duplications).</td>
</tr>
<tr>
<td>• Teacher explains some topics and audience for paper.</td>
</tr>
<tr>
<td>• Teacher links newspaper items to topics.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Week 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>First draft of Feasibility Study prepared (3–4 pages):</td>
</tr>
<tr>
<td>• Problem statement.</td>
</tr>
</tbody>
</table>

**Table 1**

*Critical Events in the Research Process: Sample Schedule (13-week Course)*
• Sources/references.
• Working outline.

Expression of ideas encouraged.
Class broken into triads (self-selection) to read and discuss
draft. Group reports presented on start-up problems and
results of research.

Problem solving: ideas and solutions shared.

**Weeks 5 and 6**
Revised Feasibility Study submitted, then graded by profes-
sor and returned with detailed suggestions.

**Weeks 7 and 8**
Performance appraisal developed for oral reports.
Oral reports assessed by class.
Small groups used as a training exercise; standards of perfor-
mance discussed and agreed on; reports scored based on
performance appraisal; suggestions offered to improve re-
ports.

**Weeks 9 and 10**
Written reports submitted (first complete versions read by
members of triad).
Instructor feedback provided; individual reports revised.

**Weeks 11, 12, and 13**
Final versions of papers submitted. Papers graded.

*The Research and Writing* task
Those of us teaching junior-level management courses usu-
ally assign term papers to a whole class of students to be
completed individually as one means of assessing the learning
outcomes of individuals. However, if the same assignment is
made to groups of students, who work cooperatively over the
course of the semester, writing term papers becomes a process
during which students are also involved in practicing various
sophisticated management skills. Verbal communication (in-
cluding listening); managing time and stress; managing individual decisions; recognizing, defining, and solving problems; motivating and influencing others; delegating; setting goals and articulating a vision; gaining self-awareness; team building; and managing conflict have been identified by Whetten and Cameron (1993) as the top ten skills of effective managers. The authors also mention the need for flexibility in approach to problems as a necessary attribute of successful managers.

Students (and teachers) who view the class process merely as churning out content, unaware of the skills and abilities required to complete the task, miss crucial aspects of the writing task. However, if the same students work in a cooperative, peer-centered environment during the writing process, they can gain a sense of method, develop judgment, and acquire the interpersonal skills I have mentioned above that are necessary in a management environment.

Course portfolios (students' collected work for the semester) contain all written stages of newspaper memos, cases, and the paper, and confirm a steady improvement and focus in their research. Final portfolios include a needs analysis survey (that is, a student self-appraisal of performance on research-related skills), a clearly marked pretest, and a post-test. A personal evaluation of student improvements (skills and knowledge) over the course of the semester follows this. Next come research report materials, which include students' scores on the oral report of their research (given towards the end of the semester), the written research report itself (including outline), and readers' comments on the research report (three versions and three sets of comments). Students mark the comments and tell me how they responded to the peer comments. Next comes a feasibility study (which is an initial testing of the waters prior to doing the research and writing the report). Students should include all versions with the latest one on top. Cases and newspaper articles in reverse chronological order, with Exam Number Three (cases and memos) on top, round out the portfolio.

Students start these tasks at home; then I use small group
discussions in class to review and comment on their work, giving them opportunity to revise their work before I grade it. The newspaper memos and cases are formally graded three times during the semester, after multiple opportunities for discussion and revisions. The research reports, and all the steps associated with them, require readers' comments so that the final portfolios contain comments and the final clean copy.

The newspaper assignment, research paper (oral and written), and casework are dense assignments in that they accomplish many teaching goals: students must (1) know the facts and issues related to their topic and possible solutions; (2) present and write a quality research paper, using problem solving and interpersonal skills; and (3) practice the skills of data search, i.e., library researching, interviewing, integrating, and applying concepts throughout the whole process (Prince & Helms, 1993).

Because classroom activities simulate human resource tasks students might encounter on the job, they accept these assignments as a real-world requirement. Students know the audience (their boss) and the level of expertise required for class work; authenticity is established through content and skills. Library searches, computer literacy, interviews, observations, and analysis are used in a collaborative environment to produce their work. The stress students feel in writing papers is minimized because the task is broken into manageable pieces, and the students develop enough trust and openness to ask for help. Students are engaged in time management, planning, decision making, explaining their work, and making an oral report (all of which are key managerial skills for organizational life/post graduate work, as noted above).

Mentoring opportunities between teacher and student and among students abound. Learning to give feedback, to ask for it in a timely fashion, to know what to ask for may seem like obvious behaviors, but we are not born with them—they need to be learned and practiced. The paper-writing processes provide ample opportunity for interaction—informal group discussions about common problems to peer exchanges of the
progress made on individual reports. By the end of the semester, everyone has had a mentor and has been a mentor to someone (Elbow & Belanoff, 1989; Ramsey & Couch, 1994; Steffens, 1988).

No doubt this is a labor-intensive process for students and for instructors. Some students complain they have never written so much; to them, it is busywork. What they are saying is that the teacher has forced them to work throughout the semester on tasks that are somewhat amorphous—not at all like studying for a multiple-choice test. Developing performance standards and clarifying tasks require class time and patience. Despite this, with the use of collaborative learning techniques, the students own the process and are much less dependent on the instructor by the end of the semester. Even in light of the drawbacks mentioned above, I strongly recommend some type of portfolio for all management classes.

The feasibility study makes writing the term paper more manageable and accessible to a diverse student population. It is especially helpful to English as a Second Language students, who appreciate having a schedule for completion of the various parts of the research task. In addition, because they are included as equal team members, they are able to ask for help from other students without embarrassment (See Parker, 1993, for a discussion of “the inclusive classroom”).

The student triads exchange copies of their feasibility studies. Showing the first version to peers or professors is not the usual routine in college classrooms. The first draft is usually still in students’ heads. The interaction with peers in a simulation environment helps students overcome the feeling of being subordinates in a hierarchical organization. Part of the unfreezing of writer's block occurs through in-class discussion of students’ early work (before it is clear what they want to do) with peers in the student triads. Each group reports on questions or problems, or summarizes a first draft for the class. Everyone has an opportunity to discuss difficulties and hear a full range of typical start-up problems encountered by classmates. Questions about details, such as what is meant by the
term "sources," and what is a working outline, are answered by the professor. To reduce barriers to change, this first draft is not graded; the professor collects it, reads it, and returns it with comments.

For students who had a productive search, the next job is to winnow through sources and clarify global ideas, finding specific concepts that relate to their topics and to put these concepts into an organizational context. For procrastinators, having a schedule compels them either to come to the professor early in the semester or go to the library, since the class is moving ahead quickly to the next deadline, the second version (Elbow & Belanoff, 1989). During this stage, students begin to sift and logically organize their information.

The content begins taking shape with each rewrite of the problem statement; many students realize that their notions are too broad, that they have to be concrete, and they usually recognize that it is time to look at the textbook seriously. A common mistake is to describe a topic, such as "AIDS in the Workplace," without putting it into a human resource context.

At every stage of the work, students actively listen to each other and are open to help and suggestions since they now genuinely understand what they need to know.

Performance Appraisal: Part of the Grading Process

After the feasibility studies are completed (Weeks 7 and 8), the class develops its own performance appraisal to evaluate the oral reports. Students are asked to generate "performance standards" in small groups (usually in thirty minutes over three sessions). Designing performance appraisal criteria also encourages students to use materials from other courses, such as Public Speaking, Composition, and Principles of Management. They build on prior knowledge and apply it in an HRM context. As the discussion evolves, students talk about the importance of content over presentation. Once that issue is settled, other performance dimensions are evaluated. The performance appraisal establishes variables in the students' own words:
• Does the presenter have a clear problem statement?
• Does the presenter clearly relate the topic to HRM?
• Is the presentation organized?
• Is the opening a grabber?
• Have all the legal issues been explained?
• Is there an international component?
• Do conclusions/recommendations follow from the body?
• Are credible sources used?
• Are there concrete examples?

The group work models the ideal performance appraisal process: workers set the standards and in the process are trained to apply these standards. Everyone knows as clearly as possible what is expected without actually doing it; everyone is involved, including the professor.

By the time the performance appraisal is finished, it is reasonably clear to every student that an A report far exceeds requirements. The group discussions help the procrastinators/weaker students to focus on their deficits and revise. Students appreciate having a clear structure with deadlines at each step and opportunity for feedback throughout:

I feel that the feasibility study process pushes [students] to meet certain deadlines for their paper writing process. I was an extremely busy student this semester, and having to have certain things done at a certain date gave me structure and guidance on where I should be with my report.—T.K.

Frequently at this point, students resubmit their feasibility studies. Those without enough credible sources manage to put in more library time or complete their interviews. Working outlines develop more concrete points. Ownership of the research is firmly in student hands:

Now, when my paper is done and I did the oral presentation of my research, I want to admit that I am glad that we had the assignment to do the feasibility study. It helped me to
understand the standards for this course. I have made a lot of progress since my first problem statement. I am confident about my paper and I know much more about the topic.—F.D.

The performance appraisal is pretested by using it with the first oral report. Someone usually volunteers to be the first speaker. We debrief and fine-tune the instrument before the next presentation. This process of clarifying performance standards teaches students to assess peer work in a fair and equitable manner by giving and getting suggestions; it also prepares them for work in organizations that rely on self-governing work teams, an increasing part of today's corporate landscape.

First Drafts
The first version (three copies) of the entire paper (Week 10) is distributed for peer review. The performance appraisal is used as a checklist for peer readers to provide meaningful comments and suggestions. The students are acting as consultants and understand what needs to be changed. Of course, students can verify or clarify feedback with the professor, but by the end of the semester, there is a palpable confidence in students' own judgments and a willingness to listen to peers, as the following quote illustrates:

[The feasibility study] is a kind of [system] of checks and balances, which allows for feedback from the professor and other students. This constant feedback to the student is essential. I enjoy knowing where the professor feels that I stand in reference to my progress, and I also enjoy hearing from other students their views and suggestions. [It tells me] where to strengthen my paper to be readable by all.—T.K.

As collaborative learning develops, students assume some responsibility for the course material and, in the process, help themselves and one another learn. The collaborative learning
approach shifts some responsibility from the teacher to the students; they become "active participants in their own education" (Steffens, 1988, p. 1; Hall, 1994).

No question, by Week 13, the reports are an improvement over the first drafts of the original assignment. Since the research paper is 50% of the course grade, students are motivated to work; at the same time, they know they have had a fair and achievable goal. They are pleased to become class experts.

Results of Peer-Guided Tasks

By using modified total quality management techniques, the undergraduate has continuous feedback from professor and peers. Generally, oral reports are honestly evaluated and provide students impetus to revise. Students have heard their work, incorporated feedback from the audience, and have ample time to polish the final paper. This structured process is broken into manageable pieces, which can be modified at every step. Deadlines for written work are reasonable; tasks are understood. Above all, the organization of learning gives people necessary support and provides enough pressure so that the work gets done.

My experience has been that the quality of all the work consistently improves over the semester, and students feel that their work is the best that they have done. In large part, students are challenged by higher standards requiring them to use multiple kinds of data: journals, government documents, professional articles, interviews, and text materials. As the term progresses, students' internal motivation is stimulated in several dimensions—having complex tasks, making the learning process meaningful, taking personal responsibility to contribute to class and course learning. Students experience the satisfaction of seeing the result, and they receive validation from their peers, who recognize them as subject experts. Students feel that the work challenges them and is useful in their jobs and other college courses.

For better students, the process provides an opportunity to
help others, e.g., by suggesting sources for materials or by sharing materials they have found. They have opportunity to train, teach, and explain. Even the weakest students contribute to each piece of the process (from suggesting sources, to listening to others' ideas, etc.). All students understand professional staff interdependence in an organizational setting.

The class goal of completing individual term papers fosters quality work and encourages cooperation since the writing of term papers adds to everyone's knowledge. It becomes the norm for students to provide help to each other; they do not have to ask for it. By shifting the collaboration to a student-peer partnership, dependency on the professor is reduced. Some students will also check with the professor privately for reassurance, but this changes as the group develops more independence. Of course there is the potential danger that people will overlook weaknesses in some reports and pass them on as satisfactory. This does not happen. Instead, weaker students are less frustrated and improve their work by reading and listening to other reports. All students benefit from reading a variety of sources, applying ideas from other courses, and trying a creative process. As we work through the process, I encourage students to reframe ideas and take new directions in their work, but also try to get them to be realistic about what they can accomplish in one semester.

Other teachers may be reluctant to make use of a collaborative approach to coursework because they fear that students might indulge in grade inflation. My experience has been that students are generally fair or tend towards severity in grading their peers. One valid concern is the possible lack of capable students in some of the triads. To make the peer collaboration process work more effectively, there needs to be a "critical mass" of students—usually one to a triad—already possessing some of the interpersonal management skills noted above. I try to offset a lack of skills in some of the triads either by rearranging them or by providing feedback and, if necessary, by personal consultations.

This process, developed in my Human Resources Manage-
ment course, can be adapted for other management courses. The critical elements are specific tasks and a calendar with ample feedback loops, along with a supportive organizational climate. I have also used this research process for short Organizational Behavior papers. The same outcomes result. Papers are professional, and students experience less stress and have less resistance to rewriting. In fact, the students actually like the process. Instead of running experiential exercises removed from student experiences, I use the coursework, making certain that students perceive the tasks as something they will use on the job.

The skills a professional needs post-academia—team-building, reliance, collaboration, and shared decision-making—are all fostered by the group research process. This classroom-based exercise is really a powerful learning tool.

Notes

1 See Hall, “Management Education by Design,” for a theoretical model of student dependency.

2 See Frankl, “A Timetable Process to Improve Research Papers in a Peer-Centered Learning Environment,” Journal of Management Education (1995). The feasibility study consists of three sections: a problem statement, a list of sources or references, and an outline used as preparatory work for writing a research paper. By articulating the tasks involved, students judge the feasibility of the project (hence the name “feasibility study”). The feasibility study enables me to give timely feedback and meaningful oversight during the early stages of the writing task. It also helps students become better thinkers and writers and increases the likelihood of quality papers.

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managing, valuing diversity. Unpublished manuscript. Seattle U., Albers School of Business and Economics.

—This paper was adapted from a presentation at the "Enhancing the Teaching of Management Conference," sponsored by the Management Education and Development, Entrepreneurship, and Operations Management Divisions of the Academy of Management, April 28 and 29, 1995, DePaul University, Chicago, Ill.
John C. Marous, retired CEO, Westinghouse Electric, spoke at the Management Institute's 1994 Scholarship Dinner. He is shown here with Heather Urbanski, a Rowan College Scholarship recipient.
Dr. William Trainor holds a Ph.D. in finance from Virginia Tech and is currently an Assistant Professor here at Rowan. He has been recognized by the Eastern Finance Association for outstanding research and is at present working on asset premium puzzles, including new economic research on testing the Capital Asset Pricing Model. Bill also holds an M.A. in economics and is a dissertation shy of a second Ph.D.

An avid rock climber and runner, who once earned All-American status, Bill is also an assistant coach for Rowan’s track team. He is currently attempting to regain 4:10-mile form while helping several of Rowan’s athletes qualify for nationals.
Bills, Notes, Bonds, or Stocks?
A Return-Risk Differential Examination

William J. Trainor, Jr.

Abstract
Using monthly data from 1953 to 1992 and calculating the yearly returns for the one-month T-bill, the one-year T-bill, the two-year Treasury note, the five-year Treasury bond, and the value-weighted index, a risk-return analysis is performed to compare the relative attractiveness of these five financial instruments. The results indicate that the risk-return tradeoff has changed over time and depends on the slope of the yield curve. Over the last 20 years, returns for stocks have averaged 15.6% per year following relatively steep yield curves, as opposed to 4.0% for years following a relatively flat yield curve. However, the 20 years preceding 1973 witnessed just the opposite result.

Introduction
Historically, equity returns have far exceeded returns on fixed income securities. In fact, the return differential has been so large, it is essentially unexplained by current economic models and has been dubbed the equity premium puzzle. (See Mehra & Prescott, 1985). However, despite the fact that the return differential is large, the additional return one can expect to attain by purchasing equities is not equally attractive in all time periods.

To determine the cost of additional expected return when moving from one risky asset to another, the return–standard
deviation ratios are calculated for several classes of assets. Specifically, they are calculated for the one-month T-bill, the one-year T-bill, the two-year T-note, the five-year T-bond, and the value-weighted market index. Similar analysis has been performed by Tsiang (1972), who dealt with moving wealth from a risk-free asset to a T-bill, and Trainor (1992), who dealt with moving wealth between two short-term T-bills relative to a market portfolio. The analysis in this paper deals with moving all wealth from one particular kind of risky asset to another, commonly referred to as Tactical Asset Allocation.

After dividing the 1953–92 time period into two samples, one containing those years that follow a relatively steep yield curve and the other those years that follow a relatively flat yield curve, it is found that the return-risk tradeoff is vastly different for the two samples. Additionally, it is found that the risk-return tradeoff is quite different when comparing the 1953–72 time period to the 1973–92 time period. The results suggest that the cost of higher expected return in terms of standard deviation has changed over time and is affected by the slope of the term structure.

**Empirical Results—Methodology**

Using monthly data from 1953 to 1992 and calculating the yearly returns for the one-month T-bill, the one-year T-bill, the two-year T-note, the five-year T-bond, and the value-weighted index, a risk-return analysis is performed to compare the relative attractiveness of these five financial instruments. Initially, the 1953–92 data are separated into two samples, one of which contains those years that follow a relatively steep yield curve and the other those years that follow a relatively flat yield curve. (These differences are calculated at the end of December preceding each year, as measured by the annual yield difference between the one-year and one-month T-bill.) We differentiate the samples by the yield curve to determine when it is more attractive to move into longer term securities. A steeper yield curve does not necessarily indicate that longer-term securities are more attractive on a return-risk basis.
We employ the same sample splits for the 1953–72 and the 1973–92 time periods to determine whether the risk-return tradeoff has changed over time. These two time periods are fairly distinct because the latter period is associated with relatively higher interest rates. Additionally, the 1973–92 time period has distinguished itself by failing to empirically validate traditional economic models, such as CAPM. (See Fama & French, 1992).

Table 1 below shows the average yearly returns and the standard deviations for each of the five assets for the 1953–92, 1953–72, and the 1973–92 time periods. Within each time period, the averages are also shown for those years that follow a relatively flat yield curve versus those years that follow a relatively steep yield curve. The numbers below the standard deviation figures are simply each asset’s average return divided by its respective standard deviation. These numbers can be interpreted as the cost of return in terms of their variability.

Table 1

Percentages below represent average yearly returns with their respective standard deviations. Samples within the time periods are separated according to whether the year followed a relatively flat or relatively steep yield curve. The numbers below the standard deviation figures are the means divided by the standard deviations.

<table>
<thead>
<tr>
<th></th>
<th>1-Month T-bill</th>
<th>1-Year T-bill</th>
<th>2-Year T-note</th>
<th>5-Year T-note</th>
<th>Value-Weighted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1953–92, All Years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>4.92</td>
<td>6.16</td>
<td>6.50</td>
<td>6.76</td>
<td>10.71</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>2.74</td>
<td>3.16</td>
<td>4.04</td>
<td>7.18</td>
<td>13.94</td>
</tr>
<tr>
<td>Avg./Std. Dev.</td>
<td>1.80</td>
<td>1.95</td>
<td>1.61</td>
<td>0.94</td>
<td>0.77</td>
</tr>
</tbody>
</table>

<p>| | | | | | |
|                |                |               |               |               |                |
| Flat Yield Curve, 53–92 |                |               |               |               |                |
| Average        | 4.23           | 4.92          | 4.76          | 3.48          | 8.21           |
| Std. Dev.      | 2.87           | 2.88          | 2.90          | 3.13          | 17.23          |
| Avg./Std. Dev. | 1.48           | 1.71          | 1.64          | 1.11          | 0.48           |</p>
<table>
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<tr>
<th></th>
<th>1-Month T-bill</th>
<th>1-Year T-bill</th>
<th>2-Year T-note</th>
<th>5-Year T-note</th>
<th>Value-Weighted</th>
</tr>
</thead>
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<td></td>
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</tr>
<tr>
<td>Average</td>
<td>5.60</td>
<td>7.40</td>
<td>8.24</td>
<td>10.04</td>
<td>13.22</td>
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<td>Std. Dev.</td>
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<td>2.99</td>
<td>4.33</td>
<td>8.57</td>
<td>9.43</td>
</tr>
<tr>
<td>Avg./</td>
<td>2.26</td>
<td>2.48</td>
<td>1.90</td>
<td>1.17</td>
<td>1.40</td>
</tr>
<tr>
<td>Std. Dev.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>1953–72, All Years</strong></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Average</td>
<td>3.01</td>
<td>3.96</td>
<td>4.00</td>
<td>3.76</td>
<td>11.62</td>
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<td>Std. Dev.</td>
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<td>1.79</td>
<td>2.56</td>
<td>4.77</td>
<td>14.01</td>
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<tr>
<td>Avg./</td>
<td>2.12</td>
<td>2.21</td>
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<td>0.79</td>
<td>0.83</td>
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<td><strong>Flat Yield Curve, 53–72</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>2.72</td>
<td>3.39</td>
<td>2.91</td>
<td>1.53</td>
<td>14.45</td>
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<tr>
<td>Std. Dev.</td>
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<td>1.77</td>
<td>1.36</td>
<td>2.22</td>
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<td>Avg./</td>
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<td>1.92</td>
<td>2.15</td>
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<td>0.82</td>
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<td>Std. Dev.</td>
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<tr>
<td><strong>Steep Yield Curve, 53–72</strong></td>
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<td></td>
</tr>
<tr>
<td>Average</td>
<td>3.30</td>
<td>4.52</td>
<td>5.09</td>
<td>5.99</td>
<td>8.78</td>
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<td>Std. Dev.</td>
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<td>1.72</td>
<td>3.05</td>
<td>5.66</td>
<td>9.13</td>
</tr>
<tr>
<td>Avg./</td>
<td>2.79</td>
<td>2.63</td>
<td>1.67</td>
<td>1.06</td>
<td>0.96</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td></td>
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<tr>
<td><strong>1973–92, All Years</strong></td>
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<td></td>
</tr>
<tr>
<td>Average</td>
<td>6.82</td>
<td>8.37</td>
<td>8.99</td>
<td>9.76</td>
<td>9.81</td>
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<td>Std. Dev.</td>
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<td>2.65</td>
<td>3.73</td>
<td>8.01</td>
<td>14.18</td>
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<tr>
<td>Avg./</td>
<td>2.85</td>
<td>3.16</td>
<td>2.41</td>
<td>1.22</td>
<td>0.69</td>
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<td>Std. Dev.</td>
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<tr>
<td><strong>Flat Yield Curve, 73–92</strong></td>
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<td></td>
</tr>
<tr>
<td>Average</td>
<td>6.73</td>
<td>7.54</td>
<td>7.73</td>
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<tr>
<td>Avg./</td>
<td>2.42</td>
<td>2.69</td>
<td>2.36</td>
<td>1.39</td>
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<td>Std. Dev.</td>
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<tr>
<td><strong>Steep Yield Curve, 73–92</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>6.91</td>
<td>9.19</td>
<td>10.25</td>
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<td>Avg./</td>
<td>3.32</td>
<td>3.94</td>
<td>2.63</td>
<td>1.33</td>
<td>1.42</td>
</tr>
<tr>
<td>Std. Dev.</td>
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</tbody>
</table>

48
Return Comparisons

For 1953–1992, the average returns and standard deviations increase monotonically as one moves from the one-month T-bill to the value-weighted market return. The equity premium over the one-month T-bill was approximately 5%, which is consistent with the average over the last 100 years.

The first interesting fact appears when we compare the 1953–72 time period to the 1973–92 time period. In the 1953–72 time period, equity returns were greatest in those years following a relatively flat yield curve, albeit with greater risk. However, in the 1973–92 time period, equity returns were greatest in those years following a relatively steep yield curve. This contrast is exacerbated by the fact that the higher equity returns in the years following a steep yield curve in the 1973–92 time period were associated with a relatively smaller standard deviation than the lower equity returns.

The Return-Risk Tradeoff

For the overall time period, the greatest return per unit of risk was the one-year T-bill, which had an average yearly return almost twice the value of its standard deviation. The worst return-standard deviation tradeoff was for the value-weighted market index, which had a ratio of 0.77 compared to the one-year T-bill's 1.95. However, the average return of the one-year T-bill was only 6.16% relative to the market's 10.71%.

The return-risk superiority of the one-year T-bill over the other assets is unaffected whether the yield curve is relatively flat or steep. What does stand out for the overall time period is that it seems that the return-risk tradeoff is much more favorable for years following a relatively steep yield curve. This is especially the case for the value-weighted market index, which had a return-standard deviation ratio of 0.48 for years following flat yield curves and a 1.40 return-standard deviation ratio for years following a relatively steep yield curve. An explanation may be that a steep yield curve represents greater risk aversion by investors, who require a more favorable risk-return tradeoff.
The most interesting result to come out of the analysis is the comparison of the 1953–72 to the 1973–92 time period. During 1953–72, the value-weighted index had an average return of 14.5% for years following a relatively flat yield curve as opposed to only 8.78% for years following a relatively steep yield curve. However, the return–standard deviation ratios were not all that different, meaning the higher returns following flat yield curves were associated with higher risk.

However, in 1973–92, the value-weighted index had an average return of only 3.98% for years following a relatively flat yield curve opposed to 15.64% for years following a relatively steep yield curve. In addition, the return–standard deviation ratio for stocks in years following a flat yield curve was only 0.26, the lowest on the table, opposed to the 1.42 ratio for stock investments following a relatively steep yield curve.

Conclusion

A return-risk analysis was applied to the one-month T-bill, the one-year T-bill, the two-year T-note, the five-year T-bond, and the value-weighted index for the 1953–92 time period in an effort to examine the relative attractiveness of these assets. It was found that the cost of expected return in terms of standard deviation is quite variable relative to the time period examined, depending on whether the yield curve is relatively flat or steep. The instability of the return-risk tradeoff makes it rather difficult to suggest a future course of action for investors based on this analysis.

If the next twenty years behave like the previous twenty years, investors should invest in stocks after the yield curve becomes relatively steep, and invest in short-term bonds as the yield becomes relatively flat. On the other hand, if the next twenty years behave like the 1953–72 time period, the opposite course of action is advisable. Unfortunately, this sort of advice makes it difficult to decide where to place one's wealth. As usual, there are no guarantees.
Notes

1 When differentiating years by the slope of the term structure, the same samples would have been roughly derived if the years were differentiated by the level of interest rates. This is because the yield curve generally steepens as interest rates rise and flattens out when they fall.

2 For fixed income instruments, these are actual yearly returns and not yields—i.e., the yearly return on the five-year bond is the yearly return realized by holding the five-year bond for one year and then selling it.

3 The sample splits are redone in each of the 20-year sub-periods; the samples associated with the flat and steep yield curves record 10 years of data each.

References


About the Authors

Dr. George C. Romeo, Associate Professor of Accounting, has a B.S. from Rider, an M.S. from Loyola, and a Ph.D. from Drexel. He is also a CPA, a Certified Internal Auditor, and a Certified Management Accountant.

He teaches for the Becker CPA Review, and his research interests are in accounting education. He has taught at Rowan College since 1979.

George’s wife, Cindy Vitto, is an Associate Professor in English at Rowan. George has four children—Mindy, a freshman at Drew University; Kristy, a sophomore at Hammonton High School; Erin, a seventh grader at Hammonton Middle School; and Elizabeth, who is in her first year of life.

Daniel W. Davis, an Assistant Professor of MIS at Rowan, has a B.S. from the University of Maryland and an M.B.A. from Drexel. His research interests include business education and applications software. He consults in these areas. He enjoys sports and collects antique billiard tables.
Selected Critical Skills in Rowan’s Business Administration Curriculum

George C. Romeo and Daniel W. Davis

Abstract

This study examined relationships between business core courses and quantitative and communicative variables. The first part centered on Pearson correlations between SAT verbal and math scores in relation to core course grades obtained in the School of Business Administration at Rowan. In the second part, multiple regression was employed to examine the effect of both math and verbal SAT scores on core course grades. Finally, prerequisites and student specializations were added to the model.

The first two parts of this study determined a significant correlation between SAT math scores and core courses deemed critical in quantitative skills. Correlations between SAT verbal scores and core courses deemed critical in communicative skills were also found significant. In the final section, generally, communicative and quantitative prerequisites were found significant for all core courses.

This paper explores ways of using quantitative and communicative independent variables to predict student success in core courses in the Rowan College School of Business Administration (SOBA). (The ten core courses represent a common body of business knowledge. See Table 1 on p. 64 for a list of the courses.) The study focuses on the correlations and relationships between the core courses and the predictor variables, using simple-regression, multiple-regression, and correlation analysis. Special attention is given to identifying skills needed
for success in the business curriculum, but especially in courses that teach critical skills. Both the courses and skills are identified by the Instructional Development Work Group (IDWG) of SOBA.

Limitations of the Study
Our first limitation involves obtaining data. SAT scores are not available on the SIS—the database of student records at Rowan College—for most transfer students. Many transfer students have not even taken the SATs. Our analysis may be limited to traditional students who enter Rowan College as freshmen and complete the majority of their courses at Rowan.

Second, we can analyze only two skills (communicative and quantitative) identified by the IDWG. Other identified skills include teamwork, information technology, critical thinking, research, crossfunctionality, and personal development; but we would have measurement problems with these other skills because they cannot be assessed as precisely as the variables we have selected.

Obviously, many variables not included will have interactive and direct effects on the variables we are measuring, but we have no way of accurately accounting for those effects. For instance, we cannot account for the teacher effect. Every professor has his or her own style and may stress different skills for the course that may not be representative of skills identified by the IDWG.

Significance of the Study
We hoped to empirically identify skills that are important to the success of our students in core courses at Rowan College. The SOBA is in the process of evaluating the core courses in the program and is very concerned about skills needed by our students, prerequisites, and how these skills and prerequisites affect core courses. We hope that by identifying essential skills in terms of correlations with various core courses, the study will help measure the performance outcomes of current students to comply with AACSB accreditation requirements.
**Identified Skills**

Two examples of skills identified by the IDWG include written communication and quantitative skills. In the table below, importance of the skill to the course is ranked NA (not applicable), slight, moderate, or critical, while Actual Use/Coverage is ranked NA, slight, moderate, or intense.

<table>
<thead>
<tr>
<th>Written Communication</th>
<th>Importance</th>
<th>Actual Use Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational Behavior</td>
<td>Critical</td>
<td>Intense</td>
</tr>
<tr>
<td>Operations Management</td>
<td>Moderate</td>
<td>—</td>
</tr>
<tr>
<td>Business Policy</td>
<td>Critical</td>
<td>Moderate</td>
</tr>
<tr>
<td>Legal Environment</td>
<td>Critical</td>
<td>Intense</td>
</tr>
<tr>
<td>Prin. of Management</td>
<td>Moderate</td>
<td>Slight</td>
</tr>
<tr>
<td>Prin. of Marketing</td>
<td>Moderate</td>
<td>Moderate</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quantitative</th>
<th>Importance</th>
<th>Actual Use Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Policy</td>
<td>Moderate</td>
<td>Moderate</td>
</tr>
<tr>
<td>Operations Management</td>
<td>Critical</td>
<td>Intense</td>
</tr>
<tr>
<td>Principles of Finance</td>
<td>Critical</td>
<td>Intense</td>
</tr>
<tr>
<td>Prin. of Accounting I</td>
<td>Critical</td>
<td>Moderate</td>
</tr>
<tr>
<td>Prin. of Accounting II</td>
<td>Critical</td>
<td>Moderate</td>
</tr>
</tbody>
</table>

**Written Communication**

Based on the above summaries, we hypothesized that verbal SAT scores would have a higher correlation with students' final grades in courses in which written communication has critical importance, when compared to courses in which written communication has only moderate or slight importance.

Our hypothesis for courses with critical importance coverage in written communications is as follows:

\[
H_1: \text{Grades}_{\text{High Verbal SATs}} > \text{Grades}_{\text{Low Verbal SATs}}
\]

**Quantitative Skills**

We also hypothesized that math SAT scores would have a higher correlation with students' final grades in courses in which quantitative skills are ranked critical rather than moderate.
Our hypothesis for courses with critical importance coverage in quantitative skills is as follows:

\[ H_1: \text{Grades}_{\text{High Math SATs}} > \text{Grades}_{\text{Low Math SATs}} \]

One might expect numerous other interrelated student characteristics besides SATs (cognitive style, test-taking ability, faculty member, grading distribution, number of hours worked at an outside job each week, GPA, specialization, gender, race, age, prerequisite course grades, rate of progress in the curriculum, student status—full-time, part-time, etc.) to interact in the prediction of grades in core courses. In this study, we are limiting our predictor variables to data that can be obtained on the SIS system. The data involve various levels of identified skills. Thus, the interactive effect of specialization and prerequisite course grades (see below) will also be considered as part of our equations, as follows:

\[
\text{CGRAD}_{n} = B_0 + B_1 \text{SATV} + B_2 \text{SATM} + B_3 \text{SPEC} + B_4 \text{STAT} + B_5 \text{COM1} + B_6 \text{COM2} + B_7 \text{CALC} + B_8 \text{PCAL} + B_9 \text{MICE} + B_{10} \text{MACE} + \text{Error}
\]

where:

- \text{CGRAD} = \text{Grade in core course}
- \text{SATV} = \text{Verbal score on SATs}
- \text{SATM} = \text{Math score on SATs}
- \text{SPEC} = \text{Specialization (Accounting/Finance, Management, or Marketing)}
- \text{STAT} = \text{Grade in Principles of Statistics I}
- \text{COM1} = \text{Grade in Communications I}
- \text{COM2} = \text{Grade in Communications II}
- \text{CALC} = \text{Grade in Calculus for Techniques and Applications}
- \text{PCAL} = \text{Grade in Precalculus}
- \text{MICE} = \text{Microeconomics}
- \text{MACE} = \text{Macroeconomics}
We hypothesize that the grades in courses which are highly quantitative (i.e., Statistics I, Calculus for Techniques and Applications, Macroeconomics, and Microeconomics) will have a stronger correlation with courses in which the quantitative importance is critical (Operations Management, Principles of Finance, and Accounting I and II) than with courses in which the quantitative importance is moderate. We also hypothesize that the grades in Communications I and II are more highly correlated to courses in which written communication is critical (Legal Environment and Organizational Behavior) than in courses in which written communication is moderate. We include the specialization in the model because we speculate that students who are more quantitative usually major in Accounting/Finance, while students who are better in communication usually major in Marketing, with Management students somewhere in the middle. Thus we hypothesize that Accounting/Finance majors will do better than Marketing majors in courses in which the quantitative skills are critical, and Marketing majors will do better than Accounting/Finance majors in courses in which the written communication skills are deemed critical.

Discussion

Data on the SIS system since 1988 was included for the dependent variables. Data used for the independent variables went as far back as 1981. During the school year 1988, the College adopted the plus/minus system, which we have in place at the present time. The plus/minus system allows the dependent variable to have a greater distribution of choices than the old system, in which there were only five: A = 4, B = 3, C = 2, D = 1, and F = 0.

Pearson Correlation Coefficients

The Pearson correlation coefficient (r) measures the strength of the linear relationship between two variables. The (r) statistic ranges in value from -1 to +1, indicating a positive or negative relationship.
Table 1 (p. 64) is a summary of the verbal and math SAT scores and the Pearson correlation coefficient between the two SAT scores and the grades earned in the core courses. The table includes all students who took the listed courses from 1988 to the present.

Of the four courses in which quantitative skills are deemed critical (Operations Management, Principles of Finance, Principles of Accounting I, and Principles of Accounting II), only Operations Management does not have a significant Pearson correlation coefficient between the math SAT scores and the grade in the course, when considering all majors. However, Operations Management has a negative Pearson correlation coefficient when comparing the verbal SAT scores and grades in the course. Neither Principles of Accounting I or II nor Principles of Finance was significant at the .05 level, using the Verbal SATs.

The second skill (written communication) was deemed critical by the IDWG in three courses: Organizational Behavior, Business Policy, and Legal Environment. All three of the courses have significant correlations between verbal SATs and the course grade. Of the three courses deemed to have moderate importance for written communication skills, Principles of Management and Principles of Marketing both have significant correlations between the verbal SATs and grades, while Operations Management has a negative correlation. Only one of these six courses, Principles of Management, was significant at the .05 level for the SAT math score.

Thus the Pearson correlation coefficients indicate that both hypotheses are appropriate; that is, verbal SAT scores appear to have a higher correlation with the students’ final grade in courses in which written communication has critical importance, and the math SAT scores appear to have a higher correlation with the students’ final grade in courses in which quantitative skills are ranked critical.

*Regression Equations Using SAT Scores*

Table 2 (p. 64) presents regression parameters for SOBA
core courses using grades in the course as the dependent variable, including both SAT verbal and SAT math scores as the independent variables for all students taking courses from 1988 to the present. A forward stepwise procedure is used to allow the independent variables to enter into the regression models if they obtain a 0.1500 significance level. (In a forward stepwise regression procedure, the first variable considered for entry into the model is the one with the largest correlation with the dependent variable. To determine whether succeeding variables can be entered into the model, an F value at the 0.1500 significance level has to be obtained.) None of the ten models representing all the core courses had both SAT scores enter into the equation. Three models reached a significant F score with SAT math parameters entering into the model, and five models reached a significant F score with SAT verbal parameters entering into the model.

Of the four courses deemed to have critical quantitative skills by the IDWG, three (Principles of Accounting I, Principles of Accounting II, and Principles of Finance) had significant SAT math parameter estimates. The fourth (Operations Management) had a negative SAT verbal parameter.

Organizational Behavior, Principles of Management, Business Policy, Principles of Marketing, and Legal Environment had regression models in which a level of significance of .05 was reached, and the SAT verbal score entered into the model as the parameter estimate. None of these courses was considered by the IDWG as having critical importance in terms of quantitative skills.

Three were identified as having critical written communication importance. Written communication was identified as having moderate importance for Principles of Management and Principles of Marketing; however, neither of these two courses was listed in the quantitative category. Based on the regression analysis on the two SAT scores, we find the conclusions are basically the same as before; that is, verbal SAT scores are highly correlated with courses in which written communication has critical importance, and math SAT scores are highly
correlated with courses in which quantitative skills are ranked critical.

Regression Equations Using Prerequisite Courses, SAT Scores, and Specialization

The third part of this study regressed grades students earned in their prerequisite courses during their first two years as part of the general education model on grades earned by students in the ten core courses. Most of the prerequisites can be easily categorized into quantitative or communication courses. We also included the two SAT scores and the specialization of the students in the model.

The predictor variables and the number of times they were significant are as follows:

Quantitative:
- Macroeconomics (7)
- Microeconomics (2)
- Statistics I (9)
- Calculus T & A (3)
- Precalculus (1)
- SAT math (0)

Communication:
- Communications I (1)
- Communications II (3)
- SAT verbal (3)

Not Categorized:
- Specialization (6)

Four indicator variables were used to determine the specialization, one each for the three specializations and one to extract the data from the SIS system for the students who had not declared a specialization at the time they took the course.

We again used the stepwise regression technique to identify the most important predictors of the dependent variable. Since it is impractical to fit all possible regression models involving subsets of the independent variables, we included only the final model.

One interesting aspect of the data in Table 3 (pp. 65–67) is the low $R^2$ values obtained in the regression equations for the ten core courses. The highest $R^2$s were found for Operations Management (.25) and Principles of Accounting II (.24), and the lowest were found for Policy (.12) and Principles of
Marketing (.12). It is obvious that there are many other characteristics or variables that determine a student's grade.

The first three models displayed in Table 3 are Principles of Accounting I and II and Principles of Finance. For all three models, the grades in Macroeconomics and Calculus T & A, and the Accounting/Finance Specialization represented as an indicator variable entered into the equation. The grade in Microeconomics entered into the equation for Principles of Accounting I. The grade in Statistics I entered into the equation for both of the two Accounting courses. In all three cases, the Accounting/Finance students fared better than students in other specializations, and only quantitative prerequisites were found to be significant.

For the three courses deemed critical in importance for written communication, each had a communication variable entering into the equation. Legal Environment had Composition I, Policy had Composition II (however, significant at .14), and Organizational Behavior had SAT verbal. However, all three also had quantitative courses entering into the equation—Statistics I is significant for all three models, Microeconomics is significant for Legal Environment, Calculus T & A is significant for Business Policy, and Macroeconomics is significant for Organizational Behavior.

One of the most interesting findings in the study is that Statistics I entered into the forward regression model nine times, which indicates that Statistics I is one of the most important prerequisites and is an indicator of success in the core courses.

The indicator variables representing the students' specialization was found significant in the following courses: Principles of Accounting I, Principles of Accounting II, Principles of Finance, Organizational Behavior, Operations Management, and Management Information Systems. In the three core courses—Principles of Accounting I, Principles of Accounting II, and Principles of Finance—students specializing in Accounting/Finance statistically did better than students specializing in Marketing, Management, or undeclared spe-
cializations. The level of significance ranged from .0001 for Principles of Finance to .0656 for Principles of Accounting I. A student taking the core course Organizational Behavior statistically did better when a specialization was declared. Thus, students without a specialization at the time of taking the course did not earn as high a grade as others. A student specializing in Management did not statistically do as well (significance .01) in the core course Operations Management when compared to students specializing in other areas. And finally, a student specializing in Marketing did better than students in other specializations when taking the course MIS.

There is evidence that quantitative prerequisites are more strongly related to the core courses deemed critical in quantitative skills. Of the 17 indicator variables entering in the regression models of the four quantitative core courses, only one variable was positive from the communication area—Communication II. SAT verbal and Management specializations were found significant but had negative parameters.

The evidence is inconclusive that independent variables representing communication skills (the Communications I and II courses and SAT Verbal scores) are more strongly related to the core courses deemed critical in communication skills. All of the core courses with communications identified as being critical had Statistics I (a quantitative course) enter in the regression models, indicating other skills are important.

Conclusions

We shall begin by making some qualifications. We are not trying to predict grades by using SAT scores. A statistically significant relationship between a dependent variable and a predictor (independent) variable does not imply a cause-and-effect relationship.

The results of most studies overwhelmingly indicate that the high school record and the SAT taken together are more effective in predicting grades (usually first-year grades) than either one by itself. There are also numerous papers supporting the idea that the SAT's influence is not very great when
used as a predictor of grades. In our study, the highest $R^2$ for a regression equation obtained from the models consisting of the core courses and significant SAT scores is 4.4% (Principles of Accounting II). This means we are explaining less than 4.5% of the total variance associated with that particular model.

Second, we are not drawing any conclusions about the teaching effectiveness of the faculty or the value of the courses they teach. That regression models or the Pearson Correlation Coefficients are not significant does not imply any causality between measured variables and teaching effectiveness.

In conclusion, we can state, based on the Pearson Correlation Coefficients between SAT scores and the core course grades and the regression models using both SAT scores as predictor variables, that there is a stronger correlation between SAT math scores and quantitative core courses than SAT math scores and core courses with critical communication skills. Next, based on the same tests, we can also state there is a stronger correlation between SAT verbal scores and core courses with critical communication skills than SAT verbal scores and core courses with critical quantitative skills.

It is more difficult to make any definite conclusions based on the full regression model equation in which ten predictor variables are entered in the equation. However, we can note that there is a strong correlation between quantitative prerequisites and the core courses designated as having critical quantitative skills.

The information provided by this study represents the initial stage of a continuing comprehensive study to identify outcomes measurements in the School of Business Administration at Rowan College as it seeks AACSB accreditation.

—The authors of this study would like to thank Robert Wear for the numerous hours he spent gathering data from the SIS system and performing the statistical analysis in SAS.
### Table 1

Summaries of SAT Verbal and Math Scores for SOBA Core Courses and Pearson Correlation Coefficients between SAT Scores and Grades in Core Courses for All Majors of Students Taking Courses from 1988 to the Present

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting I</td>
<td>1135</td>
<td>499</td>
<td>.1194</td>
<td>* .0001</td>
<td>515</td>
<td>.1866</td>
<td>* .0001</td>
</tr>
<tr>
<td>Accounting II</td>
<td>701</td>
<td>507</td>
<td>.0671</td>
<td>.0829</td>
<td>523</td>
<td>.2097</td>
<td>* .0001</td>
</tr>
<tr>
<td>Prin. of Finance</td>
<td>603</td>
<td>508</td>
<td>.0096</td>
<td>.8189</td>
<td>521</td>
<td>.1012</td>
<td>* .0158</td>
</tr>
<tr>
<td>Organ. Behavior</td>
<td>584</td>
<td>502</td>
<td>.1031</td>
<td>* .0147</td>
<td>518</td>
<td>.0677</td>
<td>.1101</td>
</tr>
<tr>
<td>Prin. of Mgmt</td>
<td>633</td>
<td>504</td>
<td>.1249</td>
<td>* .0020</td>
<td>520</td>
<td>.0996</td>
<td>* .0137</td>
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<tr>
<td>Operations Mgmt</td>
<td>512</td>
<td>508</td>
<td>-.0766</td>
<td>.0912</td>
<td>524</td>
<td>.0288</td>
<td>.5258</td>
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<tr>
<td>Policy</td>
<td>382</td>
<td>507</td>
<td>.1362</td>
<td>* .0084</td>
<td>520</td>
<td>.0366</td>
<td>.4805</td>
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<td>Prin. of Marketing</td>
<td>717</td>
<td>509</td>
<td>.1577</td>
<td>* .0001</td>
<td>522</td>
<td>.0602</td>
<td>.1169</td>
</tr>
<tr>
<td>MIS</td>
<td>525</td>
<td>504</td>
<td>.0767</td>
<td>.0852</td>
<td>520</td>
<td>.0580</td>
<td>.1930</td>
</tr>
<tr>
<td>Legal Environment</td>
<td>530</td>
<td>499</td>
<td>.1265</td>
<td>* .0042</td>
<td>514</td>
<td>.0848</td>
<td>.0556</td>
</tr>
</tbody>
</table>

* Indicates significant at the .05 level.

### Table 2

Regression Parameters for SOBA Core Courses
Using Grade in Course as the Dependent Variable and SAT Verbal and SAT Math Scores as the Independent Variables
For All Students Taking Courses from 1988 to the Present

<table>
<thead>
<tr>
<th>Parameters' Estimates&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Intercept</th>
<th>SATV</th>
<th>SATM</th>
<th>R²</th>
<th>F</th>
<th>Prob&gt;F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting I</td>
<td>0.399</td>
<td>—</td>
<td>0.0034</td>
<td>.0348</td>
<td>37.96</td>
<td>.0001</td>
</tr>
<tr>
<td>Accounting II</td>
<td>0.797</td>
<td>—</td>
<td>0.0036</td>
<td>.0440</td>
<td>30.69</td>
<td>.0001</td>
</tr>
<tr>
<td>Prin. of Finance</td>
<td>1.168</td>
<td>—</td>
<td>0.0019</td>
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<td>Organ. Behavior</td>
<td>2.655</td>
<td>0.0012</td>
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<td>.0106</td>
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<td>.0147</td>
</tr>
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<td>Prin. of Mgmt</td>
<td>2.240</td>
<td>0.0015</td>
<td>—</td>
<td>.0156</td>
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<td>.0020</td>
</tr>
<tr>
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<td>.0042</td>
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</table>

* Indicates significant at the .05 level.

<sup>1</sup>A forward stepwise procedure was used to allow the independent variables entry into the model at the 0.1500 significant level. No model was found to have more than one significant independent variable.
<table>
<thead>
<tr>
<th>Parameter Estimate</th>
<th>Intercept</th>
<th>Macroecon</th>
<th>Microecon</th>
<th>Stat I</th>
<th>Calc T&amp;A</th>
<th>Acct Spec</th>
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<tbody>
<tr>
<td>F Value</td>
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<td>.0613</td>
<td>.0089</td>
<td>.0052</td>
<td>.0283</td>
<td>.0656</td>
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<table>
<thead>
<tr>
<th>Parameter Estimate</th>
<th>Intercept</th>
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<th>Stat I</th>
<th>Calc T&amp;A</th>
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1Stepwise variable entry and removal method determined the final regression model. The default tolerance level was 0.15.
<table>
<thead>
<tr>
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<th>$R^2$</th>
<th>$F$ for Model</th>
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About the Authors

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Management Applications of Activity-Based Cost Accounting

Larissa S. Kyj and Robert E. Pritchard

Abstract
To obtain better information to manage indirect costs, General Electric finance and production managers developed a basic activity-based cost accounting system (ABC) during the 1960s. Harvard Business School Professors Robin Cooper and Robert Kaplan further refined ABC in the late 1980s. They attempted to develop a cost accounting system that would overcome the difficulties inherent in traditional cost accounting systems—particularly the tendency to undercost low-volume products and overcost high-volume products.

While ABC has been applied primarily to manufacturing operations, with the increasing importance of cost containment in the service sector, many large service companies are also using ABC. Building on these service sector applications, this paper provides a transition from theory to practice. The paper includes a brief historical framework of ABC, explains how ABC is used in manufacturing settings, and then demonstrates how ABC can be adapted as a management tool in the service sector, using the construction industry as an example.

General Electric finance and production managers developed an activity-based cost accounting system (ABC) during the 1960s. They described work that causes costs to be incurred as “activities,” thereby giving rise to the term activity-based cost accounting.

As a part of the work that led to the development of ABC, General Electric’s team discovered that many indirect costs
associated with the manufacturing process resulted from decisions made in other departments. Yet the existing cost accounting system resulted in charging indirect costs to the department that incurred them rather than to the department that caused them.

For example, an engineering design change is a typical situation in which one department causes costs to be incurred in other departments. Such a design change, even a relatively minor one, might trigger changes in a number of other departments. It may trigger changes in blueprints, bills of materials, material ordering specifications and purchasing, quality control, manufacturing processes, packaging, shipping and handling, as well as customer instructions and applications procedures. The costs of these changes are generally classified as indirect costs.

General Electric found that costs resulting from the engineering changes were allocated to the various departments involved (rather than to the engineering department) and that, in many cases, the engineering department was not even aware of the costs it had triggered. Consequently, GE endeavored to trace costs to the activities that caused the costs.

GE did not, however, follow through completely. It did not use the concept of the "activity cost driver" to estimate product costs. Nor did it use ABC to connect costs to those activities that resulted in additional value for its customers. To identify those activities, it is necessary to have a better understanding of both traditional and activity-based cost accounting systems.

Traditional versus Activity-Based Cost Accounting Systems
Activity-based cost accounting, as it is known today, was developed largely by Harvard Business School Professors Robin Cooper and Robert Kaplan in the late 1980s to overcome some of the difficulties inherent in traditional cost accounting systems. In particular, traditional cost accounting systems tend to undercost low-volume products and overcost high-volume products because they use volume-based input or output measures as their "cost drivers."
The undercosting and overcosting result from the allocation of overhead costs based on the number of units produced (or other volume-related measures) that characterize traditional systems. Under a traditional volume-based cost accounting system, if two products are produced, perhaps 900 units of product A and 100 units of product B, a supervisor's salary and benefits would likely be allocated 90 percent to A and 10 percent to B. Experience might indicate that, in reality, each production run (regardless of size) requires three hours of the supervisor's time. Consequently, if the supervisor's "overhead" cost is allocated using the volume of output produced as the cost driver, the result will be to undercost the low-volume product and overcost the high-volume product.

In contrast to traditional volume-based cost accounting systems, ABC is an activities/operations-based costing system. It follows a two-stage procedure to assign overhead costs to products. The first stage identifies "significant activities/operations" and assigns overhead costs to each operation, depending on the proportions of the organizational resources it uses. Examples of overhead costs associated with these operations in a manufacturing process include maintenance, depreciation, computer support, electricity, set-up, engineers' salaries, engineering support, plant management, plant maintenance, property taxes, and security.

The overhead costs assigned to each activity/operation are allocated to the appropriate "activity cost pool." An activity cost pool is a grouping of individual overhead cost items that increase or decrease due to the activity level of the cost drivers. Examples of cost pools include engineering, machinery, set-up, facilities, receiving and inspection, materials handling, quality assurance, and packaging and shipping.

In stage two, the overhead costs are allocated from each activity cost pool to each product line in proportion to the amount of the cost driver consumed by the product line. The more activity cost pools there are in an activity-based costing system, the greater the accuracy of the cost assignment.

Initially, ABC was applied primarily to manufacturing set-
tings using *operations-based cost drivers* as a supplement to volume-based cost drivers. In their seminal article, Miller and Vollman (1985) defined operations-based cost drivers in terms of four types of transactions that occur in the factory:

1. **Logistical transactions.** These involve ordering, executing, and confirming the movement of materials from one location to another. These transactions are processed, transcribed, and analyzed by people on the shop floor as well as by people in receiving, expediting, shipping, data entry, and accounting departments.

2. **Balancing transactions.** These ensure that the supplies of materials, labor, and manufacturing capacity are equal to the demand for resources. Personnel in purchasing, production and materials planning, production scheduling and control, labor requirements planning, and managers involved in market forecasting take part in these transactions.

3. **Quality transactions.** These comprise quality control, including inspection and rework; quality improvement, including worker training, engineering and supplier certification; field support, including warranty repairs; identification and communication of specifications; and record-keeping.

4. **Change transactions.** These update manufacturing information systems to accommodate changes in engineering designs, schedules, routings, standards, materials specifications, and bills of material. They involve the work of manufacturing, industrial and quality engineers, and accountants.

Miller and Vollman provided a very useful framework for identifying operations-based cost drivers within the manufacturing setting and thereby provided the impetus for many manufacturing firms to utilize ABC.

Cooper and Kaplan (1991) and Kaplan (1993) conducted field studies in a variety of manufacturing settings: bakeries (Maplehurst Bakeries, Canada), electronics equipment systems (Tektronix Inc.), computing and electronic measurement equipment (Hewlett-Packard), and heating wire manu-
facturing (Kanthal—a Swedish firm with a plant in Connecticut). They found that when ABC was introduced in these companies, they were able to control their costs and become more profitable.

Service industries were also intrigued by ABC and soon found that the concept of cost drivers was not limited to manufacturing processes. Recently, service companies have started to employ ABC to assist in tracing overhead costs. Banker and Johnson (1993) conducted an empirical investigation of the operations-based cost drivers in the U.S. airline industry and detailed its success in accounting for overhead costs to reflect the real costs of operating their flight routes.

Activity-Based Management Systems

The underlying concepts of ABC (and particularly the idea of cost drivers) can be applied as a management tool that focuses on examining processes with the goal of reducing waste in all activities. The result is activity-based management (ABM). Using contractors as an example, these ABM processes range from preparing estimates through customer billing and collections.

Drawing from activity-based cost accounting systems, activity-based management is concerned with the following:

1. Identifying all of the business activities (work) that consume time, materials, and other resources, and therefore drive costs.
2. Segregating activities into two categories: (a) those activities that clearly add to customer value and therefore can be translated into billings, and (b) those activities that do not add to customer value and are not billable.
3. Minimizing the non-value-adding activities. While focusing on waste (unnecessary cost) minimization, activity-based management also focuses on the need to maintain high quality work and flexibility in a business. When implemented, activity-based management will indicate those jobs that are likely to be most profitable (and least profitable) as
well as the mix of work that will be most profitable for a company.

**Using Activity-Based Management**

Activity-based management can help managers pinpoint waste and reduce costs. Managerial accountant H. Thomas Johnson recommends the following four steps to eliminate waste and become more profitable:

1. Chart the company's flow of activities. Managers need to maintain a diary for at least two weeks and record on an hourly basis what is happening in the business. (Initially, some managers may resist using a formal journal, but the benefits are so significant that they outweigh the extra work involved.) Questions such as the following need to be addressed: What are the managers doing? What are the employees doing? For contractors, this process needs to be carried out at each job site and in the office, as well as at customer sites when estimates are being prepared, etc.

2. Keep close account of the activities that add customer value. For example, while necessary, setting up for a job does not add customer value. Shingling a roof does add value. Customers pay for shingles on the roof, not for setting up, even though this takes time and costs money. It is necessary to clearly identify activities when time and/or materials are being wasted.

3. Review the diary each evening with particular attention to identifying those activities that do not add customer value—that do not result in any payment. Causes of delays and unevenness in work throughout the day need to be identified. Questions such as the following need to be addressed: What held things up? Are there more delays on some types of jobs than on others? What was the total time to complete a repair that usually requires a person to be on the roof for half an hour? Was it instead half a day? It is also important to keep track of customer complaints and follow-up service since these overhead costs can be very high.
4. Track the things that cause delays and do not add customer value. These items need to be recorded each day. Then a dollar cost can be attached to each and trends noted.

There are many activities that do not add customer value but can be very costly and erode profits. Consider the following examples from contracting:

1. A contractor answers a prospective customer's call, goes to the customer's place of business, secures the appropriate information, and prepares and delivers an estimate for the job. However, the contract is subsequently awarded to a competitor. The costs incurred in preparing the estimate diminish profits since customers don't pay for estimates.

2. A contractor has several contracts going at the same time and spends time running from one job site to another. Sometimes he completes part of one job, then packs up and moves to another site, unloads, sets up, does some work there, and moves again, as annoyed customers call, asking why their work has not been completed. A lot of time is spent packing up, moving, and setting up. This is expensive but does not add any value to the job.

3. A contractor is running behind and must pay overtime to get the job completed. Overtime was not anticipated when the job was bid. Now it rapidly erodes profit.

Following Johnson's four-step process should yield the following results:

1. A list of activities that cause delays, waste time and other valuable resources, and erode profits. These are the costly activities that need to be eliminated.

2. A clear identification of profitable and unprofitable activities and a more precise basis for allocating overhead costs to different types and sizes of contracts. Contractors are likely to discover that their overhead costs vary appreciably among different types of contracts and that using a percentage-of-
direct-cost method to allocate overhead costs, for example, is inappropriate.

3. A clear identification of profitable and unprofitable contract types. Most contractors will discover that they complete some types of contracts very efficiently and profitably with little waste while completing others inefficiently and unprofitably.

In many instances, the results will lead the contractor to develop a "distinctive marketing proposition" or "niche specialization" for the business. In addition, the contractor will likely implement more efficient on- and off-site contract management procedures.

Conclusion

During the 1980s and 1990s, activity-based costing became increasingly popular. Many companies are using activity-based costing to reduce costs and enhance profits. Kaplan (1993) provides four excellent examples of firms (Maplehurst Bakeries, Tektronix Inc., Hewlett-Packard, and Kanthal) that have used ABC, clearly detailing the benefits that can be derived from its use. However, the use of transactions-based systems requires enormous amounts of information and information tracking. The cost of obtaining this information and of tracking it must be considered when applying ABC.

A cost-benefit analysis should be made when selecting the number and type of cost drivers that will be included in an activity-based costing system since information carrying and processing costs are associated with each cost driver. In addition, there are related costs for the necessary planning and control that go hand in hand with costs systems.

With an excessive number of cost drivers, the costs for planning and control can become prohibitively expensive. A balance needs to be found between the benefits associated with the accuracy that the use of multiple cost drivers provides and the costs of data collection, storage, and processing involved with the use of these drivers.
Notes

1 Indirect costs are those not easily traced to particular products or services produced—known as overhead. Some examples of indirect costs include supervisory salaries and benefits, the purchasing and receiving of materials, scheduling, quality control, and plant maintenance.


3 See, for example, Banker and Johnson, “An Empirical Study of Cost Drivers in the U.S. Airline Industry.”

4 See Johnson, “Activity-Based Information: A Blueprint for World-Class Management Accounting,” p. 23.

5 See, for example, Kaplan, “Activity-Based Management Part 1: Revealing Profit Opportunities with ABM.”

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Erik G. Halleus, VP/General Manager of Siemens Rolm Communications, is Vice Chairman of the Business Advisory Board at Rowan College. He spoke at the Management Institute’s Annual Scholarship Dinner, April 20, 1995.
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Skill Development for Business Students

William L. Enslin

Abstract
Developing students' skills is stressed as a part of teaching excellence. However, in most business courses, students do not receive direct feedback or a grade on skill performance. A Management Practicum course has been developed to provide a more integrated approach to skill development. This paper discusses the shortcomings of the old approach, its conceptual foundations, and the benefits of the Management Practicum.

The draft mission statement for the Rowan College School of Business Administration (SOBA) talks about "striving for excellence in teaching, which includes current knowledge and skill development." On close examination, SOBA's performance on skill development is mixed. Skill may be defined as "practical ability and dexterity; knowledge; expertness; aptitude." SOBA has identified the following skill areas that should be an integral part of the business core curriculum: oral and written communications, teamwork, quantitative skills, information technology, and critical thinking. In light of the critique of present efforts, five members of the Management Department have designed a Management Practicum course to provide a more integrated approach to skill development.

Present skill development activities include courses on skill
development, courses in which a particular skill is a priority, and courses in which skill development activities, although unstated as such, are an integral part of knowledge acquisition. At Rowan, courses in skill development include College Composition I and II, Public Speaking, and Computer Literacy. There are Writing Intensive courses, including Organizational Behavior, in the Business core, and M.I.S., in which information technology is the skill being emphasized. In the Business Policy course, communications, teamwork, and critical thinking are objectives. However, in both M.I.S. and Business Policy, the individual student does not receive a separate grade on skill performance, nor any direct feedback.

In evaluating our success in meeting our mission of skill development, anecdotal evidence from faculty teaching these courses supports the view that some progress is being achieved. However, there are a number of shortcomings in the present approach:

1. There are no courses that teach either critical thinking or teamwork—or have these skills as a priority.

2. Progressively higher standards of skill performance have not been developed and communicated to the students or the faculty. There has been no check for consistency of standards among the faculty. At graduation, students are not apprised as to whether they have attained an acceptable level of skill development.

3. There are no skill development plans for students or courses identified for the progressive development of skills over the span of the business curriculum.

4. As business faculty, we teach our students the principles of organizational learning, yet we fail to model these principles in the School of Business Administration. A learning organization is an "organization skilled at creating, acquiring, and transferring knowledge, and at modifying its behavior to reflect new knowledge and insights" (Garvin, 1993, p. 80). In essence, we have no systematic way of evaluating our success in skill development activities to make continuous improvement.
In 1993, the U.S. industry average of training expenditures equaled 1.2 percent of payroll dollars. Very successful U.S. companies, such as General Electric (4.6 percent), U.S. Robotics (4.2 percent), Motorola (4.0 percent), and Texas Instruments (3.0 percent) spend more than double the U.S. average (Enslin, 1994, p. 1). For the past decade, spending on corporate education has grown by 5 percent a year. Companies spend $50 billion a year on education, including skill development, and account for about half of America’s total spending on education (The Economist, 1995, p. 79).

I examined over 100 management training programs to ascertain the importance of skill development. Close to 60% were primarily skill development, and another 15% had skill development activities, although unstated as such, listed in the content. Business executives participating in the School of Business activities seem to view skill development very seriously. They have indicated that they expect our students to be skill proficient at graduation. Also, students are expected to continuously improve their skill performance on the job in a constantly changing business environment.

Almost 75% of U.S. organizations participating in a survey report that the link between skill training and successful performance management is “very strong” (Kirksey & Zawacki, 1994, p. 26).

In the SOBA Management Practicum course, an assessment center approach was used as one of the conceptual foundations. Such an approach provides an objective, off-the-job evaluation of developed skills, potentials, strengths, and weaknesses (Bray, 1976). The skills evaluated in an assessment center, along with leadership, include those identified as priorities by the School of Business. In an assessment center approach, an individual is placed in a decision-making, role-playing experience that simulates a desired job situation. Trained evaluators rate the observed behavior of the individual in the simulation. At the conclusion of the simulation, the evaluators provide specific performance feedback to the individual. The assessment center approach was developed
because of dissatisfaction with the success of promotion decisions and the inability of training departments to trace the effects of training on productivity.

In the proposed Management Practicum course, students participate in exercises that simulate responsibilities they will face in their first jobs after graduation. Evaluators would be responsible faculty members and their peers participating in the assessment simulation. Observers would be trained to focus on specific behaviors in each exercise and limit their observations to previously selected traits and abilities. Implicit in any evaluation are the criteria against which performance is compared. For each of the skills, acceptable performance would be defined by describing desired observable behaviors. For communication skills, criteria normally used for judging oral and written communications would be tailored to the dynamics of a simulated work situation. Using appropriate feedback techniques, students would receive an assessment of their performance at the end of each assessment center experience.

Old Dominion University has established an assessment center and built an experimental course around it. With some experimentation, they were able to adapt the assessment center concept to an academic environment. These were the specific goals of the course:

1. To inform students about the strengths and weaknesses of their critical leadership/managerial skills.
2. To improve students' observation and evaluation skills and their ability to provide information and evaluations to others.
3. To improve students' ability to evaluate themselves and accept constructive criticism and praise from others.
4. To familiarize students with the assessment center concept and its use.

The anecdotal evaluation of this experimental course was extremely positive. Student energy and involvement were.

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very high because learning involved each student personally. Also, each student could put into practice his or her accumulated cognitive learning in a simulated business or management world (McAfee & Hawryluk, 1984, p. 260).

Other successes with the assessment center concept were reported by both Hamilton Standard Commercial Aircraft Electronics Division of United Technologies and AT&T, which founded the concept. Hamilton Standard was able to recruit and retain a talented, cross-functional work force, whose certified skills cover more than fifty-two areas. Further, the teams have been effective at improving customer-acceptance rates while lowering cost (Kirksey & Zawacki, 1994). Of the college graduate management trainees at AT&T rated likely to reach middle management within ten years, some 64% had, in fact, reached middle management within eight years. Also at AT&T, 100% of sales representatives who were rated as “more than acceptable” met all the performance standards (Howard, 1983, p. 31). The widespread adaptation of the assessment center concept by American businesses is further proof of the value of the concept.

Another conceptual foundation of the Management Practicum course is portfolio assessment. Portfolios are commonly used in fine and performing arts and writing courses. The purpose of portfolios is to collect and display works that illustrate the progress of skill over time. The Management Practicum course is structured to be three one-credit modules, to be taken at the beginning, middle, and end of the upper-class portion of the business curriculum. In the context of John Dewey’s definition of education as the “cumulative movement of action toward a later result,” portfolios document students’ progress in skill development (Dewey, 1938, p. 87). Documentation and feedback from each skill activity, either from the Management Practicum or from other business courses, would become part of the students’ portfolios. The materials that might be included would be written reports, videos of presentations, evaluation sheets of team performance, case study
evaluations, computer output reports, and graded quantitative problems. The range of examples would provide a good indication of students' strengths and weaknesses in each of the skill areas. At graduation, the portfolio might well provide a creditable measure of skill performance to a prospective employer.

To measure satisfactory performance, each of the skill areas would have an objective criterion, which would be increased over the two-year period of the Management Practicum. A difficulty might occur in trying to maintain consistency in rating skill performance, particularly if ratings are increased. While all faculty will be trained in rating skill performance, the faculty member in charge of the Management Practicum will be responsible for monitoring faculty ratings. If ratings vary, the Management Practicum instructor will work with the faculty involved to correct the problem. While it may be assumed that portfolios provide a more accurate assessment of skill proficiency, this was not the primary reason for employing them in writing programs. The value of portfolios as a communication device and the training and development of faculty in grading skill performance were found to be even more valuable (Hamp-Lyons & Condon, 1993). Portfolios have proven to be a more accurate indication of skill progress than pencil and paper tests (Time, 1991). Also, portfolios encourage self-assessment because students internalize the standards and judge for themselves the quality of their work.

Besides being a resource to other faculty members in rating skill performance, the instructor in the Management Practicum can also suggest a range of skill development activities. Based upon the skill demonstrated in portfolios, the instructor can apprise all the faculty in the School of Business of the overall skill performance levels of our students. In the context of continuous improvement, the faculty can then experiment with other approaches to increase the level of skill performance.

The third conceptual foundation of the Management Practicum would be goal setting. Management by Objectives has
been a standard management tool for many years in American businesses. MBO provides performance focus and helps to set priorities. The objective-setting process, if done properly, can build commitment to the desired results and motivate the individual to achieve the objectives (Mager, 1972). In the Management Practicum course, the student would set personal goals, with the guidance of the instructor, for each of the skill areas. If overly optimistic objectives are set, failure by the student to achieve those objectives would discourage performance progress. Documented performance in the portfolio would enable students and faculty members to measure progress against the objectives. If there are problems, the instructor can work with students to get back on target. With defined performance objectives, students can monitor their own progress.

Students would prepare a development plan in each of the three modules of the Management Practicum. The development plan would spell out the courses and skill activities that students plan to undertake prior to the next module. Each skill would have a performance objective to be attained. In the next module, students and the faculty member would evaluate how well students have met the objectives. In the final module before graduation, students would prepare a development plan of post-graduate skill activities that would promote continued progress in skill development.

In summary, the Management Practicum is designed to deal with shortcomings identified in the present approaches to skill development. Students and faculty will become more cognizant of the implications of learning activities in skill development. With a more systematic approach to skill development, the School of Business Administration will attain its mission of achieving excellence in teaching.

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Apprehensions of Accounting Majors: Communications and Math

Larissa S. Kyj and Carol Welsh

Abstract
In response to the Big-8 Accounting Firms' Perspectives on Education (White Papers, 1989), the Accounting Education Change Commission Position Paper Number One (1990), and the requirement of 150 credit hours to sit for the CPA examination, many colleges and universities are redesigning their accounting curriculum and instituting changes in pedagogy. Specifically, accounting courses are being redesigned to provide the accounting student with high levels of communication, intellectual, and interpersonal skills to become successful professionals. But research in psychology has found that apprehension affects skills attainment and performance (McCroskey, 1984; Freimuth, 1976; Daly, 1978). Curriculum changes made without understanding the apprehension profile of accounting students may not result in the desired skills.

We will look at three apprehensions that should be considered when redesigning the accounting curriculum: speech, writing, and math apprehensions. Students at the sophomore, junior, and senior levels were included in the study sample to evaluate differences in the apprehension levels of these three groups.

Introduction
In preparing for the 21st century, the accounting profession and academia have undertaken an intensive reexamination of the requirements for accounting professionals. In January 1988, the American Institute of Certified Public Accountants (AICPA) voted to change its requirements for membership.
Starting with candidates for membership in 2000, the AICPA will require a minimum of 150 semester hours of study. (Currently, the standards for licensing and membership vary from state to state.) After the vote, the AICPA reexamined and reevaluated educational preparation requirements needed to begin a career as a CPA. The result of their study was a document entitled Academic Preparation to Become a Certified Public Accountant (1992). This document was intended to provide guidance and focus in the development of 150-hour programs; it cites specifically communications and mathematical (quantitative methods) analysis as areas which need improvement and reinforcement in accounting programs.

The Big-8 Accounting Firms' Perspectives on Education (White Papers, 1989), and the Accounting Education Change Commission (AECC) Position Paper Number One (1990) have also identified communication, intellectual, and interpersonal skills as necessary for the successful accounting professional.

In developing the new 150-hour programs and responding to the specifically cited skills identified by the AICPA, the White Papers, and the AECC, colleges and universities are developing programs and courses specifically targeted to provide students with increased opportunities for oral presentations, writing assignments, and critical/unstructured problem solving. However, research in communication, English, psychology, and education demonstrates that apprehension affects skills attainment and performance (Daly & Miller, 1975; Freimuth, 1976; Daly, 1978; McCroskey, 1984). Therefore, before making curriculum changes and developing new programs, educators should understand the apprehension profile of accounting students. Otherwise, new programs or curriculum changes may not result in helping students attain the desired competencies.

This paper has three parts. First, it reviews the general education areas of communication and mathematical skills identified by the accounting profession as important components of accountants' general education; it also considers student apprehensions in these areas. Next, it describes gen-
eral education skills required of accountants and defines student apprehensions in these areas. Third, it identifies instruments developed to test these apprehensions.

Accounting Profession Perspective

Members of the accounting profession revisited the educational requirements for entry into the profession for a number of reasons. First and foremost, the profession needed to respond to the many challenges of an increasingly complex world and to society’s demand for greater information. The new models for accountants were defined as broadly educated professionals, technically knowledgeable, with advanced analytical and communication skills and a greater awareness of our global society.

Members of the profession then formulated the 150-hour educational requirement to balance the need for both technical and general education to provide a strong background in communication skills, mathematics, computer science, ethics, history, and literature.

Communication and Mathematical Skills

Communication skills, both oral and written, are invaluable life skills essential for professional success. Accountants rely on these skills to perform their jobs effectively. While accounting consists of the identification, classification, accumulation, and analysis of financial information, the resulting product is of no use unless it is effectively communicated to interested users. Accountants are business professionals who are required on an everyday basis to present the results of their compilations and analyses to business associates. This requires written reports, memos, and oral presentations—both formal and informal. Therefore, communication activities play a very important role in the work of the accounting professional.

A student studying to become an accountant should acquire effective written and oral communication skills. The AICPA, in its Academic Preparation to Become a Certified Public Accountant, June 1992, states that “schools should ensure that stu-
students acquire these skills and are required to demonstrate written and oral communications." The report also speaks to the need to integrate and reinforce the communication skills learned in general education courses within the business and accounting curriculum.

Mathematics and statistics are also vital to the understanding and analysis of a wide spectrum of business and accounting issues. Accounting students need to study mathematics and statistics to develop analytical techniques to solve business and accounting problems, including those involving risk and uncertainty. In *Academic Preparation to Become a Certified Public Accountant* (1992), the AICPA addresses this component of an accountant’s education in the following manner: “students should learn to work with symbolic notation, to reduce complex problems to their essential elements, and to express the relationships between those elements in quantitative terms. The object should be conceptual understanding rather than manipulative skill.” Additionally, the report speaks to the appropriateness of incorporating the quantitative skills learned within the general business and accounting curriculum.

*Apprehensions*

Apprehension describes an individual’s feelings about engaging in situations requiring a particular skill (McCroskey, 1984). An individual’s level of apprehension has been found to be a trait that is unlikely to change without intervention (McCroskey, 1984; Richardson & Suinn, 1972; Daly & Miller, 1975). Research has found that highly apprehensive individuals tend to be less motivated to achieve (Giffin & Giffin, 1971). Studies emphasizing the identification of specific types of anxieties have found that different kinds of anxieties lead to different effects on intellectual performance (Sarason, 1957; Suinn, 1965).

Studies of apprehension have produced independent measures of three apprehensions applicable to the accounting curriculum: oral communication apprehension (OCA), writing apprehension (WA), and math apprehension (MA).
Oral Communication Apprehension

Oral communication apprehension is "an individual's level of fear or anxiety associated with either real or anticipated communication with another person or persons" (McCroskey, 1977, 1978). In early studies, the construct OCA was viewed from a trait orientation. Later work by McCroskey views the sources of the construct OCA as four points on a continuum: traitlike CA, generalized-context CA, person-group CA, and situational CA. Traitlike CA is a personality-type orientation toward a given mode of communication across context, receiver, and time. Generalized-context CA is a relatively enduring personality-type orientation towards communication in a single context. There are four contexts identified in the generalized-content CA: public speaking, speaking at meetings or in classes, speaking in small group discussions, and speaking in dyadic interactions. The other two types of apprehensions are concerned with a single receiver (or listener), and are not relevant to developing programs or changing curricula.

Researchers in OCA report that individuals with high OCA tend to avoid situations requiring oral communication skills (McCroskey, 1984), avoid small group interaction (Daly & Miller, 1975), and tend to be poor contributors in discussion groups (Richmond, 1984). Their apprehension influences their selection of occupations and majors (Daly & McCroskey, 1975). McCroskey and Anderson (1976) found that students with high OCA did not do well in interaction-oriented classes. They tended to have low self-esteem, and as a result were evaluated by group members as having low credibility and low interpersonal attraction (Quiggins, 1972).

Several preliminary studies have been conducted on OCA in accounting students (Stanga & Ladd, 1990; Simons et al., 1993). These studies report above-average levels of OCA in sophomore accounting students. Of all business majors, studies found the highest levels of OCA in accounting majors. Stanga and Ladd (1990) found that almost 20 percent of the accounting students in their study had OCA scores that signified debilitating oral communication apprehension.
Writing Apprehension

Writing apprehension (WA) relates to a person's general tendencies to avoid situations perceived to demand writing which may be evaluated by peers and/or supervisors (Daly, 1978). The construct WA has been found to be separate from a variety of other somewhat similar variables, such as trait anxiety, oral communication apprehension, and receiver anxiety (Daly & Shamo, 1978). WA has been found to be only slightly correlated with CA (McCroskey, 1984).

Daly (1978) believes that individuals with WA find writing unrewarding and therefore will avoid situations where writing is perceived as required. When they find themselves in such situations, they experience anxiety. Previous research has found that individuals with high WA select majors and occupations which they perceive as having significantly lower writing requirements. A slight inverse correlation has been noted between WA and the individual's tolerance for ambiguity (Daly & Miller, 1975). WA has also been found to be inversely but significantly related to various measures of self-concept as well as to ratings of self-competence or self-esteem (Daly, 1977; McCroskey et al., 1977).

The construct WA is related to the attainment of writing skills and competence. A negative relationship seems to exist between WA and writing competence. Daly (1978) found that the level of WA was inversely related to an individual's grammar, mechanics, and skills test scores. The level of WA affects both writing competency test scores and the quality of essays (Faigley et al., 1981). The level of WA affects the content of writing assignments, even to the number of words, the amount of qualification, and the intensity of the language (Daly, 1977). Essays written by individuals with high WA tend to be evaluated significantly lower than those written by low apprehension subjects (Daly, 1977).

The only study that involved accounting students was a study of college sophomores, which found that accounting majors had the highest level of WA of all business majors in the sample. They were, however, less apprehensive about writing
than students reported in the national norms for all majors established by Daly (1978). Fox (1980) found that this level of WA can be reduced, depending on the teaching methods used in compulsory writing courses.

**Mathematics Apprehension**

Mathematics anxiety involves feelings of tension that interfere with the manipulation of numbers and the solving of mathematical problems in both ordinary life and academic situations (Richardson & Suinn, 1972). The discomfort varies in intensity depending on the person. It may arise from feelings of helplessness in problem-solving, lack of out-of-class opportunity to practice mathematics, role conflict, or unfortunate experiences with a math teacher (Tobias, 1978). Math anxiety or "mathophobia" has been recognized in professional circles as contributing to underachievement in mathematics. From the second half of the seventies, the focus on math apprehension has included a look at the individual's psychological state rather than solely focusing on skill deficiencies.

Some studies of math anxiety have found that MA is related to levels of general anxiety (Llabre & Syarez, 1985), while other studies have found that mathematics anxiety exists among many individuals who do not ordinarily suffer from any other anxieties (Suinn, 1970; Frary & Ling, 1983). As to performance, there is again no clear consensus. Some studies have found an inverse relationship between math anxiety and performance, while others found that the level of math anxiety could not be used to predict math performance (Resnick et al., 1982; Llabre & Syarez, 1985).

No studies of MA in accounting students have been reported in the academic literature.

**Measures of Apprehension**

As a result of forty years of research, several instruments have been developed and adapted to measure these three student apprehensions. OCA is measured most often using McCroskey's (1984) Personal Report of Communication Apprehension

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(PRCA-24). The instrument measures a subject’s feelings about communicating in four settings: conversations, public speeches, meetings, and group discussions. PRCA-24 takes into consideration both traitlike and general situational orientation. Daly and Miller (1975) developed the Writing Apprehension Test (WAT), which has been used in several studies (Daly, 1977; Daly & Shamo, 1978; Bennett & Rhodes, 1988). Richardson and Suinn (1972) constructed the Mathematics Anxiety Rating Scale (MARS) to provide a measure of the anxiety associated with manipulation of numbers and the use of mathematical concepts. Plake and Parker (1982) developed an instrument to measure math anxiety in class-related situations.

Based on the above instruments, Lowe et al. (1994) developed a reduced-measure instrument that accounting educators can use to measure all three apprehensions simultaneously. They found that the psychometric properties of their measure compare favorably to the original measures with regard to internal consistency and discriminant validity. The instrument tests four dimensions of OCA: conversation apprehension, public speaking apprehension, speaking at meetings apprehension, and participating in group discussions apprehension. To measure WA, the instrument tests two dimensions: students’ perceptions regarding rewards associated with writing and students’ perceptions about how easy it is for them to write. To measure MA, the instrument tests two dimensions: apprehension towards learning mathematics and apprehension regarding preparation for and taking math examinations.

**Conclusion**

Studies targeting accounting students’ apprehensions in oral and written communication skills are limited; in mathematics, studies do not exist. Certainly, all three areas require further exploration. Understanding the basis of apprehension is necessary to remediate apprehension. The above studies identify accounting students with above-average levels of OCA (Stanga
& Ladd, 1990), and high levels of WA (Daly, 1978). As the curriculum for accounting students changes to meet professional requirements, it will not be enough merely to incorporate and enhance communication skills in the learning environment. Apprehensions associated with these skills must be addressed.

References


With a portrait of William G. Rohrer, on the occasion of the first Rohrer Lecture Series, are (from left) Rowan College President Herman James; Dean of the School of Business Steven McNeil; Linda Rohrer, Trustee of the Rohrer Foundation; and featured speaker Terrence Larsen, Chairman and CEO of CoreStates Financial Group.
About the Author

Dr. Thomas Michael has been a teacher of management and organizational behavior at Rowan since the inception of the Business Administration program in 1972. He has an A.B. from Wabash College, an M.Div. from Union Theological Seminary in New York, and a Ph.D. from Drexel University.

He has written about and consulted on human behavior in organizations for over thirty years. His most recent activities have included participation in a new approach to group therapy and group development using systems-centered theory.

Another interest is the use of dreams in groups, communities, and organizations.

He is a member of the A. K. Rice Institute, an organization which sponsors conferences and research on the psychodynamics of groups.
Social Dreaming as a Consulting Tool in Organizations

Thomas A. Michael

Abstract
A recent development in the understanding of dreaming is that individuals share common elements of dreaming about communities and organizations. I attempted to test this idea by using social dreaming sessions as part of a consultation I did with a department of a social service agency. The group was able to use the dream sessions to develop better organizational functioning.

Origins of Dream Interpretation
In Genesis, the Pharaoh of Egypt has a disquieting dream, in which seven fat cattle are devoured by seven lean cattle. It is left to Joseph to interpret the meaning of the dream. The seven fat cattle are seven years of bountiful harvest, and the seven lean cattle are seven years of drought. Joseph not only interprets the dream, but he also gives Pharaoh advice about how to deal with the impending catastrophe. Pharaoh is so impressed that he chooses Joseph as Egypt’s chief administrator—not the last time a consultant was hired to carry out his own recommendations.

Three things were clear to the children of Israel: that God had given the dream to Pharaoh, that the dream was about public matters, and that it was a prediction about the future. Until about two hundred years ago, that view of dreaming
would be the prevailing opinion in Western thought, even among the most educated. Dreams, properly understood, could supply information to the dreamer about the future, both of the individual and the community. There were, to be sure, other uses for dreams. The German chemist Kekule was able to solve the riddle of the structure of the benzene molecule by dreaming of a snake with its tail in its mouth.

Sigmund Freud changed all of that. He proposed that our dreams are more about our personal past than about the future. A dream could help us gain access to the unconscious mind, in which impulses and wishes were locked away. The source of the impulse was the libido, the source of sexuality.

Because dreams were linked with sexuality, they became private; dreams are not shared with others except under carefully controlled circumstances. Children may be encouraged to share dreams at the breakfast table, but the dreams are usually just acknowledged without interpretation.

Therefore, while psychoanalysis has studied group and organizational behavior, the dreams of individuals are usually interpreted in terms of individual dynamics. In this essay, I describe an innovation in which dreams of organizational participants may be used as a consulting tool for organizational development. Sharing dreams, associations with those dreams, and interpretations can help illuminate organizational issues and can guide groups in making changes.

Theories of Social Dreaming

The idea of a "social dream" occurred to Gordon Lawrence while leading Tavistock Group Relations Conferences in 1989. A Tavistock Conference is an event, lasting from three days to two weeks, in which participants study their here-and-now experience. Participants are assisted in this study by consultants who frame the understanding of what is taking place in terms of the psychodynamics of the group or groups. Individual behaviors are interpreted as manifestations of group structures and issues. The "topic" or primary task of the conference is to understand the dynamics of groups as they are
experienced. Individuals often find themselves confused, frightened, and amazed by what is happening. Participation is often an intense emotional experience. As might be expected, participants produce vivid dreams. These dreams often assist participants in understanding and deepening their experience of the underlying dynamics of groups.

The first social dreaming program was held in 1982 as an experiment, with weekly sessions over an eight-week period. There was a lapse of six years until Lawrence was asked to develop an experimental program for therapists and organizational consultants in Israel (Armstrong, 1994). Subsequent programs have been held in Great Britain, Germany, Finland, Ireland, and Australia.

The first American program was held under the auspices of the New York Center of the A. K. Rice Institute in 1991. The working hypothesis of all of these programs is that there is a need to move away from the “politic of salvation” and into a “politic of revelation.” Consultants, therapists, and action researchers, according to Lawrence, engage in a politic of salvation. They profess a knowledge or expertise which clients lack, and which they can furnish to clients to help them solve problems. They are able to “save” others from their tribulations, much as Joseph was able to save the Egyptians from starvation.

The politic of revelation, by contrast, allows people to interpret their own experience and “accept the surprise of their revelations,” according to 1993’s Third US Program of Social Dreaming and Life in Organizations and Communities, sponsored by the New York Center of the A. K. Rice Institute.

Lawrence was not alone in his rediscovery of the use of dreaming for social or public purposes. Psychoanalyst Montague Ullman has conducted and researched dreaming groups for several decades. He views dreaming as an “intensely private and personal experience about public matters” (Ullman & Storm, 1986). He proposes a “vigilance theory” of dreaming, which posits that dreaming occurs to alert the dreamer to sources of tension and conflict in relationships with others.
In an ethnological study of Indians in Guyana, Navet, a French sociologist, found that it is possible to examine social dimensions of dreaming using theories relevant to the cultures of the group being studied. The result is that the unconscious may be understood without recourse to psychoanalysts (1990).

Lawrence discovered a dramatic example of the social nature of dreaming in a book by Beradt, *The Third Reich in Dreams* (1989). Beradt asked physician friends to collect their patients' dreams in 1930s Nazi Germany. She was able to smuggle these records of the dreams out of Germany and compile them in a book. The dreams were categorized into about a dozen themes. (Examples are "I was Hitler's favorite" and "I stood up to the Nazis and stopped them.") The point is that people who had no knowledge of one another were found to have produced similar, and often identical, dreams about living under Nazi oppression.

Proponents of the use of social dreaming agree with Ullman that dreams can be about public matters. Dreams may give the sense of being predictions about the future, but this is more likely because they enable us to become aware of what David Armstrong, an organizational consultant at the Tavistock Institute in London, calls the "unthought known" (1994). Dreams and memories always begin as visual experiences. Moreover, recent studies suggest that these pictures are not built or stored in one place in the brain, but are continually assembled from several locations (Damasio, 1994). It is only after the "known" is constructed that we can speak of a thought in the mind. Thus, we may "know" long before we think the thought and translate that thought into words.

Freud spoke of himself as an archeologist searching through the past for shards of experience to gain meaning for the present. The approach of social dreaming is closer to the formulation of Spence in his study of the psychoanalytic process, *Narrative Truth and Historical Truth* (1982). Spence holds that the process of analysis and of dream interpretation is actually a mutual construction of a narrative by the patient and the analyst. There is no meaning as such in nature, nor is
there a narrative thread in events. Narrative and meaning are human constructions, not discoveries of a narrative inherent in
the events of history. Dreaming can be seen as one of the ways we attempt to bring a sense of meaning and order to events in
our lives.

**Applied Social Dreaming**

In “Creating New Cultures: The Contribution of Social Dreaming” (1994), I suggested that social dreaming must be a
foundation for the creation of new organizational cultures. However, I was not optimistic that leaders of organizations
would soon introduce social dreaming as part of their strategic planning. That assumption has proved to be incorrect.

Lawrence (1995) has described the use of social dreaming at a retreat for executives of a French conglomerate. Baird (1994)
showed how members of a work team could use associations and connections to their dream images to improve their work
culture and resolve some issues regarding gender, space, and authority. Hyppa (1993) has described how dreams, when used
with other methods of analysis, can offer valuable assistance in understanding organization development problems. Social
dreaming has become a part of the curriculum for training in organizational consultancy at the William Alanson White
Institute in New York.

As a result, I undertook to use social dreaming in a consultancy at a non-profit mental health agency in a mostly rural
county. The agency provides a range of services, mostly for the poor and those on public assistance. I had been working with
upper management to help prepare the organization for the introduction of total quality management and with other parts
of the organization to improve employee participation. This department had been viewed as different from other parts of
the agency, and members experienced isolation and alienation from the mainstream of the organization. They were searching
for ways to improve collaboration and cooperation with the agency.

The director of a department that deals with children and
adolescents arranged to undertake a series of social dreaming sessions in a group of seven. The group consisted of the male director, a female assistant director, and five counselors. The director, who serves as assistant director of the whole agency, is middle-aged, while all the others in the group are younger, in their late twenties to middle thirties. An additional part-time employee did not participate in the sessions.

An Example of a Social Dreaming Session

I began the first session by outlining the ideas behind social dreaming: that its purpose is to gain new information about the working of a unit, that there are no correct dream interpretations, that participants are free to make their own interpretations, that participants may voice any associations that occur to them, that a dream can be an association or interpretation of a previous dream, and that it is better to avoid self-censorship as far as possible. My role was to facilitate the group and to participate in any way I could by trying to be available for any thoughts, associations, or ideas that might help us gain meaning.

At the first session, Gina (I have changed the names of participants to insure anonymity) remarked that she usually does not remember her dreams but could recall a recent dream in which she found a $10 bill in the garbage. “It was in the trash,” she said.

The director said that he dreamed he was in a house on a hill that overlooked a valley and noticed many “ripples” in the valley. Someone in the group said that the ripples were heat lines, but the director said, “I look [at the ripples] and say ‘That’s water!’ I ran upstairs as the water swept through the valley. Then I found myself inside in the kitchen arguing with someone about how to wash dishes.” In the dream, there was the idea that the dishes must be washed.

At this point, members of the group began to pass around a package of doughnuts, and they started to eat them. I asked them about their interest in doughnuts. Did they need to be fed? My question arose out of a partially formed thought that
dream sharing was provoking anxiety and that feeding is considered a way of calming oneself.

The director then described another dream he had two weeks before. He was decorating a room, putting up ornate wood. He was involved in the task when someone walked in and said, “The room looks good, but did you see the hallway?” In the dream, the hallway was in disarray.

(The director remarked that he did not like doughnuts.)

Jan, the assistant director, interpreted the director’s dream: that the inside of the room was good, the outside, or hallway, decayed. She continued, “The view is not broad enough; you are concentrating on one area and refusing to look outside.”

Jan then recounted a dream in which she was at a carnival, and all the members of the department were there too. The carnival was set up as a maze. In her dream, Jan said she needed to go to the bathroom, and asked Nell, the part-time employee, to help her find the way, but Nell left. She also asked Marge and Gina to help find the bathroom, but they were neither helpful nor unhelpful.

At this point, Gina said, “Next time I’ll be there for you.”

Marge remarked that it felt as if Jan needed more help. She added that a bathroom at a carnival would not be one you would want to use except in an emergency. Thus, the first session reached its time limit. As is often the case, there were no clear conclusions. We were left to ponder and to await the next session.

The Second Dream Session

The second session was held two weeks later. Louis began by recounting a dream fragment in which he was playing pro baseball. He added that the dream was vague and may have been a result of watching a TV program about Hank Aaron.

Jan related a dream about her cousin, whom she described as a nerd with red hair and glasses. The cousin was in college and needed a date for the prom. He looked at a calendar and decided to ask a certain girl, very pretty, old-fashioned, with hair in ringlets. “She’s a Christian,” said Jan in the dream,
laughing. "You have to watch out for Gentiles." He said, "What's wrong with Gentiles?" Jan replied that they were a people completely isolated, in the dark, and naive. Then, in the dream, the girl came down the stairs, looking like a character in the film *Thoroughly Modern Millie*.

The director associated the dream image of an isolated and naive female Christian with Nell's role as a part-time staff member. He then related a dream which seemed to illuminate Jan's dream. He was aware of being unable to recall much, but in the dream, he revealed, someone was saying "Two, three, six," and the people in the dream put the numbers together. He added that the staff team appeared again to be separated, with one outside member (Nell) thought of as ineffective. In actuality, Nell had been excluded and isolated while the rest of the group worked as pairs and trios.

My interpretation was that the isolated member was experiencing a projective identification, in which the other members of the team projected their feelings of ineffectiveness and isolation onto her. Therefore, Nell identified with those group feelings and acted them out.

Louis commented that the department was isolated and chose to be isolated from the other departments of the organization. (It should be noted that the department was at the back of the building, physically isolated from the others).

The director then asked, "So we are Nell?" Jan added that Nell did have some connection with the group because she created the group calendar. Jan also pointed out that the group did give Nell jobs, but that Nell could not do the jobs because she made them too complex. For her, nothing was simple.

The director next said that his group used more complex organizational behavior techniques—psychodynamics, for instance—than other departments. Although the department had received six or seven commendations, he said, nobody in other parts of the organization mentioned them. He added that part of the trouble may have been because of his own behavior: he is very much involved in the overall operation of the organization.
I suggested that the problem might be about how the department had drawn boundaries between itself and the rest of the organization. I had observed that the whole organization had drawn a boundary between itself and the population it serves. It is located in woods on a country road, midway between two small cities. The buildings cannot be seen from the highway, nor is access easy for the poor, who lack transportation. I hypothesized that members of other parts of the organization may have projected their own feelings of isolation onto the department. Furthermore, it might be helpful for department members to become aware of that and to develop ways to deflect these projections.

The group laughed. They remarked about the intrusiveness of one member of the administrative staff and explained that he was one reason they were inclined to make impermeable boundaries around the department. When I asked the name of the intrusive person, they did not want to say who it was (another impermeable boundary).

Jan then commented that department members were indeed treated as if they were naive and therefore acted this way, for example, by not figuring out how to use the new telephone system. She said she would like to see the intrusive administrator spend a week in their department.

*Commentary on the Group Sessions*

Two themes that emerged from these sessions appear significant to the work of the department. The first is the struggle to maintain a clean space in which to carry out the group’s activities. The house on the hill was flooded, yet there was an argument about washing dishes. The room was decorated, yet the hallway was in disarray. There was a problem finding a decent bathroom in a maze at a carnival. Part of the struggle involved others who argued about how to clean up, or who would not help with a most basic need.

In the second session, the group developed more clearly the idea that it was isolated from the other departments in the organization. In this session, members began to make their
own associations and interpretations. An element of the department’s isolation was found to be its choice of a more complex treatment modality. One result was that others perceived this department as being unable to complete tasks. So they continue to receive commendations from outside agencies, but these are not mentioned by others in the organization. The department members may be considered naive, unable to master simple tasks like learning to use the new telephone system. The boundary the organization has erected around itself is impermeable.

As mentioned before, the mental health center is physically isolated. Because of a constricted budget, maintenance and upkeep of buildings and grounds are marginal. The staff of the center works hard, but conveys the sense that members are not appreciated by the public. Since the clientele is mainly poor, the staff struggles to maintain its self-esteem. It had been suggested that the remote location enabled the public to put the neediest out of sight, so ironically the purpose of the center could be summed up “out of mind, out of sight.”

By now, the department members and I had constructed a narrative which included a corporate sense of isolation; a lack of appreciation for quality work in shabby surroundings; and an attempt by members of the organization to project the more painful parts of the experience. Some results were the drawing of rigid boundaries around the department and the reputed inability to perform simple tasks. The laughter of the group when this interpretation was made, together with the fact that they were able to make connections with other ideas in the dreams, appears as verification that they were joining in the construction of the meaning.

Later the director said that dream work had a positive effect on the work of the department. It enabled the group to see that it was both the object of projections and that its members were projecting feelings onto others to avoid taking personally thoughts and judgments more properly understood as unconscious needs of the organization. They were also less susceptible to game playing.
Have we found the truth? We could not verify this work with conventional tests of validity. Indeed, Joseph’s interpretation of Pharaoh’s dream could have been a lucky guess.

The test of the work has to be framed in terms of the effect that the insights have on the functioning of the organization and on whether the changes in behavior can be experienced by members the way they wish.

Five months later, the director enthusiastically reported a number of changes in the department’s activities. The group defined several specific actions to improve relationships across boundaries. They prepared newsletter articles to interpret the work of the department and a welcoming letter explaining their philosophy to new clients and their families. The group identified points at which boundaries had been overridden by other parts of the agency and took steps to reestablish and maintain these boundaries. In one case, this amounted to posting signs indicating that counseling sessions were in progress.

Staff members have also undertaken to renegotiate interpersonal boundaries. They have stopped being so ready to turn the other cheek. As a department, they are clarifying their working boundaries with their young clients.

Changing organizational behavior is difficult regardless of the technique you employ. So much of the culture is hidden from the consciousness of its own inhabitants. Social dreaming appears to be one means to identify elements of the culture and to make them available for thought and reflection. We are at the beginning of an extended inquiry.

I would like to examine the effect of social dreaming on the strategic planning of an organization. Recent literature stresses the importance of a corporate vision to inform the organization’s mission. Leaders are constantly urged to create a vision. Leaders themselves often speak of their dreams for an organization, although often the employees of the organization experience themselves as participants in someone else’s nightmare. Perhaps we could dream together at Rowan.
References


Thomas R. Gibson, former Subaru President and Chief Operating Officer, addressed the Management Institute's Scholarship Dinner, fall 1987.
About This Book

We composed this book on several PowerMacs. We used ClarisWorks, Microsoft Word, and Aldus PageMaker. The text faces are Janson Text and Janson Text Italic. The cover face is Upper West Side. The dingbats are Zeal ornaments.

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