

A STUDY OF SELECTED HANDS-ON COMPUTER-RELATED
TASK PERFORMANCES OF PSI OFFICE PERSONNEL
IN WICHITA, KANSAS, METROPOLITAN AREA

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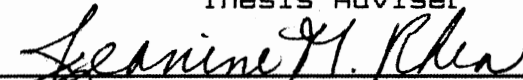
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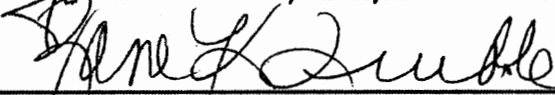
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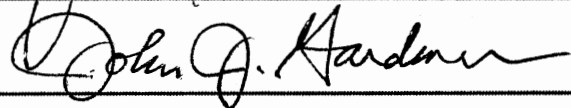
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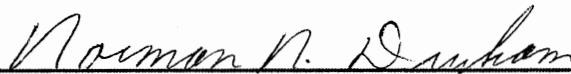


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CHAPTER I

NATURE OF THE PROBLEM

Introduction

Business education, like other technology-dependent educational processes, has undergone marked changes with the advent and rapid implementations of technological change. Viewing the panorama which began with the invention of the most primitive typewriter, and progressing to today's mainframe computers, minicomputers, and microcomputers, we can see both the sweep and the magnitude of change over a period as short as 120 years.

A 1986 survey by Touche-Ross of small- to mid-sized businesses with annual sales ranging from \$1 million to \$75 million found that 86 percent of the firms owned microcomputers. In addition, 72 percent had more than one system installed; and 56 percent of those surveyed intended to purchase additional computer equipment (Inc., 1987, p. 60). According to Dykeman (1987, p. 14), an estimated 18 million personal computers exist in businesses. Today's office personnel are likely to have access to computers which increases the potential for generating and producing communiques of marked technological sophistication.

Such striking change in office operation could be ignored if change involved only a few people. However, according to a survey by Ruder, Finn and Rotmer for Kelly Services, Inc., "By the year 2000, 90 percent of the nation's work force will be in the office" (Wood & Mattox, 1986, p. 64). Numerous articles have been written on the technological impact of computers on office environment (Wood & Mattox, 1986; Seaward, 1983; Strehlo, 1984; Umble, 1981; Dyer, 1985). However, studies which focus on the impact of the tasks performed by support personnel in various sizes of businesses which utilize a computer are nearly non-existent.

Students graduating from business education programs are seemingly more productive and comfortable in business or educational settings when their education has prepared them for the "new technology" of the modern business office.

Facts and information gleaned from individuals who are office users of computers will be beneficial to potential office workers. The data were gathered from selected businesses in Wichita, Kansas, which have office support personnel who are members of the Minisa Chapter of Professional Secretaries International (PSI).

Wichita, the "air capitol of the world," is the largest city in Kansas and hosts a wide variety of business sizes as well as approximately 1600 types of businesses in transportation, public utilities, manufacturing, finance, insurance, real estate, government, health care, and others.

The PSI Minisa Chapter was organized in Wichita, Kansas, in March, 1942, as the second national chapter organized under PSI, formerly known as National Secretaries Association (NSA). The main source of employment for members of the Minisa Chapter are firms in the Wichita metropolitan area.

Businesses employ graduates of the educational process and can reasonably expect these graduates to have well-developed technological skills. This study focused on information gained from Wichita PSI members and should reveal data which will hopefully be useful to the author and readers as they ponder the relevance of business education in relation to the needs and skills of the Wichita metropolitan area office workers.

Need for the Study

One of the continuing challenges for business education is to prepare personnel for entry level employment in business or education. The sophisticated corporate personnel officer routinely evaluates job applicants on the basis of their personal skills and professional knowledge. While constantly changing technology has increased the number of computers on the desks of office personnel, only limited information is available concerning the types of computer-related tasks performed by office support personnel. In addition, information is scarce concerning how office tasks have changed the traditional secretarial role in the modern office.

Business education must continually evaluate curriculum materials, and teaching methods to ensure adequate preparation of graduates for work in the continually changing business community. Consequently, educators need information justifying alterations in curriculum, materials, and teaching methods. This study focused on the impact of the computer on office tasks with particular attention to letters and reports, computer-clerical functions, spreadsheets and other organizational applications. Data from this study will assist business educators in making effective decisions about curriculum change and design.

Statement of the Problem

This study was designed to investigate the type of tasks performed and the amount of time spent performing hands-on computer-related office tasks by PSI Minisa members in businesses of varying size in the Wichita, Kansas, metropolitan area.

Hypotheses Tested

In order to achieve the purpose of this study, the following null hypotheses were tested at the .05 level of significance:

1. There are no significant differences between PSI employees of small- and large-sized businesses in the amount of total time spent using the computer.

2. There are no significant differences between the amount of time PSI employees spend performing specific computer-related tasks in small and large businesses.

Statement of Purpose

The purpose of this study was to provide information for business education curriculum analysis and design.

Operational Definitions of the Variables

The major independent variable in this study was business size. Operationally defined, the size variable is reported in two levels: small business (under 300 employees) and large business (over 300 employees).

The dependent variables in this study were specific hands-on computer-related tasks performed by PSI members. Operationally defined, the hands-on computer-related tasks are reported in three general groupings with tasks involving (1) letters and reports, (2) computer-clerical, and (3) spreadsheets and other organizational applications.

Delimitations

The sample used in this study consisted of working-active members in the Wichita, Kansas, Professional Secretaries International Minisa Chapter. Excluded from this study were businesses which had no Minisa member employed.

Limitations

Factors which limit the validity, reliability, sensi-

tivity and specificity of this study were those typical of self-report data: (1) that the participants were truthful in their response to the survey; (2) that survey questions did not make the respondent feel so special or unnatural that the responses became artificial or slanted; (3) that the questions did not arouse "response sets" (Isaac & Michael, 1985, p. 128) which would encourage agreement to positive statements; (4) that the survey was "vulnerable to over-rater or under-rater bias--the tendency for some respondents to give consistently high or low ratings" when using estimations (Isaac & Michael, 1985, p. 128).

Assumptions

The following assumptions were pertinent to this study:

1. That the participants' responses to the questions in the questionnaire were spontaneous, conscientious and truthful estimations of their work situation, and that the participants' examination of the concept contained in the questionnaire were correctly and meaningfully understood.

2. That the questionnaire used in this study was adequate to identify both the various tasks performed by office support personnel and the amount of time spent.

3. That the PSI members represent small and large businesses as identified in this study.

4. That the person identified to complete the questionnaire was the one who actually provided the input.

Definitions

The following terms are defined for clarification of their intent and use in this study:

Computer-clerical: A category used to describe specific tasks performed on the computer, generally considered as traditional clerical office skills such as transcription of machine dictated letters; transcription of shorthand dictated letters, use of spell check and grammar check with word processing software, file management, and numeric data keyboard entry.

Function: A series of tasks or responsibilities imposed by one's occupation which places the individual worker into the overall goals of the organizational structure (Fruehling, Weaver & Moore, 1986).

Hands-on Computer-related: Tasks which are individually performed on the computer.

Letters and reports: A category used to describe specific tasks performed on the computer relative to composing and editing drafts and final copies of letters, memos, minutes, news releases, reports and speeches.

Minisa Chapter, Professional Secretaries International: A professional secretarial organization in Wichita, Kansas, which is composed of active and non-active working individuals in varying types and sizes of organizations, and whose members work with various levels of managerial personnel.

Office Support Personnel: The term "office support

personnel" includes the group called "secretary," which is defined by the Professional Secretaries International as "an executive assistant who possesses a mastery of office skills (e.g., handles correspondence, keeps files, organizes files, keeps schedules, answers telephone, transcribes letters, etc.), demonstrates the ability to assume responsibility without direct supervision, exercises initiative and judgment, and makes decisions within the scope of assigned authority" (The Secretary, 1986, p. 5).

Performance: The act of performing, executing, accomplishing an operation, or a function (Webster).

Spreadsheets and other organizational applications: Applications performed on the computer for decision-making in the office including spreadsheet use, database use, electronic mail, accounting packages, and decision-ware software.

Task: An assigned piece of work, often to be completed within a given time frame (Fruehling, Weaver & Moore, 1986).

Working-active: Secretaries who hold membership in the Minisa Chapter and are currently employed.

Organization of the Study

The organization of this study is described and summarized in five chapters.

1. Chapter I relates the purpose and the need for the study, statement of the problem, limitations, delimitations, assumptions, definitions of terms, and the hypothe-

ses under consideration.

2. Chapter II identifies pertinent literature relative to how the computer and hands-on computer-related tasks affect a shift in work responsibilities of office support personnel.

3. Chapter III outlines the research procedures used to test the hypotheses of the study.

4. Chapter IV includes the data analysis and interpretations of the findings.

5. Chapter V provides findings, conclusions, and recommendations for further research.

CHAPTER II

REVIEW OF LITERATURE

Introduction

Related literature concerning the amount of computer-use time and specific tasks performed by office support personnel working in small to large businesses is included in Chapter II. Although numerous studies identified technological impact of computers on office environment, few studies included business size as a major determinant of the amount of time spent on the performance of selected hands-on computer-related tasks by office support personnel.

Database searches were completed utilizing Educational Resources Informational Clearinghouse, Index to Doctoral Dissertations in Business Education, Reader's Guide to Periodical Literature, Educational Index, Business Periodical Index, unpublished dissertations, and numerous professional journals and magazines. Database searches were limited to the time period between 1976 and 1987.

This chapter is divided into the following areas: Predictions about automation and computerization; forces changing the workplace; the dilemma; computer impact on office personnel; summary.

Predictions

Research about office automation and computerization reveals contradictory conclusions among authors about such items as the future composition of the workforce, the nature of work, and productivity through information flow and management.

Kelly Services research indicates that 90 percent of the nation's workforce will be employed in the office by the year 2000 (Wood & Mattox, 1986, p. 64). However, Roessner (1986, p. 53) predicts that by 2000, clerical employment will decline 22 percent from the 1980 level in insurance companies and by 10 percent in banking. The figures could even exceed a reduction of 50 percent. In addition, Roessner predicted that by 1990, American business will spend \$116 billion on computer hardware. Computer terminals will be found on more than 75 percent of the desks (Browning, 1986, p. 5). One prominent Chicago accounting and consulting firm's major objectives was to eliminate an entire layer of middle management by 1990 (Patterson, 1986, p. 53).

Jordan (1981) predicts a paperless office because of office automation. However, a study by the Administrative Management Society Foundation calls the future office a "less-paper office," rather than a paperless office. Although much talk abounds about the paperless office, "most experts agree that significant decreases in the use of paper in the office are still decades away" (Wagoner &

Ruprecht, 1984, p. 189).

Some believe that eventually electronic handling of all paperwork will take place (Sippl & Dahl, 1979). However, according to some authors, an exception may exist. "Electronic devices are good for short-term storage--but you still need traditional filing systems for long-term, hard-copy storage" (Fernberg, 1987, p. 74).

By 1990, about 45 percent of all U.S. employees who have worked in offices will be unemployed because they lack the necessary skills to work with the new technology (Congress, 1985, p. 54). Diebold, Inc. (1986, p. 55) reports that automating a work area with new equipment involves re-education costs of current employees amounting to three or four times the cost of a \$5000 workstation. Business during the same timeframe will find the retraining of employees for the computer society infeasible and expensive (Roessner, 1986). However, replacing experienced personnel with recent secondary school graduates is not a good option, because secondary school training is currently inadequate to meet sophisticated technological needs (Roessner, 1986).

The Occupational Outlook Handbook For 1980-81 (Lockwood, 1983) states that the need for clerical workers will increase 28 percent between 1978-1990. Lockwood (1983) reports that high technology is not the place where most new jobs will be found in the 1980s, and further remarks that high tech will not require a vast upgrading of the skills of the American labor force. Decreasing educational budgets and emphases on traditional basics have

forced cutbacks in many high school business education programs. Universities and colleges with business education teacher training programs are discontinuing specialized courses (Parciasepe, 1986).

Naismith (1984) believes that a careful study of the past produces the most accurate predictions of the future. Making predictions more accurately requires a new strategy, and that careful study of the past and present will be the best predictors for the new strategy.

Forces Changing the Workplace

Change in the mode of production and distribution of goods takes place at a different pace for various sizes of businesses. Therefore, the type and complexity of communication networks follows production. To be a bit historical, for example, some of the first recognizable small businesses we can recognize in the past were flock tenders and unorganized agrarian communities. These small businesses produced products, mostly on a survival basis, which were verbally bartered at the marketplace on a one-to-one basis.

One of the next evident changes in business structure involved the first generations of "paperless offices" which occurred in the days of Moses and the Pharoahs (Field, 1985, p. 57). Rather than paper, scribes carved hieroglyphic information. At such a time as the volume of grain production necessitated storage and distribution, work was separated into two categories: production and service

activities. In the days of the Pharaohs, grain production, activities included storing, assembling, distributing, exchanging, and maintaining grain records. Minimal service activities included clerical calculations on papyrus and negotiation concerning the value of grain (Goffman, 1976).

Thinking somewhat more generally, Giuliano (1981, p. 119) described three stages of office organizational development: preindustrial, industrial, and information. The typical preindustrial office (a classification which includes most small-sized offices today) uses a relatively unorganized system of handling work.

After the Egyptian attempt to organize, business went through a major change in response to the industrial revolution (1840-1900). As a result, production of manufactured goods transferred from farms to towns. Factories processed raw materials for consumer goods. Increased centralization of manufacturing required a new system of communications to facilitate product distribution. From 1840-1900, new technologies were invented to convey information: Morse Code, railway, overseas cable, telegraph, telephone, and the typewriter. Development of the new technologies resulted in or from centralized, national companies.

By 1960, the "post-industrial revolutionary stage" emerged (Field, 1985). Production technology created multinational corporate entities producing goods at an unsurpassed level. The functions of business--finance,

production, marketing, and management--adapted to a multi-national emphasis (Santos & Wright, 1977). Diebold said that in the future the electronic media will be so advanced that "there is going to be much more business-to-business communication, as distinct from person to person, just as there is going to be object-to-object communication via embedded microchips" (Dowst, 1987, p. 48). An increased need for information to support the volume of goods produced has evolved. However, to meet the increased office work, office managers were forced to reorganize office work.

Service-oriented industries may dominate the economy in the postindustrial society (Calhoun & Finch, 1982). From 1929 to 1977, "service organizations grew from 55 percent to two-thirds to the total employment while manufacturing dropped from 32 percent to 24 percent in 1977" (Stanback et al., 1979, p. 4). According to Baran (1982, pp. 4-5), the clerical occupational group of the total labor force has grown from 9.6 percent in 1940 to 18.6 percent in 1980. As indicated earlier, the Kelly study predicts a further jump to 90 percent of the labor force in offices by the year 2000 (Wood & Mattox, 1986, p. 64).

The Dilemma

Profits through productivity are the main goal of business. Industrial productivity increased over 90 percent in the 1970s. "Agricultural productivity increased by 55 percent. Office productivity increased by a mere four

percent" (Scheff, 1982, p. 91). Despite the size and type of industry, most companies have one goal in common: making a profit. However, a profitable economy might not be possible with 90 percent of the labor force in paper shuffling (Wood & Mattox, 1986). Salaries, supplies, and equipment are major components of the dilemma (Waterhouse, 1983).

Salary costs are becoming prohibitive. Rising costs and increased competition among businesses have focused attention on office productivity. Cost factors encourage a continuing shift to office automation. A study by Datapro (1982, p. 2) projected that 48 percent of total industry expense of the business budget for 1986-87 was utilized for personnel. The amount of paperwork, cost of supplies, and employee salaries have skyrocketed pushing the price of processing communications incredibly high. Dartnell Institute of Business Research indicated that the cost of a business letter has reached approximately \$20 (Waterhouse, 1983a, p. 8). In addition, "between 50 and 75 percent of all office costs are for salaries . . . rising at a rate of about 8 percent per year" (Waterhouse, 1983b, p. 8).

Supplies are being used at an exorbitant rate. "Boeing's 747 Flight Document Manual involved 750,000 pages" (Chorafas, 1982a, p. 79). "Society is increasingly dependent on information for efficiency, productivity, cost reduction, the functioning of our economy, and even the quality of our lives . . . information means money and holds the key for future growth" (Chorafas, 1982b, p. 63).

The cost is not small. Operating costs are climbing at a rate of 10 to 15 percent a year; and approximately 58 percent of the nation's office expenses go to support office-based white-collar workers, ranging from file clerks to presidents (Chorafas, 1982; Fortune, 1980). Information may mean excessive paperwork, which costs money. The Federal government spends \$55 billion each year on paperwork (Chorafas, 1982). Because paper communication is slow and costly, business will continue to move toward some forms of the electronic office.

Continuing evaluation and control of paperwork and document handling are keys to productivity and cost effectiveness. A shift toward greater automation is proving to be cost-effective for most offices. The clearest way to demonstrate the cost effectiveness of computers is to make a comparison between the costs of machines and people to do that same job, e.g., a word processor might reproduce five letters in a minute in comparison to the typist who might, at best, type one letter in five minutes (Kaliski, 1983).

Computer Impact on Office Personnel

Maximizing Productivity with Technology

"The impact of automation on office personnel will be significant . . . equipment which these employees use in their jobs will enable them to perform their duties with more sophistication, greater ease and higher efficiency" (Quible & Hammer, 1984, p. 25). With a computer, the capa-

city of both machine and worker grow the more the machine is used (Business Week, 1983). As the cost of the equipment drops, systems become even more accessible (Ropp, 1987).

One source estimates that technology registers a real cost decline of 17 percent a year (Hartman, 1982). "If automation is successful, by 1990 the estimated time saved by managers could amount to \$300 billion" (Brancatelli, 1981, p. 244). As the deluge of new hardware and software capabilities increases, so does the pressure for change. "Maximizing productivity increases an organization's competitive power. Failure to keep up with new productivity tools leads to loss of that power" (Mick, 1987, p. 73). Small businesses spent over \$13 billion on automation in 1986, and that number is expected to hit \$20.4 billion by 1991 (Stevens, 1987, p. 33). According to Stevens (1987), six million of the nation's small businesses have computerized. A Fortune 500 company in Colorado uses desktop publishing, because as supervisor Casey (1987) says, "we don't have time to wait for changes to come back from a typesetter and can't afford the expense of making frequent changes" (p. 68).

However, even though businesses can expand production levels, use of the computer in small businesses still remains under-utilized (Massey, 1986; Freudberg, 1984).

Upgrading of Office Skills

Office automation has created more opportunities in

that it has added more jobs and upgraded others (Jantze, 1985). A supervisor for an insurance company in Wichita says that office automation has upgraded jobs of the firm's forty-four clerical workers by upgrading their skills (Sharp, 1985).

Change of Relationship with Supervisor. Clerical workers are experiencing computerization effects as office automation requires a smaller but highly skilled clerical staff. A computer on every desk (Galitz, 1984; Manis, 1986) changes the supervisor/secretary relationship dramatically (MacKinnon, 1985). With personal computers in place, the general manager of Burris Foods spends 1 1/2 hours daily at his NCR Personal Computer (Information Management, 1985). However, such use is not by any means uniform. A mental tug of war exists with some managers readily accepting their own use of computers, while according to a survey of managers of Fortune 500 companies, some desktop computers are not used because managers feel keyboarding is menial (Harris, 1985).

Drake (1985) from the U.S. Department of Labor's Bureau of Labor Statistics in Wichita, Kansas, said "the job of stenographer has become kind of a dying occupation" (p. 14D) and that more professionals, managers, and executives are doing their own typing. The spread of office automation and personal computers is breaking down the stigma attached to typing and keyboarding in general. Managers report that senior managers have slowed the pace

of giving typing to secretaries. The managers have found using word processing saves time through personal input on the computer (Information Management, 1985; Spinard, 1982). Fleischer and Morell (1985) surveyed 22 middle managers in eight large organizations and discovered that 68 percent of the managers personally used the equipment (p. 38).

A large Wichita firm, Boeing aircraft, manages over 5,400 micros and approximately 40,000 software packages (Metz, 1986, p. 85). In addition, "even the smallest businesses can use these tiny machines and off-the shelf programs productively" (Alsop, 1981, p. 47). Nickell and Seado (1986) investigated 236 small firms, and found that 80 percent of the owner/managers were currently using computers themselves (p. 37). Research by Touche Ross surveyed the impact of the microcomputer on small businesses with sales of \$1 million to \$75 million. Its data indicated that 86 percent of the businesses own microcomputers, with 72 percent owning more than one microcomputer (Owens, 1987a, p. 44). The most frequent business computer applications were accounting (76 percent), mailing lists (67 percent), and storing information. The most frequent personal applications were word processing (72 percent), accounting, and budgeting (Owens, 1987b, p. 44).

Specific computer applications of small business owners/managers are different than the use of computers by managers of larger businesses. Fleischer and Morell (1985) found that managers use 68 percent of the computers for

decision-making tasks in large organizations. In contrast, owners/managers in small businesses use computers for more basic functions (word processing, mailing lists) frequently done by support personnel in large organizations (Malone, 1985; Cheney, 1983; Nickell & Seado, 1986; Owens, 1987).

New Role for Office Support Personnel

"No longer do typewriting and shorthand alone qualify someone for the title of secretary . . . the image of the new professional secretary is emerging" (Snelling, 1974, pp. 1-2). Technology, word processing, the paperwork explosion, and new business procedures have initiated a change (Santos & Wright, 1977, p. 13). Typing and shorthand are skills which facilitate written communications which places typist and stenographers in the role of communication workers. Secretaries often assist their colleagues as "a general assistant or understudy" (Byrne, 1982, p. 108).

Byrne and others propose a new role for the secretary as information and communication facilitator. This role involves understanding all office computerized functions (Garfield, 1986). Management will do as many correspondence and/or spreadsheet functions as necessary to make their own thinking clear. As soon as a given function is clear in the supervisor's mind, other personnel will be asked to complete the job. Schuller (Strehlo, 1984) at Scroggin & Fischer said he often composes letters on the computer at his full typing speed, edits the content, then

passes the disk to a secretary. The secretary corrects the typographical errors, runs the letter through the spelling checker, adds addresses, prints out the letters in the correct format, and stuffs the envelopes. Neal, a San Francisco lawyer, is just one of many who transfer disks to a secretary (Strehlo, 1984). A survey of 225 secretaries, working on office systems at a major state university, revealed a heavy involvement of secretaries in the role of "producer of communications" as well as "processing messages" (Golen, Waltman & White, 1987, p. 33). When secretaries were asked to indicate activities on which they spend time, they indicated producing/processing written material (78 percent), handling people (77 percent) and original writing (59 percent) as the three top categories (PSI, 1983, p. 20).

Maximizing Functions/Tasks of Supervisor/Support Personnel

A survey sponsored by Honeywell Office Management Systems Division of 701 managers and professionals in areas of finance, legal, personnel, operations management, marketing, purchasing, systems design and analysis revealed the pervasiveness of office automation throughout the United States. Of the total number of respondents, 75 percent said they had access to word processors, 68 percent to computer terminals, and 53 percent to personal computers. These managers use databases (82 percent), analyze financial information (73 percent), word processing (50

percent), or communicate with other computer users (43 percent). However, nearly 8 out of 10 still delegated most word processing work to secretaries (The Secretary, 1985, p. 3). A similar study of 186 managerial and professional employees showed PC use (0.5 to 5.0 hours a week) in large firms during a typical week with 17 percent of the respondents spending a third or more of their time on the PCs (Cervený & Joseph, 1986, p. 15).

The findings of a study in 1984 by TecTrends and another study in 1985 by Omni of Fortune 1000 companies reported a significant growth in computer use among support staff in the following areas: word processing (32 to 52 percent), financial applications (28 to 43 percent), electronic spreadsheet (21 to 41 percent), graphics (16 to 33 percent), electronic mail (13 to 31 percent), and calendar/scheduling (7 to 23 percent) (Goldfield, Berman & Rankin, 1985, p. 33).

The top 10 PC-based office applications and their percentage of use in Chicago-area businesses were: word processing (100 percent), spreadsheets (90.4 percent), database (69 percent), data entry (54.7 percent), data processing (52.3 percent), graphics (42.8 percent), telecommunications (40.8 percent), calendars (26.1 percent), desktop publishing (23.9 percent), and electronic mail (19 percent) (Data Management, 1987, p. 15). A questionnaire to 500 marketing college graduates resulted in entry-level personnel spending 23 percent of their time interfacing with computers on the following tasks: database (46.9

percent) with software packages (29.6 percent); decision models (14.9 percent), writing programs (5.1 percent), and dealing with hardware decisions or specifications (3.5 percent) (Sherwood & Nordstrom, 1986, p. 57).

When executives use computers for their own work, secretaries are no longer burdened with stacks of typing. Secretaries instead use databases, build report forms, develop spreadsheets, do desktop publishing, and perform administrative assistant work handling administrative responsibilities executives do not have time to handle (Strehlo, 1984; Umble, 1981; Jarvis, 1987). At General Motors, office automation enables secretaries to "collate data, track the financial performance of a product, survey personnel and prepare schedules, all with the push of a few buttons" (Winkler, 1985, p. 83).

According to Comp-U-Fax, a computer trends reporting service for Data Management, administrative support employees use PCs more than professionals and executives. The survey determined that the average administrative support personnel spends 36.73 percent of a day on a PC; professionals spend 24.57 percent of their day on a PC; executives spend 10.08 percent of their day on a PC (Data Management, 1987, p. 25).

A reader profile of 157 PC users indicated four different groups and the amount of time each spends working on a PC: secretaries (32 percent), professional workers (23 percent), managerial (12 percent), executives (5 percent) (Betts, 1986, p. 19). A 1987 follow-up study to Minolta's

1982 study confirmed that the use of computer-based equipment tripled since its last study by PSI members. When secretaries were asked about their role with regard to correspondence, they indicated that (1) they compose correspondence for both themselves and managers (79 percent), (2) they compose correspondence for managers (9 percent), (3) they compose correspondence for themselves (9 percent), and (4) they do not compose correspondence (3 percent) (Fusselman, 1987, p. 13).

Managerial Expectations

Other research presents apparently opposing viewpoints of the manager's expectations of technology. A survey conducted by OMNI of 3000 users, planners and purchasing officers found that managers and professionals delegate more computer tasks to secretaries even after they had desktop computers because the "managers find computers boring" (The Office, 1985, p. 48). A director for Computer and Business Equipment Manufacturers Association said "We are always hearing horror stories about enthusiastic managers who install computers in their departments, hand their secretaries manuals, and then expect productivity in their offices to increase 30 percent because the literature said it would. The fact is that it just doesn't happen that way" (Luckert, 1986, p. 30). "Mere installation of equipment does not make productivity happen. It takes a person, frequently a secretary, to do the creative thinking and planning to make optimal use of the equipment" (Hummel, 1984, p. 1).

A 1984 Harris survey revealed that 95 percent of all personnel felt their jobs were enhanced through increased information and that "technology in the workplace can serve as a motivator" (Graf, 1985, p. 5). A psychologist at Columbia University writes that computers will change the way we look at the world as a whole, in addition to impact on our work (Galenter, 1984, p. 19).

Knowledge Expectations of Office Support Personnel

A survey by Bowen and Lahiff (1986) revealed that 27 percent of the bosses and 22 percent of the secretaries in the Georgia PSI Athens Chapter did not have desktop computers, but more startling, 39 percent of the bosses and 14 percent of the secretaries see technological change coming to their firms in the next five years. The survey indicated that secretaries lag behind management in forecasting technological change, particularly in office filing functions (p. 20). "Any secretary who cannot deal with new technology will find herself out of a job at Arthur Anderson," said a personnel manager in Johannesburg (Winkler, 1985, p. 83). "A typical secretary, by the end of the next decade, is likely to be expected to be an initiator rather than a processor," concluded a 1984 report by Britain's Institute of Manpower Studies (Winkler, 1985, p. 82).

Knowledge-based compensation for what employees know, not just for what they do, will be a trend for flexible compensation (Flamholtz, Randle & Sackmann, 1987, p. 66).

Effective decisions will have to be based on the secretary's knowledge, grasp of functions, and mission of the office to secure their professional positions as managers of information in this rapidly changing environment of the Information Age (Bowen & Lahiff, 1986). Anyone, management and staff, with a resistant attitude toward retraining must reexamine that perspective. Retraining can ultimately assure stability within an entire organization (McClintock, 1984).

Summary

The review of related literature reveals changes in both the mode of production and the distribution of goods. This coupled with the availability of new technologies are the three major influences which will determine the type of office systems needed in the future.

Trends of recent decades, resulting in larger and larger numbers of office personnel compared to production personnel, tend to be inefficient in terms of cost-to-benefit ratios. The arrival of low-cost, powerful computers on the business scene comes at a time when the cost savings from their use is a very high priority if the business community is to once again return office costs to their proper ratio relationship with production costs. The implications of the preceding for office personnel of the future are that they will need to be increasingly flexible and competent. Secretaries and other office support personnel on the job in the present should expect to retrain

if they are not computer literate and students in school should expect to spend a major part of their educational effort on learning computer skills.

CHAPTER III

RESEARCH METHODS AND PROCEDURES

Introduction

According to Isaac and Michael (1985), descriptive research, sometimes called "survey studies," describes "systematically the facts and characteristics of a given population or area of interest, factually and accurately" (p. 46). The following steps were used to research the problem, plan the study, conduct the study, and present the results:

1. Survey of related literature (Chapter II)
2. Description of sample/population
3. Development of survey instrument
4. Collection of data
5. Statistical analysis of variables
6. Analysis and interpretation of data (Chapter IV)
7. Presentation of conclusions and recommendations (Chapter V)

Description of Sample/Population

The target population for this study included Professional Secretaries International (PSI) working-active members in Wichita, Kansas. The PSI Wichita Minisa Chapter

was organized in March, 1942, as the second national chapter in the Association organized in the United States. Minisa Chapter members have a proud active heritage. The members sponsored a PSI chapter in Newton, Kansas, hosted regional meetings, presented scholarships to University of Wichita students, served on international committees for the wider PSI, and presided for the Southwest Division. Of the 85 members, 59 are working-active members employed in the metropolitan area of Wichita.

Selection Group from PSI

The 1987-88 Wichita Minisa Chapter consisted of 85 members. Chapter members who were not actively engaged in the workforce or lived outside the State of Kansas were excluded from this study. Fifty-nine PSI Minisa working-active members received the questionnaire. For the purpose of this study, only those members who reported that they utilize a computer in their daily work were included in the data analysis.

Development of Survey Instrument

According to Isaac and Michael (1985), the guiding principles underlying surveys emphasize that they should be "systematic, representative, objective, and quantifiable" (p. 128). Hillestad's (1977, pp. 42-60) principles for developing a valid, reliable questionnaire were followed in the development of this study's survey instrument:

1. Visualize the respondents.

2. Group together questions dealing with each aspect of the study.
3. Arrange questions in either a psychological or logical order.
4. Make apparent that the questions are related to the purpose of the study.
5. Use an easy-to-answer format.
6. Prepare dummy tables of your anticipated responses.
7. Design an attractive questionnaire.
8. Supply clear, complete directions.
9. Try out the questions.

A ninety-item questionnaire articulating dimensions of hands-on computer-related tasks was constructed for this study. The survey instrument was designed to study the effect of business size on both the total and the specific amount of time spent by PSI members performing hands-on computer-related tasks.

The questionnaire was divided into two distinct parts:

Part I--Demographic data, including size of business, education, age, income, years employed.

Part II--Hands-on tasks related to computer work and the amount of time spent.

Questions were formulated to allow for quick, accurate responses by the respondents. Whenever possible, answers to questions were precoded for easy computer data entry. In order to control confidentiality and anonymity of research data, participants were given a number rather than using their names on the instrument.

Before the survey was finalized, dummy tables were set up to check whether the questions asked provided usable data and to plan exactly how the data was to be classified, tallied, and summarized (Hillestad, 1977, p. 51).

Several measures were taken to validate the questionnaire. A group of experts composed of graduate students and faculty at Oklahoma State University reviewed the questionnaire for the purpose of identification of ambiguous questions. As another test process, a photocopied questionnaire, was administered to selected PSI members in the Newton, Kansas, chapter. Warranted revisions were instituted following consultation with the reviewers.

To determine the reliability of the questionnaire, a test-retest procedure was performed in which the instrument was administered to the same subjects. The two administrations were separated by a two-month interval. The results of the two administrations were compared using the Spearman-Brown formula. Results indicated that the instrument possessed a high test-retest reliability ($r_{tt} = .919$).

Collection of Data

Phase One

Each working-active PSI member of the Minisa Chapter received an individually addressed cover letter and envelope. The cover letter, prepared on Oklahoma State University letterhead, was co-signed by the dissertation adviser, Dr. Dennis L. Mott. The letter contained an opening paragraph which summarized the purpose of the study and included a deadline for the return of the survey. The cover letter, questionnaire, and a return pre-addressed, stamped envelope was mailed on January 20, 1988. From the initial

mailing of 59, 28 questionnaires were returned. (See Appendices A and B for the cover letter and questionnaire.)

Phase Two

To maximize the participation base, two follow-up letters were sent to participants who had not replied to the original mailing. The first follow-up letter was mailed on February 5, 1988, and the second on February 18, 1988. With each follow-up letter, a questionnaire and a return pre-addressed, stamped envelope were enclosed, along with a reminder of the deadline for the return of the data. Seventeen additional questionnaires were received from the first follow-up, and 8 more questionnaires were received from the second follow-up as shown in Table 1 (page 34). (Appendix C includes the first and second follow-up letters.)

To measure response rate, Dillman's (1978) formula was used:

Response rate =

$$\frac{\text{Initial number returned}}{\text{Number mailed} - (\text{noneligibles} + \text{nonreachables})} \times 100$$

From the 59 questionnaires mailed, a total of 53 were ultimately returned, which represented a response rate of 89.83 percent. Of the 53 returned completed questionnaires, 36 of the respondents indicated that they use computers in the course of their work. These 36 questionnaires provided the participation base from which detail analysis was completed.

TABLE 1
 DISTRIBUTION OF QUESTIONNAIRE RETURNS
 FROM TOTAL QUESTIONNAIRES MAILED
 n=59

Category	Number	Percent
Returns from Original Mailing	28	47.46
Additional Returns from the First Follow-up Mailing	17	28.81
Additional Returns from the Second Follow-up Mailing	8	13.56
Total Questionnaires Returned	53	89.83

Statistical Analysis of Variables

Data provided by the subjects were compared as follows:

1. Size of business with
 - a. the total amount of computer use time performed by PSI members.
2. Size of business and the amount of computer use time were compared with regard to three subcategories of computer-related tasks.
 - a. letters and reports generation
 - b. computer-clerical tasks
 - c. use of spreadsheets and other organizational applications

Each subject provided information concerning the number of total hours spent each week on computer tasks. The

respondents also provided information concerning the amount of time spent on specific tasks in various subcategories.

Data from respondents in small businesses (under 300 employees) was compared with data from respondents in large businesses (over 300 employees) in order to ascertain whether size was a factor in determining hours spent performing computer functions. Total mean hours and mean hours by function were calculated for both size groups. Mean differences were then calculated between the size groups, item by item, and the t-test for significance was applied to see whether those differences were statistically significant. Pearson Product Moment Correlations were used to provide an additional indication of the degree to which size is related to the number of hours spent performing computer functions.

Summary

Chapter III included the steps utilized in researching the problem, planning the study, conducting the study, and presenting the results of this study.

Statistical analysis and interpretation of the data have been reported in Chapter IV of this dissertation.

On the basis of the findings reported in Chapter IV, conclusions and recommendations about planning, programming, and further research were made in Chapter V.

CHAPTER IV

ANALYSIS OF FINDINGS

Introduction

Chapter IV provides a tabular and statistical summary of the data received from a computer-use survey of 53 PSI Minisa Chapter members in the Wichita metropolitan area.

The research problem investigated in this study concerned the amount of time spent performing hands-on computer-related office tasks by PSI Minisa members employed in businesses of varying size in the Wichita, Kansas, metropolitan area. The survey instrument was sent to 59 working-active PSI members. Fifty-three of the 59 surveys were ultimately returned. Of these 53 surveys, 36 respondents utilized the computer and 14 did not use the computer. Three respondents did not indicate whether or not they use a computer. Analysis of the data focused on the 36 Minisa members who reported that they utilized a computer.

Plan for Analysis of the Data

Chapter IV is divided into three parts. The first part presents demographic information about the sample population.

The second part presents a comparison of the total amount of computer time used by PSI office personnel in small and large businesses.

The third part presents both the findings as they relate to specific computer tasks under study and other related or general findings.

Ancillary explanatory findings and other demographic data which contribute to understanding of the hypotheses are included in Appendix D.

Presentation of the Data

Demographics of the Sample

Sixty percent of the respondents were employed in businesses with 300 or more employees, while 40 percent of the respondents worked in businesses with less than 299 employees (Table 2 page 38). Seventy-two percent of the respondents reported using a computer, while 28 percent did not use a computer. Computer-use was higher in businesses with over 300 employees (76.7 percent usage) than in businesses with under 299 employees (65 percent usage) (Table 3 page 38). Among computer users in businesses with under 300 employees, secretaries used the computer, on the average, 19.7 hours per week. Secretaries in businesses with 300 or more employees used the computer an average of 23.8 hours per week which was not a significant difference, $p > .05$).

Table 4 (page 39) shows that the age of PSI members

TABLE 2
 SURVEY RETURNS FROM PSI MEMBERS EMPLOYED AT
 VARIOUS SIZES OF BUSINESSES IN
 WICHITA METROPOLITAN AREA
 n=53

Size of Business	Number of Respondents	Percent of Total Sample by size n=53
1 - 49	10	20.00
50 - 99	4	8.00
100 - 149	0	0.00
150 - 199	0	0.00
200 - 249	1	2.00
250 - 299	5	10.00
300 plus	30	60.00
No Response	3	--
Totals	53	100.00

TABLE 3
 COMPARISON OF PSI MINISA MEMBERS COMPUTER USE
 BY SIZE OF BUSINESS
 n=50

Size of Business	Number Using a Computer	Percent Using a Computer	Number Not Using a Computer	Percent Not Using a Computer
1 - 49	6	16.67	4	28.57
50 - 99	2	5.56	2	14.29
100 - 149	0	0.00	0	0.00
150 - 199	0	0.00	0	0.00
200 - 249	1	2.78	0	0.00
250 - 299	4	11.11	1	7.14
300 plus	23	63.88	7	50.00
Total	36	100.00	14	100.00

who used a computer was significantly younger (44.5 mean years of age) than those who did not use a computer (52 mean years of age) ($t = 2.262, p < .05$).

TABLE 4
COMPARISON OF AGE AND THE USE OF COMPUTERS
BY PSI MEMBERS
n=50

Category	Number Using Computer	Percent Using a Computer	Number Not Using Computer	Percent Not Using Computer
20-29	4	11.11	1	7.14
30-39	6	16.67	0	0.00
40-49	15	41.67	4	28.57
50-59	8	22.22	5	35.72
60+	3	8.33	4	28.57
Totals	36	100.00	14	100.00

As shown in Table 5 (p. 40) PSI members who used a computer tended to be in a higher income bracket (\$23,332 mean income) than those who did not use a computer (\$19,642 mean income). However, the difference was not statistically significant ($t = .941, p > .05$).

As shown in Table 6 (p. 40), PSI members who used a computer tended to have worked for the same employer slightly longer (10.3 mean years) but not significantly longer than those not using a computer (9.79 mean years) ($t = .055, p > .05$).

TABLE 5
 COMPARISON OF PSI MEMBERS INCOME AND
 THE USE OF COMPUTERS
 n=50

Category	Number Using Computer	Percent Using a Computer	Number Not Using Computer	Percent Not Using Computer
under \$9,999	0	0.00	0	0.00
\$10,000-19,999	12	33.33	7	53.85
\$20,000-29,999	18	50.00	4	30.77
over \$30,000	6	16.67	2	15.38
No Response			1	
Totals	36	100.00	14	100.00

TABLE 6
 COMPARISON OF YEARS WITH CURRENT EMPLOYER AND
 THE USE OF COMPUTERS
 n=50

Category	Number Using Computer	Percent Using a Computer	Number Not Using Computer	Percent Not Using Computer
under 1 year	1	2.78	0	0.00
1-5 years	9	25.00	5	35.71
6-10 years	9	25.00	3	21.43
11-20 years	12	33.33	4	28.57
more than 20	5	13.89	2	14.29
Totals	36	100.00	14	100.00

Testing of Hypotheses

Testing of Hypothesis No. 1

Hypotheses No. 1 stated that among PSI employees who used the computer there were no significant differences between small- and large-sized businesses in the total number of hours employees spend on computers.

In the case of Hypothesis No. 1, the null hypothesis was accepted. The mean number of hours spent on computers by large business respondents was 23.761 while the small business respondent mean hours was 19.731. These differences were not statistically significant ($t = 1.08$, $p > .05$). The lack of significance was borne out by a Pearson correlation between the total time spent on the computer and the size of business ($r = .182$, $p > .05$).

Testing of Hypotheses No. 2

Hypotheses No. 2 stated that there were no significant differences between the amount of time spent performing tasks involving letters and reports, computer-clerical, spreadsheets and other organizational applications by PSI office personnel in businesses of different size.

In the case of Hypothesis No. 2, the null hypothesis as stated was rejected. Data gathered in the course of testing Hypothesis No. 2 indicated that size of business was a significant factor in determining the number of hours office support personnel spend preparing letters and reports.

The significance of business size relative to specific computer use is shown in Table 7. The mean number of computer hours spent on letters and reports in large businesses was 14.326 hours and in small businesses was 7.542 hours ($t = 2.460$, $p = .019$) significant at the .05 level.

TABLE 7
COMPARISON OF MEAN HOURS OF COMPUTER USAGE TO PERFORM
OFFICE FUNCTIONS BY SIZE OF BUSINESS

Type of Computer Function	Size of Business		t	p
	Small X (SD) (n)	Large X (SD) (n)		
Letters & Reports	7.542 (8.106) (n=12)	14.326 (7.557) (n=23)	2.460	.019*
Computer Clerical	10.731 (12.811) (n=13)	6.315 (5.703) (n=23)	1.432	.161
Spreadsheets etc.	2.375 (4.227) (n=12)	3.087 (4.152) (n=23)	.479	.635

*Significant at the .05 probability of occurrence level

A comparison of the mean number of hours spent by Minisa members carrying out computer-clerical functions in large and small businesses reveals an insignificant effect of business size on hours of computer-clerical functions (Table 7, $t = 1.432$, $p = .161$).

When a test for significant differences between means

was calculated on mean hours of spreadsheet-related use among employees in large and small businesses, the means were not statistically different at 3.87 and 2.375 respectively ($t = .479$, $p = .635$) as shown in Table 7.

The degree of "size relatedness" is further indicated in Table 8, which shows that the number of hours spent using the computer, to prepare letters and reports was positively correlated with business size ($r = .394$, $p < .05$).

Hours spent at clerical tasks on the computer and business size were analyzed with a Pearson Product Moment correlation. A small negative correlation occurred, however, the significance was not significant (Table 8, $r = -.239$, $p > .05$).

TABLE 8
CORRELATIONS OF COMPUTER USAGE TO PERFORM OFFICE
FUNCTIONS BY LARGE AND SMALL BUSINESS
n=36

Function	Correlation (r)
Letters and Reports	.394*
Clerical Tasks	-.239
Spreadsheets and Other Organizational Applications	.083

*Significant at .05

When business size and spreadsheets and other

organizational applications were compared, an insignificant relationship resulted (Table 8, $r = .083$, $p > .05$).

A. Letters and Reports: More Detail. Table 9 (p. 45) presents a more detailed breakdown of the category involving letters and reports. Only one of the specific detailed functions in this category was seen to be significantly affected by the size of the business. The subcategory, "editing of final copy," showed a markedly lower mean number of hours spent editing in large businesses than in small businesses (4.890 and .769 mean hours respectively), a statistically significant difference ($t = 2.051$, $p = .048$) at the .05 level. This significant business size effect revealed that secretaries in large businesses do more than six times as much editing of final copy, where first rough draft copy on computer, typewriter, or handwritten by supervisor, than do their peers in the smaller businesses.

Also, as shown in Table 9, the secretaries in large businesses spent twice as much time generating computer letters and reports than their peers in small businesses. Office support personnel in large businesses spend over half of their time on the computer composing letters and reports. Earlier studies by Golen, Waltman and White (1987), Winkler (1985), and PSI (1983) suggested the heavy involvement of secretaries in the role of "producer of communications." Of the communiques so produced in smaller businesses, 65 percent were mailed out over the supervisor's signature; while in the larger businesses, 72

TABLE 9
COMPARISON OF COMPUTER PREPARATION OF LETTER AND REPORT
TASKS BY SIZE OF BUSINESS

Task	Size of Business		t	p
	Small n=13 X (SD)	Large n=23 X (SD)		
Compose letters & mail over own signature	.538 (1.127)	.674 (1.114)	.349	.729
Compose memos & mail over own signature	.269 (.599)	.804 (1.346)	1.353	.185
Compose letters for supervisor's signature	.846 (1.068)	1.228 (1.231)	.936	.356
Edit final copy where first rough draft copy on computer, typewriter, handwritten by supervisor	.769 (.992)	4.870 (7.124)	2.051	.048*
Compose memos for supervisor's signature	.615 (1.044)	1.250 (1.053)	1.743	.090
Compose minutes for supervisor's signature	.231 (.832)	.696 (1.213)	1.225	.229
Compose minutes & mail out over own signature	.462 (1.391)	.087 (.417)	1.210	.235
Compose news releases for approval	.077 (.277)	.217 (1.043)	.474	.639
Compose news releases & mail out over own signature	.000 (.000)	.217 (1.043)	---	---(1)
Compose reports & mail out over own signature	.077 (.277)	.478 (.898)	1.561	.128
Compose reports for approval	.769 (1.235)	2.043 (2.977)	1.466	.152
Compose speeches for approval	.000 (.000) (n=12)	.217 (.671)	---	---(1)
Other	10.333 (4.736) (n=3)	5.667 (5.854) (n=6)	1.188	.274**

*Significant at .05 level/**Qualitative Data: See Table 10
(1) No variance resulted

percent of the secretary-produced communiques were mailed over the supervisor's signature.

As shown in Table 10, the degree of "size relatedness" of the subcategories in letters and reports "editing final copy" is positively correlated with business size ($r = .332$, $p < .05$).

TABLE 10
SUBCATEGORY CORRELATIONS OF COMPUTER USE AND SIZE OF
BUSINESS IN THE PREPARATION OF LETTERS AND REPORTS
n=36

Computer Function	Correlation (r)
Compose letters and mail out over own signature	.060
Compose memos and mail out over own signature	.226
Compose letters for supervisor's signature	.159
Edit final copy of letters where supervisor made first rough draft copy on computer, typewriter, or handwritten	.332*
Compose memos for supervisor's signature	.286
Compose minutes for approval	.206
Compose minutes and mail out over own signature	-.203
Compose news releases for approval	.081
Compose news releases and mail out over own signature	.127
Compose reports and mail out over own signature	.259
Compose reports for approval	.244
Compose speeches for approval	.190
Other time spent in functions involving letters and reports	-.410**

*Significant at $.05 < .321$

**Qualitative Data: n=9; no answer; straight typing; work orders; subcontracts/purchase orders; legal documents; graphs, charts; contracts; crew lists, seniority lists

B. Computer-Clerical Functions: More Detail. Only one of the subcategories in the category computer-clerical was found to be significantly related to business size. As shown in Table 11 (p. 48), a comparison of the mean-hours spent "assembling form letters for the supervisor's signature" revealed a significantly smaller time investment in smaller businesses than in larger businesses (.154 hours and 1.337 hours respectively) ($t = 2.238, p < .05$).

Table 12 (p. 49) shows the relationship between size of business and hours spent performing specific computer-clerical tasks. The category entitled "assemble form letters for supervisor's signature" was positively correlated with business size ($r = .358, p < .05$).

C. Spreadsheets and Other Organizational Functions: More Detail. Table 13 (p. 50) shows mean hours difference PSI members spend working on computerized spreadsheets and other organizational applications. Within the six categorical areas, no significant differences resulted.

Comparison of business size and time spent with computerized spreadsheets and other organizational applications were correlated using a Pearson Product Moment Correlation. No significant relationship was found (Table 14, p. 51).

TABLE 11

COMPARISON OF COMPUTER USE FOR SPECIFIC COMPUTER-CLERICAL
TASKS AS RELATED TO SIZE OF BUSINESS

Computer Function	Size of Business		t	p
	Small n=13 X (SD)	Large n=23 X (SD)		
Transcription of machine dictated letters	1.538 (5.547)	.913 (1.782)	.502	.619
Transcription of shorthand dictated letters	.538 (1.391)	.750 (1.539)	.410	.685
Assemble form letters for your signature	.154 (.376)	.446 (1.234)	.827	.414
Assemble form letters for your supervisor's signature	.154 (.376)	1.337 (1.873)	2.238	.032*
Use of spell check with word processing	.615 (1.372)	.891 (1.422)	.566	.575
Use of grammar check with word processing	.385 (1.121)	.239 (.767)	.462	.647
File management with the computer	3.038 (9.623)	.174 (.491)	1.441	.159
Numeric data keyboard entry	2.692 (6.812)	.609 (1.469)	1.424	.163
Use of optical character recognition	.000 (.000)	.000 (.000)	---	---(1)
Use of computer assisted retrieval	.615 (1.446)	.261 (.689)	1.000	.325
Other	12.000 (0.000) (n=1)	6.500 (4.950) (n=2)	---	---(1)**

*Significant at .05 level; **Qualitative Data: See Table
(1) No variance occurred

TABLE 12
 CORRELATION OF COMPUTER USE AND SIZE OF BUSINESS
 IN PERFORMING COMPUTER-CLERICAL FUNCTIONS
 n=36

Type of Computer Function	Correlation (r)
Transcription of machine dictated letters	-.086
Transcription of shorthand dictated letters	.070
Assemble for letters for own signature	.140
Assemble form letters for supervisor's signature	.358*
Use of spell check with word processing	.097
Use of grammar check with word processing	-.079
File management with the computer	-.240
Numeric data keyboard entry	-.237
Use of optical character recognition	---(1)
Use of computer assisted retrieval	-.169
Other	-.672**

*Significant at .05

**Qualitative Data: n=3; draft 60-70 pages financial documents; student schedules at WSU

(1) No Responses from respondents

TABLE 13

COMPARISON OF COMPUTER USE FOR PREPARING SPREADSHEETS AND
OTHER ORGANIZATIONAL FUNCTIONS AS RELATED TO
SIZE OF BUSINESS

Functions Used	Size of Business		t	p
	Small n=13 X (SD)	Large n=23 X (SD)		
Spreadsheet	1.385 (2.785)	1.924 (3.804)	.447	.658
Database	.385 (.961)	.326 (.701)	.210	.835
Accounting package	.000 (.000)	.000 (.000)	---	---(1)
Electronic mail	.000 (.000)	.750 (1.650)	---	---(1)
Executive decision-ware	.000 (.000)	.000 (.000)	---	---(1)
Other	2.750 (2.475)	1.000 (.000)	---	---(1) **

Not Significant at .05 level

**Qualitative Data: See Table 14

(1) No variance occurred

TABLE 14

CORRELATION OF COMPUTER USE AND SIZE OF BUSINESS IN
PERFORMING SPREADSHEETS AND OTHER ORGANIZATIONAL
APPLICATIONS AND SIZE OF BUSINESS
n=36

Type of Computer Function	Correlation (r)
Spreadsheet use	.076
Database use	-.036
Accounting package use	---(1)
Electronic mail use	.269
Executive decision-ware use	---(1)
Other	-.577**

Not Significant at .05 level

**Qualitative Data: n=2; statistic analysis data entry;
libraries; organization charts;
presentations

(1) No response from respondents

Other Surveyed Findings

Table 15 (pp. 52-53) depicts perceptions of the 36 PSI employees who used the computer and how the computer has changed their jobs. Respondents used a Likert-type scale to respond to one of three categories: Agree--3; No Change--2; and Disagree--1.

Table 16 (pp. 54-55) shows, by size of business, how the respondents perceived changes in their jobs because of computer use.

TABLE 15
EFFECT OF COMPUTER ON RESPONDENTS' JOBS
n=36

Category	Percent Agree	Percent No Change	Percent Disagree	No Resp*
1. Improved accuracy	81.25	12.50	6.25	4
2. More efficient	97.06	2.94	0.00	2
3. More productive	100.00	0.00	0.00	3
4. More cost effective	73.33	23.33	3.33	6
5. Changed job title	6.25	75.00	18.75	4
6. Balanced work load	28.13	40.63	31.25	4
7. Better supervision	15.63	59.38	25.00	4
8. Less paperwork	36.36	30.30	33.33	3
9. Less photocopy work	21.21	48.48	30.30	3
10. Better workflow	64.52	22.58	12.90	5
11. More status	21.88	56.25	21.88	4
12. More money	9.38	78.13	12.50	4
13. Less confidential work	12.50	59.38	28.13	4
14. Am happier	75.00	18.75	6.25	4
15. More delegation of work	25.00	59.38	15.63	4
16. Make recommendations for equipment purchases	40.63	34.38	25.00	4
17. Make fewer carbon copies	69.70	27.27	3.03	3
18. Make more decisions	39.39	54.55	6.06	3
19. Do more research	42.42	48.48	9.09	3
20. Train others to use computer	71.88	18.75	9.38	4
21. Needed more training	74.19	25.81	0.00	5
22. Use more creativity than before	68.75	28.13	3.13	4
23. Wrote a user's manual	12.90	45.16	41.94	5
24. Use original ideas	68.75	31.25	0.00	4
25. Better work turnaround time	87.88	9.09	3.03	3
26. Less filing time	39.39	51.52	9.09	3
27. Better record retrieval	69.70	30.30	0.00	3
28. Less shorthand dictation	36.67	56.67	9.68	5
29. Less machine dictation	32.26	58.06	9.68	5
30. Added job responsibilities	84.85	12.12	3.03	3

TABLE 15 (Continued)
 EFFECT OF COMPUTER ON RESPONDENTS' JOBS
 n=36

Category	Percent Agree	Percent No Change	Percent Dis-agree	No Resp*
31. More pressure	50.00	40.63	9.38	4
32. Less interruptions	6.25	62.50	31.25	4
33. Less incoming telephone calls	0.00	62.50	37.50	4
34. Less outgoing telephone calls	9.38	59.38	31.25	4
35. Better morale	59.38	21.88	18.75	4
36. Less routine work	15.63	65.63	18.75	4
37. More privacy	21.88	56.25	21.88	4
38. Interview prospective employees	6.25	53.13	40.63	4
39. Job stability	40.63	43.75	15.63	4
40. Run less errands	15.63	62.50	21.88	4
41. More assertive	46.88	40.63	12.50	4
42. More flexible	62.50	31.25	6.25	4
43. More teamwork	50.00	40.00	10.00	6

*No Resp = No Response to the question

TABLE 16
 PERCEIVED AGREEMENT OF COMPUTER IMPACT ON
 JOBS BY SIZE OF BUSINESS

Category	Frequency n=13	Percent Small Business n=13	Freq. n=23	Percent Large Business n=23
1. Improved accuracy	8/11	72.73	18/21	85.71
2. More efficient	12/12	100.00	21/22	95.45
3. More productive	11/11	100.00	22/22	100.00
4. More cost effective	7/11	63.64	15/19	78.95
5. Changed job title	1/10	10.00	1/22	4.55
6. Balanced work load	2/10	20.00	7/22	31.82
7. Better supervision	0/10	0.00	5/22	22.73
8. Less paperwork	5/11	45.45	7/22	31.82
9. Less photocopy work	3/11	27.27	4/22	18.18
10. Better workflow	7/10	70.00	13/21	61.90
11. More status	2/10	20.00	5/22	22.73
12. More money	2/10	20.00	1/22	4.55
13. Less confidential work	2/10	20.00	2/22	9.09
14. Am happier	6/10	60.00	18/22	81.82
15. More delegation of work	3/10	30.00	5/22	22.73
16. Make recommendations for equipment purchases	5/10	50.00	8/22	36.36
17. Make fewer carbon copies	6/11	54.55	17/22	77.27
18. Make more decisions	4/11	36.36	9/22	40.91
19. Do more research	6/11	54.55	8/22	36.36
20. Train others to use computer	8/10	80.00	15/22	68.18
21. Needed more training	9/10	90.00	14/21	66.67
22. Use more creativity than before	8/11	72.73	14/21	66.67
23. Wrote a user's manual	2/10	20.00	2/21	9.52
24. Use original ideas	9/10	90.00	13/22	59.09
25. Better work turnaround time	9/11	81.82	20/22	90.91
26. Less filing time	6/11	54.55	7/22	31.82
27. Better record retrieval	10/11	90.91	13/22	59.09
28. Less shorthand dictation	3/9	33.33	8/21	38.10
29. Less machine dictation	3/10	30.00	7/21	33.33

TABLE 16 (Continued)
 PERCEIVED AGREEMENT OF COMPUTER IMPACT ON
 JOBS BY SIZE OF BUSINESS

Category	Frequency n=13	Percent Small Business n=13	Freq. n=23	Percent Large Business n=23
30. Added job responsibilities	8/11	72.73	20/22	90.91
31. More pressure	3/10	30.00	13/22	59.09
32. Less interruptions	5/10	50.00	2/22	9.09
33. Less incoming telephone calls	0/10	0.00	0/22	0.00
34. Less outgoing telephone calls	1/10	10.00	2/22	9.09
35. Better morale	6/10	60.00	13/22	59.09
36. Less routine work	2/10	20.00	3/22	13.64
37. More privacy	3/10	30.00	4/22	18.18
38. Interview prospective employees	2/10	20.00	0/22	0.00
39. Job stability	3/10	30.00	10/22	45.45
40. Run less errands	3/10	30.00	2/22	9.09
41. More assertive	4/10	40.00	11/22	50.00
42. More flexible	7/10	70.00	13/22	59.09
43. More teamwork	5/9	55.56	10/21	47.62

Data from PSI employees indicated the computer has made no change in their job is reported in Table 17 (pp. 56-57).

Table 18 (pp. 58-59) shows disagreement by the respondents working in small and large businesses regarding their perceived impact of the computer on their jobs.

TABLE 17

PERCEIVED LACK OF EFFECT OF COMPUTER IMPACT ON
JOBS BY SIZE OF BUSINESS

Category	Frequency n=13	Percent Small Business n=13	Freq. n=23	Percent Large Business n=23
1. Improved accuracy	2/11	18.18	2/21	9.52
2. More efficient	0/12	0.00	1/22	4.55
3. More productive	0/11	0.00	22/22	0.00
4. More cost effective	4/11	36.66	3/19	15.79
5. Changed job title	7/10	70.00	17/22	77.27
6. Balanced work load	4/10	40.00	9/22	40.91
7. Better supervision	7/10	70.00	12/22	54.55
8. Less paperwork	3/11	27.27	7/22	31.82
9. Less photocopy work	4/11	36.36	12/22	54.55
10. Better workflow	3/10	30.00	4/21	19.05
11. More status	6/10	60.00	12/22	54.55
12. More money	6/10	60.00	19/22	86.36
13. Less confidential work	3/10	30.00	16/22	72.73
14. Am happier	4/10	40.00	2/22	9.09
15. More delegation of work	6/10	60.00	13/22	59.09
16. Make recommendations for equipment purchases	2/10	20.00	9/22	40.91
17. Make fewer carbon copies	4/11	36.36	5/22	22.73
18. Make more decisions	6/11	54.55	12/22	54.55
19. Do more research	5/11	45.45	11/22	50.00
20. Train others to use computer	1/10	10.00	5/22	22.73
21. Needed more training	1/10	10.00	7/21	33.33
22. Use more creativity than before	2/11	18.18	7/21	33.33
23. Wrote a user's manual	4/10	40.00	10/21	47.62
24. Use original ideas	1/10	10.00	9/22	40.91
25. Better work turnaround time	2/11	18.18	1/22	4.55
26. Less filing time	4/11	36.36	13/22	59.09
27. Better record retrieval	1/11	9.09	9/22	40.91
28. Less shorthand dictation	5/9	55.56	12/21	57.14
29. Less machine dictation	5/10	50.00	13/21	61.90
30. Added job responsibilities	2/11	18.18	2/22	9.09

TABLE 17 (Continued)
 PERCEIVED LACK OF EFFECT OF COMPUTER IMPACT ON
 JOBS BY SIZE OF BUSINESS

Category	Frequency n=13	Percent Small Business n=13	Freq. n=23	Percent Large Business n=23
31. More pressure	5/10	50.00	8/22	36.36
32. Less interruptions	5/10	50.00	15/22	68.18
33. Less incoming telephone calls	4/10	40.00	16/22	72.73
34. Less outgoing telephone calls	4/10	40.00	15/22	68.18
35. Better morale	2/10	20.00	5/22	22.73
36. Less routine work	6/10	60.00	15/22	68.18
37. More privacy	4/10	40.00	14/22	63.64
38. Interview prospective employees	4/10	40.00	13/22	59.09
39. Job stability	6/10	60.00	8/22	36.36
40. Run less errands	5/10	50.00	15/22	68.18
41. More assertive	6/10	60.00	7/22	31.82
42. More flexible	3/10	30.00	7/22	31.82
43. More teamwork	3/9	33.33	9/21	42.86

TABLE 18
PERCEIVED DISAGREEMENT OF COMPUTER IMPACT ON
JOBS BY SIZE OF BUSINESS

Category	Frequency n=13	Percent Small Business n=13	Freq. n=23	Percent Large Business n=23
1. Improved accuracy	1/11	9.09	1/21	4.76
2. More efficient	0/12	0.00	0/22	0.00
3. More productive	0/11	0.00	22/22	0.00
4. More cost effective	0/11	0.00	1/19	5.26
5. Changed job title	2/10	20.00	4/22	18.18
6. Balanced work load	4/10	40.00	6/22	27.27
7. Better supervision	3/10	30.00	5/22	22.73
8. Less paperwork	3/11	27.27	8/22	36.36
9. Less photocopy work	4/11	36.36	6/22	27.27
10. Better workflow	0/10	0.00	4/21	19.05
11. More status	2/10	20.00	5/22	22.73
12. More money	2/10	20.00	2/22	9.09
13. Less confidential work	5/10	50.00	4/22	18.18
14. Am happier	0/10	0.00	2/22	9.09
15. More delegation of work	1/10	10.00	4/22	18.18
16. Make recommendations for equipment purchases	3/10	30.00	5/22	22.73
17. Make fewer carbon copies	1/11	9.09	0/22	0.00
18. Make more decisions	1/11	9.09	1/22	4.55
19. Do more research	0/11	0.00	3/22	13.64
20. Train others to use computer	1/10	10.00	2/22	9.09
21. Needed more training	0/10	0.00	0/21	0.00
22. Use more creativity than before	1/11	9.09	0/21	0.00
23. Wrote a user's manual	4/10	40.00	9/21	42.86
24. Use original ideas	0/10	0.00	0/22	0.00
25. Better work turnaround time	0/11	0.00	1/22	4.55
26. Less filing time	1/11	9.09	2/22	9.09
27. Better record retrieval	0/11	0.00	0/22	0.00
28. Less shorthand dictation	1/9	11.11	1/21	4.76
29. Less machine dictation	2/10	20.00	1/21	4.76

TABLE 18 (Continued)
 PERCEIVED DISAGREEMENT OF COMPUTER IMPACT ON
 JOBS BY SIZE OF BUSINESS

Category	Frequency n=13	Percent Small Business n=13	Freq. n=23	Percent Large Business n=23
30. Added job responsibilities	1/11	9.09	0/22	0.00
31. More pressure	2/10	20.00	1/22	4.55
32. Less interruptions	5/10	50.00	5/22	22.73
33. Less incoming telephone calls	6/10	60.00	6/22	27.27
34. Less outgoing telephone calls	5/10	50.00	5/22	22.73
35. Better morale	2/10	20.00	4/22	18.18
36. Less routine work	2/10	20.00	4/22	18.18
37. More privacy	3/10	30.00	4/22	18.18
38. Interview prospective employees	4/10	40.00	9/22	40.91
39. Job stability	1/10	10.00	4/22	18.18
40. Run less errands	2/10	20.00	5/22	22.73
41. More assertive	0/10	0.00	4/22	18.18
42. More flexible	0/10	0.00	2/22	9.09
43. More teamwork	1/9	11.11	2/21	9.52

PSI office personnel reported in Table 19 (p. 60) that their supervisors used a computer. A greater proportion of immediate supervisors in smaller businesses were more likely to use a computer (67 percent) than supervisors in larger businesses (39 percent).

Summary

Chapter IV is a detailed analysis of the data obtained

TABLE 19
 COMPUTER USE BY IMMEDIATE SUPERVISORS
 IN LARGE AND SMALL BUSINESSES
 n=36

Category	Frequency n=13	Percent Small Business n=13	Freq. n=23	Percent Large Business n=23
Supervisor Uses a Computer	8	66.67	8	34.78
Supervisor Does Not Use a Computer	4	33.33	15	65.22
No Response	1			
Total	13		23	

from a survey sent to 59 PSI Minisa Chapter members in the Wichita, Kansas, metropolitan area. Fifty-three people, or 89.83 percent, responded to the questionnaire. Thirty six of fifty usable responses showed a 72 percent computer-use rate among PSI office personnel.

The purpose of the questionnaire was to assess whether size of business had any systematic effect on the total number of hours of computer use by the secretaries surveyed and whether size affected the proportional secretarial time distributed to three major areas of task function: letters and reports; computer-clerical functions; spreadsheets and other organizational applications.

Data were analyzed with Pearson Product Moment Correlation and t-test for the significance of group mean differences. In general, the effect of business size on the number of hours spent on specified computer functions was not statistically significant with the exception of letters and reports. The number of hours of computer usage to prepare letters and reports was greater in businesses which employ over 300 employees than businesses which employ under 300 employees.

A summary of the findings is in Chapter V, along with conclusions and recommendations.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

The impact of the computer on office functions has occurred over a short time period in comparison to the vast history of business organizations and computer systems. The vigor and the rapidity of the computer's impact has made it somewhat difficult for business educators to simply keep up with the pace of change let alone planning ahead for curricular change and design.

Because of the size and expense of computers, the first computer-related technological developments occurred in large corporations. However, the advent of the small and relatively inexpensive microcomputer has changed the way of thinking about technological development. Because of the microcomputer, a greater technological impact has occurred in small businesses. Today, small businesses are able to use the same technologies, software and database applications which was developed first in large businesses.

The intent of the information gathered in this research will help the educator review habitual ways of thinking about computer technologies and computer-related tasks which office personnel perform.

Problem and Design of the Study

Problem of the Study

The problem of this study was to assess the impact of business size on computer-related task performance in the office. The current performance should hopefully suggest future business education content and methodology as it pertains to office support personnel. A survey study of current computer-related task performance among a group of professional secretaries was selected as the method of assessing recent computer-related roles.

Design of the Study

The literature search provided information to be included in a questionnaire which was ultimately mailed to 59 working-active PSI Chapter members in the Wichita, Kansas, metropolitan area. Because the sample was small, two follow-up letters were mailed to encourage a high rate of return from the respondents.

Analysis of the Data

Data from the questionnaires were entered into a nondocument ASCII file prior to conversion to the SYSTAT data analysis program.

The returns were analyzed with t-tests for the significance of group mean difference and the Pearson Product Moment Correlation checking for positive and negative relationships between business size and the total

number of hours PSI office personnel spend in computer-use. In addition, the amount of time PSI employees spent utilizing the computer for specific computer-related functions was analyzed through t-tests and the Pearson Product Moment Correlation.

Summary of the Findings

The problem of this study was to ascertain the effect of business size on task performance between large and small business employee support personnel. Fifty-nine, working-active professional secretaries were sent a mail survey to ascertain whether they use a computer and/or how much time they spend performing a repertoire of specified computer-related office tasks. Of the fifty-three people who returned the questionnaire, 36 indicated that they use a computer.

This study reveals that there were no significant differences between small- and large-sized businesses in the total number of mean hours PSI employees spend on computers. However, results indicate that there were significant differences between the amount of time spent performing tasks involving letters and reports, computer-clerical, spreadsheets and other organizational applications by PSI office personnel in large and small businesses. Secretaries from large businesses (over 300 employees) spend more time producing letters and reports than do their peers in smaller companies (significant at the .05 level). Editing of final draft copy submitted by

others and assembly of form letters sent out over the signature of supervisors were the other two computer-related functions carried out significantly more by secretaries in larger businesses than in smaller businesses ($p < .05$). No other statistically significant size-related differences were observed.

Demographic findings showed that PSI computer-use was higher in large businesses (23.8 average hours a week) than in small businesses (19.7 hours per week) but not significantly different. The average age of computer users was 44.5 mean years. Computer users were in a higher income bracket and worked for the same employer slightly longer than the noncomputer user. However, income and years worked differences were not statistically significant at the .05 level. PSI office personnel who used a computer reported that their immediate supervisors also used a computer. Data showed that immediate supervisors in smaller businesses were more likely to use a computer (67 percent) than supervisors in larger businesses (39 percent).

Overall, PSI personnel agreed that the computer had changed their jobs. An overwhelming 100 percent said they were more productive with improved accuracy (81.25 percent), more efficient (97.06 percent), have better work turnaround time (87.88 percent) allowing for more job responsibilities (84.85 percent). The PSI personnel revealed that computer had not changed their job titles (75 percent), did not give them more money (78.13 percent), and

did not change the amount of routine work (65.63 percent).

Secretaries from small businesses indicated they train others to use the computer (80 percent) more than secretaries in large businesses (68 percent). Secretaries from small businesses revealed better record retrieval (90.91 percent) than their peers in large businesses (59.09 percent).

Conclusions

Based on the findings, the following conclusions can be made:

- (1) Secretaries are using computers and computer application software on the job.
- (2) Computer-related secretarial task performance is affected by business size.
- (3) The amount of computer usage varies from task to task.
- (4) The amount of time secretaries spend on the computer varies among businesses of various size.

Recommendations

1. Future studies should be completed to validate the applicability of this data to populations which include a higher proportion of younger, transitional secretarial subjects.
2. A replication of this study should be completed in another city with similar type and size businesses and PSI secretaries on the East and West coasts to determine gener-

alizability to other regions of the country.

3. More detailed studies should be completed to assess the overall productivity of interactive computer-related task performance by secretaries and their immediate supervisors.

4. A comparison study of teachers who instruct business-letter writing should be completed to assess the degree to which computer editing and computer composition skills are being adequately taught to students.

5. An attitudinal study of how the computer has changed the way secretaries feel about their work should be completed to assess the acceptance or rejection of computer-related technological change affecting the business office.

6. A study of secretaries currently using computers in their work should be completed to determine how they organize their use of non-computer work hours.

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APPENDICES

APPENDIX A

COVER LETTER



Oklahoma State University

COLLEGE OF BUSINESS ADMINISTRATION

STILLWATER, OKLAHOMA 74078-0555
BUSINESS 201
405-624-5064

January 20, 1988

SUBJECT: COMPUTER TASK PERFORMANCE OF PSI-MINISA MEMBERS

Office personnel are faced with rapidly changing technology that impacts on office functions affected by the new technology. A comprehensive study of office tasks being performed by secretaries represents a timely topic for study and review.

The enclosed questionnaire is designed to collect data for a doctoral dissertation at Oklahoma State University on computer-related task performance. An ultimate objective is the development of a data base for providing information to business educators for the assessment and potential improvement of instruction in business communication and office automation courses. Only a few minutes will be necessary to complete the enclosed questionnaire.

Because of its professional interest in education, the PSI-Minisa Chapter Executive Committee has agreed to the purpose and nature of this study.

Please return the completed questionnaire by January 31, 1988. Your assistance with this research will be appreciated. A self-addressed, stamped envelope is enclosed for your convenience in returning the questionnaire.

Your professional contribution to the improvement of office automation training will be significant and greatly appreciated. If you would like to obtain a copy of the final results and recommendations of this study, please send me your name and address. Should you have questions concerning this questionnaire, feel free to call me at (316) 837-4413.

Sincerely,

Ruthann Dirks
Doctoral Student

Dr. Dennis L. Mott
Dissertation Advisor

Enclosures



Celebrating the Past... Preparing for the Future

APPENDIX B

QUESTIONNAIRE

**COMPUTER TASK PERFORMANCE SURVEY
PSI-MINISA CHAPTER**

PART I

Identification Number

DEMOGRAPHIC INFORMATION

1. Your Present Title _____

2. Approximately how many people in the Wichita area are employed by your organization/ firm/ business? (Please check below)
 - _____ a. 1 - 49
 - _____ b. 50 - 99
 - _____ c. 100 - 149
 - _____ d. 150 - 199
 - _____ e. 200 - 249
 - _____ f. 250 - 299
 - _____ g. 300 plus

3. Approximately how many hours do you work each week at this job? (Please check below)
 - _____ a. 1 - 9 hours
 - _____ b. 10 - 19 hours
 - _____ c. 20 - 29 hours
 - _____ d. 30 - 39 hours
 - _____ e. 40 hours (full-time)
 - _____ f. other _____

4. Number of years you have been with this company (Please check below)
 - _____ a. Less than one year
 - _____ b. 1 - 5 years
 - _____ c. 6 - 10 years
 - _____ d. 11 - 20 years
 - _____ e. more than 20 years

5. Education (Please check all that apply below)
 - _____ a. high school graduate
 - _____ b. Did you take secretarial courses in high school? (eg., accounting, typing, shorthand, office practice)
 - _____ c. business college
 - _____ d. junior college
 - _____ e. 4-year college, secretarial major
 - _____ f. 4-year college, non-secretarial major (write in below)
 - _____ g. Post college (write in degree or degrees below)

6. Income per year (Please check below)
 - _____ a. under \$9,999
 - _____ b. \$10,000 - \$19,999
 - _____ c. \$20,000 - \$29,999
 - _____ d. over \$30,000

7. What is your age? (Please check below)
 - _____ a. 20 - 29
 - _____ b. 30 - 39
 - _____ c. 40 - 49
 - _____ d. 50 - 59
 - _____ e. 60 plus

COMPUTER TASK PERFORMANCE SURVEY
PAGE 2

8. Does your immediate supervisor personally work (hands on) on a computer (minicomputer, microcomputer, mainframe)?

- a. Yes
- b. No

9. Do you use a standalone word processor?

- a. Yes
- b. No

10. Do you use a computer (minicomputer, microcomputer, mainframe)?

- a. Yes
- b. No

If your answer to No. 10 is NO, thank you for taking the time to fill out this questionnaire. Please return Part I of this questionnaire in the self-addressed enclosed envelope. Do not fill out Part II of this questionnaire.

If your answer to No. 10 was YES, please complete the rest of this questionnaire.

PART II

INSTRUCTIONS: The following items describe the type of work characteristically done on the computer by office support personnel. Please indicate your answers to each of the following questions:

- 11. Approximately how many hours per week do you spend operating (hands on) a computer?
 Hours each week. (Note: The total amount of time should not exceed the actual amount of time you spend each week at this job—see Part I, Question No. 3.)
- 12. Of the time spent utilizing the computer, how much of your time is spent in each of the following categories or activities? (Note: Your final number of hours should match your response to Question No. 11.)

A. Letters and Reports

	<u>Hours</u>	<u>Total Hours</u>
a. Compose letters and mail out over your signature	<input type="text"/>	
b. Compose memos and mail out over your signature	<input type="text"/>	
c. Compose letters for supervisor's signature	<input type="text"/>	
d. Edit final copy of letters where supervisor made first rough draft copy on computer, typewriter, or handwritten	<input type="text"/>	
e. Compose memos for supervisor's signature	<input type="text"/>	
f. Compose minutes for approval	<input type="text"/>	
g. Compose minutes & mail out over your signature	<input type="text"/>	
h. Compose news releases for approval	<input type="text"/>	
i. Compose news releases and mail out over your signature	<input type="text"/>	
j. Compose reports & mail out over your signature	<input type="text"/>	
k. Compose reports for approval	<input type="text"/>	
l. Compose speeches for approval	<input type="text"/>	
m. Other <input type="text"/>	<input type="text"/>	

TOTAL HOURS THIS CATEGORY

COMPUTER TASK PERFORMANCE SURVEY
PAGE 3

B. Computer-Clerical Tasks

	<u>Hours</u>	<u>Total Hours</u>
a. Transcription of machine dictated letters	_____	
b. Transcription of shorthand dictated letters	_____	
c. Assemble form letters for your signature	_____	
d. Assemble form letters for supervisor's signature	_____	
e. Use of spell check with word processing	_____	
f. Use of grammar check with word processing	_____	
g. File management with the computer	_____	
h. Numeric data keyboard entry	_____	
i. Use of optical character recognition	_____	
j. Use of computer assisted retrieval	_____	
k. Other _____	_____	

TOTAL HOURS THIS CATEGORY _____

C. Spreadsheets and Other Organizational Applications

	<u>Hours</u>	<u>Total Hours</u>
a. Spreadsheet use	_____	
b. Data base use	_____	
c. Accounting package use	_____	
d. Electronic mail use	_____	
e. Executive decision-ware use	_____	
f. Other _____	_____	
g. Other _____	_____	

TOTAL HOURS THIS CATEGORY _____

TOTAL HOURS ALL CATEGORIES (A, B, C) NOT TO EXCEED HOURS
REPORTED IN QUESTION 11 ABOVE _____

13. Indicate how the computer has changed your job. (Please respond to each question.)

	<u>Agree</u>	<u>No Change</u>	<u>Disagree</u>
(1) Improved accuracy	_____	_____	_____
(2) More efficient	_____	_____	_____
(3) More productive	_____	_____	_____
(4) More cost effective	_____	_____	_____
(5) Changed job title	_____	_____	_____
(6) Balanced work load	_____	_____	_____
(7) Better supervision	_____	_____	_____
(8) Less paperwork	_____	_____	_____
(9) Less photocopy work	_____	_____	_____
(10) Better workflow	_____	_____	_____
(11) More status	_____	_____	_____
(12) More money	_____	_____	_____
(13) Less confidential work	_____	_____	_____
(14) Am happier	_____	_____	_____
(15) More delegation of work	_____	_____	_____
(16) Make recommendations for equipment purchases	_____	_____	_____
(17) Make less carbon copies	_____	_____	_____

COMPUTER TASK PERFORMANCE SURVEY
PAGE 4

- | | | | |
|--------------------------------------|-------|-------|-------|
| (18) Make more decisions | _____ | _____ | _____ |
| (19) Do more research | _____ | _____ | _____ |
| (20) Train others to use computer | _____ | _____ | _____ |
| (21) Needed more training | _____ | _____ | _____ |
| (22) Use more creativity than before | _____ | _____ | _____ |
| (23) Wrote a user's manual | _____ | _____ | _____ |
| (24) Use original ideas | _____ | _____ | _____ |
| (25) Better work turnaround time | _____ | _____ | _____ |
| (26) Less filing time | _____ | _____ | _____ |
| (27) Better record retrieval | _____ | _____ | _____ |
| (28) Less shorthand dictation | _____ | _____ | _____ |
| (29) Less machine dictation | _____ | _____ | _____ |
| (30) Added job responsibilities | _____ | _____ | _____ |
| (31) More pressure | _____ | _____ | _____ |
| (32) Less interruptions | _____ | _____ | _____ |
| (33) Less incoming telephone calls | _____ | _____ | _____ |
| (34) Less outgoing telephone calls | _____ | _____ | _____ |
| (35) Better morale | _____ | _____ | _____ |
| (36) Less routine work | _____ | _____ | _____ |
| (37) More privacy | _____ | _____ | _____ |
| (38) Interview prospective employees | _____ | _____ | _____ |
| (39) Job stability | _____ | _____ | _____ |
| (40) Run less errands | _____ | _____ | _____ |
| (41) More assertive | _____ | _____ | _____ |
| (42) More flexible | _____ | _____ | _____ |
| (43) More teamwork | _____ | _____ | _____ |
| (44) Other _____ | _____ | _____ | _____ |
| (45) Other _____ | _____ | _____ | _____ |

14. Does your immediate supervisor use a computer?

- _____ Yes
_____ No

15. If your immediate supervisor uses a computer, indicate how your immediate supervisor's utilizing a computer has changed your job. (If necessary, use back of questionnaire for answer.)

IF YOU WOULD LIKE A COPY OF THE FINDINGS OF THIS SURVEY, PLEASE INDICATE BELOW.

NAME _____
ADDRESS _____

YOUR PARTICIPATION IN THIS SURVEY HAS BEEN VERY MUCH APPRECIATED.

APPENDIX C

FOLLOW-UP LETTERS



EACH QUESTIONNAIRE COUNTS...

Even though the response to the questionnaire has been most gratifying, we are still anxious to receive your completed form. This study has been designed specifically for the PSI Minisa Chapter in Wichita, Kansas, in consultation with the officers of your chapter.

In order to have a valid representation of PSI Minisa Chapter members and to be able to generalize the findings to a larger population nationwide, a larger return is needed. Please help. You can do so by completing the enclosed questionnaire and returning it in the postage-paid envelope.

You can complete your questionnaire in such a very short time. May we hear from you immediately?

Sincerely,

Ruthann Dicks
Ruthann Dicks
Doctoral Student
Oklahoma State University

- Enclosures:
1. Questionnaire
2. Postage-paid envelope



We're Al-most There!

An old song says it nicely. "We're Al-most" at our goal of a ninety percent return. As of February 17, we have had a questionnaire return of 77.6 percent. That means that 77.6 percent of the members from PSI Minisa Chapter have taken ten minutes or less to fill out the questionnaire concerning computer-related task performance.

OUR GOAL IS TO HEAR FROM YOU!

We realize that you are very busy working full-time and juggling busy life schedules. One person has even had a baby! However, your response is vitally important if this study is to be successful. Your time will indicate what is being done now in your work position so that information can be passed on to business educators for future curriculum development.

May we count on you to be one of the ninety percent who have contributed to this study?

Sincerely,

A handwritten signature in cursive script that reads "Ruthann Dukes".

Enclosures:

1. Questionnaire
2. Stamped, addressed envelope

APPENDIX D

ANCILLARY TABLES

TABLE 20

COMPARISON OF WEEKLY TOTAL HOURS PSI MEMBERS REPORT USING
COMPUTERS BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
1 - 5	2	15.38	1	4.35
6 - 10	2	15.38	3	13.05
11 - 15	1	7.69	2	8.70
16 - 20	2	15.38	2	8.70
21 - 25	1	7.69	6	30.44
26 - 30	3	23.07	5	21.74
31 - 35	1	7.69	2	8.70
36 - 40	1	7.69	2	8.70
Mean score n=13 19.731; standard deviation 12.084				
Mean score n=23 23.761; standard deviation 9.957				
Mean score n=36 22.306; standard deviation 10.781				

TABLE 21

COMPARISON OF WEEKLY HOURS PSI MEMBERS REPORT WRITING
LETTERS AND REPORTS ON THE COMPUTER
BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	3	16.67	1	4.35
1 - 5	3	25.00	2	8.70
6 - 10	4	25.00	3	13.05
11 - 15	1	8.33	6	26.09
16 - 20	0	0.00	7	30.44
21 - 25	2	16.66	3	13.05
26 - 30	0	0.00	1	4.35
31 - 35	0	0.00	0	0.00
36 - 40	0	0.00	0	0.00
Mean score n=13: 7.542; standard deviation 8.106				
Mean score n=23: 14.326; standard deviation 7.557				
Mean score n=36: 12.000; standard deviation 8.300				

TABLE 22

COMPARISON OF WEEKLY HOURS PSI MEMBERS PERFORM
COMPUTER-CLERICAL FUNCTIONS BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	3	23.08	5	21.74
1 - 5	3	23.07	5	43.50
6 - 10	3	23.07	10	43.48
11 - 15	0	0.00	0	0.00
16 - 20	1	7.69	3	13.05
21 - 25	1	7.69	0	0.00
26 - 30	1	7.69	0	0.00
31 - 35	0	0.00	0	0.00
36 - 40	1	7.69	0	0.00

Mean n=13 10.731; Standard deviation 12.811
 Mean n=23 6.315; Standard deviation 5.703
 Mean n=36 7.910; Standard deviation 9.019

TABLE 23

COMPARISON OF WEEKLY HOURS PSI MEMBERS PERFORM SPREADSHEETS
AND OTHER ORGANIZATIONAL FUNCTIONS BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	7	50.00	9	39.13
1 - 5	4	33.33	11	47.84
6 - 10	1	8.33	1	4.35
11 - 15	1	8.33	2	4.35

Mean score n=13 2.376; Standard deviation 4.227
 Mean score n=23 3.087; Standard deviation 4.152
 Mean score n=36 2.843; Standard deviation 4.130

TABLE 24

COMPARISON OF WEEKLY HOURS PSI MEMBERS COMPOSE LETTERS
ON THE COMPUTER TO MAIL OUT OVER OWN SIGNATURE
BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	9	69.23	16	69.57
1	3	23.08	3	13.05
2	0	0.00	2	8.70
3	0	0.00	1	4.35
4	1	7.69	1	4.35
5 plus	0	0.00	0	0.00
Mean score n=13 .538; SD = 1.127				
Mean score n=23 .674; SD = 1.114				
Mean score n=36 .625; SD = 1.104				

TABLE 25

COMPARISON OF WEEKLY HOURS PSI MEMBERS COMPOSE MEMOS
ON THE COMPUTER TO MAIL OUT OVER OWN SIGNATURE
BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	11	84.61	15	65.22
1	1	7.69	3	13.04
2	1	7.69	3	13.05
3	0	0.00	0	0.00
4	0	0.00	1	4.35
5	0	0.00	1	4.35
6 plus	0	0.00	0	0.00
Mean score n=13 .269; SD .599				
Mean score n=23 .804; SD 1.346				
Mean score n=36 .611; SD 1.153				

COMPARISON OF WEEKLY HOURS PSI MEMBERS COMPOSE LETTERS
ON THE COMPUTER FOR THEIR SUPERVISOR'S SIGNATURE
BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	7	53.85	8	34.78
1	2	15.38	8	34.78
2	3	23.08	2	8.70
3	1	7.69	4	17.39
4	0	0.00	1	4.35
5	0	0.00	0	0.00
6 plus	0	0.00	0	0.00

Mean score n=13 .846; SD 1.068
Mean score n=23 1.228; SD 1.231
Mean score n=36 1.090; SD 1.174

TABLE 27

COMPARISON OF WEEKLY HOURS PSI MEMBERS EDIT FINAL COPY OF
LETTERS ON THE COMPUTER WHERE SUPERVISOR MADE FIRST ROUGH
DRAFT ON COMPUTER, TYPEWRITER, OR HANDWRITTEN
BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	8	61.53	6	26.09
1	2	15.38	1	4.35
2	2	15.38	5	21.74
3	1	7.69	3	13.04
4	0	0.00	1	4.35
5	0	0.00	2	8.70
6	0	0.00	2	8.70
7 - 19	0	0.00	0	0.00
20	0	0.00	2	8.70
21 - 25	0	0.00	0	0.00
26	0	0.00	1	4.35

Mean score n=13 .769; SD .992
Mean score n=23 4.870; SD 7.124
Mean score n=36 3.389; SD 6.019

TABLE 28

COMPARISON OF WEEKLY HOURS PSI MEMBERS COMPOSE MEMOS
ON THE COMPUTER FOR THE SUPERVISOR'S SIGNATURE
BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	9	69.23	8	34.79
1	1	7.69	5	21.74
2	2	15.38	7	30.43
3	1	7.69	3	13.04
4	0	0.00	0	0.00
5 plus	0	0.00	0	0.00
Mean score n=13 .615; SD 1.044				
Mean score n=23 1.250; SD 1.053				
Mean score n=36 1.021; SD 1.080				

TABLE 29

COMPARISON OF WEEKLY HOURS PSI MEMBERS COMPOSE MINUTES
ON THE COMPUTER FOR APPROVAL
BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	12	92.31	17	73.92
1	0	0.00	1	4.35
2	0	0.00	2	8.70
3	1	7.69	2	8.70
4	0	0.00	1	4.35
5 plus	0	0.00	0	0.00
Mean score n=13 .231; SD .832				
Mean score n=23 .696; SD 1.213				
Mean score n=36 .528; SD 1.102				

TABLE 30

COMPARISON OF WEEKLY HOURS PSI MEMBERS COMPOSE MINUTES
ON THE COMPUTER TO MAIL OUT OVER OWN SIGNATURE
BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	11	84.62	22	95.65
1	1	7.69	0	0.00
2	0	0.00	1	4.35
3	0	0.00	0	0.00
4	0	0.00	0	0.00
5	1	7.69	0	0.00
6 plus	0	0.00	0	0.00
Mean score n=13 .462; SD 1.391				
Mean score n=23 .087; SD .417				
Mean score n=36 .222; SD .898				

TABLE 31

COMPARISON OF WEEKLY HOURS PSI MEMBERS COMPOSE NEWS RELEASES
ON THE COMPUTER BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	12	92.31	22	95.65
1	1	7.69	0	0.00
2	0	0.00	0	0.00
3	0	0.00	0	0.00
4	0	0.00	0	0.00
5	0	0.00	1	4.35
6 plus	0	0.00	0	0.00
Mean score n=13 .077; SD .277				
Mean score n=23 .217; SD 1.043				
Mean score n=36 .167; SD .845				

TABLE 32

COMPARISON OF WEEKLY HOURS PSI MEMBERS COMPOSE NEWS RELEASES
ON THE COMPUTER TO MAIL OUT OVER OWN SIGNATURE
BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	13	100.00	22	95.65
1	0	0.00	0	0.00
2	0	0.00	0	0.00
3	0	0.00	0	0.00
4	0	0.00	0	0.00
5	0	0.00	1	4.35
6 plus	0	0.00	0	0.00
Mean score n=13 .000; SD .000				
Mean score n=23 .217; SD 1.043				
Mean score n=36 .139; SD .833				

TABLE 33

COMPARISON OF WEEKLY HOURS PSI MEMBERS COMPOSE REPORTS
ON THE COMPUTERS TO MAIL OUT OVER OWN SIGNATURE
BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	12	92.31	17	73.91
1	1	7.69	2	8.70
2	0	0.00	3	13.04
3	0	0.00	1	4.35
4	0	0.00	0	0.00
5 plus	0	0.00	0	0.00
Mean score n=13 .077; SD = .277				
Mean score n=23 .478; SD = .898				
Mean score n=36 .333; SD = .756				

TABLE 34

COMPARISON OF WEEKLY HOURS PSI MEMBERS COMPOSE REPORTS
ON THE COMPUTER FOR APPROVAL
BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	8	61.54	10	43.48
1	2	15.38	4	17.39
2	2	15.38	2	8.70
3	0	0.00	3	13.04
4	1	7.69	1	4.35
5	0	0.00	0	0.00
6	0	0.00	1	4.35
7 - 9	0	0.00	0	0.00
10	0	0.00	2	8.70
11 plus	0	0.00	0	0.00

Mean score n=13 .769; SD = 1.235
Mean score n=23 2.043; SD = 2.977
Mean score n=36 1.583; SD = 2.545

Table 35

COMPARISON OF WEEKLY HOURS PSI MEMBERS COMPOSE SPEECHES
FOR APPROVAL BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	13	100.00	20	86.96
1	0	0.00	2	8.70
2	0	0.00	0	0.00
3	0	0.00	1	4.35
4 plus	0	0.00	0	0.00

Mean score n=13 .000; SD = .000
Mean score n=23 .217; SD = .671
Mean score n=36 .143; SD = .550

TABLE 36

COMPARISON OF WEEKLY HOURS PSI MEMBERS PERFORM OTHER
OFFICE FUNCTIONS INVOLVING LETTERS AND REPORTS
BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	10	0.00	15	0.00
1	0	0.00	1	16.67
2	0	0.00	1	16.67
3	0	0.00	1	16.67
4	0	0.00	0	0.00
5	1	33.33	1	16.67
6	0	0.00	1	16.67
7-11	0	0.00	0	0.00
12	1	33.33	0	0.00
13	0	0.00	0	0.00
14	1	33.33	0	0.00
15-16	0	0.00	0	0.00
17	0	0.00	1	16.67
18 plus	0	0.00	0	0.00
Mean score n=13 10.333; SD = 4.726				
Mean score n=23 5.667; SD = 5.854				
Mean score n=36 7.222; SD = 5.696				

TABLE 37

COMPARISON OF WEEKLY HOURS PSI MEMBERS TRANSCRIBE
MACHINE DICTATED LETTERS ON THE COMPUTER
BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	12	92.31	17	73.91
1	0	0.00	1	4.35
2	0	0.00	1	4.35
3	0	0.00	1	4.35
4	0	0.00	0	0.00
5	0	0.00	3	13.04
6 - 19	0	0.00	0	0.00
20	1	7.69	0	0.00
Mean score n=13 1.538; SD 5.547				
Mean score n=23 .913; SD 1.782				
Mean score n=36 1.139; SD 3.555				

TABLE 38

COMPARISON OF WEEKLY HOURS PSI MEMBERS TRANSCRIBE
SHORTHAND DICTATED LETTERS ON THE COMPUTER
BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	10	76.92	17	73.92
1	2	15.38	1	4.35
2	0	0.00	3	13.04
3	0	0.00	0	0.00
4	0	0.00	1	4.35
5	1	7.69	0	0.00
6	0	0.00	1	4.35
Mean score n=13	.538; SD = 1.391			
Mean score n=23	.750; SD = 1.539			
Mean score n=36	.674; SD = 1.471			

TABLE 39

COMPARISON OF WEEKLY HOURS PSI MEMBERS ASSEMBLE
COMPUTERIZED FORM LETTERS TO MAIL OUT OVER
OWN SIGNATURE BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	11	84.62	20	86.96
1	2	15.38	0	0.00
2	0	0.00	1	4.35
3	0	0.00	1	4.35
4	0	0.00	0	0.00
5	0	0.00	1	4.35
Mean score n=13	.154; SD = .376			
Mean score n=23	.446; SD = 1.234			
Mean score n=36	.340; SD = 1.013			

TABLE 40

COMPARISON OF WEEKLY HOURS PSI MEMBERS ASSEMBLE
COMPUTERIZED FORM LETTERS FOR SUPERVISOR'S
SIGNATURE BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	11	84.62	13	56.53
1	2	15.38	3	13.04
2	0	0.00	2	8.70
3	0	0.00	0	0.00
4	0	0.00	2	8.70
5	0		3	13.04
Mean score n=13 .154; SD = .376				
Mean score n=23 1.337; SD = 1.873				
Mean score n=36 .910; SD = 1.608				

TABLE 41

COMPARISON OF WEEKLY HOURS PSI MEMBERS UTILIZE
COMPUTERIZED SPELL CHECK WITH WORD PROCESSING
BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	10	76.92	13	56.53
1	2	15.38	6	26.09
2	0	0.00	2	8.70
3	0	0.00	1	4.35
4	0	0.00	0	0.00
5	1	7.69	0	0.00
6	0	0.00	1	4.35
Mean score n=13 .615; SD = 1.372				
Mean score n=23 .891; SD = 1.422				
Mean score n=36 .792; SD = 1.391				

TABLE 42

COMPARISON OF WEEKLY HOURS PSI MEMBERS UTILIZE
COMPUTERIZED GRAMMAR CHECK WITH WORD PROCESSING
BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	11	84.62	20	86.96
1	1	7.69	2	8.70
2	0	0.00	0	0.00
3	0	0.00	1	4.35
4	1	7.69	0	0.00
Mean score n=13	.385; SD = 1.121			
Mean score n=23	.239; SD = .767			
Mean score n=36	.292; SD = .897			

TABLE 43

COMPARISON OF WEEKLY HOURS PSI MEMBERS UTILIZE
COMPUTERIZED FILE MANAGEMENT
BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	9	69.23	20	86.96
1	2	15.38	2	8.70
2	1	7.69	1	4.35
3 - 34	0	0.00	0	0.00
35	1	7.69	0	0.00
Mean score n=13	3.038; SD = 9.623			
Mean score n=23	.174; SD = .491			
Mean score n=36	1.208; SD = 5.818			

TABLE 44
 COMPARISON OF WEEKLY HOURS PSI MEMBERS UTILIZE
 THE COMPUTER FOR NUMERIC DATA ENTRY
 BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	8	61.54	18	78.26
1	0	0.00	2	8.70
2	2	15.38	1	4.35
3	2	15.38	0	0.00
4	0	0.00	0	0.00
5	0	0.00	2	8.70
6 - 24	0	0.00	0	0.00
25	1	7.69	0	0.00
Mean score n=13	2.692; SD = 6.812			
Mean score n=23	.609; SD = 1.469			
Mean score n=36	1.361; SD = 4.277			

TABLE 45
 COMPARISON OF WEEKLY HOURS PSI MEMBERS UTILIZE
 OPTICAL CHARACTER RECOGNITION FUNCTIONS
 BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	13	100.00	23	100.00
Mean score n=13	.000; SD = .000			
Mean score n=23	.000; SD = .000			
Mean score n=36	.000; SD = .000			

TABLE 46
 COMPARISON OF WEEKLY HOURS PSI MEMBERS UTILIZE
 COMPUTER ASSISTED RETRIEVAL FUNCTIONS
 BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	10	76.92	19	82.61
1	1	7.69	3	13.04
2	1	7.69	0	0.00
3	0	0.00	1	4.35
4	0	0.00	0	0.00
5	1	7.69	0	0.00
Mean score n=13 .615; SD = 1.446				
Mean score n=23 .261; SD = .689				
Mean score n=36 .389; SD = 1.022				

TABLE 47
 COMPARISON OF WEEKLY HOURS PSI MEMBERS PERFORM
 MISCELLANEOUS COMPUTER-CLERICAL FUNCTIONS
 BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	12	0.00	21	0.00
1	0	0.00	0	0.00
2	0	0.00	0	0.00
3	0	0.00	1	50.00
4 - 9	0	0.00	1	50.00
10 - 11	0	0.00	0	0.00
12	1	100.00	0	0.00
Mean score n=13 12.000; SD = .000				
Mean score n=23 6.500; SD = 4.950				
Mean score n=36 8.333; SD = 4.726				

TABLE 48
COMPARISON OF WEEKLY HOURS PSI MEMBERS UTILIZE
COMPUTERIZED SPREADSHEETS BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	8	61.54	16	69.57
1	1	7.69	0	0.00
2	2	15.38	2	8.70
3	1	7.69	1	4.35
4	0	0.00	0	0.00
5	0	0.00	1	4.35
6	0	0.00	1	4.35
7 - 9	0	0.00	0	0.00
10	1	7.69	1	4.35
11 - 14	0	0.00	0	0.00
15	0	0.00	1	4.35
Mean score n=13	1.385; SD = 2.785			
Mean score n=23	1.924; SD = 3.804			
Mean score n=36	1.729; SD = 3.439			

TABLE 49
COMPARISON OF WEEKLY HOURS PSI MEMBERS UTILIZE
COMPUTERIZED DATABASE APPLICATIONS
BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	11	84.62	19	82.61
1	0	0.00	1	4.35
2	1	7.69	3	13.04
3	1	7.69	0	0.00
Mean score n=13	.385; SD = .961			
Mean score n=23	.326; SD = .701			
Mean score n=36	.347; SD = .749			

TABLE 50
 COMPARISON OF WEEKLY HOURS PSI MEMBERS UTILIZE
 COMPUTERIZED ACCOUNTING PACKAGES
 BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	13	100.00	23	100.00
Mean score n=13	.000; SD = .000			
Mean score n=23	.000; SD = .000			
Mean score n=36	.000; SD = .000			

TABLE 51
 COMPARISON OF WEEKLY HOURS PSI MEMBERS UTILIZE
 COMPUTERIZED ELECTRONIC MAIL
 BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	13	100.00	18	78.27
1	0	0.00	2	8.70
2	0	0.00	0	0.00
3	0	0.00	1	4.35
4	0	0.00	0	0.00
5	0	0.00	1	4.35
6	0	0.00	1	4.35
Mean score n=13	.000; SD = .000			
Mean score n=23	.750; SD = 1.650			
Mean score n=36	.479; SD = 1.358			

TABLE 52

COMPARISON OF WEEKLY HOURS PSI MEMBERS UTILIZE
COMPUTERIZED EXECUTIVE DECISION-WARE
BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	13	100.00	23	100.00
Mean score n=13	.000; SD = .000			
Mean score n=23	.000; SD = .000			
Mean score n=36	.000; SD = .000			

TABLE 53

COMPARISON OF WEEKLY HOURS PSI MEMBERS UTILIZE THE
COMPUTER FOR OTHER ORGANIZATIONAL APPLICATIONS
BY SIZE OF BUSINESS

Number of Hours	Frequency n=13	Percent Small Business n=13	Frequency n=23	Percent Large Business n=23
0	11	0.00	21	0.00
1	1	50.00	2	100.00
2	0	0.00	0	0.00
3	0	0.00	0	0.00
4	1	50.00	0	0.00
Mean score n=13	2.750; SD = 2.475			
Mean score n=23	1.000; SD = .000			
Mean score n=36	1.875; SD = 1.750			

UITA 2

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Doctor of Education

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