

A STUDY OF THE IMPACT OF FIELD OF STUDY
AND OTHER SELECTED VARIABLES ON
BUSINESS MAJORS' PERFORMANCE
ON THE MISSOURI COLLEGE
ENGLISH TEST

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CHAPTER I

INTRODUCTION

A subtle, yet explosive transformation is taking place presently in society--the shift from an industrial to an information society (Naisbitt, 1982). From his analysis of this transformation, Naisbitt reports that more than 60 percent of the United States (U.S.) workforce is involved in positions in which the creation, processing, and distribution of information is the job.

Management of that information represents a key concern in organizational effectiveness (Brownell, 1982); and in information-oriented positions, the life channel is communication (Naisbitt, 1982). Sophisticated information technology has revolutionized the communication process (sender, message, channel, receiver) and has opened up new information channels with wider ranges and greater sophistication. The distance between sender and receiver has decreased and the velocity of information flow has increased (Naisbitt, 1982). Data collection, processing, and retrieval--made more sophisticated by technological advances require even more effective communication skills.

Background of the Study

Increased use of the emerging technologies--word processing devices, micro and minicomputers, and integrated information processing systems--has contributed toward better communication systems. Yet the lack of adequate communication skills in business executives is a frequently heard complaint (Lesly, 1979; Rise, 1976). Executives themselves described their skills as "poor to fair" ("Executives Acknowledge Lack of Skills," 1982, p. 9).

While a lack of communication skills in business executives is well documented, a perhaps more frequently voiced concern is that little is being done by collegiate schools of business to remedy the situation. Business graduates with adequate business knowledge and technical training are being graduated from educational institutions to seek their place in the business community but they are deficient in the fundamental communication skills ("Mystery of the Business Graduate Who Can't Write," 1977). Students themselves are unconvinced of the need for mastering English skills and of the critical role that possession of these skills will have in their future success (Beam, 1981).

As society shifts from being an industrial to an information society, and becomes more and more literacy-intensive, basic reading and writing skills are needed more than ever before. The educational system, however, is turning out an increasingly inferior product. High school--even college--graduates cannot write acceptable English

(Naisbitt, 1982). The lack of critically important communication skills is one of the contributing factors in the phenomenon known as the "communication gap." The communication gap that has received much attention in recent years and has yet to be resolved to the satisfaction of all involved is the gap existing between managers of information systems and other managers within the organization (Lamb, 1980).

Statement of the Problem

The problem of this study was to determine if there were significant differences in the basic written communication skills of second-semester senior business students of various areas of major preparation in schools accredited by the American Assemblies of Collegiate Schools of Business (AACSB). Specifically, an attempt was made to determine if the following factors had an affect on the basic problem: business communication instruction, grade point average, employment status and combinations of these factors.

Purpose of the Study

The purpose of this study was to provide information that could be used to determine whether or not the well documented difficulties in general communication ability among various organizational units in business may possibly stem from the variations in basic written communication ability that employees bring with them to the job. By learning if and where differences in basic written

communication abilities may exist, individuals responsible for curriculum and course content development may more accurately decide whether to revise or retain present emphases in areas where basic writing skills are deemed vital.

Null Hypotheses

Several null hypotheses and subhypotheses were tested to determine what factors or combination of factors may have contributed to significant differences. The following null hypotheses were tested in this study:

1. There are no significant differences in the various exam scores among students in the various majors. To test this hypothesis, the following four subhypotheses were tested: There are no significant differences between the various majors in their achievement on Part I, Part II, Part III, and Total score of the exam.

2. There are no significant differences in the various exam scores between Information Processing majors and non-Information Processing majors. To test this hypothesis, four subhypotheses were tested: There are no significant differences between Information Processing majors and non-Information Processing majors in their achievement on Part I, Part II, Part III, and Total score of the exam.

3. There are no significant differences in the various exam scores among students in the various grade-point-average (GPA) categories. To test this hypothesis, four subhypotheses were tested: There are no significant

differences between students in various GPA categories and their achievement on Part I, Part II, Part III, and Total score of the exam.

4. There are no significant differences in the exam scores among "high" senior students in the various majors. To test this hypothesis, four subhypotheses were tested: There are no significant differences between "high" seniors in the various majors and achievement on Part I, Part II, Part III, and Total score of the exam.

5. There are no significant differences in the exam scores among "low" seniors students in the various majors. To test this hypothesis, four subhypotheses were tested: There are no significant differences between "low" seniors in the various majors and achievement on Part I, Part II, Part III, and Total score of the exam.

6. There are no significant differences in the various exam scores of students who have had instruction in business communication and those who have not had such instruction. To test this hypothesis, two groups of subhypotheses were tested: (a) There are no significant differences between students who have had business communication instruction and those who have not had business communication instruction and their achievement on Part I, Part II, Part III, and Total score of the exam; and (b) There are no significant differences in the Total scores of students in the various majors who have business communication instruction and those who have not had business communication instruction.

7. There are no significant differences in the Total score of students in the various majors. To test this hypothesis, three groups of subhypotheses were tested: (a) There are no significant differences in the Total scores of "high" seniors and "low" seniors in the various majors who have had business communication instruction and "high" seniors and "low" seniors in the various majors who have not had business communication instruction; (b) There are no significant differences in the Total scores of students who work full time, those who work part time, and those who are unemployed; and (c) There are no significant differences in the Total scores of "high" seniors and "low" seniors who work full time, those who work part time, and those who are unemployed.

Independent and Dependent Variables

The following independent variables were involved in the study: (1) business communication instruction; (2) major (six categories--Information Processing, Business Administration, Management, Marketing, Accounting, Finance); (3) major (two categories--Information Processing and non-Information Processing); and (4) GPA (four groups--4.0-3.6, 3.5-3.1, 3.0-2.6, 2.5-2.1).

The dependent variables were the students' scores in Part I, Part II, Part III, and Total score on the exam.

Delimitations

This study did not attempt to investigate and assess all aspects of communication ability. It concentrated only on assessing the students' understanding of and ability to apply basic English fundamentals.

Because only one aspect of communication ability was investigated, the reader should not infer that this aspect is deemed solely responsible for, or is most important in, an individual's communication ability. Rather, as Kikoski (1980) points out, this aspect of communication serves as a foundation on which related and more complex communication skills can be built.

The study was delimited to students enrolled in AACSB-accredited institutions in Texas, Oklahoma, Arkansas, and Louisiana. While all AACSB-accredited schools in this region were invited to participate, only those that indicated a willingness to participate were included in the study. Only AACSB-accredited colleges and universities were chosen because adherence to accreditation guidelines when establishing curriculum contributes to a consistency of programs and major areas of specialization. Although materials were sent to the one Oklahoma university that volunteered to participate, completed results were never returned to the researcher to be included with results from all other institutions. Therefore, only three states--Texas, Arkansas, and Louisiana--are represented in the study.

Limitations

The following limitations should be noted:

1. While identifying information supplied by participating students was presumed accurate, it is possible that they mistakenly marked an incorrect response.
2. While step-by-step instructions were provided for each testing administrator to ensure as much as possible that the testing conditions were identical, some variations in test conditions may have existed since there were many different individuals involved.
3. Students' attitudes toward their participation in a test unrelated to the course content could have affected their performance.
4. Attitudes of those who administered the test could have influenced students' attitudes which would have, in turn, affected their performance.
5. Some analyses that involved combination of factors were performed to test the subhypotheses of the study involved small groups, the size of which could affect the results of the analysis.

Definitions

American Assemblies of Collegiate Schools of Business (AACSB): A not-for-profit corporation of educational institutions, corporations, and other organizations devoted to

the promotion and improvement of higher education in business administration and management. Organized in 1916, AACSB is recognized as the sole accrediting agency specifically for baccalaureate and masters degree programs in business administration by the United States Department of Education and by the Council on Postsecondary Accreditation.

Basic Written Communication Ability: The ability to recognize and use correct grammar, punctuation, spelling; and to develop properly constructed sentences and paragraphs.

Employment Status: Employment hours of students. In this study, full time was identified by 35 or more hours per week; Variable was identified as hours varying between full and part time; Part time was identified by 20 or less hours per week.

"High" Seniors: Designation used to identify students who reported a GPA in the 4.0-3.1 range.

Information Processing Majors: A term designating a major emphasis. Synonyms may include business information/data processing, computer information systems, information systems management, management of information systems.

Information Systems (IS): The integrated network of data processing and communication methods within an organization. The name used for a degree program or major area of emphasis in business/computer data processing. Synonyms are data processing systems, information processing systems, computer information systems, business data processing systems.

"Low" Seniors: Designation used to identify students who reported a GPA in the 3.0-2.1 range.

Major Field of Study: Major emphasis of preparation within schools of business. In this study, six categories were used: Information Processing, Business Administration, Management, Marketing, Accounting, and Finance.

Student Status: Status determined based on number of hours enrolled in during current semester. Full-time status was designated by enrollment in nine hours or more; part-time status was eight hours or less.

CHAPTER II

REVIEW OF THE LITERATURE

The Importance of Communication

Numerous surveys over the past 20 years have indicated how important communication is to managers. In 1964, Harvard Business Review readers placed "ability to communicate" as the top-ranked criterion for managerial success. The American Assemblies of Collegiate Schools of Business (AACSB) surveyed personnel managers, who also ranked communication as number one in importance (Munter, 1983).

Hulbert (1982) stated that business executives and educators acknowledge the importance of effective written communication to the successful management of business enterprises. Without effective written communication, information upon which to base intelligent business decisions and productive organizational action cannot be transmitted and processed efficiently. The reliance of business on words, as instruments of human communication, continues to demand attention to the development of high-level verbal ability.

Kikoski (1980) stated that no skill is more important to a manager than the ability to communicate effectively. It is the sole means by which a manager ensures that the

tasks for which he or she is accountable are performed. Boes and Bernardi (1982) reported that of all the skills and knowledge a business person brings to a career, communication skills are the most important.

Bennett (1971) stressed how highly business executives value communication skills. One study which surveyed executives in 58 of America's largest corporations determined that all executives attributed his or her advancement to communication skills. Bennett (1971) also reported the following observation made by a vice president of a corporation:

We think it is highly desirable that a course in business communication be in all business curricula. One of the greatest weaknesses we see in the college graduates that come to us is the limitation in their ability to communicate both orally and in writing. Our supervisors find it necessary to devote considerable effort to train individuals in these skills (p. 9).

Bonner (1971) found prospective employers continue to ask for graduates who can spell, punctuate, and construct grammatical paragraphs. Executives look for quality in all business messages--reports (formal and informal), letters, and oral communication.

Brennen (1970) stated that studies of alumni attitudes indicate that they feel courses in communications have been most helpful to them in their careers--and that when they failed to take them in college, the courses are sorely missed. He added that nine out of ten executives, when asked to list three college subjects they most want their recruits to have taken in college, will include communication courses.

Mitzner and Schram (1980) observed that, based on comments from businesspersons, improvement in communication ability has not progressed much. Business continues to look for employees who can communicate both the written and spoken word more effectively and correctly.

Businesses know they have problems because many of their executives cannot communicate (Lesly, 1979). Executives themselves acknowledge their lack of skill. In a nationwide survey conducted by Communispond Inc., a New York-based personal communication firm, over 55 percent of the 200 executives surveyed described their skills as "poor to fair" ("Executives Acknowledge Lack of Skill," 1982). These executives were also critical of the business correspondence they receive characterizing it as "wordy," "unclear," and "disorganized." Nearly 75 percent said they did not learn business writing skills in high school or college. The ability to be clear and concise was the quality executives "most wanted" to acquire.

The fact that the problem of poor communication ability exists is well documented. In a recent article, Swindle (1982) quoted an officer of the B. F. Goodrich Company:

The improper use of grammar, including punctuation and spelling, is one of the biggest headaches in today's business world. We have entry level employees who have completed secondary school education and some who have even completed work for degrees at colleges and universities, who have no idea how to put a sentence together (p. 7).

Citing a study conducted by The Dartnell Corporation and reported in Personnel Update, Swindle (1982, p. 8) also

stated that the writing skills of executives are "shockingly low, indicating that schools and colleges dismally fail in teaching, with at least two-thirds of the people who pass through the education pipeline coming out unable to write a simple letter."

The Need for Communication

Hewing (1980) conducted a survey in the University of Wisconsin-Whitewater area to determine what communication tasks an employee should be prepared to perform and to determine whether business graduates are adequately prepared. Eighty-seven percent of the businesspersons felt graduates needed skill in writing management reports, 87 percent indicated they needed skills in writing business letters, and 100 percent said they needed more skill in writing memos. Survey results also indicated that beginning workers generally need improvement in mechanics.

This survey also questioned graduates as to whether their business communication course adequately prepared them to perform the tasks on their jobs and what aspects of the course should receive more emphasis or less. Over half the respondents thought that they were lacking in grammar and punctuation skills and that both areas should be taught in more detail.

Recently, a large-scale research project was conducted by AACSB. The purpose of this project was to examine new approaches to improving the usefulness and effectiveness of

the AACSB accreditation standards in fulfilling their objective of improving the quality of education among schools of business administration and management ("Accreditation Research Project," 1980). One of the findings of Phase I, according to Hickman (1983), is that the quality of students' writing skills is an area of concern, one that needs attention in schools across the nation.

In her recent article, Brownell (1982) reported that AACSB member schools received a memo from Hickman affirming the need for business graduates to show improved writing and speaking skills. The Association, in its commitment to be of assistance, sponsored an annual communication seminar where communication specialists, curriculum developers, and others met to share ideas with the ultimate goal of improving communication skills in students.

Numerous studies have been conducted to learn what the content of communication courses should be. Tesch (1982), in his article on preferred content in a business communication course, reported on various studies which have been conducted to determine content and emphases. Glassman and Farley (1979) surveyed schools accredited by and affiliated with AACSB. Top-ranking topics related to written communication included clear writing principles, word effects, and business letter writing.

In Tesch's study (1982) topics of importance included report and letter writing and English fundamentals. Stine and Skarenski (1979) surveyed business executives and

college professors. Executives listed clarity, conciseness, organization, grammar, and spelling as important skills. In addition to determining the relative importance of skills, respondents in Stine and Skarenski's study contributed comments to elaborate on the reasons for their choices. Representative and pertinent comments include (1) "concise and accurate letters and memos can avoid confusion and the resulting lost productivity" and (2) "too many employees try to impress with complex sentences, big words, and lengthy memos, forgetting that communication is the name of the game" (Stine & Skarenski, 1979, p. 17).

Stine and Skarenski's (1979) survey also demonstrated strong business executive and educator support for emphasizing mechanical correctness in the classroom. Many respondents agreed that "today's graduates are conspicuously deficient in basic rules of English" (p. 28). One respondent said

We would like to see more emphasis on the basics-- even at the expense of creativity. Students should know all about grammar, sentence structure, punctuation, spelling, and style. Yet many do not. Worse, many do not seem to understand why they should care (p. 28).

One businessperson stated that students need to be aware that entry-level jobs will be technical in the beginning but will be increasingly communicative over the next two to ten years. In key jobs, the need and ability to communicate become critical. It is frequently the deciding factor in promotion considerations.

Specific Communication Skills Needed

Hulbert (1982) reported that students' ability to communicate effectively in written English has greatly deteriorated. One aspect of effective business writing is spelling, a language skill that ranks as a high priority in need of attention in business writing courses. One reason given by Hulbert is that poor spelling causes readers to be confused. Poor spelling bespeaks carelessness, lack of consideration, and/or incompetence and can therefore have a detrimental effect on an individual's career potential.

Hulbert believed that technology and its concomitant impact on the English language are contributing factors in spelling difficulties that individuals have. To be an effective writer, one must be a good speller. Time wasted in consulting references excessively proves to be exceedingly costly.

Further, while spelling errors rarely cause complete misinterpretation of message meaning, they do impede the reader's ability to understand meaning quickly. Spelling errors also indicate that the writer lacks sufficient regard for the reader to make an effort to spell correctly. Readers find poor spelling distracting and insulting--communication with someone who feels insulted is difficult.

Hulbert also contended that poor spelling reflects negatively on the writer and the company he represents. It labels the writer as careless or ignorant. Readers notice incorrect spelling and usually judge the writer as

incompetent--or at best question the writer's overall abilities.

Poor spelling can destroy otherwise strong communication in three ways:

It can confuse facts and blur meaning or interfere with the efficient interpretation of a message.

It can distract the reader, calling his attention away from the main message thereby reducing the writer's chance of evoking desired responses.

It can ruin the communication climate (Hulbert, 1982, p. 18).

Executives readily attest that the ability to write well is one of the most basic requirements for managerial success and that poor spelling is one of the most commonly noted deficiencies in employees' written communications. Whatever the cause of students' inability to spell well, they must overcome the deficiency if they entertain hopes of succeeding in business (Hulbert, 1982).

Brown (1981) suggested that most executives cannot write well enough to pass a freshman English exam. Executive writing lacks clarity and directness; it is ambiguous, vague, weak, indirect, and pompous. Brown cited the following as reasons for the problem: (1) love of jargon, (2) fear of committing oneself in writing, and (3) lack of instruction in how to write well.

Barriers to Effective Communication

Beam (1981) acknowledged that good writing does not come easily to anyone. The skill must be developed and

refined. The key to success is practice and more practice. Glassman and Farley (1979) suggested that the reason that business school graduates cannot write well enough to satisfy their employers, despite a four-year college education, is practice. Students do very little writing. They write infrequently in college, and they do not write in their day-to-day postgraduation lives. Technology has dramatically affected the need to write.

Brown (1981) also felt that the ability to deal with language skills effectively is challenged by technology. The endless jargon associated with the computer and those who work closely with it represents a serious barrier to communication.

Brown acknowledged that writing is no snap. It takes a good deal of thought and time to organize ideas. Further, the process of writing forces executives to organize their ideas and people do not get enough practice to do the job well. Bad writing can many times be explained by examining the kinds of writing that students are expected to do. Writing courses (taken prior to communication courses for business writing) stress an entirely different approach and students are praised for developing a writing style designed to "impress" rather than "express."

In a February 1977 article in Nation's Business, "The Mystery of the Business Graduate Who Can't Write," examples of writing by college of business graduates were accompanied by comments from educators. Addressing the problem of

poor writing skills has resulted in implementation of business communication courses designed to remedy specific deficiencies. While the source of responsibility for students' poor writing skills is debatable, the National Assessment of Educational Progress attests that American students "are losing their ability to communicate through written English." Home environment is a contributing factor; but a Cornell faculty member also blames computer language distortions, which are taking the place of correct English.

Rice (1976) stated that while students do receive English instruction as part of their foundation work in virtually every college across the nation, in the vast majority of cases, the writing assignments they undertake are oriented to a "pretechnology world." This type of writing has very little to do with the type of writing employees will be expected to do on the job. They should know that "writing is the single most effective method for objectively recording and storing and sharing complex information" (p. 17).

Brown (1981) cited Bevis, English teacher at the University of British Columbia, who tries to persuade his students that a good command of English is important, that it will help them in their careers. However, he understands students' skepticism of his comments when they can look around and see all kinds of successful people who cannot write well.

Colleges and universities are receiving the brunt of

current criticism, and they in turn pass blame along to the high schools. Swindle (1982) felt that students are not getting the writing practice necessary to develop their skills. Business students may, and often do, seek assistance from others when preparing out-of-class written assignments. Further, the work is often graded on content rather than form, and many times it is graded by professors' aides who are usually unqualified to evaluate the fundamentals of writing.

In an article in the Training and Development Journal ("Education Fails to Teach Writing," 1982), writing consultant Joseph, President of International Writing Institute, was quoted as saying that the national decline of students' writing skills is amazing in view of the fact that students spend more time studying English than any other subject. Responsibility for the development of writing skills is denied by various groups of educators and assigned to others. This attitude results in more and more educators turning their back on the development of a basic skill: How to communicate in writing.

Joseph (quoted in "Education Fails to Teach Writing," 1981) stated that English teachers alone are not to blame. Educators in all subjects are notorious for over-complicated language. In all academia bad writing examples are set for students. Joseph also stated that in fairness to educators their writing is no better nor worse than business or government writing; but he feels that since they teach others, their writing should be better.

The ability to write has a major effect on the success of any business person (Beam, 1981). First of all, good writing skills are instrumental in getting a job. With competition for positions a concern for all, prospective employees do not want to place themselves at a disadvantage by being unable to communicate their competencies adequately and accurately to a potential employer.

Once on the job, good writing skills can provide early exposure to top management and "tip the scales" in favor of accelerated promotion (Beam, 1981). Once established, good writing skills continue to be invaluable as the employee writes letters of recommendation or performance appraisals on his or her employees. Subordinates who are considered to be a valuable component to a department can be recognized and compensated properly which result in their continued high quality performance (Beam, 1981).

Rice (1976) discussed the difficulties faced by organizations when newly hired employees demonstrate an inability to write. In the first place, many new employees do not believe they need this skill. Where do they get such an idea? Experiences in educational settings have contributed to that notion. Many of their educational activities have prepared them to expect a "multiple-choice world." Somehow, with the increased emphasis on technology and its pervasive effect on all positions within organizations, employees operate under the assumption that a command of fundamental English skills is a moribund requisite for career success.

Benefits of Good Communication

Savage (1982) maintained that a demand for "correct" language exists in today's complex business world. Accuracy and ease in handling verbal symbols will enhance chances of career success. Savage further indicated that the "biggest untapped source of net profits" lies in the area of written communication which should receive management attention. Waste results from the large amount of difficult, obscure, and wordy writing that slows and complicates the communication process within an organization.

Hunter (1981) reported that managers are constantly encouraged to improve their communication skills because clear communication improves productivity. Improving managerial communication is one of the best ways to increase the bottom line. Foltz (1981) supported the idea that effective communication is a component of increased organizational productivity. He reported that a Japanese businessman attributes high levels of product quality and production to good communication. Corporate managers spend a great deal of time reading and writing. Reducing that time is a challenge to productivity ("Executives Acknowledge Lack of Skills," 1982).

Beam (1981) stressed that proper development of internal communications can make the difference between working constructively to resolve organizational issues or endless dissension. Memos and letters need to be written carefully to facilitate timely resolution of day-to-day

operating problems. Good writing makes the process of resolving issues more efficient in terms of minimizing the total man-hours spent to achieve the desired goal. Efficient writing skills pay big dividends in the effective use of executive time.

Beam (1981) also acknowledged that reports and letters are the rule rather than the exception, and one sign of a well-administered organization is the prompt and correct handling of correspondence at all levels. He suggested that an additional reason for executives to be able to write well is that many times they have the responsibility to be articulate spokespersons for the business system they represent. Industry leaders recognize that writing is a method of influence that can be used to shape public opinion on issues of importance to business.

Brown (1981) felt that, in addition to Beam's reasons for good writing, executives should write well because they are supposed to be educated and because they are leaders. What they say and write is likely to carry weight.

Hayes (1983) stated that the ability to write an effective memo is a must for all managers. An executive can project an image of knowledgeable competence in a well-written memo. Benefits of this ability include (1) a way to promote a new idea, (2) an opportunity to go "on the record," and (3) a document for future reference. Hayes also suggested that memos that are direct and clear result in projecting the image of competence in the eyes of the reader.

Treese (1983) supported the idea that the lack of ability to express oneself well in writing results in a distorted or inaccurate representation of an individual's abilities. Further, that misrepresentation extends beyond inaccurate individual representation to include misleading impressions of the organization that individual represents.

Implications for Career Preparation

With the information explosion (Naisbitt, 1982), the resultant need to manage that information (Brownell, 1982), and rapid technological advances (Aulgur, 1982a), the multitude of computer-related jobs already in existence will continue to emerge and expand. Aulgur's (1982b) examination of AACSB-accredited schools to determine trends and practices pertaining to instruction for information systems revealed that schools are responding to the demand for adequate student preparation in this area. Over 80 percent of the institutions participating in Aulgur's study offered a degree program in information systems or planned to implement one in the next three years. Aulgur (1982b) further stated that the increased development of information systems programs or major areas of emphasis is a direct result of business demands for employees with computer or technical expertise as well as relevant business acumen.

The term "information processing" was defined by the Policies Commission for Business and Economic Education in a 1982 position paper (Position Paper, 1982, p. 12) as "a

collection of word and data processing equipment, procedures, software, data, and people that integrates the subsystems of the organization and provides information for the user." Information processing (IP) has become part of a total integrated communications network, which continues to advance with technology. "The benefit of IP is in the decreased length of the time from the conception of an idea until the delivery of the finished product, which is the measured productivity of an individual" (Position Paper, 1982, p. 12).

While businesses are generally satisfied with the technical competence of entry-level employees in information systems departments, they express the same concern for these employees that they express for others--the need for communication skills. In his study on long-range goals for preparing future data processing professionals, Taylor (1981) determined that an ability to communicate with other people was one of the most important skills needed for systems analysts and computer programmers for business applications. Clarification of this statement by Taylor indicated that his panel of expert respondents felt students should be learning communication skills in writing and speaking so that they can clearly define issues to nontechnical people. While the inability to communicate is a widespread problem, it may be more critical to data processing professionals because they are the link between technology and management.

In their recent article, Gilsdorf and Radar (1982, p. 24) acknowledged that the automated electronic offices and high tech telecommunications are going to make the "old pattern of manager-secretary-typewriter-letter-U.S. mail as obsolete as the pony express in a few years." More and more executives have their own terminals or work stations, thus communication between executives is faster and more direct. Information that is created, stored, and retrieved must be understandable by any and all who may access it for various uses.

Gilsdorf and Radar (1982) admitted that the need to prepare students to meet the challenges of technological change is essential. Despite the new media and its attendant effect on the communication process, there will always be a need for good writing skills. Basic language ability should be stressed more than ever because businesspersons will, of necessity, have to be able to express themselves directly, concisely, and clearly.

Aulgur (1982a) stated that many graduates in business information systems begin work as programmers. At least one programming language is required as well as other courses in the information systems area. Therefore, since the number of computer-related positions is extensive and the demand for information system personnel is at an all-time high, graduates have little difficulty getting employed. But as Stine and Skarenski's (1979) study pointed out, new employees run the risk of being overlooked for promotion and

career advancement if they do not include communication skills among their other talents.

Golen (1982) substantiated this idea when he stated that employees who have an analytical and logical mind and who can develop and maintain technical expertise in systems design, analysis, and programming contribute to the effective functioning of the data processing situation. When, however, those employees also have the ability to communicate in writing to individuals who will use the results of this expertise, they become even more invaluable to their organization.

Golen also emphasized the importance of incorporating many different written communication assignments in the data processing classroom. Some of the common types of communications that systems analysts and programmers might be required to write are feasibility reports, systems specifications, progress reports, program specifications, procedures manuals, instructions, correspondence, and articles for in-house and trade publications.

The Communication Gap

In his analysis of resolving user/systems differences, Smith (1977) stated that the need for better communication between systems and user personnel is as true now as it was long ago when the first user application system was installed. McAlister and Hallam (1980) addressed the issue of the "communication gap" between data processing and

management in terms of the basic communication model. They further commented on the barriers that affect that process, one of which has to do with an individual's command of the English language.

While the development of information-processing professionals and managerial professionals is similar in many respects, a good deal of their preparation causes differences in their perceptions. These differing perceptions, when combined with inappropriate use of English language--e.g., excessive use of technical, specialized terms or jargon--contribute to difficulties in communication.

Cowan (1975) identified "misinformation" as a culprit in the current state of affairs of many computer installations. The success of computer-related business projects rests heavily on the presentation of clear, factual information. That information has a reduced chance of being misunderstood if those involved with its creation concern themselves with basic fundamental writing principles. This idea applies to those groups or individuals who are requesting the information as well as those who are supplying it.

Golen and Montgomery (1982) discussed the role of communications in the data processing environment. As information is handled and transferred by systems analysts, programmers, managers, and users for the purpose of providing data for timely business decisions, it frequently turns out to be different from what was requested. As a result, business decisions and corporate performance can be negatively affected.

The communication process--sender, message, receiver--in the data processing environment is often impaired because of the technical nature of the field. Data processing professionals are often blinded by the technical nature of their work. Written communications or narrative pertaining to systems can be camouflaged with the jargon of data processing language (Golen & Montgomery, 1982).

Lamb (1980) asserted that since earliest days of the computer, communications problems have existed. If progress in correcting these problems is to be made, there must be a genuine desire for improvement by all concerned. One impediment seems to be that communication skills, when not used, get rusty. Further difficulty with proper word choice compounds the problem. Somehow the idea has developed that the more words used and the more elegant they sound, the more educated the writer (or speaker) will be perceived. In businesses where the amount of available information is continually increasing, it should be understood that excesses are unnecessary, expensive, and distracting.

In addition, Lamb (1980) addressed the problem of jargon (as have others) by stating that many times specialized terminology is adopted by other groups of people and new shades of meanings are attached. Soon, instead of serving as a convenient method of communicating between members of the same group, jargon becomes more imprecise and adds to the confusion.

Gand (1982) supported the idea that the gap existing

between MIS and the business community they serve can at least partly be explained by the imbalance of technical expertise to sound managerial principles. He further contended that the academic community produces information processing personnel "steeped in technical skills, jargon, and the latest innovations but woefully lacking in business perspective, managerial principles, and user empathy" (Gand, 1982, p. 180).

McLamore (1979) affirmed that good communication between computer people, who know how to make the computer do things, and users, who know what things need to be done, is a prerequisite to satisfactory utilization of computing resources. A "knowledge gap" may exist between these two groups, which results in incomplete information being exchanged and faulty assumptions being made about what each group knows. Further complicating this knowledge gap is the inadequate attention paid to proper use of language skills.

Kintisch and Weisbord (1977) suggested that the difference between computer people and users is a result of a "cultural gap" and that one of the contributing factors to the gap is language. Collaboration between computer people and management is rarely as effective as it could be because they often do not understand each other's roles and needs. Business schools, increasingly sensitive to the gap between computer specialists and users, are producing graduates who can understand both worlds.

Price (1982) discussed the necessity of the MIS

executive to have not only knowledge of computer systems but also general business acumen. One reason is that top management continues to seek employees capable of handling the increasingly sophisticated computer technology. At the same time these employees are expected to have an understanding of the various business functions within the organization. The change in expectations for MIS individuals who wish to have the opportunity for upward career mobility will include a need to have diverse corporate experience.

Price also analyzed the internal organizational conflict between MIS and other departments. Much of this conflict is centered on lack of communication between the groups.

In a 1982 Datamation article, "I'm Learning as Fast as I Can," it was learned that MIS executives are aware of the increasing pressures being placed on them to be experts in two areas--technical and managerial. The information explosion and its resultant effects of the business community present MIS executives with multiple concerns. Since MIS executives are becoming more closely allied with top management, the possession and development of managerial skills are becoming increasingly important. Many positions now demand both technological and managerial skills. The problem faced is that in many organizations top management views the MIS manager as a "technocrat" when in fact his or her management skills have more to do with his or her survival.

CHAPTER III

DESIGN AND PROCEDURES

In an attempt to discern whether differences in written communications skills existed among students majoring in the different areas of business specialization, the researcher planned to administer a comprehensive communication test. Literature review had indicated that successful written communication skill required a mastery of basic English skills; a sound understanding of concepts of style, tone, attitude, and arrangement; and the ability to apply this mastery and understanding in specific writing situations.

In order to select the most appropriate instrument, letters were sent to several communication authorities. See Appendix A for a copy of the letter. These authorities included Dr. David Bateman, Southern Illinois University, Carbondale, Illinois; Dr. Malra Treece, Memphis State University, Memphis, Tennessee; Dr. Steven Golen, Louisiana State University, Baton Rouge, Louisiana; Dr. Philip Lewis, Abilene Christian University, Abilene, Texas; Dr. Lorraine Krajewski, Northern Illinois University, De Kalb, Illinois; Dr. Gloria Wilson, Arizona State University, Tempe, Arizona; and Dr. Mary Munter, Stanford University, Palo Alto, California.

While awaiting replies from these authorities, other writers in the business communication field, including faculty members at Oklahoma State University (O.S.U.) and Southwest Missouri State University (S.M.S.U.) were contacted. Test center files at both universities were searched in an attempt to locate professionally developed materials which could be used to measure students' abilities.

Four of the communication authorities who replied--Dr. Treece, Dr. Lewis, Dr. Golen, and Dr. Munter--reported that to their knowledge, there was no known instrument presently in existence that would test all three areas of communication expertise (English fundamentals, theoretical knowledge, and writing skills). O.S.U. and S.M.S.U. communication faculty opinion concurred with authority opinion that professionally prepared materials were nonexistent and that each area would require separate investigation.

It was then decided that an examination of the three major communication areas would be conducted separately. Since an abundance of the literature reinforced the idea that a mastery of English fundamental skills is essential to further development of the communication skills, it was decided that this study would be concerned with investigating that one area.

An investigation was then conducted to locate an instrument that would accurately assess a student's ability

to handle English fundamentals.* The Missouri College English Test which is divided into three parts--Part I (60 items), fundamentals of capitalization, grammar, spelling, and punctuation; Part II (10 items), proper arrangement of words in a sentence to express an idea in a clear and understandable way; and Part III (20 items), proper arrangement of sentences in a paragraph to demonstrate logical arrangement of ideas.

The Missouri College English Test, developed and validated at the University of Missouri in Columbia, Missouri, is a 90-item proficiency test designed to yield data about the level of student achievement in the aspects of writing proficiency. In its development, the test was normed on college freshmen; however, reviewers Carroll and Derrick (1972) recommended the use of the test to measure what this one is designed to measure--mechanics and effectiveness of written expression.

The test items selected are those which best conformed to the specifications which the authors considered desirable for an objective test of writing proficiency. The test comprises items considered by competent judges to be valid measures of specific skills and abilities. Reliability coefficients derived from the scores of the various norming

*Since this study was attempting to determine if differences existed in the mean scores achieved on a standardized test of basic written communication skills, the Missouri College English Test appeared to be the most appropriate instrument.

groups were reported by the publisher as .94. The length of this timed test (40 minutes) was such that it could easily be completed within a normal college class period.

Because of the wide differences in general education and specific major requirements in colleges and universities across the country, it was decided that in order to minimize these differences as much as possible, AACSB-member schools offering undergraduate degrees in business administration would be included in the study. Deans of all the schools of business in Arkansas, Louisiana, Oklahoma, and Texas were contacted by letter. A copy of the letter can be found in Appendix A. The purpose and nature of the study were explained and participation was invited. The time during which the testing should take place was included so that responses could be prepared based on whether that period was acceptable. The deans were asked to select randomly individuals who were in charge of senior-level courses, typically offered in such a sequence pattern that a majority of second-semester senior students were enrolled. A suggested course was included (Business Policies or its equivalent) because it exemplified the type of course in which a random student mix could be found.

Letters were sent to 28 schools and 17 replies were received. Of the 17 replies received, 13 indicated a willingness to participate. Respondents from three of the four schools who declined to participate indicated the reason for nonparticipation was not disinterest in the project, but rather a conflict with testing and/or major class activities

taking place at their respective schools at the same time. These schools indicated that they were very much interested in the outcome of the study; and although they could not participate, they would like to see the results. Some of the schools volunteered to have the test administered under the direction of an appropriate professor in one class; some volunteered several classes under one professor; some volunteered several classes under multiple professors.

Names and addresses of the cooperating test administrators were returned on the reply forms along with the name of the course in which the test would be administered, the number of students to be tested, and the date(s) on which testing would take place. A copy of the reply form can be found in Appendix B. A testing schedule was developed and test materials were ordered. In addition to the test booklet and answer sheet for each student, a brief questionnaire was stapled to each answer sheet to elicit information about each student. Information deemed appropriate for the study included major area of preparation, enrollement status in a business communication course (or its equivalent), employment status (full time, part time, or variable), student status (full time or part time), student classification, expected graduation date, grade point average, age, and sex.

Students were not asked to identify themselves in any way. Answer sheets were coded in such a way so as to record the number of students from an individual school and to coordinate the responses on the answer sheet with the identifying information on the questionnaire.

In addition to the test materials, each testing administrator was provided a detailed instruction sheet for administering the exam. A copy of this sheet can be found in Appendix B. A step-by-step procedures sheet covered such items as steps to be taken by the administrator prior to giving the exam (familiarizing himself with the instruction so he could answer any questions students might have, explaining the directions to the students, reminding students to bring pencils) and steps to be taken at exam time (distributing the materials in proper sequence, going over the directions, collecting the materials, timing the test for exactly 40 minutes).

All test materials were counted and packaged and prepared for mailing according to the scheduled dates supplied by the cooperating test administrators. Care was taken to ensure that materials would be received by each school four to six days prior to the scheduled test date(s).

In the accompanying letter sent with the test materials, each administrator was thanked for participating and reminded of the procedures. A copy of this sheet can be found in Appendix A. A large, pre-stamped padded mailer was provided for the safe return of all test materials.

After the scheduled test dates, materials were sent back as requested, with the exception of one school, Oklahoma State University. Despite a follow-up letter requesting the materials, nothing was returned. Upon receiving the answer sheets, a record was kept as to number of students actually tested as contrasted to the number

scheduled. In all cases, the number actually tested was lower by as few as six to as high as 130. Most administrators attributed the differences to absenteeism (in the cases involving low numbers) or inability to test a class as planned because of time shortage (in the cases involving large numbers) (see Table I).

As soon as the answer sheets were received, the test booklets were counted, segregated, and filed. The answer sheets were hand scored by one individual, checked, and rechecked by another individual. The number of correct responses was recorded by sections I, II, and III, and Total.

All available information about each student was then entered into the computer. A FORTRAN program was developed to verify the accuracy of the entries. After all entries were made, the verifying program was run to search for incorrect or missing data.

Following the computer-assisted verification of data, a second verification was conducted to check data entry for errors that would not be revealed through the FORTRAN program.

A student's major area of study was checked closely to avoid having unnecessary misrepresentation. For example, each major category was listed by broad terminology to allow students to record their major appropriately. In several cases a student chose to respond in the "Other" category by listing a special area of emphasis which, upon inspection,

TABLE I
STUDENTS SCHEDULED FOR TESTING AND ACTUALLY TESTED

| School | Scheduled Tested | Actually Tested | Tests Used |
|--|---------------------|--------------------|---------------|
| Arkansas, University of, at Fayetteville | 110 | 63 | |
| Arkansas, University of, at Little Rock | 21 | 18 | 13 |
| Arkansas State University | 67 | 62 | 29 |
| Louisiana State University | 30 | 25 | 24 |
| Loyola University | 75 | 56 | 19 |
| Nicholls State | 92 | 80 | 72 |
| North Texas State University | 130 | 96 | 88 |
| Northeast Louisiana State | 44 | 40 | 40 |
| Oklahoma State University | 80 | 0 | 0 |
| Texas Christian University | 140 | 15 | 15 |
| Texas Southern University | 30 | 15 | 0 |
| Texas Tech University | 400 | 229 | 16 |
| Texas, University of, at San Antonio | 36 | 27 | 27 |

could be repositioned within the broad category. There were several double majors which were placed in a separate category. Some were double business majors; some were business majors combined with a non-business major; others were single non-business majors, or majors with a small number represented.

CHAPTER IV

ANALYSIS OF DATA

In order to test the hypotheses and subhypotheses of this study, a Statistical Analysis System (SAS) program was selected to perform an analysis of variance (ANOVA) on the gathered data. The questionnaire attached to each student's answer sheet provided information about the student's major, enrollment status in a business communication course (or its equivalent), student status, classification, employment status, age, grade point average, and sex.

Preliminary Information

The total number of students participating in the entire testing program was 756. Since each class that was tested contained a mixture of students that was not pre-arranged, the first procedure used on the entire data set was a sort procedure to select only those students who had classified themselves as second-semester or graduating seniors. The questionnaire provided a space for each student to mark his expected graduation date so that a cross-check could be made. This procedure resulted in a group of 444 students upon which the specific analyses would

be performed. The number of students within each major grouping is presented in Table II.

Students in the "Other" category specified their area of specialty. If the researcher determined that a particular specialty could logically be grouped within the first six categories, it was recoded in the original data base. If appropriate placement could not be assessed, if students indicated a double major, or if the major obviously did not fit within the six broad categories, the major remained in the "Other" category. A detailed listing of those majors that remained in the "Other" category is presented in Table III.

Because of the wide variety of specializations represented in the "Other" category and the relatively few students within each area, the decision was made to run all ANOVAs with only the six pre-established major categories. By eliminating group seven, the number of students included in the study was reduced from 444 to 403.

In order to determine the number of students in each of the six major categories in combination with other information gathered from each student, several frequency analyses were performed. Results of these analyses are presented in the tables that follow.

Table IV shows that 306 of the 403 students, or 75.9 percent, were in the age range of 21-23.

Table V shows that 163 or 40.6 percent of the students reported GPAs in the 4.0-3.1 range while 238 or 59.3 percent reported GPAs in the 3.0-2.1 range.

TABLE II
NUMBER OF MAJORS WITHIN EACH
MAJOR GROUPING

| Major/Abbreviation | Number |
|----------------------------|--------|
| Information Processing/IP | 34 |
| Business Administration/BA | 40 |
| Management/MGT | 62 |
| Marketing/MKT | 89 |
| Accounting/ACCT | 139 |
| Finance/FIN | 39 |
| Other | 41 |

TABLE III
 "OTHER" MAJORS AND NUMBER OF
 STUDENTS IN EACH

| Major | Number |
|--------------------------------------|----------|
| Accounting/Administrative Management | 1 |
| Accounting/Finance | 1 |
| Business Administration/Finance | 1 |
| Business Education | 6 |
| Computer Science (Engineering) | 1 |
| Fashion Marketing | 1 |
| General Business | 3 |
| Insurance | 2 |
| International Business | 2 |
| Management/Marketing | 3 |
| Management/Public Administration | 1 |
| Noncommercial Telecommunication | 1 |
| Nutrition | 2 |
| Petroleum Land Management | 1 |
| Pre Law | 1 |
| Real Estate | 5 |
| Real Estate/Finance | 2 |
| Real Estate/Marketing | 1 |
| Secretarial Administration | 4 |
| Speech Communication | 1 |
| Unidentified | <u>1</u> |
| Total | 41 |

TABLE IV
NUMBER OF STUDENTS IN EACH MAJOR BY AGE GROUPING

| Major | Age Grouping | | | | | Total |
|-------------|--------------|-----------|----------|----------|----------|-----------|
| | 18-20 | 21-23 | 24-26 | 27-35 | 36+ | |
| IP | 1 | 20 | 7 | 4 | 2 | 34 |
| BA | 0 | 33 | 4 | 3 | 0 | 40 |
| MGT | 0 | 43 | 11 | 8 | 0 | 62 |
| MKT* | 1 | 79 | 4 | 2 | 2 | 89 |
| ACCT* | 2 | 101 | 11 | 20 | 4 | 139 |
| <u>FIN*</u> | <u>0</u> | <u>30</u> | <u>5</u> | <u>2</u> | <u>1</u> | <u>39</u> |
| Totals | 4 | 306 | 42 | 39 | 9 | 403 |

*3 students did not report age.

TABLE V
NUMBER OF STUDENTS IN EACH MAJOR BY GPA

| Major | GPA | | | |
|-------------|----------|-----------|-----------|----------|
| | 4.0-3.6 | 3.5-3.1 | 3.0-2.6 | 2.5-2.1 |
| IP | 4 | 11 | 14 | 5 |
| BA | 1 | 12 | 18 | 9 |
| MGT | 5 | 8 | 32 | 28 |
| MKT* | 3 | 17 | 41 | 27 |
| ACCT | 32 | 53 | 41 | 13 |
| <u>FIN*</u> | <u>4</u> | <u>13</u> | <u>14</u> | <u>7</u> |
| Totals | 49 | 114 | 149 | 89 |

*2 students did not report GPA.

Table VI shows that 136 or 34 percent of the students were employed full time or worked variable hours, 115 or 28.5 percent were employed part time, and 149 or 37 percent were unemployed.

Table VII indicates that 385 or 95.5 percent of the students were full-time students.

Table VIII shows that 209 or 51.9 percent of the students were male while 192 or 47.6 percent were female.

Table IX shows that 321 or 79.6 percent of the students had taken a business communication course or its equivalent, while 80 or 19.9 percent had not.

Hypotheses of the Study

The following null hypotheses were tested in this study:

1. There are no significant differences in the various exam scores among students in the various majors. To test this hypothesis, four subhypotheses were tested: There are no significant differences between the various majors in their achievement on Part I, Part II, Part III, and Total score of the exam.
2. There are no significant differences in the various exam scores between Information Processing majors and non-Information Processing majors. To test this hypothesis, four subhypotheses were tested: There are no significant differences between Information Processing majors and non-Information Processing majors in their achievement on Part I, Part II, Part III, and Total score of the exam.

TABLE VI
NUMBER OF STUDENTS IN EACH MAJOR BY EMPLOYMENT INFORMATION

| Major | Type of Employment Status | | | |
|------------|---------------------------|----------|-----------|------------|
| | Full Time | Variable | Part Time | Unemployed |
| IP | 5 | 4 | 14 | 11 |
| BA | 6 | 9 | 8 | 17 |
| MGT | 7 | 22 | 17 | 16 |
| MKT* | 13 | 17 | 23 | 34 |
| ACCT* | 14 | 27 | 40 | 57 |
| <u>FIN</u> | <u>5</u> | <u>7</u> | <u>13</u> | <u>14</u> |
| Totals | 50 | 86 | 115 | 149 |

*3 students did not report employment information.

TABLE VII
STUDENT STATUS IN EACH MAJOR

| Major | Full Time | Part Time | No Information |
|--------|-----------|-----------|----------------|
| IP | 31 | 2 | 1 |
| BA | 37 | 1 | 2 |
| MGT | 59 | 3 | 0 |
| MKT | 86 | 1 | 2 |
| ACCT | 134 | 3 | 2 |
| FIN | <u>38</u> | <u>0</u> | <u>1</u> |
| Totals | 385 | 10 | 8 |

TABLE VIII
MALES AND FEMALES IN EACH MAJOR GROUP

| Major | Male | Female |
|--------|-----------|-----------|
| IP | 15 | 19 |
| BA | 28 | 12 |
| MGT | 38 | 24 |
| MKT | 38 | 50 |
| ACCT | 64 | 75 |
| FIN | <u>26</u> | <u>12</u> |
| Totals | 209 | 192 |

TABLE IX
NUMBER OF STUDENTS BY MAJOR WITH BUSINESS
COMMUNICATION INSTRUCTION

| Major | With Instruction | Without Instruction |
|--------|------------------|---------------------|
| IP | 26 | 8 |
| BA | 35 | 5 |
| MGT | 58 | 4 |
| MKT* | 80 | 9 |
| ACCT | 89 | 48 |
| FIN* | <u>33</u> | <u>6</u> |
| Totals | 321 | 80 |

*2 students did not report information.

3. There are no significant differences in the various exam scores among students in various grade-point-average (GPA) categories. To test this hypothesis, four subhypotheses were tested: There are no significant differences between students in various GPA categories in their achievement on Part I, Part II, Part III, and Total score of the exam.

4. There are no significant differences in the exam scores among "high" seniors in the various majors. To test this hypothesis, four subhypotheses were tested: There are no significant differences between "high" seniors in the various majors in their achievement on Part I, Part II, Part III, and Total score of the exam.

5. There are no significant differences in the exam scores among "low" seniors in the various majors. To test this hypothesis, four subhypotheses were tested: There are no significant differences between "low" seniors in the various majors in their achievement on Part I, Part II, Part III, and Total score of the exam.

6. There are no significant differences in the various exam scores of students who have had business communication instruction and those who have not had such instruction. To test this hypothesis, the following subhypotheses were tested: (a) There are no significant differences between students who have had business communication instruction and those who have not had such instruction in their achievement on Part I, Part II, Part III, and Total score of the exam;

(b) There are no significant differences in the Total scores of students in the various majors who have had business communication instruction and those who have not had such instruction.

7. There are no significant differences in the Total score of students in the various majors. To test this hypothesis, the following subhypotheses were stated: (a) There are no significant differences in the Total scores of "high" and "low" seniors in the various majors who have had business communication instruction and "high" and "low" seniors in the various majors who have not had business communication instruction. (b) There are no significant differences in the Total scores of students who worked full time, those who worked part time, and those who were unemployed. (c) There are no significant differences in the Total scores of "high" and "low" seniors who worked full time, those who worked part time, and those who were unemployed.

Analysis of Relationship Between Major and Exam Score

The first analysis to be performed was a one-way ANOVA to test the hypothesis that there were no differences in the mean scores among students in the various majors. To test this hypothesis, four subhypotheses were tested: There were no significant differences between the various majors in their achievement on Part I, Part II, Part III, and Total score on the exam. The independent variable was major

(Information Processing, Business Administration, Management, Marketing, Accounting, Finance). The dependent variable was number of correct responses in each exam part (Part I, Part II, Part III) and Total score. An examination of Table X indicates that there are significant differences among the mean scores in Part I and Total score, but no significant differences in Parts II and III.

On the basis of the information presented in Table X, the first subhypothesis of this analysis--that there were no differences in the mean scores of students in the six major areas for Part I of the exam--was rejected.

Scheffe post-hoc analysis was then performed to determine where the differences lay. The analysis revealed that the mean score for Accounting majors was significantly higher than the mean score of both Management and Marketing majors. Results of statistical comparisons between means can be found in Table XXVII of Appendix C. Table XI presents the mean scores for Part I by major.

Table XI shows Accounting majors had a mean score of 38 in Part I, while Management and Marketing majors both had a mean score of 33. Information Processing, Business Administration, and Finance majors had mean scores higher than Management and Marketing majors, but not significantly higher.

The second and third subhypotheses--that there were no differences in the mean scores of students in the six major areas in Parts II and III--were not rejected (see Table X).

TABLE X
ANOVA RESULTS OF IMPACT OF MAJOR ON CORRECT RESPONSES

| Exam Section | Degrees of Freedom | Calculated F Value |
|--------------|--------------------|--------------------|
| Part I | 5, 397 | 5.20* |
| Part II | 5, 397 | 1.81 |
| Part III | 5, 397 | 2.64 |
| Total Score | 5, 397 | 5.51* |

*Significant at .05 level.

TABLE XI
MEAN SCORES FOR PART I BY MAJOR

| Major | Mean |
|-------|------|
| IP | 34 |
| BA | 34 |
| MGT | 33 |
| MKT | 33 |
| ACCT | 38 |
| FIN | 35 |

The fourth subhypothesis--that there were no differences in the mean scores of students in the six major areas for Total score--was rejected.

Scheffe post-hoc analysis was performed to determine where the differences lay. The analysis revealed that the mean score for Accounting majors was significantly higher than the mean score of both Management and Marketing majors. Results of statistical comparisons between means can be found in Table XXVIII of Appendix C. Table XII presents the mean scores for Total score by major and also presents the range of scores by major.

Table XII shows that Accounting majors had a mean score of 58 while Management majors had a mean score of 51 and Marketing majors had a mean score of 50. Information Processing and Finance majors, with mean score of 53, and Business Administrative majors, with a mean score of 54, scored higher than Management and Marketing majors and lower than Accounting majors but the differences were not significant.

Nonsignificant differences were observed between Information Processing majors and any other specific major when examined on an individual-major basis. To determine if differences existed between Information Processing majors and all other majors when combined as one group, the major data were reclassified and recorded. All information Processing majors were placed in one category and all other were placed in a second category. A one-way ANOVA was then performed to test hypothesis that there are no differences

TABLE XII
MEANS AND RANGE OF SCORES BY MAJOR

| Major | Mean for Total Score | Total Range | |
|-------|-------------------------|-------------|------|
| | | Low | High |
| IP | 53 | 30 | 76 |
| BA | 54 | 33 | 78 |
| MGT | 51 | 24 | 76 |
| MKT | 50 | 14 | 75 |
| ACCT | 58 | 27 | 82 |
| FIN | 53 | 18 | 75 |

in the mean scores between Information Processing majors and non-Information Processing majors. To test this hypothesis, four subhypotheses were tested: There are no significant differences between Information Processing majors and non-Information Processing majors in their achievement on Part I, Part II, Part III, and Total score of the exam. The independent variable was major (Information Processing and non-Information Processing major) and the dependent variable was number of correct responses on each exam part and the Total score.

An examination of Table XIII presents the results of this analysis, which revealed no significant differences in the mean scores on any of the exam parts or in the Total score.

On the basis of the information presented in Table XIII, all four hypotheses--that there were no differences in the mean scores between Information Processing and non-Information Processing majors in Parts I, II, and III and total score--were not rejected. Actual means are in Table XXXIV in Appendix D.

Analysis of Relationship Between GPA and Exam Scores

The following two assumptions were considered in making the decision to use student-reported GPA scores as an indicator of intellectual ability: that students involved in the testing program reported their averages accurately and that GPA and overall intelligence level had a positive correlation.

TABLE XIII
ANOVA RESULTS OF INFORMATION PROCESSING VERSUS
NON-INFORMATION PROCESSING ON
CORRECT RESPONSES

| Exam Section | Degrees of Freedom | Calculated F Value |
|--------------|--------------------|--------------------|
| Part I | 1,401 | 0.86 |
| Part II | 1,401 | 1.67 |
| Part III | 1,401 | 0.14 |
| Total Score | 1,401 | 0.40 |

Note: None of the calculated F values were significant at the .05 level.

Using the entire data base across major lines, a one-way ANOVA was performed to test the hypothesis that there are no differences in the various exam scores among students in the various GPA categories. To test this hypothesis, four subhypotheses were tested: There are no significant differences between students in the various GPA groups in their achievement on Part I, Part II, Part III, and Total score of the exam. GPA was the independent variable (4.0-3.6, 3.5-3.1, 3.0-2.6, and 2.5-2.1), and the number of correct responses on each exam part and the total score was the dependent variable. An examination of Table XIV indicates that there were significant differences in the mean scores of all three parts of the exam and the Total score.

On the basis of the information presented in Table XIV, all four subhypotheses--that there were no differences in the mean scores of students in the various GPA categories in their achievement on Part I, Part II, Part III, and Total score--were rejected.

Scheffe post-hoc analyses were then performed to determine where the differences lay. Post-hoc analysis for Part I revealed that the mean score for the 4.0-3.6 group was significantly higher than the mean scores of the 3.5-3.1 group, the 3.0-2.6 group, and the 2.5-2.1 group. It also revealed that the mean score of the 3.5-3.1 group was significantly higher than the mean scores of both the 3.0-2.6 and the 2.5-2.1 groups. The mean score of the 3.0-2.6 group was also higher than the mean score of the 2.5-2.1 group,

TABLE XIV
ANOVA RESULTS OF IMPACT OF GPA ON CORRECT RESPONSES

| Exam Section | Degrees of Freedom | Calculated F Value |
|--------------|--------------------|--------------------|
| Part I | 3, 397 | 33.51* |
| Part II | 3, 397 | 12.10* |
| Part III | 3, 397 | 6.26* |
| Total Score | 3, 397 | 30.82* |

*Significant at .05 level.

but not significantly so. Results of the statistical comparisons between means can be found in Table XXIX of Appendix C. Actual means are found in Table XV.

Post-hoc analysis for Part II revealed that the mean score of the 4.0-3.6 group was higher than the mean score of the 3.5-3.1 group, but not significantly so. The mean score for the 4.0-3.6 group was, however, significantly higher than the mean scores of the 3.0-2.6 and 2.5-2.1 groups. The mean score of the 3.5-3.1 group was significantly higher than the mean scores of the 3.0-2.6 and 2.5-2.1 groups. The mean scores of the 3.0-2.6 group was higher than the mean score of the 2.5-2.1 group, but not significantly so. Results of the statistical comparisons between means can be found in Table XXX of Appendix C. Actual means are found in Table XV.

Post-hoc analysis for Part III revealed that the mean score of the 4.0-3.6 group was higher than the mean score of the 3.5-3.1 group, but not significantly so. The mean score of the 4.0-3.6 group was, however, significantly higher than the mean scores of the 3.0-2.6 and 2.5-2.1 groups. The mean score of the 3.5-3.1 was higher than the mean scores of the 3.0-2.6 and 2.5-2.1 groups, but not significantly so. The mean score of the 3.0-2.6 was higher than the mean score of the 2.5-2.1 group, but not significantly so. Results of the statistical comparisons between means can be found in Table XXXI of Appendix C. Actual means are found in Table XV.

Post-hoc analysis for Total score indicated that the mean score of the 4.0-3.6 group was significantly higher

TABLE XV
MEAN SCORES BY GPA GROUPING FOR EXAM
PARTS AND TOTAL SCORE

| GPA | Part I | Part II | Part III | Total Score |
|---------|--------|---------|----------|-------------|
| 4.0-3.6 | 43.0 | 7.2 | 15.7 | 65.96 |
| 3.5-3.1 | 38.1 | 6.5 | 13.3 | 57.95 |
| 3.0-2.6 | 33.8 | 5.8 | 12.7 | 52.25 |
| 2.5-2.1 | 31.1 | 5.3 | 11.2 | 47.58 |

than the mean scores of the 3.5-3.1, 3.0-2.6, and 2.5-2.1 groups. The mean score of 3.5-3.1 group was significantly higher than the 3.0-2.6 and 2.5-2.1 groups. The mean score of the 3.0-2.6 was significantly higher than the mean score of the 2.5-2.1 group. Results of the statistical comparisons between means can be found in Table XXXII of Appendix C. Actual means are found in Table XV.

Table XV shows that the mean scores for students in each GPA level were higher on each exam part and for the Total score than the scores in the level below it.

Because of the significant differences found in the previous analyses, the decision was made to regroup the data for additional examination. Students in the first two GPA groups (4.0-3.6 and 3.5-3.1) were combined and designated "high" seniors, and students in the second two GPA groups (3.0-2.6 and 2.5) were combined and designated as "low" seniors.

A one-way ANOVA was performed to test the hypothesis that there are no differences in the mean scores of the "high" seniors in each major area. To test this hypothesis, four subhypotheses were tested: There are no significant differences between "high" seniors in the various majors in their achievement on Part I, Part II, Part III, and Total score of the exam. The independent variable was major (all six categories) and the dependent variable was correct responses on each exam part and Total score. An examination of Table XVI indicates that there are no significant differences among the mean scores on any exam part or for the total score.

TABLE XVI
ANOVA RESULTS OF IMPACT OF MAJOR ON CORRECT
RESPONSES BY "HIGH" SENIORS

| Exam Section | Degrees of Freedom | Calculated F Values |
|--------------|--------------------|---------------------|
| Part I | 5,157 | 1.00 |
| Part II | 5,157 | 0.31 |
| Part III | 5,157 | 1.09 |
| Total Score | 5,157 | 0.58 |

Note: None of the calculated F values were significant at the .05 level.

On the basis of the information presented in Table XVI, all four subhypotheses--that there are no differences in the mean scores of "high" seniors in the various majors in their achievement on Part I, Part II, Part III, and Total score--were not rejected. Actual means are in Table XXXV in Appendix D.

A one-way ANOVA was then performed to test the hypotheses that there are no differences in the mean scores of the "low" seniors in each major area. To test this hypotheses, four subhypotheses were tested: There are no significant differences between "low" seniors in the various majors in their achievement on Part I, Part II, Part III, and Total score of the exam. The independent variable was major (all six categories) and the dependent variable was correct responses on each exam part and Total score.

An examination of Table XVII indicates that there are no significant differences among the mean scores for any exam part or for the Total score.

On the basis of the information presented in Table XVII, all four subhypotheses--that there are no differences in the mean scores of "low" seniors in the various majors in their achievement on Part I, Part II, Part III, and Total score--were not rejected. Actual means are found in Table XXXV in Appendix D.

TABLE XVII
ANOVA RESULTS OF IMPACT OF MAJOR ON CORRECT
RESPONSES BY "LOW" SENIORS

| Exam Section | Degrees of Freedom | Calculated F Value |
|--------------|--------------------|--------------------|
| Part I | 5,232 | 1.72 |
| Part II | 5,232 | 0.87 |
| Part III | 5,232 | 1.04 |
| Total Score | 5,232 | 1.52 |

Note: None of the calculated F values were significant at the .05 level.

Analysis of Relationship Between
Business Communication Instruc-
tion and Exam Scores

Another major component of interest in this study was a determination of whether or not business communication instruction affected the scores of the students on the exam. A one-way ANOVA was performed on all students across major lines to test the hypothesis that there are no differences in the mean scores of students who have had business communication instruction and students who have not had such instruction. To test this hypothesis, four subhypotheses were tested: There are no significant differences between students who have had business communication instruction and those who have not had such instruction in their achievement on Part I, Part II, Part III, and Total score of the exam. Business communication instruction was the independent variable (business communication instruction and no business communication instruction) and number of correct responses on each exam part and Total score was the dependent variable. An examination of Table XVIII reveals that there were significant differences in the mean scores in Part I and Total score, but not in Parts II and III.

On the basis of the information presented in Table XVIII, the first subhypothesis--that there are no differences in the mean scores of Part I between students who had business communication instruction and those who had not had such instruction--was rejected. Actual means are found in Table XIX.

TABLE XVIII
ANOVA RESULTS OF IMPACT OF BUSINESS COMMUNICATION
INSTRUCTION ON CORRECT RESPONSES

| Exam Section | Degrees of Freedom | Calculated F Value |
|--------------|--------------------|--------------------|
| Part I | 1,399 | 10.16* |
| Part II | 1,399 | 00.51 |
| Part III | 1,399 | 00.70 |
| Total Score | 1,399 | 06.56* |

*Significant at .05 level.

TABLE XIX
MEAN SCORES BY EXAM PART BASED ON BUSINESS
COMMUNICATION INSTRUCTION

| Business Communication Instruction | Means | | | |
|------------------------------------|--------|---------|----------|-------|
| | Part I | Part II | Part III | Total |
| With | 34.8 | 6.0 | 12.7 | 53.6 |
| Without | 38.2 | 6.2 | 13.3 | 57.7 |

The second and third subhypotheses--that there are no differences in the mean scores of Parts II and III between students who had business communication instruction and those who had not had such instruction--were not rejected.

The fourth subhypothesis--that there are no differences in the Total mean scores between students who had business communication instruction and those who had not had such instruction--was rejected. Actual means are found in Table XIX.

Table XIX reveals that the mean scores for students without business communication instruction were higher than the mean scores for students with communication instruction for each exam part and Total score. The differences between the means of Part I and Total score were considered significant as evidenced by significant results reported in Table XVIII.

At this point, analyses with small specific subgroups were conducted. The decision was made, on the basis of previous results, to test for significant differences in only the students' Total scores.

One-way ANOVAs were performed on each of the six major groups, testing the hypothesis that there are no differences in the mean Total scores of students who had business communication instruction and those who had not had such instruction. To test this hypothesis, six subhypotheses were tested: There are no significant differences in the Total scores of students in the various majors who have had

business communication instruction and those who have not had such instruction. For each analysis, the independent variable was business communication (business communication instruction and no business communication instruction) and the dependent variable was number of correct responses comprising the Total score. Table XX reveals that only one group--Information Processing majors--was significantly different.

Table XX indicates the subhypothesis--that there are no differences in the mean Total scores of Information Processing majors who had business communication instruction and those who had not--was rejected.

The subhypotheses--that there are no differences in the mean Total scores of each of the other majors--Business Administration, Management, Marketing, Accounting, and Finance--between those who had business communication instruction and those who had not such instruction--was not rejected. Actual means can be found in Table XXI.

Table XXI reveals that the mean Total score of Information Processing majors without business communication instruction was significantly lower than the mean Total score of Information Processing majors with business communication instruction as evidenced by the significant results reported in Table XX. The mean Total score of Business Administration majors without business communication instruction was also lower than the mean Total score of Business Administration majors with instruction, but not

TABLE XX
ANOVA RESULTS OF IMPACT OF BUSINESS COMMUNICATION
INSTRUCTION ON TOTAL SCORE BY MAJOR

| Major | Degrees of Freedom | Calculated F Value |
|-------|--------------------|--------------------|
| IP | 1, 32 | 6.32* |
| BA | 1, 38 | 1.13 |
| MGT | 1, 60 | 0.40 |
| MKT | 1, 87 | 0.70 |
| ACCT | 1, 135 | 2.46 |
| FIN | 1, 37 | 4.09 |

*Significant at .05 level.

TABLE XXI
TOTAL MEAN SCORES FOR EACH MAJOR BY
BUSINESS COMMUNICATION STATUS

| Major | Means | |
|-------|--------------------------------|-----------------------------------|
| | With Business Communication | Without Business Communication |
| IP | 56.0 | 43.5 |
| BA | 55.5 | 49.6 |
| MGT | 51.0 | 54.7 |
| MKT | 50.3 | 53.8 |
| ACCT | 57.3 | 61.0 |
| FIN | 52.0 | 64.8 |

significantly so. The mean Total scores of students without business communication instruction in all other majors was higher than the mean Total scores of students with instruction, but the differences were not significant.

To determine if there were differences in the mean Total scores among students in the various majors when GPA and business communication instruction factors were combined, four subgroups were arranged. The two categories from a previous analysis--"high" and "low" seniors, formed by combining the top two GPA groups (4.0-3.6 and 3.5-3.1) and the next two groups (3.0-2.6 and 2.5-2.1)--were each divided on the basis of whether students in the two groups had business communication instruction or not.

A one-way ANOVA was performed on each group to test the hypothesis that there are no differences in the mean Total scores of students in the various majors. To test this hypothesis, four subhypotheses were tested: There are no differences in the Total scores of "high" and "low" seniors in the various majors who have had business communication instruction and "high" and "low" seniors in the various majors who have not had instruction. The independent variable in each situation was major (all six categories) and the dependent variable was the Total score on the exam. An examination of Table XXII reveals that only one group--"high" seniors without business communication instruction had significant differences in Total score.

TABLE XXII
 ANOVA RESULTS FOR IMPACT OF GPA AND BUSINESS
 COMMUNICATION INSTRUCTION ON TOTAL SCORE
 BY DESIGNATED SUBGROUP

| Group | Degrees of Freedom | Calculated F Value |
|----------------------------|-----------------------|-----------------------|
| High Seniors with BC | 5,113 | 0.30 |
| Low Seniors with BC | 5,194 | 1.13 |
| High Seniors without BC | 4,38 | 2.88* |
| Low Seniors without BC | 5,31 | 1.74 |

*Significant at .05 level.

An examination of Table XXII indicates the subhypotheses--that there are no differences in the mean Total scores among students of various majors for "high" seniors with business communication instruction, "low" seniors with business communication instruction, and "low" seniors without business communication instruction--were not rejected.

The subhypothesis that there are no differences in the mean Total scores among students of various majors for "high" seniors without business communication instruction was rejected.

Scheffe post-hoc analysis was performed to determine where the differences lay. The analysis revealed that the mean Total score for Accounting majors was significantly higher than the mean total score for Information Processing majors. Results of statistical comparisons between means can be found in Table XXXIII of Appendix C. Actual mean are presented in Table XXIII.

Analysis of Relationship Between Employment Status and Exam Score

Following the analyses involving GPA and business communication instruction, another factor--employment status--was included. All students were assigned to one of three groups. Group 1 contained those who worked either full time (35 or more hours per week) or whose employment varied between the full-and part-time classification. Group 2

TABLE XXIII
 MEANS BY MAJOR IN FOUR SUBGROUPS COMBINING
 GPA AND BUSINESS COMMUNICATION

| Group | Means by Major | | | | | |
|----------------------------|----------------|------|------|------|------|------|
| | IP | BA | MGT | MKT | ACCT | FIN |
| High Seniors with BC | 60.1 | 61.4 | 59.6 | 56.4 | 60.0 | 58.0 |
| Low Seniors with BC | 52.0 | 53.8 | 48.5 | 48.7 | 53.2 | 49.6 |
| High Seniors without BC | 38.0 | 59.0 | -- | 63.5 | 65.0 | 64.0 |
| Low Seniors without BC | 45.3 | 43.3 | 54.7 | 46.0 | 54.4 | 69.0 |

contained those who worked part time (20 hours per week or less). The third group contained students who were unemployed. A one-way ANOVA was performed on each group to test the hypotheses that there are no differences in the mean Total scores of students of the various majors. To test this hypothesis, three subhypotheses were tested: There are no significant differences in the Total scores of students who worked full time, those who worked part time, and those who were unemployed. The independent variable was major (all six groups) and the dependent variable was Total score.

An examination of Table XXIV shows that there were significant differences in the scores of students employed full or variable-time and of students who were unemployed but nonsignificant differences in the scores of students employed part time.

On the basis of the information in Table XXIV the subhypothesis that there are no differences in the mean Total scores of students who were employed part time was not rejected.

The subhypotheses that there are no differences in the mean Total scores of students who were employed full or variable time or who were unemployed were rejected.

Because of the conservative nature of the Scheffe post-hoc analysis, the location of significant differences was not revealed. Actual means are found in Table XXV.

Table XXV reveals that only students in Information Processing who were employed full or variable time had

TABLE XXIV

ANOVA RESULTS OF IMPACT OF MAJOR ON TOTAL SCORE
AMONG EMPLOYMENT STATUS GROUPS

| Groups | Degrees of Freedom | Calculated F Value |
|--|--------------------|--------------------|
| Students Employed Full and Variable Time | 5,130 | 2.85* |
| Students Employed Part Time | 5,109 | 2.13 |
| Unemployed Students | 5,143 | 3.40* |

*Significant at the .05 level.

TABLE XXV

MEANS TOTAL SCORES BY EMPLOYMENT GROUP BY MAJOR

| Group | Mean Total Score by Major | | | | | |
|---|---------------------------|------|------|------|------|------|
| | IP | BA | MGT | MKT | ACCT | FIN |
| Students Employed Full or Variable Time | 55.4 | 57.3 | 49.9 | 50.7 | 57.7 | 44.4 |
| Students Employed Part Time | 54.8 | 61.1 | 53.0 | 50.5 | 60.1 | 58.0 |
| Unemployed Students | 49.0 | 49.5 | 51.8 | 51.4 | 58.5 | 58.4 |

Table XXV reveals that only students in Information Processing who were employed full or variable time had higher mean Total scores than students who were employed part time or who were unemployed. Students in Business Administration, Management, and Accounting who were employed part time had higher mean Total scores than students who were unemployed. Marketing and Finance students who were unemployed had slightly higher mean Total scores than students who were employed.

The same GPA groups that were established for previous ANOVAs ("high" and "low" seniors), were combined with employment status factors. Six groups were formed, the first of which was classified as "high" seniors who were employed full time or who worked variable hours. The second group was "high" seniors who were employed part time. The third group was "high" seniors who were unemployed. The employment status of the remaining three groups was the same as the first three, but the GPA designation was "low" seniors. One-way ANOVAs were performed to test the hypothesis that there are no differences in the mean Total scores of students of the various majors. To test this hypothesis, six subhypotheses were tested: There are no differences in the Total scores of "high" and "low" seniors who worked full time, those who worked part time, and those who were unemployed. The independent variable was major (all six categories) and the dependent variable was Total score.

An examination of Table XXVI indicates that there were no significant differences in the mean scores of students in

TABLE XXVI

ANOVA RESULTS OF IMPACT OF EMPLOYMENT
STATUS AND GPA ON TOTAL SCORE BY
DESIGNATED SUBGROUP

| Group | Degrees of Freedom | Calculated F Value |
|--|-----------------------|-----------------------|
| High Seniors Employed Full Variable Time | 5, 36 | 1.35 |
| High Seniors Employed Part Time | 5, 44 | 1.08 |
| High Seniors Unemployed | 5, 63 | 1.47 |
| Low Seniors Employed Full, Variable Time | 5, 87 | 1.76 |
| Low Seniors Employed Part Time | 5, 58 | 0.89 |
| Low Seniors Unemployed | 5, 74 | 1.51 |

Note: None of the calculated F values were significant at the .05 level.

the various majors when grouped by specific GPA and employment-status combinations.

An examination of Table XXVI indicates that the six sub-hypotheses that there were no differences in the mean Total scores of "high" and "low" students who worked full time, those who worked part time, and who were unemployed were not rejected. Actual means are found in Table XXXVI in Appendix D.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The Information Age, brought about by increasingly sophisticated technological advancement, affects the lives of individuals in all sectors of society. Communication ability, always an important skill for the successful business executive, continues to be a vital quality earnestly sought after in new employees.

Skill in the ability to communicate effectively, particularly in written form, consists of a mastery of basic English fundamentals; a sound understanding of the psychological importance of correct style, tone, attitude, and development; and the ability to apply this mastery and understanding in various kinds of business writing.

Business executives continue to bemoan the fact that new employees are moderately-to-severely deficient in their communication skills. They are particularly disturbed with the fact that (1) the situation seems to be deteriorating over the years rather than improving and (2) schools of business seem to be doing little about it.

An examination of the problem suggests that there are many contributing factors. In the first place, students

themselves are unconvinced of the need to master basic English skills, preferring instead to believe that the matter is unimportant and inconsequential to their future advancement and ultimate success.

Educators outside the area of English occasionally dissociate themselves from the problem by contending that they do not have time to deal effectively with their own discipline, without also taking on the responsibility of the English department. Further, some educators feel uncomfortable enough with their own communication abilities that they tend to avoid stressing its importance to their students.

Nevertheless, numerous surveys and studies document the fact that the ability to communicate effectively in writing remains a critical skill to be acquired and refined by any businessperson who aspires to advancement and success in his chosen career.

While the broad area of communication skill consists of several essential entities, many authorities insist that at its foundation lies a mastery of English fundamentals--skill in spelling, grammar, punctuation, and sentence and paragraph construction and arrangement. And while English instruction has foundational position in all college curricula, it cannot, according to experts, be given a relatively small emphasis early in a student's college career and then dropped. Rather, it must be incorporated into all areas of a student's preparation, emphasized as important in its relation to all fields, and refined through practice.

The barriers to this concept are also many. The technological impact of computers on all of society in general and on schools of business in particular has been significant. Business curricula have undergone changes to accommodate the demand for courses in which students are given an opportunity to develop an understanding and an expertise in computer applications and operations. The demand for graduates skilled in this area, as evidenced by the multitude of positions available, is well documented. This demand has also contributed to an ever-increasing need to prepare teachers in the growing technologically oriented field.

The fast-paced world of computer development has had an impact on all areas of business school development. Recognition of the pervasive effect of the computer and related technological developments has resulted in curricular changes designed to prepare students to meet the challenges of the business community into which they will be moving upon graduation from college.

The ever-increasing emphasis on technological competence has resulted in significant additions and changes to the business vocabulary of students, including abbreviations and jargon. It has also resulted in a decline and disinterest in the study and practice of good writing skills.

Just as business schools were quick to recognize and implement the necessary changes and modifications to prepare students adequately, they now need to recognize and implement changes and modifications designed to better prepare

students to communicate effectively in the high-tech business environment.

As these changes and modifications are implemented, one of the major problems existing in business today may be reduced. The "communication gap" between the diverse departments within an organization has been a well documented phenomenon. Recently this "communication gap" has received increased attention particularly as it is applied to the data processing function of an organization.

Numerous concerns are expressed that communication between data processing personnel and others within the company is difficult. Reasons for this apparent difficulty are not clearly defined but appear to have at its base at least one element--a language barrier. With the ability to express ideas clearly, correctly, and concisely already an existing problem at the onset, the added burden of complex technological jargon further compounds the issue. Results are a decline in company productivity and morale.

In an attempt to ascertain the status of basic English skills of college of business students about to graduate, this researcher selected an AACSB section of the country and invited member schools to participate in a study that tested several null hypotheses and subhypotheses designed to determine if significant differences exist in the exam scores of students when grouped according to self-reported informational factors.

Thirteen schools of the 28 contacted agreed to

participate and 756 students were actually tested. Since existing classes were used to conduct the testing, a sorting procedure was performed to identify qualified students-- students who had classified themselves as graduating seniors as of June or August 1984. This sort procedure resulted in a sample of 403 eligible students.

Several analyses were performed on this group of 403 students who were identified by self-reported information pertaining to major area of study, business communication instruction status, student status and classification, employment status, GPA, age, and sex.

Of the 403 students in this study, 95.5 percent were identified as full-time students; 75.9 percent were in the age range of 21-23; and 51.9 percent of the students were male, 47.6 percent, female.

The first analysis was performed to determine whether there were differences in the mean scores of each exam part and the Total score among students of the various majors. Significant differences were detected in Part I and Total score, but not in Parts II and III. Post-hoc analyses for both Part I and Total score revealed that the mean score of Accounting majors was 38 in Part I and 58 in Total Score, which were significantly higher than mean scores of both Management and Marketing majors (33 and 51 and 33 and 50, respectively). The mean score of Accounting majors was higher than the mean scores of Information Processing, Business Administration, and Finance majors (34, 53 and 34, 54

and 35,53, respectively) but not significantly so.

A second analysis was performed to determine if there were differences in the mean scores of each exam part and the Total score between students classified as Information Processing majors and all others combined and classified as non-Information Processing majors. The results revealed a slight difference in the mean scores of the two groups in each exam part and Total score, but the difference was not significant. The mean scores for IP majors in Part I and in Total score were 34.2 and 53.1, lower than the mean scores for non-IP majors, which were 35.6 and 54.6. The mean scores for IP majors in Parts II and III were 5.6 and 13.2, while the mean scores for non-IP majors were 6.1 and 12.8.

The next analysis performed was to determine if there were differences in mean scores of each exam part and Total score among students across major lines, grouped on the basis of GPA. The results revealed that each GPA group had a mean score higher than the groups below it. In most cases the differences were significant. The primary purpose of this intermediate analysis was to ascertain how to most appropriately combine the GPA groups for further analysis.

The decision was made to combine and designate the top two GPA groups as "high" seniors while the next two groups were combined and designated the "low" seniors. An analysis was then performed on each group to determine if there were differences among students in the various major groups. In both cases, the differences in the mean scores of each exam

part and Total score were found to be not significant.

The next major component of interest was to determine whether there were differences in the mean scores of each exam part and total score between students who had business communication instruction and those who did not. Significant differences were found in Part I and Total score, but not in Parts II and III. The mean score for students without business communication instruction in Part I was 38.2 while the mean score for students with business communication instruction in Part I was 34.8. The mean score for students without business communication instruction for Total score was 57.7 while the mean score for students with business communication instruction for Total score was 53.6. For Parts II and III, the mean score for students with business communication instruction was also lower than the mean score for students without business communication instruction, but the differences were not significant.

In the first of many subgroup analyses, which tested for differences in Total score only, it was hypothesized that there were no differences in the mean scores between students of each major who had business communication instruction and those who did not. Only one major grouping, Information Processing, had significant differences. The mean score for students who had business communication instruction was 56.0 which was significantly higher than the mean score for students who did not have business

communication instruction (mean = 43.5). The mean score of students in Business Administration with business communication instruction was higher than the mean score of students without business communication instruction, but not significantly so. The mean scores of students without business communication in all other majors was higher than the mean scores of students with business communication instruction, but not significantly so.

The factors of GPA and business communication instruction were combined to determine if there were differences in the mean total scores of students of the various majors. Four groups were arranged: "high" seniors with business communication instruction, "high" seniors without business communication instruction, "low seniors with business communication instruction, and "low" seniors without business communication instruction. Only the group designated as "high" seniors without business communication instruction had significant differences in mean scores. The mean score of Accounting majors (65.0) was significantly higher than the mean score of Information Processing majors (38.0).

When the employment status factor was considered, three groups were arranged: Students who were employed full or variable time, students who were employed part time, and students who were unemployed. Non-significant differences were indicated among students of the various majors who were employed part time. Significant differences were indicated

among students of the various majors who were employed full or variable time or who were unemployed. The conservative nature of the Scheffe post-hoc analysis, however, did not reveal where the differences lay.

The last subgroup analysis combined the GPA factor with the employment status factor. Six groups were formed and analyses were performed on each group. The six groups were defined as "high" seniors who were employed full or variable time, "high" seniors who were employed part time, "high" seniors who were unemployed, "low" seniors who were employed full or variable time, "low" seniors who were employed part time, and "low" seniors who were unemployed. No significant differences were detected in any group.

Conclusions

1. Major area of study does have an impact on students' basic written communication skills under some conditions, but does not have an impact on those skills under other conditions.

2. GPA grouping does have an impact on students' basic written communication skills.

3. Business communication instruction does not have a positive impact on students' basic written communication skills.

Recommendations

1. It is recommended that all major program areas, particularly Management and Marketing, investigate

opportunities for incorporating increased attention to basic English skill development within their programs.

2. It is recommended that business communication courses strengthen the emphasis placed on basic English skills development.

3. It is recommended that Information Processing programs receive additional business communication instruction to provide students with the opportunity to develop further basic English skills.

4. Since this investigation was conducted in one AACSB region--schools in Texas, Arkansas, and Louisiana--it is recommended that a similar study be conducted in another region to compare results.

5. Since this study was an investigation of basic English fundamentals, which constitutes only one aspect of communication ability, it is recommended that an appropriate instrument be developed and used to investigate communication differences in other than the basic English fundamentals area.

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APPENDIX A

CORRESPONDENCE RELATED TO STUDY



Oklahoma State University

COLLEGE OF BUSINESS ADMINISTRATION

STILLWATER, OKLAHOMA 74078
(405) 624-5064

September 21, 1983

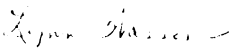
REQUEST FOR YOUR ASSISTANCE IN A BUSINESS COMMUNICATION STUDY

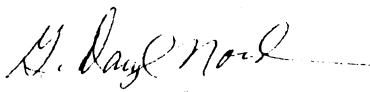
As a doctoral candidate at Oklahoma State University, I am beginning a dissertation study of the communication skills possessed by senior business majors enrolled in AACSB schools. In particular, I plan to compare the communication skills of Data/Information Processing majors with non-Data/Information Processing majors. I will be comparing the English, theoretical, and writing skills of those students who have taken a business communications course with those who have not in each group.

The areas to be investigated are knowledge of English skills (sentence construction, grammar, vocabulary, punctuation), knowledge of communication theory ("you" attitude; positive vs. negative approach; communication barriers, such as differences in semantics and perception; and nonverbal communication), and knowledge of (and perhaps ability to actually apply) the writing principles of clarity, correctness, conciseness, concreteness, completeness, etc.

Preliminary investigation indicates that these three areas will require separate measurement, that the likelihood of locating any one instrument to measure all three areas is extremely remote. Your expert recommendation of the most appropriate test(s) to use to measure these skills would be greatly appreciated. If, by chance, you are aware of one instrument that is capable of assessing student ability or if you know of any combination test that would be effective, please indicate the source from which it could be rented or purchased. If no appropriate or effective tests are available, I will need to begin developing one so that I can carry out what I believe will be an exciting and revealing study.

Your reply by October 5, along with any other comments and/or suggestions, will be very much appreciated. A pre-addressed return envelope is enclosed for your convenience.


Mrs. Lynn Wasson
Graduate Student


Dr. G. Daryl Nord
Committee Chairman



Southwest Missouri State University

Springfield, Missouri 65804 0094

10 February 1984

YOUR PARTICIPATION IS REQUESTED

Texas A & M University, as a member of the Southwest Region of AACSB, is invited to participate in a research study investigating the level of basic written communication skills of senior business students. Specifically, the study will attempt to determine if there are significant differences in the abilities of students when grouped according to major area of preparation.

Much concern has been expressed by educators, administrators, and business persons over students' and new employees' inability to communicate effectively in writing. Preliminary research on communication skills needed by business persons indicates that the ability to convey information in a written form in a clear, correct, concise manner is a critical skill. Despite the technological changes taking place in the business environment (and perhaps because of these changes), employers continue to value highly the ability to communicate effectively in writing. They want employees who can contribute to the effective, efficient organizational operation rather than impede it.

To provide businesses with the kind of employees they want, schools have designed curricula and required key courses to ensure as much as possible that students will be adequately prepared to meet the challenges of today's business society. AACSB-affiliated schools, in particular, are concerned with providing students with a well-rounded, comprehensive program of preparation allowing for in-depth study in areas of interest. With the ability to communicate effectively, an area of particular concern to AACSB and its members, many schools require or recommend at least one course in Business Communications and emphasize correct writing techniques in related business courses.

One of the major factors of successful communication lies in the mastery of basic writing skills. Are we providing our students in all the special-interest areas of accounting, administration, data processing, management, and marketing, enough opportunities to practice these basic skills? Are we, in conjunction with providing up-to-date theoretical, analytical, and technological information, stressing basic skills to our students so that they understand the integral relationship that exists? Will they be able to apply these skills successfully in their chosen fields?

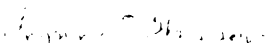
To learn the answer to these important questions, a preliminary study focusing on AACSB-affiliated schools in the Southwest Region is being conducted to determine the level of ability of senior business students as measured by standardized tests. Testing of students who have nearly completed their academic program should provide representative information pertaining to the level of writing skill they will take with them to their first job. The results of the testing will be analyzed and reported in various ways (based on student-supplied information such as major, age, full- or part-time status, work experience, career goals) and should provide valuable information to instructors of all major areas.

Your participation will enable you to see how students of particular majors in your region compare with others. Further analysis will be conducted to determine what, if any, differences exist between students who have taken a course in Business Communication (or an equivalent) and those who have not.

Your participation in this study will be greatly appreciated. To be included, please forward this letter, attached information sheet, and return envelope to an appropriate faculty member, one who is responsible for teaching a required, senior-level course. The course should be one that contains a cross section of business majors, most, if not all, of whom will be 1984 spring or summer graduates. If you have more than one class that fits the above description, you may have the test administered in all classes or randomly select one.

The test will be simple to administer--it requires no special instructions or equipment. Testing should be administered at the instructor's convenience any time during the weeks of March 19 and March 26. The testing instructor's only responsibilities will be to distribute the materials, see that the students respond with a #2 lead pencil, time the test, collect the materials, and mail everything to me in an envelope that will be preaddressed and stamped. Answer sheets will be machine scored when results from all participating schools have been collected. Participating schools will be provided with a copy of the results and an accompanying analysis when the study is complete.

So that the correct number of test materials can be ordered and packaged for each school, may I please have your reply sheet returned to me by Friday, February 24, 1984.


Mrs Lynn E Wasson
Assistant Professor

rp

Enclosures

7 March 1984

RESEARCH PROJECT PARTICIPATION

Thank you for agreeing to participate in the research project that I am conducting.

Enclosed are the test booklets, the answer sheets, and a step-by-step procedures sheet to be used in administering the exam. Please examine the procedures prior to the testing period.

After the testing is completed, please place all materials in the return envelope that has been provided, and place it in the mail to me at your earliest convenience.

When the testing at all participating schools has been completed and the results are analyzed, you will receive a copy of the analysis. Your cooperation in this project is greatly appreciated.

If you have any questions prior to the testing period, please feel free to call me at

Mrs Lynn E Wasson
Assistant Professor

kmm

Enclosures

APPENDIX B

QUESTIONNAIRE AND INSTRUCTION SHEET

7. What is your overall Grade Point Average (GPA on 4.0 scale)?

 3.6 - 4.0
 3.1 - 3.5

 2.6 - 3.0
 2.1 - 2.5
 2.0 or lower

8. Please indicate whether you are male or female.

 Male
 Female

PROCEDURES FOR ADMINISTERING THE MISSOURI COLLEGE ENGLISH TEST

PRIOR TO EXAM

- *Please familiarize yourself with the general instructions preceding Part I so that you may answer any questions students may have.
- *Ask students to bring a #2 lead pencil with them on the day of the test so that they may erase and change an answer if they wish.

EXAM DAY

1. Please distribute first the two-page information and answer sheet. CAUTION students NOT to separate the two pages. (Have stapler available in case of accidental separation.) Ask students to answer all eight questions completely. When finished, students should fold over the top sheet so the second sheet is visible and ready for test answers. ONLY COLLEGE OR UNIVERSITY NAME AND DATE OF TESTING need be recorded on answer sheet.
2. Distribute test booklet and caution students NOT to mark in it. Call students' attention to instructions and examples preceding Part I. Answer any questions.
3. Begin the test and permit students to work for exactly 40 minutes.
4. At the end of the 40 minutes, collect all test booklets and two-page answer sheets.
5. No scoring of the exam will be necessary. Simply collect all materials and place in return envelope which has been provided.

THANK YOU

APPENDIX C

STATISTICAL RESULTS OF SCHEFFE
POST-HOC TESTS

TABLE XXVII

SCHEFFE'S TEST FOR PART I SCORES

ALPHA=0.05 CONFIDENCE=0.95 DF=397 MSE=67.4961
 CRITICAL VALUE OF T=1.49557

COMPARISONS SIGNIFICANT AT THE 0.05 LEVEL ARE INDICATED BY '***'

| MAJOR COMPARISON | SIMULTANEOUS LOWER CONFIDENCE LIMIT | DIFFERENCE BETWEEN MEANS | SIMULTANEOUS UPPER CONFIDENCE LIMIT | |
|---------------------|--|--------------------------------|--|-----|
| 5 - 6 | -2.513 | 2.465 | 7.444 | |
| 5 - 2 | -1.596 | 3.334 | 8.263 | |
| 5 - 1 | -1.283 | 3.973 | 9.230 | |
| 5 - 4 | 0.737 | 4.467 | 8.197 | *** |
| 5 - 3 | 1.013 | 5.209 | 9.405 | *** |
| 6 - 5 | -7.444 | -2.465 | 2.513 | |
| 6 - 2 | -5.314 | 0.869 | 7.051 | |
| 6 - 1 | -4.938 | 1.508 | 7.955 | |
| 6 - 4 | -3.274 | 2.002 | 7.278 | |
| 6 - 3 | -2.872 | 2.744 | 8.359 | |
| 2 - 5 | -8.263 | -3.334 | 1.596 | |
| 2 - 6 | -7.051 | -0.869 | 5.314 | |
| 2 - 1 | -5.769 | 0.640 | 7.049 | |
| 2 - 4 | -4.097 | 1.133 | 6.363 | |
| 2 - 3 | -3.697 | 1.875 | 7.447 | |
| 1 - 5 | -9.230 | -3.973 | 1.283 | |
| 1 - 6 | -7.955 | -1.508 | 4.938 | |
| 1 - 2 | -7.049 | -0.640 | 5.769 | |
| 1 - 4 | -5.045 | 0.494 | 6.033 | |
| 1 - 3 | -4.628 | 1.235 | 7.098 | |
| 4 - 5 | -8.197 | -4.467 | -0.737 | *** |
| 4 - 6 | -7.278 | -2.002 | 3.274 | |
| 4 - 2 | -6.363 | -1.133 | 4.097 | |
| 4 - 1 | -6.033 | -0.494 | 5.045 | |
| 4 - 3 | -3.803 | 0.742 | 5.287 | |
| 3 - 5 | -9.405 | -5.209 | -1.013 | *** |
| 3 - 6 | -8.359 | -2.744 | 2.872 | |
| 3 - 2 | -7.447 | -1.875 | 3.697 | |
| 3 - 1 | -7.098 | -1.235 | 4.628 | |
| 3 - 4 | -5.287 | -0.742 | 3.803 | |

1 = IP, 2 = BA, 3 = MGT, 4 = MKT, 5 = ACCT, 6 = FIN

TABLE XXVIII

SCHEFFE'S TEST FOR TOTAL SCORES

ALPHA=0.05 CONFIDENCE=0.95 DF=397 MSE=161.53
 CRITICAL VALUE OF T=1.49557

COMPARISONS SIGNIFICANT AT THE 0.05 LEVEL ARE INDICATED BY '***'

| MAJOR COMPARISON | SIMULTANEOUS LOWER CONFIDENCE LIMIT | DIFFERENCE BETWEEN MEANS | SIMULTANEOUS UPPER CONFIDENCE LIMIT | |
|---------------------|--|--------------------------------|--|-----|
| 5 - 2 | -3.746 | 3.880 | 11.506 | |
| 5 - 6 | -2.996 | 4.706 | 12.408 | |
| 5 - 1 | -2.565 | 5.566 | 13.698 | |
| 5 - 3 | 0.938 | 7.429 | 13.920 | *** |
| 5 - 4 | 2.210 | 7.981 | 13.751 | *** |
| 2 - 5 | -11.506 | -3.880 | 3.746 | |
| 2 - 6 | -8.738 | 0.826 | 10.391 | |
| 2 - 1 | -8.228 | 1.687 | 11.601 | |
| 2 - 3 | -5.071 | 3.549 | 12.169 | |
| 2 - 4 | -3.990 | 4.101 | 12.192 | |
| 6 - 5 | -12.408 | -4.706 | 2.996 | |
| 6 - 2 | -10.391 | -0.826 | 8.738 | |
| 6 - 1 | -9.112 | 0.860 | 10.833 | |
| 6 - 3 | -5.964 | 2.723 | 11.410 | |
| 6 - 4 | -4.887 | 3.275 | 11.437 | |
| 1 - 5 | -13.698 | -5.566 | 2.565 | |
| 1 - 2 | -11.601 | -1.687 | 8.228 | |
| 1 - 6 | -10.833 | -0.860 | 9.112 | |
| 1 - 3 | -7.208 | 1.862 | 10.933 | |
| 1 - 4 | -6.155 | 2.414 | 10.983 | |
| 3 - 5 | -13.920 | -7.429 | -0.938 | *** |
| 3 - 2 | -12.169 | -3.549 | 5.071 | |
| 3 - 6 | -11.410 | -2.723 | 5.964 | |
| 3 - 1 | -10.933 | -1.862 | 7.208 | |
| 3 - 4 | -6.479 | 0.552 | 7.583 | |
| 4 - 5 | -13.751 | -7.981 | -2.210 | *** |
| 4 - 2 | -12.192 | -4.101 | 3.990 | |
| 4 - 6 | -11.437 | -3.275 | 4.887 | |
| 4 - 1 | -10.983 | -2.414 | 6.155 | |
| 4 - 3 | -7.583 | -0.552 | 6.479 | |

1 = IP, 2 = BA, 3 = MGT, 4 = MKT, 5 = ACCT, 6 = FIN

TABLE XXIX
SCHEFFE'S TEST FOR PART I SCORES

$\alpha = 0.05$ CONFIDENCE = 0.95 DF = 397 MSC = 56.9543
CRITICAL VALUE OF T = 1.62092

COMPARISONS SIGNIFICANT AT THE 0.05 LEVEL ARE INDICATED BY ***

| GPA COMPARISONS | | SIMULTANEOUS LOWER CONFIDENCE LIMIT | DIFFERENCE BETWEEN MEANS | SIMULTANEOUS UPPER CONFIDENCE LIMIT | |
|-----------------|-----|-------------------------------------|--------------------------|-------------------------------------|-----|
| 1 | - 2 | 1.299 | 4.918 | 8.537 | *** |
| 1 | - 3 | 5.760 | 9.249 | 12.738 | *** |
| 1 | - 4 | 8.171 | 11.940 | 15.709 | *** |
| 2 | - 1 | -8.537 | -4.918 | -1.299 | *** |
| 2 | - 3 | 1.694 | 4.331 | 6.967 | *** |
| 2 | - 4 | 4.025 | 7.022 | 10.019 | *** |
| 3 | - 1 | -12.738 | -9.249 | -5.760 | *** |
| 3 | - 2 | -6.967 | -4.331 | -1.694 | *** |
| 3 | - 4 | -0.148 | 2.691 | 5.529 | |
| 4 | - 1 | -15.709 | -11.940 | -8.171 | *** |
| 4 | - 2 | -10.019 | -7.022 | -4.025 | *** |
| 4 | - 3 | -5.529 | -2.691 | 0.148 | |

1 = 4.0-3.6, 2 = 3.5-3.1, 3 = 3.0-2.6, 4 = 2.5-2.1

TABLE XXX
SCHEFFE'S TEST FOR PART II SCORES

ALPHA=0.05 CONFIDENCE=0.95 DF=397 MSE=4.21542
CRITICAL VALUE OF T=1.62092

COMPARISONS SIGNIFICANT AT THE 0.05 LEVEL ARE INDICATED BY ***

| GPA COMPARISON | SIMULTANEOUS LOWER CONFIDENCE LIMIT | DIFFERENCE BETWEEN MEANS | SIMULTANEOUS UPPER CONFIDENCE LIMIT | |
|-------------------|--|--------------------------------|--|-----|
| 1 - 2 | -0.2748 | 0.7098 | 1.6945 | |
| 1 - 3 | 0.5037 | 1.4530 | 2.4022 | *** |
| 1 - 4 | 0.8937 | 1.9191 | 2.9444 | *** |
| 2 - 1 | -1.6945 | -0.7098 | 0.2748 | |
| 2 - 3 | 0.0259 | 0.7431 | 1.4604 | *** |
| 2 - 4 | 0.3939 | 1.2092 | 2.0246 | *** |
| 3 - 1 | -2.4022 | -1.4530 | -0.5037 | *** |
| 3 - 2 | -1.4604 | -0.7431 | -0.0259 | *** |
| 3 - 4 | -0.3061 | 0.4661 | 1.2383 | |
| 4 - 1 | -2.9444 | -1.9191 | -0.8937 | *** |
| 4 - 2 | -2.0246 | -1.2092 | -0.3939 | *** |
| 4 - 3 | -1.2383 | -0.4661 | 0.3061 | |

1 = 4.0-3.6, 2 = 3.5-3.1, 3 = 3.0-2.6, 4 = 2.5-2.1

TABLE XXXI

SCHEFFE'S TEST FOR PART III SCORES

ALPHA=0.05 CONFIDENCE=0.95 DF=397 MSE=35.8016
 CRITICAL VALUE OF T=1.62092

COMPARISONS SIGNIFICANT AT THE 0.05 LEVEL ARE INDICATED BY '***'

| GPA COMPARISON | SIMULTANEOUS LOWER CONFIDENCE LIMIT | DIFFERENCE BETWEEN MEANS | SIMULTANEOUS UPPER CONFIDENCE LIMIT | |
|-------------------|--|--------------------------------|--|-----|
| 1 - 2 | -0.486 | 2.384 | 5.254 | |
| 1 - 3 | 0.243 | 3.009 | 5.775 | *** |
| 1 - 4 | 1.528 | 4.516 | 7.504 | *** |
| 2 - 1 | -5.254 | -2.384 | 0.486 | |
| 2 - 3 | -1.465 | 0.625 | 2.715 | |
| 2 - 4 | -0.244 | 2.132 | 4.508 | |
| 3 - 1 | -5.775 | -3.009 | -0.243 | *** |
| 3 - 2 | -2.715 | -0.625 | 1.465 | |
| 3 - 4 | -0.743 | 1.507 | 3.758 | |
| 4 - 1 | -7.504 | -4.516 | -1.528 | *** |
| 4 - 2 | -4.508 | -2.132 | 0.244 | |
| 4 - 3 | -3.758 | -1.507 | 0.743 | |

1 = 4.0-3.6, 2 = 3.5-3.1, 3 = 3.0-2.6, 4 = 2.5-2.1

TABLE XXXII

SCHEFFE'S TEST FOR TOTAL SCORES

ALPHA=0.05 CONFIDENCE=0.95 DF=397 MSE=138.446
 CRITICAL VALUE OF T=1.62092

COMPARISONS SIGNIFICANT AT THE 0.05 LEVEL ARE INDICATED BY '***'

| GPA COMPARISON | | SIMULTANEOUS LOWER CONFIDENCE LIMIT | DIFFERENCE BETWEEN MEANS | SIMULTANEOUS UPPER CONFIDENCE LIMIT | |
|-------------------|-----|--|--------------------------------|--|-----|
| 1 | - 2 | 2.369 | 8.012 | 13.655 | *** |
| 1 | - 3 | 8.271 | 13.711 | 19.151 | *** |
| 1 | - 4 | 12.499 | 18.375 | 24.251 | *** |
| 2 | - 1 | -13.655 | -8.012 | -2.369 | *** |
| 2 | - 3 | 1.589 | 5.699 | 9.810 | *** |
| 2 | - 4 | 5.690 | 10.363 | 15.036 | *** |
| 3 | - 1 | -19.151 | -13.711 | -8.271 | *** |
| 3 | - 2 | -9.810 | -5.699 | -1.589 | *** |
| 3 | - 4 | 0.239 | 4.664 | 9.090 | *** |
| 4 | - 1 | -24.251 | -18.375 | -12.499 | *** |
| 4 | - 2 | -15.036 | -10.363 | -5.690 | *** |
| 4 | - 3 | -9.090 | -4.664 | -0.239 | *** |

1 = 4.0-3.6, 2 = 3.5-3.1, 3 = 3.0-2.6, 4 = 2.5-2.1

TABLE XXXIII

SCHEFFE'S TEST FOR TOTAL SCORES

ALPHA=0.05 CONFIDENCE=0.95 DF=38 MSE=122.525
 CRITICAL VALUE OF T=1.61833

COMPARISONS SIGNIFICANT AT THE 0.05 LEVEL ARE INDICATED BY '***'

| MAJOR COMPARISON | SIMULTANEOUS LOWER CONFIDENCE LIMIT | DIFFERENCE BETWEEN MEANS | SIMULTANEOUS UPPER CONFIDENCE LIMIT | |
|---------------------|--|--------------------------------|--|-----|
| 5 - 6 | -16.273 | 1.033 | 18.339 | |
| 5 - 4 | -17.537 | 1.533 | 20.604 | |
| 5 - 2 | -20.131 | 6.033 | 32.198 | |
| 5 - 1 | 0.869 | 27.033 | 53.198 | *** |
| 6 - 5 | -18.339 | -1.033 | 16.273 | |
| 6 - 4 | -23.533 | 0.500 | 24.533 | |
| 6 - 2 | -24.975 | 5.000 | 34.975 | |
| 6 - 1 | -3.975 | 26.000 | 55.975 | |
| 4 - 5 | -20.604 | -1.533 | 17.537 | |
| 4 - 6 | -24.533 | -0.500 | 23.533 | |
| 4 - 2 | -26.527 | 4.500 | 35.527 | |
| 4 - 1 | -5.527 | 25.500 | 56.527 | |
| 2 - 5 | -32.198 | -6.033 | 20.131 | |
| 2 - 6 | -34.975 | -5.000 | 24.975 | |
| 2 - 4 | -35.527 | -4.500 | 26.527 | |
| 2 - 1 | -14.827 | 21.000 | 56.827 | |
| 1 - 5 | -53.198 | -27.033 | -0.869 | *** |
| 1 - 6 | -55.975 | -26.000 | 3.975 | |
| 1 - 4 | -56.527 | -25.500 | 5.527 | |
| 1 - 2 | -56.827 | -21.000 | 14.827 | |

1 = IP, 2 = BA, 4 = MKT, 5 = ACCT, 6 = FIN

APPENDIX D

TABLES OF MEANS FOR ANALYSES WITH
NON-SIGNIFICANT RESULTS

TABLE XXXIV

MEANS BY EXAM PART AND TOTAL SCORE FOR INFORMATION AND
NON-INFORMATION PROCESSING MAJORS

| Major | Means | | | |
|----------------------------|--------|---------|----------|-------|
| | Part I | Part II | Part III | Total |
| Information Processing | 34.2 | 5.6 | 13.2 | 53.1 |
| Non-Information Processing | 35.6 | 6.1 | 12.8 | 54.6 |

TABLE XXXV
 MEANS BY MAJOR FOR HIGH AND LOW SENIORS

| Group | Means by Major | | | | | |
|--------------|----------------|------|------|------|------|------|
| | IP | BA | MGT | MKT | ACCT | FIN |
| High Seniors | | | | | | |
| Part I | 35.8 | 40.2 | 39.8 | 38.8 | 40.0 | 41.2 |
| Part II | 6.3 | 6.9 | 6.8 | 7.0 | 6.8 | 6.8 |
| Part III | 15.0 | 13.8 | 13.1 | 12.1 | 14.8 | 12.2 |
| Total Score | 57.1 | 61.0 | 59.6 | 57.8 | 61.7 | 59.8 |
| Low Seniors | | | | | | |
| Part I | 33.0 | 32.3 | 31.2 | 32.3 | 35.3 | 32.0 |
| Part II | 5.1 | 6.0 | 5.7 | 5.4 | 5.8 | 5.8 |
| Part III | 11.8 | 13.4 | 12.1 | 10.9 | 12.8 | 12.8 |
| Total Score | 49.9 | 51.8 | 49.0 | 48.5 | 53.9 | 50.6 |

TABLE XXXVI
 MEANS BY MAJOR FOR SIX SUBGROUPS COMBINING
 GPA AND EMPLOYMENT STATUS

| Group | Mean Total Score by Major | | | | | |
|--------------------------------|---------------------------|------|------|------|------|------|
| | IP | BA | MGT | MKT | ACCT | FIN |
| High Seniors Part Time | 58.6 | 64.3 | 47.0 | 56.0 | 62.6 | 68.0 |
| High Seniors Full, Variable | 64.5 | 63.3 | 63.0 | 59.5 | 60.6 | 45.8 |
| High Seniors Unemployed | 47.3 | 52.0 | 59.0 | 59.2 | 61.7 | 59.5 |
| Low Seniors Part Time | 51.0 | 58.0 | 53.8 | 49.4 | 54.9 | 46.3 |
| Low Seniors Full, Variable | 48.2 | 53.3 | 44.9 | 50.0 | 53.3 | 46.3 |
| Low Seniors Unemployed | 50.0 | 49.0 | 50.2 | 46.0 | 51.4 | 57.5 |

2
VITA

Lynn Taylor Wasson

Candidate for the Degree of

Doctor of Education

Thesis: A STUDY OF THE IMPACT OF FIELD OF STUDY AND OTHER
SELECTED VARIABLES ON BUSINESS MAJORS' PERFORMANCE
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