

AN EXPERIMENTAL STUDY DESIGNED
TO DETERMINE THE ADVANTAGES OF
A MULTI-MEDIA APPROACH TO THE
IN-BASKET TECHNIQUE FOR USE
IN THE LABORATORY APPROACH
TO OFFICE EDUCATION

Thesis for the Degree of Ph. D.
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ROBERT ALLEN MEYER
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This is to certify that the

thesis entitled

AN EXPERIMENTAL STUDY DESIGNED TO DETERMINE THE ADVANTAGES
OF A MULTI-MEDIA APPROACH TO THE IN-BASKET TECHNIQUE
FOR USE IN THE LABORATORY APPROACH
TO OFFICE EDUCATION

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ROBERT ALLEN MEYER

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Major professor

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ABSTRACT

AN EXPERIMENTAL STUDY DESIGNED TO DETERMINE THE ADVANTAGES OF A MULTI-MEDIA APPROACH TO THE IN-BASKET TECHNIQUE FOR USE IN THE LABORATORY APPROACH TO OFFICE EDUCATION

By

Robert Allen Meyer

It was the purpose of this study to make a descriptive analysis and comparison of twelfth-grade business education students in a model office who received the in-basket via a multi-media learning carrel compared to twelfth-grade business education students who received the same in-basket in the traditional paper and pencil method.

The Procedures

Eighty (80) students were selected and randomly assigned to two groups: experimental and control. The students were selected from schools which were part of the Michigan State University Vocational Office Block Program. The experimental group received a series of three multi-media in-baskets in a learning carrel providing the sights and sounds of an office; interruptions similar to those found in an office were presented via 35mm slides and audio tape. The control group received the same series of three in-baskets in a traditional classroom without the sights and sounds of an office. The same interruptions the experimental group received were presented on descriptive pages included in the in-basket.

Summary of Major Findings

1. The null hypothesis HO_1 was rejected; this stated that there is no significant difference in student performance on an in-basket containing the specific areas of following directions, filing, arithmetic and checking between students who have received the in-basket in a multi-media learning carrel and students who received the same in-basket via the paper and pencil method.
 - (a) The T-tests of correlation coefficients between the pre-S.R.A. tests and in-basket scores indicated that scores on the multi-media in-basket were significantly better than the scores on the paper and pencil in-basket.
 - (b) There was a significant correlation between the S.R.A. tests of following directions, checking, filing and arithmetic and these sections of In-Basket 3, for students completing In-Basket 3.
 - (c) A further three-way analysis of co-variance using the students' scores on the four pre-S.R.A. scores and the four In-Basket 3 scores indicated that scores were significantly better for students receiving the multi-media In-Basket 3, compared to students who received the non-media In-Basket 3.
2. The null hypothesis HO_2 that there is no significant difference in student performance on the multi-media in-basket for different I.Q. levels, with students with higher I.Q. performing no better than students with low I.Q. was rejected.

- (a) Using the variables of I.Q. and school, a two-way analysis of co-variance on In-Basket 3 scores was performed. Results of the analysis indicated that students with high I.Q. scored significantly better than students with low I.Q. on the multi-media in-basket.
3. It was also determined that students performed better on the S.R.A. criterion tests than did employed office personnel.
 4. It was further determined that only 25 of the 80 students completed In-Basket 3.
 5. Student performance improved after two trial in-baskets. This was measured in terms of gain scores and indicated general improvement for the students using the multi-media in-baskets.

Conclusions

The following conclusions are drawn from the findings of the study. These conclusions are pertinent to, and limited by, the assumptions and design of the study. Any conclusions based upon the results of the study are tentative and in need of further substantiating research.

1. The results of this study would indicate the use of educational media (slide-tape) provides an improved form of simulation, in this case for the in-basket presented in a media-equipped learning carrel. Thus it could be assumed that the successful use of educational media in a learning carrel contributed substantially to making the in-basket a better evaluative measure of student performance.
2. It may also be concluded from this study that specific skill areas in business education can be accurately measured by

the simulations such as the multi-media in-basket. The multi-media in-basket can be used as a means of measuring certain types of skills such as filing ability, business math, following directions and checking.

3. The results show that there may not have been adequate time given for the completion of In-Basket 3 to be complete effective for all students.
4. The question of the effect of two trial in-baskets was also of interest to this study. There is evidence based on pre- and post-S.R.A. criterion tests that students generally improve in performance on the in-baskets after two practice in-baskets have been administered. This may indicate that practice on the in-baskets may be of value in obtaining more precise results.

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DEDICATION

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Chapter 1

THE PROBLEM OF THE STUDY

For a number of years, leaders in education, particularly in business and office education, have expressed their confidence in evaluation as an effective tool of their profession.¹ The evaluative process is considered one of the basic concepts of modern education.²

Evaluation has not only been described as the quality control of an educational program,³ but as the means by which quality may constantly be improved.⁴

In business and office education there has been an increasing awareness of the need to change and improve methods of student evaluation. Kell and Sawaia illustrated this need in 1968 by stating:⁵

¹O. J. Byrnside, Jr., "Principles for Evaluation of Business and Office Education," Criteria for Evaluating Business and Office Education, Seventh Yearbook of the National Business Education Association, (Washington: National Business Education Association, a department of the National Education Association, 1969), p. 4.

²Ibid.

³William H. Burton and Leo J. Brueckner, Supervision: A Social Process, (New York: Appleton-Century-Crafts, 1955), p. 206.

⁴American Association of School Administrators, "The Superintendent as Institutional Leader," Thirty-fifth Yearbook, (Washington: The Association, a department of the National Education Association, 1957), p. 199.

⁵Venetta B. Kell and Josephine Sawaia, "Criteria for Evaluation of Programs from Federal Legislation," Criteria for Evaluating Business and Office Education, Seventh Yearbook of the National Business Education Association, (Washington: National Business Education Association, a department of the National Education Association, 1969), p. 71.

A cursory glance at the literature in professional publications in the past few years reveals a considerable number of articles devoted to evaluation. Specific detailed lists of criteria are available to those who would evaluate their own programs. Most of these lists include the areas of organization, instructional staff, materials, course offerings, and physical facilities. They serve as excellent guidelines for checking each of the segments within the program but do not adequately evaluate the performance of the student who is the real product.

Walter Shell of Virginia Polytechnic Institute further stated in 1968 that a major overhaul of the student evaluation procedures was long overdue.⁶ Among several specific needs Shell listed was "the need to set more meaningful standards and evaluate student progress more realistically."

One of the vehicles that has been proposed in recent years as both a teaching device and evaluation device is the office simulation. In 1965 the Michigan State University Research and Development Program in Vocational-Technical Education began a study in office education.⁷ The ultimate objectives of the study were ". . . to improve education for employment in office occupations and to integrate the learning experience for the students, whenever possible, in an environmental situation simulating employment conditions."

⁶Walter Shell, "Projections for the Future," An Evaluative Inventory, Sixth Yearbook of the National Business Education Association, (Washington: National Business Education Association, a department of the National Education Association, 1968), p. 42.

⁷Robert Poland and Peter Haines, A Study of a Block Time Schedule for Teaching Vocational Office Practice, (East Lansing: Michigan State University, July 1969, Final Report, Project No. 201, Grant No. OEG-3-7-070211-2679), p. 71.

From this study grew the block-time concept of teaching office education, which relied heavily upon the concept of simulation. Instead of using the traditional single period approach to teaching typewriting, shorthand, and office practice, a two-or three-hour period of time was used to teach two or three of these courses together. In using this capstone approach, instructors based their instruction on simulations which would, as nearly as possible, approximate the office in business today.

Through the use of simulations, instructors were able to transfer much of the learning processes to students. Each student was able to develop at his own individual pace: develop his decision-making processes, develop advanced skills and knowledge, develop business concepts, and develop many of the qualities needed by people to work in a business today.

Many of the traditional approaches and materials used in teaching office education today were found to be not practical nor pertinent in this laboratory approach to office education. In their final report Poland and Haines made the following recommendations:

More curriculum development projects in vocational office education should be carried out by using the clinical school approach.

Intensive effort should be given to producing an employability measurement program for use in office education.

Evaluative instruments must be developed which will support a research design comparing the program's effectiveness with the traditional one-hour classes taught in office education.

Comprehensive research into the theory of simulation as an instructional vehicle in office education is needed.⁸

Traditionally methods of evaluation have not utilized simulation or instructional media. In the past, evaluation of student progress in business education was achieved by some of these specialized instruments:

1. Practice sets. Usually a non-pressured test which presents a series of problems as part of a hypothetical work setting, the practice sets have become popular in recent years, due largely to their incorporation into existing textbooks.

2. Situation tests. The situation test is a type of simulation that is not yet widely used in office education. As the name implies, the situation test is a work sample test which evaluates typical job performance. In literature the in-basket is sometimes referred to as a situation test.⁹

3. Skill tests. One of the most common evaluative instruments in office education, the skill test measures the student's ability in a given area. The typical skill or performance test is a timed writing used to test the student's ability to typewrite, or to take shorthand and transcribe, using speed and accuracy as the criterion.

⁸Poland and Haines, loc. cit., p. 71.

⁹David W. Zuckerman and Robert Horn, The Guide to Simulation and Games, (Cambridge: Information Resources, 1970), p. 314.

4. Production tests. A test usually composed of a number of problems to be completed within a specific time limit, production tests are often used to determine the amount of usable material (such as mailable letters) an individual can produce within a given period of time. Normally a production test does not include problems relating to work organization.

STATEMENT OF THE PROBLEM

This study was an analysis and comparison of selected areas of competence by twelfth-grade office education students who received in-basket evaluations through only paper and pencil method as opposed to other twelfth-grade office education students who received in-basket evaluations through a multi-media learning carrel.

The investigation was intended to test the following null hypotheses:

- HO₁: That there is no significant difference in student performance on an in-basket containing the specific skill area of following directions, filing, arithmetic, and checking between students who have received the in-basket in a multi-media learning carrel and students who receive the same in-basket via the paper and pencil method.
- HO₂: That there is no significant difference in student performance in the multi-media in-basket for different I.Q. levels. Students with higher I.Q. will not perform better than students with lower I.Q.

Specifically, the problem which this study investigated was posed in terms of several questions which considered the relation between three items:

1. Are the overall evaluation results on the multi-media in-basket significantly different for these twelfth-grade office education students than for twelfth-grade office education students who were presented the in-basket by the paper and pencil method?
2. Are the evaluation results in the specific areas of following directions, filing, arithmetic, and checking on the multi-media in-basket significantly different for twelfth-grade office education students than for twelfth-grade office education students who were presented the in-basket by the paper and pencil method?
3. Of what importance is the student's I.Q. in determining the significance of student's scores on the multi-media in-basket and the paper and pencil in-basket?

The areas of filing, arithmetic, following directions and checking were chosen because they represent tasks that a high percentage of office workers perform.¹⁰ Specifically 68% of office workers file materials by name of persons; 61% of office workers compare one copy with another (checking); 95% use addition and 93% use subtraction; and 82% decide on priority of work for self.¹¹

¹⁰Edward A. Perkins, Jr., and F. Ross Byrd, "Identifying Office Activity by Clusters of Tasks," The Emerging Content and Structure of Business Education, Eighth Yearbook of the National Business Education Association, (Washington: National Business Education Association, a department of the National Education Association, 1970), p. 107.

¹¹Ibid.

Purpose of the Study

It is believed that the findings of this study may (1) contribute to the understanding of the merits of a multi-media in-basket method of evaluation for the office education student; (2) provide certain kinds of information about the multi-media in-basket in relation to the pencil and paper in-basket; (3) identify problems in using the multi-media in-basket in measuring specific competencies in office education; and (4) determine if the multi-media in-basket can be effectively used in the model office program.

Background of the Study

From 1965 to 1969 Michigan State University engaged in curriculum development through the Research and Development Program in Vocational Technical Education. Since 1969 the office segment of this program, known as the Vocational Office Block Project, has been continued by Michigan State University for school districts which voluntarily join the project. During the school year of 1971-72, thirty-two Michigan school districts were associated with this project.

From these thirty-two Michigan School districts four schools were randomly selected by use of a simple random table for this research study. Two groups in each of the four schools were used in the study, one the experimental, and one the control. All students were from twelfth-grade office block classes, and all students selected were involved in a model office program. A total population of 80 students were administered the in-baskets.

Importance of the Study

The multi-media in-basket as a method of evaluation has not been subjected to empirical testing regarding its effectiveness. Because of the absence of sufficient research and literature on an in-basket utilizing educational media as an evaluation technique, an analysis of a multi-media in-basket should contribute to the existing knowledge in the field of office education, as well as identify problems for future research in this area. There is also need to investigate this method of student evaluation in light of recent Michigan legislation requiring schools to use a block time approach to office education which relies heavily upon the concept of simulation.

The Basic Assumptions

The following assumptions underlying this research study were:

1. That the competencies of following directions, filing, arithmetic, and checking can be measured through student performance on standardized tests.¹¹
2. That the students' performance on the standardized tests for following directions, filing, arithmetic, and checking is an indication of their on-the-job performance.¹²
3. That a professional expert in business education can determine the correct list of work priorities for items contained in the in-basket evaluations.

¹¹Robert L. Ebel, Measuring Educational Achievement (Englewood Cliffs: Prentice Hall, 1965), p. 89.

¹²Ibid, p. 164.

4. That the students will make decisions and organize work priorities based upon written and oral directions received while taking the in-baskets.
5. That the use of educational media can provide an office simulation which will affect the students' results on the in-baskets.

Limitations of the Study

The limiting factors established in this study:

1. In this study there were no measurements of variability among the subjects with such factors as cultural background, personality, attitudes, or interests.
2. This study did not attempt to make judgments or generalizations about other forms of instructional simulation or the potential success of any other group of clerk-typist students using this particular instructional approach, although the results may have implications for other groups and instructional patterns.

Delimitations of the Study

The delimiting factors established for this study:

1. The data collected were from only four high schools which were members of the Michigan State University Vocational Office Block Project.
2. The data used for analysis were limited to only the scores on standardized tests; and the scores on the multi-media and paper and pencil in-basket gathered as scores on standardized answer sheets.

3. Measures of student competencies in following directions, checking, arithmetic, and filing were limited to scores on standardized tests.
4. Measures of student I.Q. were limited to scores on the Otis-Lennon Mental Ability Test, advanced level.
5. The in-baskets used for this study were limited in the specific time allowed for completion, the number of items included, and the number of interruptions included in each in-basket.

Definition of Terms

In an effort to establish consistent meanings throughout this study, the terms presented below have been defined:

Competency. Skill, knowledge, or understanding necessary for the successful performance of those tasks which compose a job.

Decision Making. Judgments made by the individuals on organizing work priorities based upon written directions and instructions.

Laboratory. An approach providing individualized experiences related to occupational objectives that have been formulated through an analysis of performance requirements: duties, skills, abilities and attitudes necessary for employment in the office occupation selected by the student. By combining related subject matter with realistic experiences reflecting actual office situations, students are able

to apply skills needed for these experiences rather than viewing each course or skill as a separate ability.¹³

Multi-Media In-basket. A combination of tasks for a student to complete within a given period of time, with specific emphasis on evaluation of the ability to organize work from written and oral directions, and in addition, evaluation of abilities in filing, arithmetic and checking. Presentation of the material is via audio tape and 35mm slides. The setting is in a learning carrel equipped with a screen and speaker for sound.

Paper and Pencil In-basket. A combination of tasks for a student to complete within a given period of time, with specific emphasis on evaluation of the ability to organize work from written and oral directions, and in addition, evaluation of abilities in filing, arithmetic, and checking. Presentation of the material is via paper and pencil. The setting is a high school classroom.

Production Test. A test administered to determine the amount of usable material (mailable letters and tabulation problems) an individual can produce within a given period of time.

Speed Test. A test administered to determine the number of words per minute an individual can type, or take shorthand and transcribe, within a given period of time. These tests are often called skill or performance tests.

¹³Michigan Department of Education, Guidelines for Office Education Programs in Michigan, (Michigan Department of Education, Lansing, MI, 1972), p. 2.

Science Research Tests. Standardized tests distributed by Science Research Associates, specifically the following tests: Short Test of Clerical Ability for Filing, Short Test of Clerical Ability for Following Directions, Short Test of Clerical Ability for Checking, and Short Test of Clerical Ability for Arithmetic.

These tests are listed as satisfactory tests in The Sixth Mental Measurements Yearbook.¹⁴ Paul W. Thayer, Director of Human Resources Research, Life Insurance Agency Management Association, Hartford, Connecticut, reviews these tests as follows:

This battery is an attempt to broaden the sampling of abilities to be tested for clerical jobs and includes tests of business vocabulary, arithmetic, name and number checking, filing, oral and written directions, coding, and language usage. Norms are based only on samples of female employees ranging in number from 133 to 368, and those given for Business Vocabulary and Language are estimates based on the administration of experimental forms. Subtest reliabilities appear to be adequate with the exception of Part 2 of Arithmetic. The test-retest reliability of .68 is much too low for accurate interpretation of an individual score.¹⁵

(Part 2 of Arithmetic was not used in this study.)

ORGANIZATION OF THE PRESENTATION

Chapter Two reviews the literature pertinent to the study.

Chapter Three outlines procedures involved in conducting the study.

¹⁴ John W. Burrows, The Sixth Mental Measurements Yearbook, (Highland Park: Gryphon Press, 1965), p. 1047.

¹⁵ Ibid.

Chapter Four presents an analysis and interpretation of the findings of the study.

Chapter Five presents the major findings, conclusions, and recommendations of the study.

Chapter 2

REVIEW OF RELATED LITERATURE

This chapter is primarily a review of the historical and educational bases of the in-basket technique as a form of simulation.

EMPIRICAL STUDIES USING THE IN-BASKET

Frederickson, Saunders, and Ward Study¹

One of the earliest studies on in-baskets, dating back to 1957, was conducted by Educational Testing Service for the Office of Education, Research Laboratory of the Air Force Personnel and Training Research Center. The purpose of the study was to prepare test materials that could aid in the evaluation of instruction in the Command and Staff School of Air University.

The test was a statistical test which required the examinee to play four roles: Commanding Officer, Director of Material, Director of Personnel, and Director of Operations. The examinee was provided with background information about the division, the Air Force Base and suitable material from the office records, and contents of an in-basket, containing letters and memoranda.

¹Norman Frederickson, D. R. Saunders, and Barbara Ward, "The In-Basket Test," Volume 71, Number 9, Psychological Monographs General and Applied, (Washington: American Psychological Association, 1957), p. 1.

After the tryout, Frederickson² reported that the results were disappointing with respect to the method of scoring. The results indicated the In-basket Test could be scored with a reasonably high degree of reliability, but in its first form the test was low in content reliability. The following recommendations were made for the in-basket technique based upon this study:

1. The in-basket test may justifiably be used in making comparisons between mean scores of groups of examinees.
2. The in-basket test may be used as instructional material.
3. The frequencies with which the various types of responses occur in administration of the in-basket test may enable instructors to gain results of their instructional efforts as they apply to specific performances of students.
4. The test might be used as a method of assessing students in order to find out their general level of capability in the skills measured by the test.

This study was the first of the in-baskets research studies. Frederickson's suggestions gave some insight into the various applications of the in-basket technique in instruction. Of particular interest was the recommendation that the in-basket be used as a method of assessing students in particular skill abilities as measured by the test. This study was involved in developing an in-basket to test for

²Ibid., p. 22.

ability levels in specific skill areas, however, with an integration of skills as compared to criterion tests.

Frederickson's Bureau of Business Study³

Following the Air Force Study, Frederickson and the Educational Testing Service conducted an in-basket study for the Office of Naval Research. The resulting "Bureau of Business In-Basket Test" was an attempt to simulate some major aspects of an executive's job. The test consisted of letters, memoranda, and similar documents which have collected in the in-basket of a newly hired executive officer of the Northeastern Division of the Bureau of Business.

The purpose of the study was to test performance in the area of personality. The goal was to study the relationships of in-basket scores to conventional measures of personality and cognitive abilities which would occur in a simulated job. This in-basket test was considered a performance test which would reflect the personality of the person being examined. The test was administered to 335 persons composed of subgroups of undergraduates, graduate students of business, government administrators, business executives and Army officers.

The results of the study, as revealed in the analysis of scores, were that administrative behavior can be described in terms of three major dimensions: (1) preparing for work, (2) amount of work completed, and (3) seeking guidance.

³Norman Frederickson, "Factors in In-Basket Performance," Volume 76, Number 22, Psychological Monographs: General and Applied, (Washington: American Psychological Association, 1962), p. 1.

1. Acting in compliance with suggestions
2. Preparing for action by becoming informed
3. Concern with public relations
4. Procrastinating
5. Concern with superiors
6. Informality
7. Directing subordinates
8. Discussing

Frederickson concluded that the in-basket format could be used to simulate an executive's complex job and record the behavior which occurred in a rather unstructured situation.

This study illustrated that the in-basket technique could be used for a variety of evaluative approaches. The study is unique in the use of the in-basket format since it focused primarily on developing a list of executive behavior traits. It did, however, further indicate the flexibility of this particular simulation technique.

The Organizational Climates and Administrative Performance Study⁴

Frederickson, Jensen and Beaton also used the in-basket as the format for a situation test simulation. The simulation required each subject to perform the paper work of an administrator, responding to documents in his in-basket as though he were actually on the job.

The purpose of this study was to investigate the effects of organizational climates on the administrative performance of executives. The aim was to answer three general questions: (1) What are the effects of the organizational climates and their interaction on

⁴Norman Frederickson, Ollie Hensen, and Albert E. Beaton, Organizational Climates and Administrative Performance, (Princeton: Educational Testing Service, October, 1968), p. 1.

the means of the dependent variables? (2) What are the effects of the climates and their interaction on the factor structure in the domain of the dependent variables? (3) What are the effects of the organizational climates on the correlations between dependent variables and measures of personality, ability, and background characteristics of the subjects?⁵

The study was conducted at a two-day research institute in California in 1965. The study included 260 subjects employed by the State of California in a variety of positions. The simulated job was that of Chief of the Field Service Division of the Department of Commerce for the State of California.

The methodological innovation of this study was the simulation of an organization as the vehicle for a social-psychological experiment. A complex organization was simulated and controlled, while certain aspects of the organization were systematically varied and the influences on performance observed. The perceptions of the organizational climates were enhanced by materials included in the in-basket.

The findings were that ten of the forty factors in this study accounted for 61 per cent of the total variance in scores. These ten performance factors are as follows:

⁵Ibid., p. 359.

1. Productivity
2. Acts in compliance with suggestions
3. Interacts with superiors
4. Thoughtful analysis of problems
5. Plans and discusses
6. Defers judgment and action
7. Interacts with peers
8. Orderly work
9. Informality
10. Accepts administrative responsibility

The study concluded that variations in settings, experimental treatments and dependent variables that might be employed in the in-basket were limited only by the experimenter's imagination.⁶

This study furthered the development of the in-basket format for simulations. Unlike Frederickson's previous studies, treatment played an important part in this study. The environment was manipulated through various items in the in-basket. The present study was also concerned with the environment manipulation, however, treatment for the experimental group involved the use of educational media. The important element in the present research was the use of educational media to enhance this simulation.

The Schulman Study⁷

Another significant piece of research on the in-basket technique was conducted by Schulman, et.al. during 1968 at Michigan State University. The purpose of the research was to study individual inquiry behavior.

⁶Ibid., p. 360.

⁷Lee S. Schulman, Michael J. Loupe, Richard M. Piper, Studies of the Inquiry Process, (East Lansing: Michigan State University, 1968), p. 1.

The contents of the in-basket included memoranda and phone messages, school newsletters, and research information on the students in a class, including students' scores on a personality test and a class sociogram. There were two other kinds of materials in the study for the subjects:

1. Written materials, records, report cards, and the like, concerning both the school and pupils in the teacher's class.
2. Human resources that are in the situation (a school secretary, a school principal, and a reference memory, all accessible by telephone placed on the teacher's desk).

The purpose of Schulman's in-basket was to derive a number of quantitative measures to characterize the inquiry process. The list of those derived through the study are as follows:⁸

1. Problem sensitivity is the number of potentially problematic elements perceived as problems by the subject.
2. Time is the number of minutes the subject chooses to spend in the inquiry situation.
3. Materials attended is a measure of input, the number of pieces of material to which the subject attends in the inquiry period.

⁸Ibid., p. 8.

4. Information sources is a count of the number of kinds of categories of information brought to bear by the subject on ten selected problems in the in-basket situation.
5. Competence is a measure of problem resolution. It is an independent judgment of how well each subject comes to understand the nature of the problem situation in the same ten selected problems used to score for information sources.

In his major findings, Schulman indicated that the general approach using the in-basket held much promise for future studies of such complex skills as teaching and medical diagnosis.⁹ Schulman further indicated the in-basket technique of simulation and systematic introspection may make it possible to study difficult areas of introspection.¹⁰

The four studies, Frederickson's In-Basket Test, the Bureau of Business Study by Frederickson, the Organizational Climate and Administrative Performance Study, and the Schulman Study, were the major empirical studies using the in-basket technique. These studies indicated that the in-basket technique may be used as a method of assessing students in particular skills as well as a fact-finding research vehicle.

Much of the remaining literature concerning the in-basket as a simulation technique carries little evidence of empirical testing.

⁹Ibid., p. 191.

¹⁰Ibid., p. 191.

Although the term "research" is often used in this literature, it is of a developmental type. This literature, however, is important from a research point of view since it gives insight into the development and use of the in-basket in several areas of education and training.

IN-BASKETS UTILIZING EDUCATIONAL MEDIA

The only apparent in-baskets utilizing educational media are those developed by the University Council for Educational Administration, Columbus, Ohio. At present the development and production are complete on several instructional packages.¹¹

Only three in-baskets have been field tested. They are "The Wilson High School Principalship," "The Jones Junior High School Principalship," and "The Abraham Lincoln Elementary School Principalship." The format of each is similar.

In each in-basket the stage is set via printed and audio-visual presentations. The purpose is to orient the administrator to the community, the school district, and the particular school. Once the orientation has been completed, the examinee is to read the in-basket items and take action upon them. In these in-baskets the examinee is instructed to make decisions and act upon those decisions. This includes such tasks as writing letters and making telephone calls.

¹¹Based on personal correspondence from Dr. Jack A. Culbertsen, Executive Director of the University Council for Education Administration.

During the in-basket, planned interruptions occur by audio or filmed incidents. These interruptions must be handled by the student as they occur. At times the student may be required to make decisions lacking information, or may receive conflicting information.

These three in-baskets represent only a few of a large number of in-basket exercises for educational administrators which are available from the University Council for Educational Administration.¹² One of the difficulties with these in-baskets is obtaining information for research purposes.¹³

Zuckerman and Horn list six other in-baskets utilizing instructional media; all are produced by the University Council for Educational Administration. The title and brief description of each follows.

"The Edison Elementary Principalship" is designed to give students experience in the activities of an elementary school principal. The in-basket utilizes magnetic tape and 16mm film.¹⁴

"The Madison Assistant Superintendent for Business Management" is designed for the player's role as the assistant superintendent for business management. The purpose is to apply administrative theories to the analysis and solution of reality-oriented problems. Instructional media utilized are magnetic tape and filmstrips.

¹²David W. Zuckerman and Robert E. Horn, The Guide to Simulation Games for Education and Training, (Cambridge, Information Resources, Inc., 1970), p. 127.

¹³Ibid., p. 127.

¹⁴Ibid., p. 127.

"The Madison Assistant Superintendent for Business Management" is designed to give students experience in the proceedings of an assistant superintendent for business management. The in-basket uses 16mm film.¹⁵

"The Madison Public School Superintendent" portrays the role of the public school superintendent. The purpose is to give experience in the proceedings of a public school superintendent, particularly to resolve a conflicting situation within a given environment. The in-basket utilizes 16mm film.¹⁶

"The Madison Assistant Superintendent for Instructional Services" portrays the role of assistant superintendent for instructional service. The purpose is to solve in-basket items by applying administrative theories. The in-basket involves decision making, strategic thinking, bargaining and coalition formation. Instructional media utilized are magnetic tape and 16mm film.¹⁷

"The Assistant Superintendent for Business Management" is designed to give students experience in the activities of an assistant superintendent for business management. The in-basket utilizes a 16mm film.¹⁸

¹⁵Ibid., p. 127.

¹⁶Ibid., p. 131.

¹⁷Ibid., p. 130.

¹⁸Ibid., p. 130.

"The Assistant Superintendent for Instructional Service" is similar to the "Madison Assistant Superintendent for Instructional Service." This in-basket also utilizes a 16mm film.¹⁹

The in-baskets used by the University Council for Educational Administration were of particular importance to this study because of the utilization of educational media. They appear to be the only in-baskets which have used media to increase the effectiveness of the in-basket simulation. Audio tape is used in these in-baskets for interruptions only and not as a control for time limitations.

IN-BASKETS IN BUSINESS AND INDUSTRY

From a training standpoint, the in-basket technique has been used to evaluate managerial skills and employee performance.²⁰ It often has determined the effectiveness of a course or program by providing the means to note any changes that may have taken place in the behavior of the students.²¹

It is now relatively commonplace in large industry for some type of simulation to be used in the evaluation of managerial skills. In the Bell System there have been some 20,000 management people put through "assessment centers." Simulation of the management job is a

¹⁹Ibid., p. 131.

²⁰Cabot L. Jaffee, Problem in Supervision, (Reading) Addison-Wesley, (1968), p. 2.

²¹G. S. Odiorne and E. L. Miller, "Selection by Objectives: A New Approach to Managerial Selection." Management of Personnel Quarterly 5.

major aspect of these centers.²² Campbell and Bray (1967) insist that simulation is an efficient approach in obtaining a thorough evaluation of a man's skills and potential as they relate to management variables.²³

The University of Michigan In-Baskets

In 1962 Dr. Thomas Roberts, staff member of the University of Michigan Bureau of Industrial Relations, began developing a series of twenty in-baskets. These in-baskets became widely used in business and industry between 1962 and 1970. The in-baskets were designed for evaluation and training in the following areas:

1. Automation
2. Communications
3. Community and public relations
4. Cost control, production or quality
5. Discipline or labor relations
6. White collar unionization
7. Manpower planning
8. Performance appraisal
9. Safety
10. Training
11. Establishing priorities
12. Line-staff conflict
13. Man-boss relationships

These in-baskets contained between 12 and 20 items and were designed to accomplish the following objectives: (1) Develop the ability to establish priorities, (2) Develop the ability to set realistic goals, and (3) Develop a systematic approach to problem solving and decision

²²C. L. Jaffee, "Assessment Centers Help Find Management Potential." Bell Telephone Magazine 3, Autumn 1965, pp. 18-25.

²³R. J. Campbell and D. W. Bray, "Assessment Centers: An Aid in Management Selection," Personnel Administration 2. (1967), pp. 7-13.

making. The in-baskets were never empirically tested and the University of Michigan Bureau of Industrial Relations is no longer actively promoting the use of the in-baskets.²⁴

The University of Tennessee Problems in Supervision In-Basket

Produced in 1968 by Cabot L. Jaffee, this in-basket has the purpose of developing managerial skills.²⁵ The objectives were to make decisions regarding a number of problems presented in the in-basket items. The criterion was not necessarily how many decisions are made, but how effective the student was in solving the problems. The decisions deal with organizing and planning, perception, leadership and sensitivity. The time allotted was from one to two hours.

Problems in Bank Management

Another in-basket developed by Jaffee et.al.²⁶ for business and industry was the Problems in Bank Management In-Basket. The in-basket items dealt primarily with organizing and planning, perception, leadership, and sensitivity. David W. Zuckerman evaluated this in-basket as follows:²⁷

²⁴Based on correspondence with Mr. Tom Conelan, Director of the University of Michigan Bureau of Industrial Relations, and the writer.

²⁵Cabot L. Jaffee, Problems in Supervision, (Reading) Addison-Wesley, (1968), p. 1.

²⁶Cabot L. Jaffee, Richard Reilly, and Wayne Burroughs, Problems in Bank Management: An In-Basket Training Exercise (Reading) Addison-Wesley, (1969), p. 2.

²⁷David W. Zuckerman and Robert E. Horn, The Guide to Simulation Games for Education and Training, (Cambridge, Information Resources, Inc., 1969), p. 88.

1. Non-interactive
2. Deterministic
3. Limited role play
4. Qualitative outcomes
5. Individual play
6. Play involves decision making
7. Lower management
8. Single product
9. Personnel emphasized

The Plant Manager In-Basket Test

Developed by General Electric as an evaluation tool, the Plant Manager In-Basket Test²⁸ was designed for the student to play the role of Lamp Plant Manager. The General Electric in-basket design was based on the following criteria:

1. The job should have the qualities of a general manager position.
2. The job should be familiar to General Electric personnel.
3. The job should not be similar to positions that students may have held previously.
4. The job should not be too complex.

The purpose of the test was mainly evaluative. The findings indicated that the in-basket could effectively select managers. The test scores were compared to the ratings of 81 managers who were rated on job performance and effectiveness as managers. Based on these comparisons and a cross-validation of the results with an independent group of managers, General Electric concluded the in-basket was successful.

²⁸Behavioral Research Service, The In-Basket Test As A Measure of Managerial Aptitude, (New York: Relations Services, General Electric, 1961), p. 4.

The General Electric Plant Manager In-Basket Test was further tested at the Ordnance Department at Pittsfield.²⁹ For this study managers rated 57 foremen in their overall job performance. These ratings were compared to results on the in-basket. The study indicated that foremen who ranked high in on-the-job performance ratings also scored high on the in-basket categories, which were:

1. Problem solving
2. Analyzing problems
3. Involving subordinates in their problems
4. Talking with others regarding the handling of in-basket items³⁰

Related Business and Industry In-Basket Development

Various other in-baskets have been developed and used by business and industry and are included here as reference sources. The American Management Association (A.M.A.) has been utilizing the in-basket technique since 1962 in their management training seminars.³¹ The A.M.A. in-baskets were designed to simulate various management jobs and as a means of evaluating management potential.³²

²⁹Behavioral Research Service, The In-Basket Test As A Measure of Foreman Performance (Crotonville, New York: Management Development and Employee Relations Services, General Electric, 1963), p. 2.

³⁰Ibid., p. 6.

³¹F. M. Lopez, Jr., Evaluating Executive Decision Making, (New York: American Management Association, 1966), p. 10.

³²D. W. Bray, "The Assessment Center Method of Appraising Management Potential," In J. W. Blood (Ed.) The Personnel Job In a Changing World, (New York: American Management Association, 1964), p. 4.

The Bell Telephone Company since 1956 has utilized the in-basket technique in their Personnel Assessment Program.³³ The purpose of the in-basket in the Bell System was mainly to provide experience to managers for the volume of paperwork involved in their jobs.³⁴

Allen A. Zoll, currently president of Management Education Associates, was responsible for several in-baskets developed for the Boeing Company, five of which have recently been released for publication.³⁵ I.B.M. Corporation has utilized the in-basket technique since 1957. The in-baskets were basically training tools and have been developed for use in management training in their branch sales offices.³⁶

The Port of New York Authority has used the in-basket technique in training programs for both management and non-management jobs.³⁷ Another in-basket developed by Montgomery-Ward was used in the training of store managers.³⁸

³³Personal Assessment Program, (Detroit: Michigan Bell Telephone Company, 1968), p. 4.

³⁴William C. Byham, "Assessment Centers for Spotting Future Managers," Harvard Business Review (July-August, 1970), p. 155.

³⁵Allen A. Zoll, III., The In-Basket Kit (Reading: Addison-Wesley, 1971).

³⁶Felix M. Lopex, Jr., Evaluating Executive Decision Making: The In-Basket Technique, A.M.A. Research Study 75, (New York: American Management Association, 1966), p. 49.

³⁷*Ibid.*, p. 51.

³⁸*Ibid.*, p. 50.

IN-BASKET DEVELOPMENT IN SECRETARIAL AND OFFICE EDUCATION

In-Basket Research at Michigan State University

A study conducted by Delores Siefert in 1967 at Michigan State University was among the first to focus upon the in-basket for use in office education.³⁹ The purposes of the study were: (1) to examine the origin and uses of the in-basket and the opinions of previous users regarding its effectiveness; (2) to determine if the in-basket could be helpful in teaching concepts and procedures which are difficult to teach by the traditional textbook and lecture methods; and (3) to provide an outline for the construction of office education in-baskets.

Siefert found that the in-basket technique was a unique tool for use in measuring student performance in the following areas: (1) realistic practice in making decisions regarding the relative importance of tasks to be done; (2) planning and organizing work efficiently; (3) detecting and correcting errors independently; and (4) working efficiently under pressure.

Following Siefert, Beaufore conducted a study in 1968.⁴⁰ The Beaufore study, although highly localized, was among the first to

³⁹ Delores Siefert, "The In-Basket and Its Application to Office Education," Unpublished paper, Michigan State University, East Lansing, 1967.

⁴⁰ Jerry Ann Beaufore, "Four In-Basket Projects For the Secretarial Practice Class Based on Follow-Up Study and Job Analysis of the 1965-67 St. Johns High School Business Graduates," Unpublished paper, Michigan State University, East Lansing, 1968.

design in-baskets for office education use. Beaufore constructed four in-baskets -- one each for a bookkeeper, general office clerk, typist, and secretary. Although the author achieved limited success with the in-baskets, her conclusions indicated the potential of properly designed and constructed in-baskets. In the conclusions, Beaufore felt that the in-baskets could be a very useful tool for pre-employment training.

National Secretaries Association In-Baskets

The National Secretaries Association developed in-baskets as a part of the Certified Professional Secretaries Examination.⁴¹ These in-baskets were a part of the "Communications and Decision Making" section of the 1970 and 1971 Certified Professional Secretary Examination. The in-baskets involved the following topics:

1. editing
2. abstracting verbal and quantitative data
3. composing
4. transcribing verbatim dictation
5. judging the acceptability of the work of subordinates

The purpose of the in-baskets was to evaluate the decision-making capability of the examinees. Specifically the following response patterns were required: (1) What action should be taken, (2) How should concerned persons be informed of the action taken, and

⁴¹Leonard Robertson, "Everything You Always Wanted to Know About Preparing for Part V," The Secretary, (March, 1971), p. 13.

(3) What should be the follow-up procedure. Two in-baskets based on the CPS In-Baskets have been published: "All in a Day's Work," and "The Secretary's In-Basket."⁴²

The historical development of the in-basket method as it relates to business and industry, and in more recent years to office education and the secretarial area, has had its foundation on a practical philosophical base. No matter what its emphasis at any one point, or within any one firm, one primary tenet has been evident--the in-basket technique has been utilized for its uniqueness in evaluating and training persons in specific skill areas.

LEARNING THEORIES RELATING TO THE IN-BASKET AS A PERFORMANCE TEST

Simulation has been defined in the most general terms as the obtaining of the essence of something, but without all the aspects of reality.⁴³ Simulator trainers illustrate this definition. A pilot trainee may learn to fly an airplane by the use of a simulator that even provides the appropriate visual stimulus of a runway that informs him whether he is too low, too high, or off center. These computer-controlled simulators provide the essence of flying without the hazard.

⁴²"All in a Day's Work," The Secretary, (October, 1970), pp. 26-29. "The Secretary's In-Basket," The Secretary, (June-July, 1971), pp. 28-31.

⁴³Clayton J. Thomas and W. L. Deemer, Jr., "The Role of Operations Games in Operations Research," Operations Research 5, (1), 1957, pp. 1-2.

The assessment of performance may be carried out with simulations in all sorts of activities, and offers a unique opportunity to assess performance in a life-like setting that often cannot be tested by other means.⁴⁴ It is held by many that the more closely the test situation approximates the real-life situation, the more powerful the prediction.⁴⁵ Zuckerman et. al. lists the in-basket among four situational response tests:⁴⁶

1. Patient Management Simulation
(American Board of Orthopedic Surgery)
2. In-basket tests
3. Russell Sage Social Relations Test
4. Motion Picture Tests

The Ogunniyi Study

The Ogunniyi study suggested that the stimulus-response learning theory is basic to all simulation designs, classified by five criteria:⁴⁷

1. A stimulus situation
2. A response situation

⁴⁴Op. Cit., p. 314

⁴⁵Ibid., p. 315.

⁴⁶Ibid., p. 315.

⁴⁷Omosho Ogunniyi, "The Methodology of Educational Simulation Design of a Simulated Instructional Model for Occupational Education," (Unpublished Doctor's Dissertation, Michigan State University, 1969), p. 66.

3. A consequence situation representing the interaction of the stimulus and response
4. A feedback sequence
5. A control and evaluation sequence

Based on the stimulus response and cognitive learning theories, Ogunniyi suggested six basic principles in design of simulations:

1. Simulation is a model of reality.
2. Physical or psychological fidelity may exist in the simulation. Physical fidelity is the representation of the important elements of the real situation being simulated.
3. In simulation only the participants need to be present. A game, however, requires a clinical experience requiring the interaction between people and the environment.
4. An important stage in the design of simulations is the specification of learning objectives the simulation will provide.
5. The objectives of the simulation will dictate the choice of the symbolic representation of the model and the media to be used.
6. There is no evidence in the literature to reflect the existence of any guidelines for designing and validating educational simulations.

Ogunniyi in reference to the last point listed in the preceding list suggested six design questions as evaluative criteria for educational simulations:⁴⁸

1. Does the design represent a real-life model? What kind--general or specific?
2. Does the design serve specific functions? Which?
3. Does the design employ suitable synthetic or animated media for representation and integration of selected operational situations that characterize the model? Which?

⁴⁸Ibid., pp. 90-98.

4. Does the design provide the sequential context of real-life active or interactive processes within the system model? In what ways?
5. Does the design provide appropriate feedback to the learner in terms of stated learning experiences simulated? How?
6. Does the design provide for evaluation control of learning that it offers in terms of the real-life model?

Transfer in Simulations

Transfer of learning is one of the important elements of simulation. Schulman (1970) agreed with Gagne (1969) who suggested that transfer in simulation involves the second of two basic questions:^{49,50}

1. The degree to which instruction in one task will facilitate learning of another.
2. The degree to which the learning of a given task will generalize to the performance of the same general class of tasks in different contexts.

Because of its importance in simulation and instructional design, then, it is appropriate that the subject of transfer be considered here.

Gagne's view on transfer was similar to that of learning theorist Jerome S. Bruner in that they both believed what is transferred are the processes or intellectual skills which the student has learned

⁴⁹Lee J. Schulman, Psychology and Mathematics, (Chicago, The Sixty-ninth Yearbook of the National Society for Study of Education, 1970), pp. 23-71.

⁵⁰Robert M. Gagne and William D. Rohwer, "Review of Literature in Instructional Psychology." Annual Review of Psychology, Vol. 20, (1969), pp. 381-418.

in a variety of contexts. Ausubel, on the other hand, assumed that it is the actual subject matter knowledge that is transferred and that the processes used in a given subject matter cannot be separated from the concepts and principles which make up that subject matter knowledge. He did suggest that such transfer is possible, however, if a deliberate effort is made to appreciate the relevance of the principles in other contexts.⁵¹

Although there are findings on what is transferred and how, most learning theorists will agree that transfer is a factor in learning and evaluation. Roughead et. al. supported this suggestion, when they noted that failure to understand original learning by learning theorists has often made it difficult to interpret transfer results in an unambiguous manner.⁵²

Poland and Haines suggested that positive transfer in simulation is enhanced when two factors are present:⁵³

1. Relevance of task to real office task demands.
2. Situational equivalence, i.e., the extent to which the simulation equivalence in the learning situation is or appears real to the learner.

⁵¹David P. Ausubel, The Psychology of Meaningful Verbal Learning. (New York: Grune and Stratten, 1963), p. 88.

⁵²William G. Roughead and J. M. Scandura, "What is Learned in Mathematical Discovery," Journal of Educational Psychology, Vol. 59, No. 4, (1968), pp. 283-289.

⁵³Robert Poland and Peter Haines, A Study of A Block Time Schedule For Teaching Vocational Office Practice, (East Lansing: Michigan State University, 1969), p. 12.

The identical-elements theory of Thorndike also supports the transfer theory in simulations.⁵⁴ This is in agreement with B. F. Skinner who used the term "induction" for what is commonly called generalization. Such induction, according to Skinner, is the basis of transfer. The reinforcement of a response increases the probability of response in a simulation containing similar elements.

For us to understand Skinner's Induction Theory, we must remember that reinforcement does not strengthen the response which preceded it; it increases the probability of a class of responses...A response element is a sort of behavioral atom.⁵⁵

The Simulation as an Evaluator

In relation to learning theory it is generally agreed that simulation as an evaluator gives way to task or skill analysis:⁵⁶

It appears that when the student is up against the actual requirements then the nature of the tasks set, the abilities that are required, become of primary importance, and "principles of learning," however valid, fade into the background.

From an educational measurement viewpoint, simulation as an evaluator may be considered one of two theoretical approaches: the rational hypothesis and the classical psychometrical.

⁵⁴E. R. Hilgard and G. H. Bower, Theories of Learning, (New York: Appleton-Century-Crofts, 1966), pp. 24-25.

⁵⁵Morris L. Bigge, Learning Theories for Teachers, (New York: Harper Row, 1964), p. 270.

⁵⁶Hilgard, op. cit., p. 549.

The Rational Hypothesis Approach to Test Design

Flanagan states that the rational hypothesis approach to test design is based upon identifying specific behavior relevant to the elements being measured before the problem situations are developed.⁵⁷ Many games would fall under the rational hypothesis approach since it seeks to evaluate the total performance of the examinee.⁵⁸

Kaufman suggests that this necessitates using an instructional system model to design the "best" situational test.⁵⁹

A situational test is derived from performance standards which would be part of the instructional objectives.⁶⁰ Use of instructional systems in designing evaluative instruments has been extensively used by the military since the late 1950's. This trend began in efforts to satisfy training requirements in weapon systems development.⁶¹

⁵⁷J. C. Flanagan, "Some Considerations on the Development of Secretarial Tests," Personnel Psychology, (1954), p. 463.

⁵⁸Donald W. Feshe, "Why Do We Use Situational Performance Tests?" Personnel Psychology, (1954), p. 466.

⁵⁹Roger A. Kaufman, "A Systems Approach to Education," Derivation and Definition, A. V. Communication Review (Winter, 1968), p. 418.

⁶⁰Robert F. Mager, Preparing Instructional Objectives, (Palo Alto: Fearan Publishers, 1962), p. 25.

⁶¹Roger A. Kaufman, Robert E. Carrigan and Charles L. Nunnally, "The Instructional Systems Approach to Training," Human Factors, (April, 1966), p. 46.

Business and industry also are relying heavily on the systems approach to design evaluative instruments such as the situational test simulation which often measures complex human behavior.⁶²

The Classical Psychometrical Approach to Test Design

Flanagan states that the classical psychometrical approach in test development measures specific skills or abilities as opposed to total student performance.⁶³ Typically a criterion measure is used in evaluating the students' performance. The test items are usually derived by test constructors from such sources as textbooks, books of knowledge, or based upon authoritative judgment.

In a discussion of test construction Eble stated that instructors must prepare most classroom tests since there are usually few standardized tests appropriate to most specific content areas.⁶⁴ Many situational tests, such as the one developed in this study, are used to evaluate specific abilities and skills and are usually developed using the classical psychometrical approach.

⁶²"New Training for the Jumbo Jets," Sound Education Reports, Audio-Visual Report #2, Los Altos, (1970).

⁶³Flanagan, op.cit., p. 461.

⁶⁴Robert L. Eble, Measuring Educational Achievement, (Englewood Cliffs: Prentice Hall, 1965), pp. 7-10.

SUMMARY

This survey of the in-basket technique as a form of simulation reveals that it has been used as: (1) an evaluation tool; (2) a format for behavioral research; and (3) a training tool.

Early empirical research used the in-basket format as a method of assessing students' particular skill abilities and as a fact-finding research tool. Educational media have not been extensively used in in-basket development. Apparently the only development has been conducted by the University Council for Educational Administration, which has designed and built ten in-baskets utilizing various forms of educational media. Business and industry have also utilized the in-basket technique as both a means of training and of evaluating managerial skills. The in-basket is now being used in secretarial and office education for evaluation and training.

The in-basket as a simulation technique is defined as a situational response test. This form of simulation relies heavily upon the transfer of learning. As an evaluator, the in-basket may be considered from one of two theoretical approaches--the rational hypothesis or the classical psychometrical theories of test design.

Chapter 3

DESIGN OF THE STUDY

This chapter described the design, procedure and instruments used in this study. The chapter is divided into six parts: (1) development of the materials; (2) field test; (3) research design and the selection of the experimental and control groups; (4) administration of the in-baskets; (5) instruments used for collecting data; and (6) a summary of the design of the study.

THE DEVELOPMENT OF THE MATERIALS

The materials used for the in-baskets were developed by the researcher.¹

Preparation of the In-Baskets

Three in-baskets for a clerk typist position were required for this study, each representing a different company. Three companies were created: In-Basket 1, Clark Company, a furniture manufacturer; In-Basket 2, Quality Tire Company, a tire manufacturer; and In-Basket 3, the Grand Rapids Bakery, a baked goods supplier. Simulated company forms were constructed for each company.

¹As the materials were developed, they were critiqued by Dr. Elaine Uthe, assistant professor of business education, Michigan State University.

Each in-basket was designed to require clerical work while the students were under certain pressures. These were:

1. The pressure of office interruptions: These were various planned interruptions of the type normally found in offices. It was believed these would further the simulation for the multi-media learning carrel.
2. The pressure of a time limit: The total time allowed to complete each in-basket was thirty minutes excluding time allowed to read directions.

Scripts for Each In-Basket

A complete script was written for each in-basket. The goal of the multi-media scripts was to simulate the office environment through slides and an audio tape planned for use in a learning carrel. Slides were prepared to present the visual environment and an audio tape was planned for the background office sound and voices for the interruptions. Ten interruptions were planned for each in-basket. The purpose of the interruptions was to distract the trainee while she was attempting to organize her in-basket. The interruptions were placed at random in the multi-media in-baskets. The scripts for each multi-media in-basket are presented in Appendix A.

The non-media in-baskets contained the same interruptions as the multi-media; however, the interruptions were presented on sheets of paper in the in-baskets rather than through the tape-slide media. The interruptions for the non-media are presented in Appendix B.

Slide Development

The original slides for the multi-media in-baskets were taken in the International Business Machines Corporation office, Lansing, Michigan, by the Michigan State University Instructional Media Center. All slides were shot from the vantage point of a secretary looking out from her desk at the surrounding office.

Preparation of Tapes

From the scripts, the master tape was recorded for each multi-media in-basket. Office sounds were recorded on the entire tape. The narration for the interruptions was dubbed in at the appropriate spots according to the scripts. An inaudible "beep" was placed on the tape to automatically advance the recorder when a change of slides was required. One cassette tape was made for each multi-media in-basket.

Preparation of the Items

The items represented material that would normally be found in a secretary's in-basket. Each item was given an "item letter" as an identifier. These "item letters" were used for the answer sheets for the in-baskets.

The correct priority and answers for the items were determined by an expert in business education.² The correct answers for each in-basket are presented in Appendix C.

²Dr. Elaine Uthe, assistant professor of business education, Michigan State University.

THE FIELD TEST

The purpose of the field test was to test In-Basket 3 to determine if this in-basket did in fact accurately measure the students' abilities in following directions, arithmetic, checking and filing. In-Basket 1 and In-Basket 2 were not field tested, as they served merely as practice in-baskets and the data from these were not used in testing any of the stated hypothesis in this study.

Fourteen students were randomly selected from Michigan State University's, BOA 309, Secretarial Administration II, as test subjects; seven for the experimental group and seven for the control group. These students were selected since they were not too far removed from their high school experiences and were involved in individualized instruction at the University.

The Science Research Short Test of Clerical Ability for following directions (D), arithmetic (A), filing (F), and checking (CH) were administered to all students. The scores from these tests were used as criterion tests, to measure the ability level of the students in the field test.

The students in the experimental group received the multi-media in-baskets individually in a learning carrel. Manila envelopes containing the In-Basket 3 were distributed to each student, and instructions and answer sheets were paper-clipped to the outside of the envelope.

The students were allowed five minutes to read the directions and thirty minutes to complete the in-basket. The experimental group received the in-basket in a multi-media learning carrel. The learning

carrel was used to provide the simulation of an office and to present the interruptions.

The students in the control group all received the in-baskets via the printed medium. Manila envelopes containing the in-basket items were distributed to each student, with instructions and answer sheets clipped to the outside of the envelope. The printed interruption sheets were randomly distributed throughout the in-basket items inside the envelope. The students were allowed five minutes to read the directions and thirty minutes to complete the in-basket.

Findings

Data were collected to establish the relationship between the in-baskets and the corresponding criterion measures for In-Basket 3. An eight by eight correlation matrix was used for this purpose.

Simple correlations were computed to determine the relationships between the Science Research Short Tests of Clerical Ability and Performance on In-Basket 3. Analysis and interruptions of these statistical tests were in terms of prior ability level on the S.R.A. tests for following directions, arithmetic, filing and checking, and the scores on In-Basket 3.

A perusal of the correlation coefficients on the multi-media and non-media in-baskets showed that there was a high correlation with the S.R.A. criterion tests. This indicated that the in-baskets were an adequate testing instrument. All scores on the multi-media in-basket correlated significantly at the .05 level. (Following directions 1.000, checking .758, arithmetic .865, filing .846) All scores on the paper

and pencil in-baskets correlated significantly at the .05 level. (Following directions .973, checking .824, arithmetic .793, filing .822). Tables 1 and 2 present the correlation for In-Basket 3 with the S.R.A. criterion tests for the field test.

RESEARCH DESIGN AND THE SELECTION OF THE EXPERIMENTAL AND CONTROL GROUPS

The Design

The design of this study may be described as a pre-test/post-test control group design with randomization.³

The design is a two by four by three correlation matrix. It is represented graphically as shown in Table 3. The design is symbolically represented where:

S - stands for the schools

I - stands for the I.Q. levels

X - stands for individual's scores on the S.R.A. tests

Y - stands for individual's scores on the in-baskets

T - stands for the treatment

The design incorporated a five-day schedule for utilizing the data at each school. The data collected at each school began on Monday and concluded on Friday. Four consecutive weeks were used.

Procedures by Day

The following is a day-by-day description of the procedures used at each school:

³ Donald T. Campbell and others, Experimental and Quasi-Experimental Design for Research, (Chicago: Rand McNally, 1966), p. 13.

Table 1
Correlation of Paper and Pencil In-Basket #3 and the Four S. R. A.
Criterion Tests for the Field Test

In-Basket #3	S. R. A. Following Directions	S. R. A. Checking	S. R. A. Arithmetic	S. R. A. Filing
Following Directions	.973			
Filing				.882
Arithmetic			.793	
Checking		.824		
The level of significance for the field test group at .05 level is .622				

Table 2

Correlations of Multi-Media In-Basket #3 and the Four
S. R. A. Criterion Tests for the Field Test

In-Basket #3	S. R. A. Following Directions	S. R. A. Checking	S. R. A. Arithmetic	S. R. A. Filing
Following Directions	1.000			
Filing				.846
Arithmetic			.865	
Checking		.758		
The level of significance for the field test group at .05 level is .622				

Table 3

Eight by Eight Correlation Matrix Used As Basic Design for This Study

T	S	I	Section X				Section Y			
			D	CH	F	M	D	CH	F	M
T ₁	S#1	1 2 3								
	S#2	1 2 3								
	S#3	1 2 3								
	S#4	1 2 3								
T ₂	S#1	1 2 3								
	S#2	1 2 3								
	S#3	1 2 3								
	S#4	1 2 3								

1. Day one. Twenty students were randomly selected from the model office and were administered an intelligence test and the four S.R.A. criterion tests. The researcher randomly assigned the selected students to the experimental and control groups by use of a simple random table.
2. Day two. Students in both groups were administered In-Basket 1. Students in the experimental group received the multi-media in-basket; students in the control group received the paper and pencil in-basket.
3. Day three. Students in both groups were administered In-Basket 2. Students in the experimental group received the multi-media in-basket; students in the control group received the paper and pencil in-basket.
4. Day four. All students were administered the four S.R.A. criterion tests.
5. Day five. Students in both groups were administered In-Basket 3. Students in the experimental group received the multi-media in-basket; students in the control group received the paper and pencil in-basket.

The I.Q. test was administered in an effort to obtain a more constant measure of I.Q. than it was felt would be reflected in the I.Q. scores from the various school records. In-Baskets 1 and 2 were administered for the purpose of familiarizing students with the in-basket technique. The S.R.A. tests were readministered on the fourth day to see if any learning had taken place from the students having taken In-Baskets 1 and 2.

Selection of Groups

The population consisted of the students enrolled in senior office practice courses at four Michigan high schools. The schools were randomly selected from the thirty-two Michigan school districts which are members of the Michigan State University Model Office Program. The four schools selected as sites for the study were: Alpena High School, Alpena, Michigan; Grosse Pointe South High School, Grosse Pointe, Michigan; Avondale High School, Auburn Heights, Michigan; and Ottawa Hills High School, Grand Rapids, Michigan.

The random selection procedure. A sample size of eighty,⁴ comprised of twenty subjects from each school, was chosen for this study. The sample size of eighty was chosen because it was sufficient size for the statistical analysis conducted in this study. This number of eighty was also chosen based upon the time and money factors available for this study. Since one school had only twenty students in the senior office block course, it was decided to randomly assign students to the experimental and control groups at each school. The researcher randomly assigned the students to the two groups--experimental and control--by the use of a simple random table the night before the first in-basket was administered.

At the second class meeting, the instructor named the students to group one, the experimental group and to group two, the control group. The school instructor administered the standardized tests as part of "normal" school testing. The students were told that the in-baskets

⁴The sample size was determined by the Office of Educational Research, Michigan State University.

were part of regular assignments in an effort to reduce the possibilities of Hawthorne effects on the study.

ADMINISTERING THE IN-BASKETS

The Evaluation Method Used with the Experimental Groups

The students in the experimental group received the multi-media in-baskets individually in learning carrels. Manila envelopes containing the in-basket items were distributed to each student, with instructions and answer sheets paper-clipped to the outside of the envelope.

The students were allowed five minutes to read the directions. The instructions for each of the in-baskets are included in Appendix D. The standardized in-basket answer sheets are reproduced in Appendix E. The students were allowed thirty minutes to complete each in-basket.

The Learning Carrel

The experimental groups received all in-baskets in the multi-media learning carrel. The media system was completely portable so that it could be moved from school to school.

The media system was equipped with four individual carrel screens, four Kodak Carousel Ektagraphic projectors and one Wollensak 2550 cassette tape recorder. The Wollensak 2550 tape recorder was connected to the four projectors by special cables made by the Instructional Media Center. The researcher was available during the multi-media carrel operation to correct any equipment malfunctions, though none occurred during the study.

The learning carrel screens were designed and built for the Instructional Resources Center; they had an inside measurement of 26

inches long by 18 inches high, with side panels. The learning carrel screens were designed to sit on the front of a desk or table; for this study they were placed on tables. The projectors were placed behind the students to the right side, which allowed for the projection of the picture over the shoulder of the student onto the screen in front of him. No student reported any problem in seeing the picture.

Sound for the carrel was achieved by placing a small speaker behind the learning carrel screen. This procedure allowed for sound to encompass the multi-media learning carrel.

The Evaluation Method Used with the Control Groups

The students in the control groups all received the in-baskets via the printed medium. Manila envelopes containing the in-basket items were distributed to each student, and instruction and answer sheets were paper-clipped to the outside of the envelopes. The printed interruption sheets were randomly distributed throughout the in-basket items inside the envelope. These interruptions are presented in Appendix B. The students were allowed five minutes to read the directions. The same answer sheets were used as in the multi-media in-basket. The standardized in-basket answer sheets are reproduced in Appendix E. The students were allowed thirty minutes to complete the in-basket. The in-basket was administered to these students in a separate classroom where no other students or distractions were present.

THE INSTRUMENTS USED FOR COLLECTING DATA

The data used in this study were collected in four sets of instruments: (1) the Otis-Lennon Mental Ability Test Form J; (2) three

Science Research Tests; (2) the In-basket Organizer Sheets; and (4) the In-Basket items for filing, checking and arithmetic.

The Otis-Lennon Mental Ability Test

The Otis-Lennon Mental Ability Test Form J is a revision of the Otis Quick Scoring Mental Ability Test.⁵

This intelligence test is an objective test designed to give a numerical score for I.Q. The test is designed for high school students in grades eleven or twelve to measure "g" or general intelligence.⁶ The value of this intelligence test is its ability to give an index of I.Q. in a relatively short period of time.⁷

The test is composed of eighty items to be completed in forty minutes. It was found the complete test, from handout to collection, can be administered in fifty minutes.

The Science Research Tests

The Science Research Short Tests of Clerical Ability were administered for the following ability areas: (1) following directions, (2) checking, (3) filing and (4) arithmetic. The tests are short, varying in time from three to nine minutes each. These tests were administered by the high school teachers and scored by the researcher in accordance with the procedures described in the test manual.

The first test administered was the Science Research Short Test of Clerical Ability Form D, Directions Oral and Written. The items in

⁵ Otis-Lennon Mental Ability Test, Manual for Administration, p. 4.

⁶ Ibid., p. 4..

⁷ John W. Burrows, The Sixth Mental Measurements Yearbook (Highland Park: Gryphon Press, 1965), p. 1487.

this five minute test are based on information read previously to the examinee by the test administrator. These oral directions contain information of a type a new employee might receive in an orientation meeting. The examinees are permitted to take whatever notes they desire while the oral instructions are being read, and to use these notes when answering the test items. The test is designed to measure the ability to follow written directions, as well as memory for oral instructions.⁸

The second test administered was the Science Research Short Test of Clerical Ability, Form F, Filing. The items in this test require the examinees to indicate the proper placement of new material in an "existing file." The test measures the ability to alphabetize rapidly, as well as knowledge of standard filing practices.⁹ Five minutes were allowed for completion of this test.

The third test administered in the S.R.A. series was the Science Research Short Test of Clerical Ability Checking, Form CH. In this test, the examinee must check the accuracy of a list of names and numbers against a correct list. An item is "wrong" because of an error either in the name or number. Simulating the checking task as typically found in an office, this is also a five minute test.¹⁰

The final test administered in this series was the Science Research Short Test of Clerical Ability for Arithmetic, Form A. Part One of this test measures the examinee's ability to solve simple addition, subtraction, multiplication and division problems rapidly and accurately.

⁸ Science Research Associates, Manual for S.R.A. Short Test of Clerical Ability, p. 3.

⁹ Ibid., p. 3.

¹⁰ Ibid., p. 3.

The testing time is three minutes. Part Two of this test requires the solution of problems containing percentages and fractions. Because these types of problems were not included in the in-baskets, data from Part Two were not used in this study.

The In-Basket Organizer Sheets

The In-Basket Organizer Sheets were constructed and tested by the researcher. The purpose of the sheets was to test the ability of the students to organize the in-basket items based on written instructions contained in the in-basket items. The In-Basket Organizer Sheets had four pages, one page for each priority or classification of the in-basket items. They were as follows:

1. for listing items requiring immediate action
2. for listing items requiring action before noon
3. for listing items requiring action by 5:00 P.M.
4. for listing items that can be done after today

These answer sheets are reproduced in Appendix E.

For purposes of this study the "decisions" as to an appropriate category for each item were made basically from instructions written on each item. As the student "worked on" each in-basket item, she made a "decision" on the item's priority, and placed the item on the appropriate page of the In-Basket Organizer Sheet. The following information was placed on one of the four answer sheets for each in-basket item: (1) the item letter which identified the in-basket items and (2) what action if any the student would take.

Scoring on the in-basket items was on a right or wrong basis. One point was given for each in-basket item placed in the correct

category. Points were not deducted for placing an item in a "wrong" category. For each in-basket a total of eleven points was possible. The data collected on the "Action You Would Take" section of the In-Basket Organizer Sheets were not used in this study. It is the opinion of the researcher that an adequate criterion was not available for this section, for the type of evaluating being conducted in this study.

In-Basket Items for Filing, Checking and Arithmetic

To evaluate the students' abilities in the areas of filing, checking and arithmetic, selected in-basket items contained problems in each of these areas. The directions sheet informed the students that they were to organize the in-basket first, then to return to specific items and complete the task required. Data were gathered on the amount of this work completed and the degree of accuracy attained. A total number of points was obtainable for each of these skill areas on each in-basket.

METHODS OF ANALYZING DATA

Data were collected to determine whether: (1) differences existed between the two groups--control and experimental--due to the treatment, (2) differences in performance existed between the different levels of I.Q. groups, and, (3) differences in schools had any effect.

The following statistical techniques were employed in the analysis of the data:

Eight by Eight correlation matrix. This technique was used to establish the relationships between the in-baskets and corresponding criterion measures.

T-tests. These were used between the respective correlation coefficients of the two treatment groups to establish differences in correlation.

Two-way multi-variate analysis of co-variance. For the experimental group, using pre-S.R.A. scores and post in-basket scores, S.R.A. being the co-variate, this was used to establish differences due to I.Q. and/or school on the experimental measure.

Three-way analysis of co-variance. This used pre-S.R.A. scores as co-variate and post in-basket scores as dependent variable to determine any significant differences in performance between treatment groups.

Chapter 4

FINDINGS

This chapter presents an analysis and interpretation of the findings of the study. The first section of the chapter reports test results and information which is concerned with the ability level and I.Q. level of the students in the S.R.A. criterion tests and the tests of intelligence. The second section of this chapter includes the interpretation of the findings from the statistical tests: (1) simple correlations and T-tests between the S.R.A. tests and In-Basket 3; (2) the three-way analysis of co-variance between the S.R.A. scores and In-Basket 3; (3) the two-way multi-variate analysis of co-variance for the experimental group; and (4) the effects of the two practice in-baskets using the S.R.A. index of responses.

STUDENT ACHIEVEMENT ON STANDARDIZED TESTS AND COLLATERAL DATA

Student Achievement on Pre-S.R.A. Tests

The scores for the pre-Science Research Short Tests of Clerical Ability, forms D, A, CH and F were used both to measure abilities of the two groups in the study, experimental and control and as an indication of the populations performance as compared with employed office personnel. Since the S.R.A. tests of Clerical Ability were validated with employed office personnel, scores from these tests could be used to compare populations abilities in this study with ability levels of employed office personnel.

When the grand mean scores for each of the groups--experimental and control--were observed, the grand means and standard deviation of the pre-S.R.A. test scores for the experimental and control groups were almost equal. On the pre-S.R.A. test for following directions, form D, the means differed by 0.72, with the means ranging from 27.40 to 28.12. On the pre-S.R.A. test for checking, form CH, the means differed by 2.54, with means ranging from 41.03 to 43.57. On the pre-S.R.A. test for arithmetic, form A, the means differed by 0.15 with the means ranging from 17.82 to 17.97. On the pre-S.R.A. tests for filing, the means differed by 0.19 with means ranging from 21.53 to 21.72. The overall variation of the means was 0.90 (see Table 4).

The data indicated that the ability levels of the two groups were equal in the areas of following directions, filing, checking, and arithmetic as measured by the Science Research Short Tests of Clerical Ability, forms F, CH, A, and D.

The Science Research Test for Following Directions. The pre-S.R.A. test for following directions indicated that the students' performance was higher than employed office personnel. For the twelfth grade students in the experimental group the grand mean was 27.4, for the control group students, 28.1; whereas, the S.R.A. mean score for employed office personnel was 15.0. This indicated that the students in this study performed between 12.4 and 13.1 points higher than did the employed office personnel. Both the experimental and the control groups placed in the 85th percentile when compared to employed office personnel. (Table 5)

The Science Research Test for Checking. The pre-S.R.A. test for checking indicated that students' performance was higher than that

Table 4

Grand Means and Standard Deviation for the Experimental and Control Groups
in each of the Four Pre- S. R. A. Criterion Tests

S. R. A. Test Forms	Means		Standard Deviation	
	Experimental	Control	Difference	Difference
Following Directions	27.40	28.12	2.54	9.8
Checking	43.57	41.03	0.40	9.41
Arithmetic	17.82	17.97	0.15	4.01
Filing	21.12	21.53	9.49	8.90

Table 5

Grand Means for Each of the Four Pre- S. R. A. Criterion Tests for the Experimental and Control Groups and Norms for S. R. A. Criterion Tests

S. R. A. Test Form	Experimental		Control	
	Grand Mean	Corresponding S. R. A. Percentile For Grand Mean*	S. R. A. Mean	S. R. A. Mean*
Following Directions	27.4	15.0	28.1	15.0
Checking	43.5	39.5	41.0	39.5
Arithmetic	17.8	13.8	17.9	13.8
Filing	21.7	15.2	21.5	15.2

*These Values derived by Science Research Associates, Inc., based on employed office personnel.

for employed office personnel. For the twelfth-grade students in the experimental group the grand mean was 43.5, for the control group, 41.0; whereas the S.R.A. mean score for employed office personnel was 39.5. This indicated that on the whole, the students in the study performed between 1.5 and 4.0 points better than did the employed office personnel. This placed the experimental group in the 70th percentile and the control group in the 60th percentile when compared to employed office personnel (see Table 5).

The Science Research Test for Arithmetic. The pre-S.R.A. test for arithmetic indicated that student performance was higher than that of employed office personnel. For the twelfth-grade students in the experimental group the grand mean was 17.8, for the control group, 17.9; whereas the S.R.A. mean score was 13.8. This indicated the students in this study performed between 4.0 and 4.1 points better than did office personnel. Both the experimental and the control groups placed in the 80th percentile when compared to employed office personnel (see Table 5).

The Science Research Test for Filing. The pre-S.R.A. test for filing indicated that the students' performance was higher than that of employed office personnel. For the twelfth-grade students in the experimental group, the grand mean was 21.7, and for the control group, 21.5; whereas the S.R.A. mean score for employed office personnel was 15.2. This indicated that the students in this study performed between 6.3 and 6.5 points better than did employed office personnel. Both the experimental and the control groups placed in the 80th percentile when compared to employed office personnel (see Table 5).

The norms for the S.R.A. Short Tests of Clerical Ability based on employed office personnel are presented in Appendix F.

Otis-Lennon Mental Ability Test

The Otis-Lennon Mental Ability Test Advanced Level, Form J, was administered to establish levels of I.Q. based upon test scores. The results of the tests were used to establish the three I.Q. levels needed for this study. The range of test scores was found to be between a low of 74 and a high of 129. The mean scores for I.Q. revealed that above average, average, and below average students were included in this study (see Table 6). Although the mean indices varied between schools, the variation was within the levels of average, above average and below average. The corresponding Otis-Lennon stanines also indicate that the levels of I.Q. were generally equal. The only exception occurred at school three where the mean I.Q. score falls in the lower portion of the average span revealing a stanine of 4 (see Table 6). Considering, then the total population, the students were homogeneous in terms of I.Q. as measured by the Otis-Lennon Mental Ability Test, Form J.

Simple Correlations and T-Tests

Simple correlations and T-tests were computed to determine the relationships between the Science Research Short Tests of Clerical Ability and performance on In-Basket 3. Analysis and interpretation of these statistical tests* are presented in terms of students: prior

*The .05 level of confidence was used in all analyses.

Table 6

Three Mean Levels of I. Q. by School Compared to Norms of the Otis-Lennon Mental Ability Test

School	Mean I. Q. Level	Otis-Lennon Verbal Descriptor	Otis-Lennon Range of I. Q. for Levels	Otis-Lennon Percentile Rank for School I. Q. Means	Otis-Lennon Stanines
1	112	Above Average	112-128	85	7
	97	Average	88-111	52	5
	81	Below Average	87-0	19	3
2	113	Above Average	112-128	86	7
	102	Average	88-111	54	5
	85	Below Average	87-0	22	3
3	115	Above Average	112-128	88	7
	96	Average	88-111	40	4
	84	Below Average	87-0	22	3
4	112	Above Average	112-128	85	7
	103	Average	88-111	59	5
	85	Below Average	87-0	22	3

ability level on the S.R.A. tests for following directions, arithmetic, filing and checking, and the scores of In-Basket 3.

Student Ability Level

A review of the correlation coefficients computed on the experimental and control groups revealed that the scores received on In-Basket 3 correlated significantly with only two of the four S.R.A. criterion tests for the experimental group. The two scores were following directions and filing for the experimental group (following directions .554, filing .441). The correlations for arithmetic and checking were not significant at the .05 level (arithmetic .011, checking .277). Table 7 presents the correlations for In-Basket 3 with the S.R.A. criterion tests for the experimental group.

For the control group only one score received on In-Basket 3 correlated significantly with the S.R.A. criterion tests. The score correlating significantly was following directions (following directions .331). The scores for filing, arithmetic and checking did not correlate significantly at the .05 level (filing .258, arithmetic .164, checking .310). Table 8 presents the correlations for In-Basket 3 with the S.R.A. criterion tests for the control group.

As a test of significance of difference between group performance--experimental and control--T-tests were computed on the In-Basket 3 scores for the experimental and control groups.¹ Correlation

¹Allen Y. Edwards, Statistical Methods for the Behavioral Sciences, (New York, Holt, Rinehart and Winston, 1962), p. 305.

Table 7

Correlations of In-Basket #3 and the Four S. R. A. Criterion Tests
for the Experimental Group

In-Basket #3	S. R. A. Following Directions	S. R. A. Checking	S. R. A. Arithmetic	S. R. A. Filling
Following Directions	.554			
Filling				.441
Arithmetic			.011	
Checking		.277		
The level of significance for the Experimental Group is .3246.				

Allen L. Edwards, Statistical Methods for the Behavioral Sciences (New York: Holt, Rinehart and Winston, 1962), p. 502.

Table 8

Correlations of In-Basket #3 and the Four S. R. A. Criterion Test for the Experimental Group

In-Basket #3	S. R. A. Following Directions	S. R. A. Checking	S. R. A. Arithmetic	S. R. A. Filing
Following Directions	.331			
Filing				.258
Arithmetic			.164	
Checking		.310		
The level of significance for the Experimental Group is .3246.				

Allen L. Edwards, Statistical Methods for the Behavioral Sciences (New York: Holt, Rinehart and Winston, 1962), p. 502.

coefficients were used, requiring the conversion of the correlation coefficients to Z scores. The results of the T-tests showed that the only significant difference between the correlation coefficients (at the .05 level of confidence²) when comparing each of four areas on In-Basket 3 was following directions, with the experimental group performing better than the control group. Tables 9 and 10 present the T-test results and indicate the statistical significance.

Further analysis was conducted because there was not a significant relationship in all four areas (filing, arithmetic, and checking) between the In-Basket 3 scores and scores obtained in the S.R.A. tests; and because there was lack of significance in performance between groups in three areas (filing, arithmetic, and checking).

Simple Correlations and T-Tests for Students Completing In-Basket 3

A review of In-Basket 3 revealed that only 25 students completed In-Basket 3, 13 in the experimental group, and 12 in the control group. Because scores of 0 could affect the correlations and T-test results for the entire group, correlations and T-tests were conducted for those students that completed In-Basket 3. The I.Q. of these 25 students was, on the whole, evenly distributed over the three I.Q. levels (see Table 10). One student was randomly removed by use of a simple random table from the experimental high group, so that both the experimental and control groups contained 12 students for further statistical analysis.

²Ibid., p. 501.

Table 9

Correlation Coefficients Difference Converted to
Z Scores for the Experimental vs. Control Groups
on In-Basket #3 for Following Directions, Arith-
metic, Filing, and Checking

In-Basket #3	The Observed Difference Between Z Values
Following Directions	1.98*
Arithmetic	0.97
Filing	1.31
Checking	0.59

* Significant at the .05 level of confidence, tabled
value of 1.96.

Table 10

Distribution of Students by I. Q. of
Those Completing In-Basket #3

I. Q. Levels	Number of Students in Experimental Group	Number of Students in Control Group
Above Average	5	3
Average	4	5
Below Average	$\frac{4}{13}$	$\frac{4}{12}$

When correlation coefficients were computed for students who had completed In-Basket 3, it revealed that all scores were correlated significantly with the scores on the four S.R.A. criterion tests both for the experimental (following directions .857, checking .936, arithmetic .887, filing .828) and the control (following directions .580, checking .641, arithmetic .593, filing .608). These data are presented in Tables 11 and 12.

The test of significance of differences between correlation coefficients also revealed that for students completing In-Basket 3, the experimental groups performed significantly better than the control group in all four areas (following directions 2.04, arithmetic 2.23, filing 2.34, checking 1.97, see Table 13).

At this point, it was indicated, for students completing In-Basket 3, that there existed a significant relationship in all four areas (following directions, filing, arithmetic, and checking) between In-Basket 3 scores and scores obtained in the S.R.A. tests, plus a significance in performance between groups in all four areas with the experimental group performing significantly better than the control group. This indicated that completion of the in-basket was a factor in the analysis.

As indicated in Table 9, for all students in the study, there was a significant difference only in the correlation coefficient for following directions, with the experimental group scoring higher. However, Table 13 indicates significant differences between the experimental group and control group in performance in all areas when completion was considered as a variable.

Table 11

Correlation on In-Basket #3 and the Four S. R. A. Criterion Test for the Students in the Experimental Group that Completed In-Basket #3

In-Basket #3	S. R. A. Following Directions	S. R. A. Checking	S. R. A. Arithmetic	S. R. A. Filing
Following Directions	.857			
Filing				.828
Arithmetic			.887	
Checking		.936		
The level of significance for the Experimental Group is .5760.				

Ibid., P. 502

Table 12

Correlations of In-Basket #3 and the Four S. R. A. Criterion Tests
for the Students in the Control Group that Completed In-Basket #3

In-Basket #3	S. R. A. Following Directions	S. R. A. Checking	S. R. A. Arithmetic	S. R. A. Filing
Following Directions	.580			
Filing				.608
Arithmetic			.93	
Checking		.641		
The level of significance for the Control Group is .5760.				

Ibid., P. 502.

In order to derive a clearer picture of the relationship between the student performance on the In-Basket 3 between the experimental and control groups, the variable of S.R.A. scores was used as a covariate in the analysis of covariance. This analysis was completed before arriving at a decision to accept or reject the hypothesis H_{01} , which states that there is a significant difference in student performance on In-Basket 3 in the areas of following directions, checking, arithmetic and filing with students in the experimental group performing significantly better than the control group.

Table 13

Correlation Coefficients Difference Converted
to Z Scores for the Experimental vs. Control
Group on In-Basket #3 for Following Directions,
Arithmetic, Filing, and Checking

In-Basket #3	The Observed Difference Between Z Value
Following Directions	2.04
Arithmetic	2.23
Filing	2.34
Checking	1.97

THREE-WAY ANALYSIS OF COVARIANCE

A multi-variate analysis using a cross factorial design was used to test the treatment's main effects and interaction. The test was run using the subjects' scores on both the four pre-S.R.A. scores and the four In-Basket 3 scores.

Effects of the Treatment on In-Basket 3 Scores

The results of the multi-variate analysis of treatment effects are presented in Table 14. This multi-variate hypothesis asked whether or not there was a significant difference in In-Basket 3 scores between the experimental and control groups. The question under test here was: Is the mean of the experimental group significantly higher than the mean of the control group?

The differences sought in this question were indexed by measure of In-Basket 3 scores and subsequently further tested by the S.R.A. test scores. The overall multi-variate test of equality of mean vectors was rejected ($F=8.5440$, $D.F.=41,000$. p less than .001). Thus, it can be concluded that in total the experimental group performed significantly better than the control group. There is further evidence for the general positive effect of the multi-media learning carrel on student performance.

Effect of Various Schools on Group Performance

The multi-variate analysis for hypothesis number two is reported in Table 15. This multi-variate hypothesis tested whether there was a significant difference in performance between the experimental and control group based on the various schools in this study.

Table 14

Effects of Treatment on Experimental and Group Performance
 F-Ratio for Multivariate Test of Equality of Mean Vectors = 8.5440
 D. F. = 4 and 41.0000 P Less Than 0.0001

Variables	Between Mean SQ	Univariate F	P Less Than	Step Down F	P Less Than
1 PO I-G	85.3366	27.3086	0.0001	27.3086	0.0001
2 PO I-F	2.7512	0.3857	0.5378	0.4263	0.5173
3 PO I-A	2.1238	2.6702	0.1094	4.4086	0.0419
4 PO I-C	10.6323	1.0286	0.3161	0.5676	0.4556

Degrees of Freedom for Hypothesis = 1
 Degrees of Freedom for Error = 44

Table 15

Effects of Various School on Experimental and Group Performance
 F-Ratio for Multivariate Test of Equality of Mean Vectors = 1.4004

D. F. = 12 and 108.7673 P Less Than 0.1767

Variable	Between Mean SQ	Univariate F	P Less Than	Step Down F	P Less Than
Following Directions	7.6624	2.4521	0.0759	2.4521	0.0759
Filing	9.6157	1.3480	0.2712	1.0963	0.3611
Arithmetic	1.9474	2.4484	0.0763	1.9216	0.1408
Checking	10.0107	0.9685	0.4162	0.3207	0.8104

Degrees of Freedom for Hypothesis = 3
 Degrees of Freedom for Error = 44

The overall multi-variate test of equality was not rejected ($F=1.4004$, D.F.=12 and 108,7673. p less than 0.1767). Thus there was no evidence of a significant difference in performance between the experimental and control groups due to the various schools.

Effect of I.Q. on In-Basket 3

The multi-variate analysis for hypothesis number three is presented in Table 16. This multi-variate hypothesis tested whether there was a significant difference in performance on In-Basket 3 and the S.R.A. tests because of I.Q. The overall multi-variate test of equality of mean vectors was rejected ($F=2.3737$, D.F.=8 and 82.000, p less than 0.0237). Thus, there was a significant difference in performance by both groups on both the S.R.A. and In-Basket 3 due to I.Q.

Effect of Interaction of Treatment and School

The multi-variate analysis for hypothesis number four is reported in Table 17. This multi-variate hypothesis tested whether there was significant difference in performance between experimental and control groups due to interaction between treatment and school. The overall multi-variate test of equality of mean vectors was not rejected ($F=1.5171$, D.F.=12 and 108.7673, p less than 0.1288). Thus, there was no evidence of a significant difference between group performance caused by interaction of treatment and school factors.

Effect of Interaction of Treatment and I.Q.

The multi-variate analysis for hypothesis number five is reported in Table 18. This multi-variate hypothesis tested whether

Table 16

Effects of I. Q. on Experimental and Control Group Performance

F-Ratio for Multivariate Test of Equality of Mean Vectors = 2.3737

D. F. = 8 and 82.0000 P Less Than 0.0237

Variable	Between Mean SQ	Univariate F	P Less Than	Step Down F	P Less Than
1 PO I-G	16.0795	5.3472	0.0084	5.3472	0.0084
2 PO I-F	16.4679	2.3086	0.1114	2.2090	0.1222
3 PO I-A	0.2273	0.2858	0.7529	0.8332	0.4417
4 PO I-C	7.0841	0.6854	0.5093	1.3182	0.2788

Degrees of Freedom for Hypothesis = 1
 Degrees of Freedom for Error = 44

Table 17

Effects of Interaction of Treatment and School on Experimental and Control Group Performance

F-Ratio for Multivariate Test of Equality of Mean Vectors = 1.5171

D. F. = 12 and 108.7673 P Less Than 0.1288

Variable	Between Mean SQ	Univariate F	P Less Than	Step Down F	P Less Than
Following Directions	4.9829	1.5946	0.2043	1.5946	0.2843
Filing	5.3776	0.7539	0.5261	0.7538	0.5262
Arithmetic	1.7697	2.2250	0.0986	1.9328	0.1390
Checking	7.6027	0.7355	0.5365	1.8300	0.1568

Degrees of Freedom for Hypothesis = 3

Degrees of Freedom for Error = 44

Table 18

Effects of Interaction of Treatment and I. Q. on Experimental and Control Group Performance

F-Ratio for Multivariate Test of Equality of Mean Vectors = 0.8102

D. F. = 8 and 82.00000 P Less Than 0.5956

In-Bakset #3 Variables	Between Mean SQ	Univariate F	P Less Than	Step Down F	P Less Than
Following Directions	1.3195	0.4223	0.6582	0.4223	0.6582
Filing	13.2733	1.8607	0.1676	1.8594	0.1681
Arithmetic	0.2482	0.3121	0.7336	0.4473	0.6424
Checking	5.5501	0.5370	0.5884	0.6058	0.5505

Degrees of Freedom for Hypothesis = 2
 Degrees of Freedom for Error = 44

there was a significant difference in performance between experimental and control groups caused by interaction of treatment and I.Q. The overall multi-variate test of equality of mean vectors was not rejected ($F=0.8102$, D.F.=8 and 82,000, p less than 0.5956). Thus there was no evidence of a significant difference between the control and experimental groups when considering the interaction of I.Q. and treatment.

Effect of Interaction of School and I.Q.

The multi-variate analysis for hypothesis number six is reported in Table 19. This multi-variate hypothesis tested whether there was a significant difference in performance between groups caused by any interaction between school and I.Q. The overall test of equality of mean vectors was not rejected ($F=0.6498$, D.F.=24 and 144,2420, p less than 0.8912). Thus there was no evidence of a significant difference between group performance caused by the interaction of school and I.Q. factors.

Effects of Interaction Between Treatment, School and I.Q.

The multi-variate analysis of hypothesis number seven is reported in Table 20. This multi-variate hypothesis tested whether there was a significant difference in group performance caused by the interaction of treatment, I.Q. and school factors. The overall multi-variate test of equality of mean vectors was not rejected ($F=1.1290$, D.F.=24 and 144,2420, p less than .3201). Thus, there was no evidence of a significant difference in the experimental and

Table 19

Effects of Interaction of School and I. Q. on Experimental and Control Group Performance

F-Ratio for Multivariate Test of Equality of Mean Vectors = 0.6498

D. F. = 24 and 144.2420 P Less Than 0.8912

In-Basket #3 Variables	Between Mean SQ	Univariate F	P Less Than	Step Down F	P Less Than
Following Directions	1.6701	0.5345	0.7791	0.5345	0.7791
Filing	2.0176	0.2828	0.9421	0.2775	0.9445
Arithmetic	1.1047	1.3889	0.2405	1.3436	0.2597
Checking	2.0675	0.2000	0.9751	0.5266	0.7848

Degrees of Freedom for Hypothesis = 6
 Degrees of Freedom for Error = 44

Table 20

Effects of Interaction Between Treatment, School, and I. Q. on Experimental and Control Group Performance

F-Ratio for Multivariate Test of Equality of Mean Vectors = 0.3201

D. F. = 24 and 144.2420 P Less Than 0.3201

In-Basket #3 Variables	Between Mean SQ	Univariate F	P Less Than	Step Down F	P Less Than
Following Directions	2.6201	0.8385	0.5471	0.8385	0.5471
Filing	3.9856	0.5587	0.7606	0.5004	0.8046
Arithmetic	2.9444	3.7020	0.0046	2.1952	0.0113
Checking	2.4412	0.2362	0.9623	0.3418	0.9107

Degrees of Freedom for Hypothesis = 6
Degrees of Freedom for Error = 44

control groups' performance caused by the interaction of treatment, school, and I.Q. factors.

TWO-WAY MULTIVARIATE ANALYSIS OF COVARIANCE FOR THE EXPERIMENTAL GROUP

A multi-variate analysis of covariance using a cross factorial design was used to test the effects of school and I.Q. on the experimental group. The test was run using the subjects' scores on the four parts of In-Basket 3, and using the four S.R.A. criterion tests for covariates.

Effect of Various Schools on the Experimental Group Performance

The results of the multi-variate analysis for hypothesis one are reported in Table 21. This multi-variate hypothesis asked whether or not there was a significant difference in student performance in the experimental group caused by schools. The overall multi-variate test of equality of mean vectors was not rejected ($F=1.8176$, $D.F.=12$ and 45.2693 , p less than 0.07390). Thus there was no evidence of a significant difference in student performance for the experimental group on In-Basket 3 caused by different schools.

Effect of I.Q. on the Experimental Group Performance

The results of the multi-variate analysis for hypothesis two are presented in Table 22. This multi-variate hypothesis tested whether or not there was a significant difference in scores on In-Basket 3 caused by I.Q. levels. Of interest in this hypothesis was the question: Is there a significant difference in performance on

Table 21

Effect of Various Schools on the Experimental Group Performance
 F-Ratio for Multivariate Test of Equality of Mean Vectors = 1.8176
 D. F. = 12 and 45.2693 P Less Than 0.0739

In-Basket #3 Variables	Between Mean SQ	Univariate F	P Less Than	Step Down F	P Less Than
Following Directions	1.1144	0.5250	0.6702	0.5250	0.6702
Filing	4.0620	0.4618	0.7121	0.4166	0.7431
Arithmetic	3.0451	3.8194	0.0259	5.5833	0.0670
Checking	7.9449	0.5186	0.6743	1.5599	0.2358

Degrees of Freedom for Hypothesis = 3
 Degrees of Freedom for Error = 20

Table 22

Effect of I. Q. on the Experimental Group Performance

F-Ratio for Multivariate Test of Equality of Mean Vectors = 4.2539

D. F. = 8 and 42.0000 P Less Than 0.0009

In-Basket #3 Variables	Between Mean SQ	Univariate F	P Less Than	Step Down F	P Less Than
Following Directions	33.5833	15.9079	0.0001	15.9079	0.0001
Filing	43.5833	5.3918	0.0117	2.4575	0.1079
Arithmetic	0.5833	0.8077	0.4577	0.0692	0.9334
Checking	12.3333	0.9528	0.3998	1.6142	0.2228

Degrees of Freedom for Hypothesis = 2
 Degrees of Freedom for Error = 24

In-Basket 3 caused by the three I.Q. levels, with the higher I.Q. levels performing better than lower I.Q. levels?

The overall multi-variate test of equality of mean vectors was rejected ($F=4.2539$, $D.F.=8$ and 42.000 , p less than 0.009). Thus, there was evidence for a general effect of I.Q. in performance in the experimental group, with performance improving significantly from low to high I.Q.

On the basis of these results it can be concluded that there was a lack of significant difference on student performance, for the experimental group, caused by the various schools in this study.

The significant difference between I.Q. levels in the experimental group on In-Basket 3 warranted rejection of the null hypothesis (H_{02}) that there is no significant difference in student performance for the experimental groups between I.Q. levels.

EFFECTS OF TWO PRACTICE IN-BASKETS USING THE S.R.A. INDEX OF RESPONSE

In an effort to determine the significance of administering two practice in-baskets, the four S.R.A. criterion tests were administered before the two practice in-baskets and again after the two practice in-baskets. The difference between the two in-baskets were converted to gain scores or indices of response means.

Overall there was a positive gain in performance by all students after completing the two practice in-baskets. The mean gain scores for the experimental and control groups are presented in Tables 23 and 24. Although the mean indices varied widely within each

Table 23

Index of Response Between Pre- and Post- S. R. A. Tests for the Experimental Group

School	I. Q.	SRA-D Following Directions	SRA-C Checking	SRA-A Arithmetic	SRA-F Filing
1	Above Average	6.68667	3.10000	4.22667	6.52000
	Average	9.5667	3.35000	2.13333	8.01333
	Below Average	8.2033	8.35000	5.09333	8.89333
2	Above Average	11.20000	16.91667	6.46000	4.62667
	Average	7.44000	12.33333	3.39333	7.24000
	Below Average	9.97667	11.95000	9.24667	8.93333
3	Above Average	6.43667	0.05000	3.46000	5.86667
	Average	4.68333	14.13333	6.82667	6.05333
	Below Average	9.79333	9.03333	6.08667	10.36000
4	Above Average	1.87000	10.56667	3.67333	1.13333
	Average	6.31667	10.53333	1.57333	3.06667
	Below Average	8.15000	13.88333	2.38667	7.37333

Table 24

Index of Response Between Pre- and Post- S. R. A. Tests for the Control Group

School	I. Q.	SRA-D Following Directions	SRA-C Checking	SRA-A Arithmetic	SRA-F Filing
1	Above Average	14.41333	19.35000	4.74000	18.10667
	Average	11.49333	7.75000	6.12667	11.10667
	Below Average	15.95000	17.98333	5.51333	14.93333
2	Above Average	11.95333	12.41667	5.72667	6.49333
	Average	7.67333	4.95000	5.36667	10.74667
	Below Average	8.61667	12.88333	3.27333	1.49333
3	Above Average	5.17000	14.03333	5.24667	4.30667
	Average	7.43667	2.66667	6.52000	4.56000
	Below Average	9.56000	12.91667	5.78667	8.37333
4	Above Average	5.83667	12.21667	1.46000	1.66667
	Average	7.10000	17.13333	1.75333	7.85333
	Below Average	7.52333	22.45000	9.04000	2.70667

group, it is indicated that practice in-baskets improve student performance.

In effect, an effort to further explain and clarify the difference in the gain scores, a multi-variate analysis of variance using a cross factorial design was used to test for effects and interactions of the variables of school, I.Q. and treatment. The multi-variate analysis indicated that the difference in gain scores were mainly due to school effect. Hypothesis three in the multi-variate analysis is presented in Table 25. This hypothesis tested whether or not there was a significant difference in the indices of response caused by the various schools. The question of interest here was: Are the means of the experimental and control groups significantly different by school?

The overall multi-variate test of equality of mean vector was rejected ($F=3.4439$, D.F.=12 and 119.3503, p less than .0003). Thus, there was evidence for an effect of the various schools on the index of response.

From this analysis it was indicated that there was evidence for improved performance by both groups as measured by the indices of response between pre- and post S.R.A. tests after taking two practice in-baskets. The multi-variate analysis of variance indicated that the difference in the index of response were caused mainly by school effect. The other hypothesis tested by this multi-variate analysis showed no significant evidence of effects or interaction. The interested read is referred to Appendix G for tables reporting these hypothesis tests.

Table 25

Effect of Schools on Index of Response for Experimental and Control Groups

F-Ratio for Multivariate Test of Equality of Mean Vectors = 3.4439

D. F. = 12 and 119.3503 P Less Than 0.0003

S. R. A. Variables	Between Mean SQ	Univariate F	P Less Than	Step Down F	P Less Than
S. R. A. Following Directions	88.8455	5.2786	0.0032	5.2786	0.0832
S. R. A. Cheking	110.0581	1.6098	0.1994	1.7310	0.1735
S. R. A. Arithmetic	21.4068	2.5022	0.0705	2.9489	0.0425
S. R. A. Filing	165.9997	4.7510	0.0056	3.7072	0.0182

Degrees of Freedom for Hypothesis = 3

Degrees of Freedom for Error = 48

Chapter 5

SUMMARY OF MAJOR FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

The purpose of this chapter is to review the nature and conduct of the study, to present a recapitulation of the significant findings, to reach certain conclusions, and to make recommendations on the basis of these findings.

THE STUDY AND ITS DESIGN

Recent legislation in the State of Michigan has focused attention upon simulation as one means of business education instruction to be used as a vehicle for providing the skills students will need upon entering the world of work. Michigan State University's Research and Development Program in Vocational-Technical Education endorses simulation through the model office as a teaching device which sought to integrate skills in an environment approaching that of the real office world.

The in-basket technique is a form of simulation gaining attention in business education because of its ability to integrate specific skills in an evaluative framework. The present study was conducted to compare and describe an in-basket evaluation administered in a multi-media learning carrel with an in-basket evaluation administered in the traditional paper and pencil method. With the present demands to better prepare high school business education youth for the complex

office in today's society, there is a need to research different forms of simulation such as the in-basket, which can be efficiently used in the high school business education program.

The Problem

It was the purpose of this study to make a descriptive analysis and comparison of twelfth-grade business education students in a model office who received the in-basket via a multi-media learning carrel compared to twelfth-grade business education students who received the same in-basket in the traditional paper and pencil method.

More specifically, the study was concerned with: 1 -- (H_{01}) the significance of the difference in student performance on an in-basket containing the specific skill areas of following directions, filing, checking, and arithmetic between students who received the in-basket in a multi-media learning carrel and students who received the in-basket in the traditional paper and pencil method; 2 -- (H_{02}) the significance of the difference in student performance on the multi-media in-basket between students of above average as measured by a test of general intelligence.

The Procedures

Eighty (80) students were selected and randomly assigned to two groups: experimental and control. The students were selected from schools which were part of the Michigan State University Vocational Office Block Program. The experimental group received a series of three multi-media in-baskets in a learning carrel providing the sights

and sounds of an office; interruptions similar to those found in an office were presented via 35mm slides and audio tape. The control group received the same series of three in-baskets in a traditional classroom without the sights and sounds of an office. The same interruptions the experimental group received were presented on descriptive pages included in the in-basket.

The Design

A pre-test/post-test control group design with randomization was used. This design is a two by four by three correlation matrix. The design may be symbolically presented where:

S - stands for schools

I - stands for the I.Q. levels

X - stands for individuals scores on the S.R.A. tests

Y - stands for individuals scores on the in-baskets

T - stands for treatment

The Instruments

The data used in this study were collected using four sets of instruments: (1) The Otis-Lennon Mental Ability Test, form J; (2) three Science Research Tests; (3) The In-Basket Organizer Sheets; and (4) the in-basket items for filing, checking and arithmetic.

Prior to this experiment each student was administered the Otis-Lennon Mental Ability Test and the results were used to establish three I.Q. levels for the experimental and control groups. The scores obtained on the three Science Research Tests, the in-basket

organizer sheets, and the in-basket items for filing, checking and arithmetic were used for statistical analysis.

An eight by eight correlation matrix was used to establish the relationship between the in-basket and the corresponding S.R.A. criterion measure. T-tests were used to compare the correlation coefficients on the experimental and the control group to establish any significant difference between groups.

A two-way multi-variate analysis of co-variance, using S.R.A. scores and in-basket scores, S.R.A. being the co-variate, was used to establish differences due to I.Q. and/or school on the experimental group. A three-way analysis of co-variance using S.R.A. scores as a co-variate and in-basket scores as dependent variables was used to determine any significant difference in performance between treatment groups.

SUMMARY OF MAJOR FINDINGS

1. The null hypothesis HO_1 was rejected; this stated that there is no significant difference in student performance on an in-basket containing the specific areas of following directions, filing, arithmetic, and checking between students who have received the in-basket in a multi-media learning carrel and students who received the same in-basket via the paper and pencil method.
 - (a) The T-tests of correlation coefficients between the pre-S.R.A. tests and in-basket scores indicated that scores on the multi-media in-basket were significantly better than the scores on the paper and pencil in-basket.

- (b) There was a significant correlation between the S.R.A. tests of following directions, checking, filing and arithmetic and these sections of In-Basket 3, for students completing In-Basket 3.
 - (c) A further three-way analysis of co-variance using the students' scores on the four pre-S.R.A. scores and the four In-Basket 3 scores indicated that scores were significantly better for students receiving the multi-media In-Basket 3, compared to students who received the non-media In-Basket 3.
2. The null hypothesis HO_2 that there is no significant difference in student performance on the multi-media in-basket for different I.Q. levels, with students with higher I.Q. performing no better than students with low I.Q. was rejected.
- (a) Using the variables of I.Q. and school, a two-way analysis of co-variance on In-Basket 3 scores was performed. Results of the analysis indicated that students with high I.Q. scored significantly better than students with low I.Q. on the multi-media in-basket.
3. It was also determined that students performed better on the S.R.A. criterion tests than did employed office personnel.
4. It was further determined that only 25 of the 80 students completed In-Basket 3.
5. Student performance improved after two trial in-baskets. This was measured in terms of gain scores and indicated

general improvement for these students using the multi-media in-baskets.

CONCLUSIONS

The following conclusions are drawn from the findings of this study. These conclusions are pertinent to, and limited by, the assumptions and design of the study. Any conclusions based upon the results of the study are tentative and in need of further substantiating research.

1. The results of this study would indicate the use of educational media (slide-tape) provides an improved form of simulation, in this case for the in-basket presented in a media-equipped learning carrel. Thus it could be assumed that the successful use of educational media in a learning carrel contributed substantially to making the in-basket a better evaluative measure of student performance.
2. It may also be concluded from this study that specific skill areas in business education can be accurately measured by the simulations such as the multi-media in-basket. The multi-media in-basket can be used as a means of measuring certain types of skills such as filing ability, business math, following directions and checking.
3. The results show that there may have not been adequate time given for the completion of In-Basket 3 to be completely effective for all students.
4. The question of the effect of two trial in-baskets was also of interest to this study. There is evidence based on pre-

and post-S.R.A. criterion tests that students generally improve in performance on the in-baskets after two practice in-baskets have been administered. This may indicate that practice on the in-baskets may be of value in obtaining more precise results.

IMPLICATIONS

Implications for classroom teachers:

1. The multi-media in-basket approach can be used in the block program utilizing a model office. It might be used to determine why a student was not performing well in a model office. For example, if a student was having difficulty in a model office he could be administered an in-basket testing the skills needed in the model office. If performance was high on the in-basket, this would indicate that the student may be having difficulty with such factors as personality or self discipline.
2. The multi-media in-basket could be used by teachers to determine a student's proficiency level in specific skills. This could be done prior to the model office experience.
3. The multi-media in-basket technique could be used in remedial programs for the students who need additional skill experience before entering the model office.
4. The multi-media in-basket could be adapted to test proficiency levels in skills other than following directions, arithmetic, checking and filing. Skills such as shorthand, proofreading, and the like could be incorporated into the in-basket format.

5. In-basket test results could be made available to the student; advice could then be given in the selection of optional learning experiences that would improve noted skill deficiencies.

RECOMMENDATIONS

The following recommendations are based upon the findings of and conclusions of the research and from the thoughts of the researcher as a result of conducting this study.

1. Research should be conducted with the multi-media approach to the in-basket technique to determine the most efficient and effective method of utilizing the approach in the instructional program.
2. Research should be conducted with the multi-media in-basket to determine what levels of instruction other than the senior high school level might benefit from this simulation.
3. Research should be conducted to determine whether or not an increased time limit for the multi-media in-basket would result in higher correlations between criterion tests and multi-media in-baskets for all subjects.
4. Research should be conducted with the items in the multi-media in-basket to determine what other skills area could be evaluated with the simulation.
5. Research should be conducted with the multi-media in-basket to determine the effect of the visual and audio presentation on the hearing and visual senses of various learners.

6. Research should be conducted with the multi-media in-basket to determine if this approach could be used in a remedial program to develop skills needed in specific areas.
7. Research should be conducted to determine the multi-media in-basket's effect on the motivation of students to learn skills in specific areas included in the in-basket.
8. Research should be conducted with the multi-media in-baskets evaluating office workers with this simulation and comparing the results with students taking the same simulation who are in a high school model office program.
9. Research should be conducted to determine the effect a school itself may have on student performance on a multi-media in-basket.

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APPENDIX A

The Scripts for the Multi-Media In-Baskets

Script for In-Basket No. 1

Time: 30 minutes

Place: I.B.M. Building, Lansing, Michigan

Minutes

01 - Read directions

02 - Read directions

03 - Read directions

04 - Read directions

05 - Read directions

01 - Began the office background slide and sound

02 - Office background slide and sound

03 - Interruption #1 - slide of Mr. Brandon
"I'm Mr. Brandon, the president of the Clark Company. I'm going to my office. Please have Mr. Ranger call me as soon as he comes in."

04 - Office background slide and sound

05 - Interruption #2 - slide of Mr. Hilgard
"I'm Mr. Hilgard, a salesman for Modern Lamps. I would like an appointment to see Mr. Ranger today if possible."

06 - Office background slide and sound

07 - Interruption #3 - slide of a salesman
"I'm a new salesman for the Clark Company. I have two pages of sales figures that I would like you to verify for me right now and type me four copies. I need this done for a sales meeting I have to attend within the hour."

08 - Office background slide and sound

09 - Interruption #4 - slide of company messenger
"Hi, I'm the company messenger. I have a message from one of our buyers, Quality Furniture. The message is in regard to purchase order #6175, dated 6-17-71. The message is to change the order from two to four #31362 side chairs."

Minutes

- 10 - Office background slide and sound
- 11 - Office background slide and sound
- 12 - Office background slide and sound
- 13 - Office background slide and sound
- 14 - Interruption #5 - slide of Mr. Ranger
"Hi, I'm Mr. Ranger. I notice my appointment Mr. Hill is waiting . . . Please send him in, thank you."
- 15 - Office background slide and sound
- 16 - Office background slide and sound
- 17 - Interruption #6 - slide of Mr. Hill
"My appointment is finished with Mr. Ranger. He would like to have me schedule an appointment for this Friday, if possible."
- 18 - Office background slide and sound
- 19 - Office background slide and sound
- 20 - Interruption #7 - slide of Mr. Ranger
"Ann, I need two copies of the claim for loss and damage filed against Yellow Freight. I must have those by noon today."
- 21 - Office background slide and sound
- 22 - Office background slide and sound
- 23 - Interruption #8 - slide of another secretary
"Hi, Ann, listen I'm going up on coffee break now. Do you want to come with me?"
- 24 - Office background slide and sound
- 25 - Interruption #9 - slide of another secretary
"Oops . . . I spilled my coffee here in front of your desk . . sorry . . .(laughing). . oh well, looks like you have your own lake now . . a coffee lake . . well, see you later . ."
- 26 - Office background slide and sound
- 27 - Office background slide and sound
- 28 - Interruption #10 - slide of Mr. Ranger
"Listen, Ann . . . I'm going upstairs for a few minutes. I'll be right back. . . Oh, by the way, better call my wife and have her take the Continental in for service today."

Minutes

29 - Office background slide and sound

30 - Office background slide and sound

Script for In-Basket No. 2

Time: 30 minutes

Place: I.B.M. Building, Lansing, Michigan

Minutes

01 - Read directions

02 - Read directions

03 - Read directions

04 - Read directions

05 - Read directions

01 - Began office background slide and sound

02 - Office background slide and sound

03 - Interruption #1 - slide of Mr. Byran

"Excuse me I'm Mr. Byran of the telephone company. I'm sorry to bother you, but I have a work order to make some phone changes in Mr. Jackson's office. I tried the door but it's locked and I need to get in there for a couple minutes."

04 - Office background slide and sound

05 - Interruption #2 - slide of Mr. Raods

"Good morning. I'm Mr. Roads from Stimpson Die Company. I just happened to be in Jackson today and tomorrow and I would like to see the manager of Quality Tire Company. I have a new type of tire die and would like to show it to Mr. Jackson. If possible, I would like an appointment for tomorrow at 11:15."

06 - Office background slide and sound

07 - Office background slide and sound

08 - Interruption #3 - slide of Mr. Jackson

"Good morning . . . your great boss is here . . . Hey, you are looking sharp today. Really, must have got a good night's sleep. Listen, I'm in earlier than I thought, but I am still not going to be in my office until 11:00. I really have a ton of things to do and many of them are people I must see around the plant. . . I think I will do that now . . I'll be back in a little while."

Minutes

09 - Office background slide and sound

10 - Interruption #4 - slide of Mr. Jackson

"Listen, Mary, I should really have Dr. Johnston come to that board meeting on the 13th. I have been meaning to give him a call and invite him but I keep forgetting. Would you please call him for me and invite him? Tell him this is the meeting that I hope will give the green light to start building that new plant. I am sure that he will want to be there in view of the fact that he wants to sell us the piece of property that we would put the new plant on."

11 - Office background slide and sound

12 - Office background slide and sound

13 - Interruption #5 - slide of visitor

"Excuse me, but I was just driving by your office and my car broke down. I'm not sure what is wrong with it but it stopped and there is lots of smoke coming out from under the hood . . . I think you better call the fire department and give them your address . . . The car is right out in front of your main office door . . ."

14 - Office background slide and sound

15 - Office background slide and sound

16 - Interruption #6 - slide of Joe Freewell

"Hi, I'm Joe Freewell, you must be Mary . . . I talked to you yesterday. I just happened to be in the building and thought I would say Hi to Mr. Jackson, but it looks like he is not around. Listen, tell the old boy I will be about 15 minutes late today, that he shouldn't panic . . . I will be there!"

17 - Office background slide and sound

18 - Office background slide and sound

19 - Interruption #7 - slide of Mr. Shick

"Hi, I'm Mr. Shick, at least things are quiet up here. . . you have your own bonfire going our front. I suppose someone is protesting against tire companies. . . that's what you get for contributing to pollution making machines . . just kidding . . . I'm really collecting for the United Fund, I would like to make an appointment to see Mr. Jackson. I would like to discuss the contribution that Quality Tire Company can make to us again this year. Last year your firm was among the largest contributors. We really appreciate Quality Tire's support."

Minutes

20 - Office background slide and sound

21 - Office background slide and sound

22 - Interruption #8 - slide of newsman

"Excuse me, I'm from the Jackson News. I really got some great pictures of that fire out front. . .Wow, what a blaze! Can I use your phone to call our office? I'd like to get this one in today's issue."

23 - Office background slide and sound

24 - Interruption #9 - slide of secretary

"Hi, I'm Jayne from downstairs. Is Mr. Jackson in? If not, can you page him in the plant? . . . I think he should take a look at the mess in front of our office building. People are tracking mud and grease in all over our new carpet."

25 - Office background slide and sound

26 - Interruption #10 - slide of Mr. Jackson's wife

"Hi, Mary. I'm Mr. Jackson's wife. My husband left in such a hurry this morning that he forgot his briefcase. Would you please put it on his desk. Tell him to have a good day and I will see him at home tonight. Oh, by the way, better tell him the carpet downstairs is getting pretty dirty . . . he should put paper down or something. Well, good-bye, you have a good day, too."

27 - Office background slide and sound

28 - Office background slide and sound

29 - Office background slide and sound

30 - Office background slide and sound

Script for In-Basket No. 3

Time: 30 minutes

Place: I.B.M. Building, Lansing, Michigan

Minutes

01 - Read directions

02 - Read directions

03 - Read directions

04 - Read directions

05 - Read directions

01 - Began office background slide and sound

02 - Office background slide and sound

03 - Interruption #1-slide of office girl

A girl approaches your desk. "Hi Sue, Happy Birthday. . . today is your day . . . if you're over 18 your're getting old . . listen, how about sneaking away early and coming over to the coffee room. Jayne brought in a cake for you today . . . if you wait until 10:30 half of it will be gone . . ."

04 - Office background slide and sound

05 - Office background slide and sound

06 - Interruption #2 - slide of janitor Dan

"Hi . . . you must be the boss's secretary. Well, I'm Dan the new janitor that the company hired last week. I really like working here but I've got a problem that you had better bring to the attention of the boss. You see the workers down in the pie department are awfully careless when they clean up conveyer #3. By the time they get done hosing it down after each changeover they have a lake around the machine. The result is that the floor really gets slippery and we have had some workers slip and fall. I can't be there every time they hose down the machine and their boss will not listen to me. Can you tell Mr. Hansen about the problem?"

07 - Office background slide and sound

Minutes08 - Interruption #3 - slide of Mr. Hansen

Mr. Hansen - your boss comes to your desk. "Hi Sue. Hope you haven't forgotten your boss over the weekend. . . hope you had a good one . . . I sure didn't . . . Would you believe my son drove our powermower into the swimming pool? What a mess! At this point I'm not sure what I should trade in . . . my son or the powermower. Oh, well . . . I see Mr. Klaus is out in the lobby. Would you send him in . . ."

09 - Office background slide and sound

10 - Office background slide and sound

11 - Office background slide and sound

12 - Interruption #4 - slide of Mr. Nettle

"Excuse me, I'm Mr. Nettle, from the Trago Flour Company. I just happened to be in Grand Rapids this morning and I wonder if it would be possible to see the manager? My plane leaves at 11:00 this morning so I would have to see him now, if possible."

13 - Office background slide and sound

14 - Interruption #5 - slide of Mr. Hansen

Mr. Hansen - your boss comes to your desk. "Sue, I finished with my Klaus appointment early . . . and I notice that I have nothing on the calendar until 10:30 . . . so . . . I think I will take a quick walk over to the plant. I understand that they were having problems with the new mixer they put in operation last week and I think I shall take a walk over to see how it is working. If you should need me, I think you should be able to reach me at Driffles extension. I think the number over there is local 85 . . . I should be back in a few minutes . . ."

15 - Office background slide and sound

16 - Office background slide and sound

17 - Office background slide and sound

18 - Interruption #6 - slide of secretary

"Hi, I'm Carol . . . another new girl here at Grand Rapids Bakery. I just heard it is your birthday . . . Happy Birthday, Sue . . . If you can, why don't you join a few of us girls for lunch? In view of the fact it's your birthday, we can all go over to Schuler's . . . I think it would be fun . . ."

19 - Office background slide and sound

20 - Office background slide and sound

Minutes21 - Interruption #7 - slide of Western Union man

"Good morning, I'm from Western Union and I have a telegram for the manager of Grand Rapids Bakery. The message is as follows . .
 'The Miami meeting has been changed. The meeting has been moved to the Waterfront Inn, just across the street from the Hilton. The time for the first meeting remains the same. Any further information can be obtained from the Waterfront Inn, Miami, Florida . . or contact the main office of United Bakers Association in Miami, Florida . ' . . "

22 - Office background slide and sound

23 - Office background slide and sound

24 - Interruption # 8 - slide of Mr. Hansen

Mr. Hansen approaches your desk. "Hi, Sue, I'm back . . . all is fine with the new mixer. If you can, will you try to call General Photography this morning and see if they can come over and take some polaroid shots of that new machine. I think that the people at the Miami meeting would be interested in seeing some pictures of that mixer. You know that mixer is one of the largest mixers in the U.S. It really is quite a machine . . . Are there any messages for me?"

25 - Office background slide and sound

26 - Interruption #9 - slide of salesman

"Hi, I'm Mr. Mills. I think I have an appointment to see Mr. Hansen. I just noticed as I was walking up the stairs that my appointment is for 10:30. I thought it was for 10:00. Would you prefer that I come back at 10:30 or should I try to see Mr. Hansen now?"

27 - Office background slide and sound

28 - Interruption #10 - slide of Mr. Garret

"Hello . . .I'm Mr. Garret, I'm with General Metals. I am one of the people from Grand Rapids going with Mr. Hansen on that trip to Green Bay this month. I don't need to see Mr. Hansen, but I would appreciate it if you could take this message for me. . 'On the Green Bay trip there will be three representatives of the National Bakers Union. I know that you've been having some labor problems over the past year.' I think Mr. Hansen may like to bring some notes and discuss some of his problems with them. Well, thank you . . hope you have a fine day . ."

29 - Office background slide and sound

30 - Office background slide and sound

APPENDIX B

The Paper Interruptions for the Non-Media In-Baskets

In-Basket One*

INTERRUPTION #1

Mr. Brandon appears at your desk (the president of Clark Company). Mr. Brandon explains he is headed to his office. He wants Mr. Ranger to call him at once.

INTERRUPTION #2

Mr. Hilgard, a salesman for Modern Lamps appears at your desk. He would like an appointment to see Mr. Ranger today.

INTERRUPTION #3

A new salesman for the Clark Company appears at your desk. He has only been with the Clark Company for a few weeks. He has two pages of sales figures that he would like you to verify for him now, and asks if you will type four copies for him. He need it done for a sales meeting he has to attend within the hour.

INTERRUPTION #4

A company messenger appears at your desk. He has a message from one of our buyers, Quality Furniture. The message is in regard to purchase order #6175, dates 6-17-71. The message is to change the order from two to four #21362 side chairs.

*For the study each interruption was on a separate sheet of paper

INTERRUPTION #5

Your boss, Mr. Ranger arrives for work. He asks that the appointment waiting for him (Mr. Hill) be sent into his office. Your boss requests that they are not disturbed.

INTERRUPTION #6

Mr. Hill appears at your desk. He requests an appointment with Mr. Ranger for this Friday.

INTERRUPTION #7

Your boss, Mr. Ranger appears at your desk, and requests two copies of the claim for loss and damage filed against Yellow Freight. He needs the copies by noon today.

INTERRUPTION #8

Another clerk typist stops by your desk. She explains that she is going up on coffee break and wants to know if you would like to go with her.

INTERRUPTION #9

Another secretary passes by your desk. As she passes, she spills a cup of coffee . . . laughs . . . says she is sorry . . . and continues on without bothering to clean up the mess . . which is in front of your desk.

INTERRUPTION #10

Mr. Ranger, your boss, comes to your desk and says . . . "I'm going upstairs for a few minutes . . . oh, by the way, better call my wife and have her take the Continental in for service today."

In-Basket Two*

INTERRUPTION #1

A gentlemen appears from the telephone company; he has a work order to make some telephone changes in Mr. Jackson's office, He tried Mr. Jackson's door, but it is locked.

INTERRUPTION #2

A Mr. Roads appears from Stimpson Die Company. He explains that he is selling a new type of tire dies and would like an appointment to talk with Mr. Jackson. Mr. Roads would like an appointment to see Mr. Jackson at 11:15 tomorrow.

INTERRUPTION #3

Your boss, Mr. Jackson appears . . . He says good morning and then says . . . "You are looking fine today . . . listen, I am in earlier than I thought, but I still am not going to be in my office until 11:00. I really have a ton of things to do and many of them are people I must see around the plant . . . I think I will do that now."

INTERRUPTION #4

Mr. Jackson returns . . . "Listen, Mary, I should really have Dr. Johnston come to that board meeting on the 13th. I have been meaning to give him a call and invite him but I keep forgetting. Would you please call

*For the study each interruption was on a separate sheet of paper

#4 continued

him for me and invite him. Tell him this is the meeting that I hope will give us the green light to start building that new plant. I am sure that he will want to be there in view of the fact that he wants to sell us the piece of property that we would put the new plant on."

INTERRUPTION #5

A man approaches your desk . . . and says, "Excuse me, but I was just driving by your office and my car broke down. I'm not sure what is wrong with it but it stopped and there is lots of smoke coming out from under the hood . . . I think you better call the fire department and give them your address . . . the car is right out in front of your main office door . . ."

INTERRUPTION #6

Another man approaches your desk. "Hi, I'm Joe Freewell, you must be Mary . . . I talked to you yesterday. I just happened to be in the building and thought I would say Hi to Mr. Jackson, but it looks like he is not around. Listen, tell the old boy I will be about 15 minutes late toady, that he shouldn't panic . . . I will be there!"

INTERRUPTION #7

"Hi, I'm Mr. Shick, at least things are quiet up here . . . you have your own bonfire going out front, I suppose someones protesting against tire companies . . that's what you get for contributing to pollution

#7 continued

making machines. . . just kidding . . . I'm collecting for the United Fund. I would like to make an appointment to see Mr. Jackson. I would like to discuss the contribution that Quality Tire Company can make to us this year. Last year your firm was among the largest contributors . . . We really appreciate Quality Tire's support."

INTERRUPTION #8

"Excuse me, I'm from the Jackson News, I really got some great pictures of that fire out front . . . Wow, what a blaze! Can I use your phone to call our office? I'd like to get this one in today's issue."

INTERRUPTION #9

"Hi, I'm Jayne from downstairs . . . is Mr. Jackson in? If not, can you page him in the plant? I think he should take a look at the mess in front of our office building. People are tracking mud and grease in all over our new carpet!"

INTERRUPTION #10

"Hi Mary, I'm Mr. Jackson's wife. My husband left in such a hurry this morning that he forgot his briefcase. Would you please put it on his desk. Tell him to have a good day and I will see him at home tonight. Oh, by the way, better tell him the carpet downstairs is getting pretty dirty. He should put paper down or something. Well, good-bye, you have a good day, too."

In-Basket Three*

INTERRUPTION #1

A girl approached your desk. "Hi Sue, Happy Birthday. Today is your day . . . if you're over 18, you're getting old. Listen, how about sneaking away early and coming over to the coffee room, Jayne brought in a cake for you today . . . if you wait until 10:30 half of it will be gone."

INTERRUPTION #2

"Hi . . . you must be the boss's secretary. Well, I'm Dan the new janitor that the company hired last week. I really like working here but I've got a problem that you had better bring to the attention of the boss. You see the workers down in the pie department are awfully careless when they clean up conveyor #4 . . . by the time they get done hosing it down after each changeover they have a lake around the machine. The result is that the floor gets really slippery and we have had some workers slip and fall . . . I can't be there every time they hose down the machine and their boss will not listen to me. Can you tell Mr. Hansen about the problem?"

INTERRUPTION #3

"Hi Sue . . . hope you haven't forgotten your boss over the weekend . . . hope you had a good one . I sure didn't. Would you believe my son

*For the study each interruption was on a separate sheet of paper

#3 continued

drove our lawnmower into the swimming pool . . what a mess! At this point I'm not sure what I should trade in . . my son or the lawnmower. Oh well. I see Mr. Klaus if out in the lobby. Would you send him in."

INTERRUPTION #4

"Excuse me, I'm Mr. Nettle, from the Trago Flour Company, I just happened to be in Grand Rapids this morning and I wonder..if it would be possible to see the manager? My plane leaves at 11:00 this morning so I would have to see him now if possible."

INTERRUPTION #5

Your boss, Mr. Hansen comes to your desk. "Sue, I finished with Mr. Klaus's appointment early . . and I notice that I have nothing on the calendar until 10:30 . . so . . I think I will take a quick walk over to the plant. I understand that they were having problems with that new mixer they put in operation last week and I think I shall take a walk over to see how it is working. If you should need me I think you should be able to reach me at Driffles extension. I think the number over there is local 85. I should be back in a few minutes."

INTERRUPTION #6

"Hi, I'm Carol . . another girl here at Grand Rapids Bakery. I just heard it is your birthday . . . Happy Birthday, Sue. If you can, why

#6 continued

don't you join a few of us girls for lunch. In view of the fact it's your birthday, we can all go over to Schuler's . . I think it would be fun . ."

INTERRUPTION #7

"Good morning, I'm from Western Union and I have a telegram for the manager of Grand Rapids Bakery. The message is as follows . . 'The Miami meeting scheduled for March 3, 1971 at the Miami Hilton has been changed. The meeting has been moved to the Waterfront Inn, just across the street from the Hilton. The time for the first meeting remains the same. Any further information can be obtained from the Waterfront Inn, Miami, Florida, or contact the main office of United Bakers Association in Miami, Florida.'"

INTERRUPTION #8

Mr. Hansen approaches your desk. "Hi, Sue . . I'm back. All is fine with the new mixer. If you can, will you try to call General Photography this morning and see if they will come over and take some polaroid photos of that new machine. I think that the people at the Miami meeting would be interested in seeing some pictures of that mixer. You know that mixer is one of the largest mixers in the U.S. It really is quite a mixer. Are there any messages for me?"

INTERRUPTION #9

"Hi, I'm Mr. Mills. I think I have an appointment with Mr. Hansen. I just noticed as I was walking up the stairs that my appointment is for 10:30 . . . I thought it was for 10:00. Would you prefer that I come back at 10:30 or could I try to see Mr. Hansen now?"

INTERRUPTION #10

"Hello . . . I'm Mr. Garret. I'm with General Metals. I am one of the people from Grand Rapids going with Mr. Hansen on that trip to Green Bay this month. I don't need to see Mr. Hansen, but I would appreciate it if you would take this message for me . . . 'On the Green Bay trip there will be three representatives from the National Bakers Union. I know that you have been having some labor problems over the past year' . . . I think Mr. Hansen may like to bring some notes and discuss some of his problems with them. Well, thank you. Hope you have a fine day . . ."

APPENDIX C

The Correct Answers For Each In-Basket

IN-BASKET 1

The Clark Company

ITEMS REQUIRING IMMEDIATE ACTION

ITEM LETTER:	RATIONALE
J.....	Memo, instructions not to schedule any further appointments for the day.
P.....	Memo, to break 10:00 a.m. and 3:00 p.m. appointments and to re-schedule plane reservations.

ITEMS REQUIRING ACTION BEFORE NOON

ITEM LETTER:	RATIONALE
F.....	Notation on item, "Need for Dr. Swift's appointment at 11:30 a.m."
C.....	Notation on item, "Need for appointment with Dr. Swift at 11:30 a.m."

ITEMS REQUIRING ACTION BEFORE 5:00 P.M.

ITEM LETTER:	RATIONALE
L.....	Notation on item, need today
I.....	Notation on item to get this out Monday
K.....	Notation on item, "need for trip on Monday."
V.....	Notation on item to check this today
Q.....	Notation on item due in payroll office by July 11, which is the next day.

ITEMS THAT CAN BE COMPLETED AFTER TODAY

ITEM LETTER:	RATIONALE
Z.....	Letter requesting an appointment two months from today
B.....	Notation indicating no priority

MATHEMATICAL VERIFICATION

ITEM LETTER B.....	Correct
ITEM LETTER F.....	Correct
ITEM LETTER Q.....	Correct
ITEM LETTER C.....	Incorrect, the correct total is 1970

CORRECT FILING ORDER FOR ITEM LETTER K

A & J Company
 Brown, J.
 Brown, Jay
 Churney, Ralph C.
 Handy & Little
 Hardy, Thomas G.
 Hudson, J. L.
 Judsons Interiors
 Little, Larry
 Peace Products
 Toger Smith Hotel
 Wixom, A. J.

IN-BASKET 2

Quality Tire Company

ITEMS REQUIRING IMMEDIATE ACTION

ITEM LETTER	RATIONALE
D.....	Memo to cancel all appointments for tomorrow
Z.....	Memo written the prior day to have a file on the boss's desk this morning

ITEMS REQUIRING ACTION BEFORE NOON

ITEM LETTER	RATIONALE
A.....	Notation on item, need for a certain appointment which is scheduled before noon
W.....	Notation on item, need for a certain appointment which is scheduled before noon

ITEMS REQUIRING ACTION BEFORE 5:00 P.M.

ITEM LETTER	RATIONALE
N.....	Notation on item, need first thing Friday, the next day
B.....	Notation on item, need by budget meeting, the next day
O.....	Notation to turn item into payroll office by the next day
C.....	Notation on item to type three copies today
X.....	Notation on item, complete by July 8th

ITEMS THAT CAN BE COMPLETED AFTER TODAY

ITEM LETTER	RATIONALE
J.....	Notation to type a letter, no deadline indicated
P.....	Notation, item due next week

MATHEMATICAL VERIFICATION

ITEM LETTER P.....	Incorrect, correct total is 39
ITEM LETTER A.....	Incorrect, \$730.00 should be \$720.00, correct total is \$2,080.00
ITEM LETTER O.....	Incorrect, correct total \$25.45
ITEM LETTER W.....	First total is incorrect, should be 4,350 Second total is correct

CHECKING CORRECTIONS ON IN-BASKET ITEM N

INCORRECT	CORRECT
William F. Strauss	William F. Straus
745.03	754.03
Ply-Rite Tire	Rly-Rite Tire
Iverson Tire Co	Iverson Tire Co.
Brock & Kellog	Brock & Kellogg
379.45	319.45
Ken Rall Stouffer	Ken Rall Stoufer
W. M. Sollenberg	M. W. Sollenberg

IN-BASKET 3

Grand Rapids Bakery

ITEMS REQUIRING IMMEDIATE ACTION

ITEM LETTER	RATIONALE
R.....	Employer requesting air reservation information
	Employer requesting notification of all staff members for lunch within one and one-half hours
	Employer requesting contact with Mr. Briggs at once
K.....	Need item for Mills appointment at once, one hour notification, item needs verification

ITEMS REQUIRING ACTION BEFORE NOON

ITEM LETTER	RATIONALE
G.....	Notification on item due in payroll office by noon
E.....	Notification on item to check this before noon

ITEMS REQUIRING ACTION BEFORE 5:00 P.M.

ITEM LETTER	RATIONALE
A.....	Note on item to get this out later today
N.....	Note on item, need for a meeting at 8:00 p.m. today
Z.....	Note on item, need material for plane flight the next day

X.....Note on item..."to call by
four this afternoon

B.....Note on item, need material
for flight the next day

ITEMS THAT CAN BE COMPLETED AFTER TODAY

ITEM LETTER	RATIONALE
T.....	Letter in mail, of low priority
H.....	Notation, "Need for my Green Bay Trip", which is three weeks away

CORRECT FILING ORDER FOR ITEM LETTER H

44th Street Store

Green, R. G.

Green, Rex

James, Anthony Lee

Lake Huron Acres

Lee Jones Inc.

Michigan, Department of Commerce

Sister Ann Louise

MATHEMATICAL VERIFICATION

ITEM LETTER N.....Correct

ITEM LETTER G.....Correct

ITEM LETTER K...-.....Incorrect, correct total
is \$2,269.05

CHECKING CORRECTIONS ON IN-BASKET ITEM Z

INCORRECT

Peter N. Peterson

356.30

Louis J. Handy

A. C. Home Shops

523.98

219.73

371.48

Stoeckman Brothers

CORRECT

Peter N. Petersen

346.30

Louis J. Handey

A. G. Home Shop

523.58

217.93

371.45

Stoeckmann Brothers

APPENDIX D

The In-Baskets Developed For This Study

IN-BASKET #1A

Non-media use

DIRECTIONS:

Your name is Ann. You have been hired as a temporary replacement for Mr. Ranger's secretary. When you arrive at the office at 8:00 a.m., Monday, July 10, 1971, you find the items enclosed in the envelope on your desk and in the "In-Basket".

You are to DO the following:

Decide in what order you would take care of these items. Each item has a letter. List these items by their letter on the provided "In-Basket Organizer Sheets". Do this first, then proceed.

One item, (item K) asks you to organize several names in correct filing order. There is an answer sheet stapled to item K for you to list the names in correct filing order.

Three items require mathematical verification. You are to check to see if the math is correct. If it is correct, write "correct" on these sheets and sign "Ann". If the math is incorrect, write "incorrect", and put in the correct figures.

In order to make this simulation more real, you will find interruptions in your in-basket material. These will be labeled "Interruption #1..2, etc. These are interruptions such as you would find in a busy office. When you find these interruptions, you are to note these on the provided

"Interruption Sheet". It is important that you note on this sheet how you would handle these interruptions at your desk. Space is provided for your answers.

You have 30 minutes to complete this In-Basket from the time you begin.

IN-BASKET #1

Media

DIRECTIONS:

Your name is Ann. You have been hired as a temporary replacement for Mr. Ranger's secretary. When you arrive at the office at 8:00 a.m., Monday, July 10, 1971, you find the items enclosed in the envelope on your desk and in the "In-Basket".

You are to DO the following:

Decide in what order you would take care of these items. Each item has a letter. List these items by their letter on the provided "In-Basket Organizer Sheets."

One item, (item K) asks you to organize several names in correct filing order. There is an answer sheet stapled to item K for you to list the names in correct filing order.

Three items require mathematical verification. You are to check to see if the math is correct. If it is correct, write "correct" on these sheets and sign "Ann". If the math is incorrect, write "incorrect" and put in the correct figures.

In order to make this simulation more real, there will be the sounds and sights of an office as you would see it from your office desk. Occasionally an interruption will occur on the screen. At the time of such an interruption you are to note this on the provided "interruption sheet". It is important that you note on this sheet how you

would handle these interruptions at your desk. Space is provided for your answers.

You have 30 minutes to complete this In-Basket from the time you begin.

JULY 1971		SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
								1
2	3	4 INDEPENDENCE DAY	5	6	7	8		
9	10 8 AM - H. Hill 10 AM - Johnson 11:30 AM - Lunch WITH DR SWIFT 3 PM - FAY A 6:30 PM - LEAVE FOR SAN FRANCISCO	11	12	13	14	15		
16	17	18	19	20	21	22		
23	24	25	26	27	28	29		
30	31							

MR. RANGER
OUT OF TOWN

THE CLARK COMPANY OF EAST LANSING

IN BASKET ITEM Q

TIME REPORT																											
FOR THE WEEK —																											
BEGINNING: SUNDAY <u>2</u> 19 <u>77</u>																											
AND ENDING: SATURDAY <u>8</u> 19 <u>77</u>																											
DAY OF WEEK	TIME WORKED				Total Hours Worked		Total Hours Worked	Total Amount	Total Amount																		
	Start	Stop	Start	Stop	Start	Stop																					
SUNDAY	10:00	12:00	1:30	3:30			4:00																				
MONDAY	9:15	11:30					2:15																				
TUESDAY	8:00	12:00	1:00	2:15			5:15																				
WEDNESDAY	8:45	11:30	12:30	3:30			5:45																				
THURSDAY																											
FRIDAY																											
SATURDAY																											
* SHOW TIME TO THE NEAREST QUARTER HOUR							TOTAL HOURS WORKED FOR THE WEEK	17:15																			
I HEREBY CERTIFY THAT THE ABOVE IS CORRECT																											
SIGNED (Employee): <u>TOM CROSS</u>																											
<table border="1"> <thead> <tr> <th colspan="2">REGULAR HOURS</th> <th colspan="2">OVERTIME HOURS</th> <th colspan="2">TOTAL</th> </tr> <tr> <th>Hrs.</th> <th>Amount</th> <th>Hrs.</th> <th>Amount</th> <th>Hrs.</th> <th>Amount</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>										REGULAR HOURS		OVERTIME HOURS		TOTAL		Hrs.	Amount	Hrs.	Amount	Hrs.	Amount						
REGULAR HOURS		OVERTIME HOURS		TOTAL																							
Hrs.	Amount	Hrs.	Amount	Hrs.	Amount																						

for the verifier:

TOTAL HOURS _____

IS REPORT CORRECT _____

signature of verifier _____

date due in payroll office July 11

CLARK COMPANY
Interoffice Memorandum

IN - BASKET ITEM J

TO
DEPT
FLOOR OR
BRANCH
SUBJECT

Ann

FROM

R.R.

DEPT.

FLOOR & EXT.
OR BRANCH

DATE

Friday P.M.

*Monday looks like
a busy day do not
schedule any more
appointments R.R.*

CLARK COMPANY
Interoffice Memorandum

IN - BASKET ITEM L

TO
DEPT
FLOOR OR
BRANCH
SUBJECT

*Ann
Make 3 Copies*

FROM *R.R.*

DEPT

FLOOR & EXT
OR BRANCH

DATE

To: *Fulton Industries
Fulton NC*

Gentlemen:

The Clark company is growing increasingly unhappy with the delays in furniture parts deliveries from Fulton. Over the past year we have lost two good customers as a direct result of your failure.

I have continually brought your delays to your attention via letter and have never received any reply. We are now waiting for parts ordered March 4, 1971 on purchase order # 987. If we do not receive these parts by July 31, 1971 consider this order cancelled, and I shall seek a different supplier.

*Sincerely yours
R.R.
Need today*

Judson Interiors

105 - 15th Street, Omaha, Nebraska 68100

IN-BASKET ITEM V

July 2, 1971

Mr. Bob Ranger
Clark Industries
45 Fifth Street
East Lansing, MI

Dear Mr. Ranger:

The last shipment of chairs on our purchase order number 4567 arrived here in the wrong finish. In re-checking our purchase order we find you are in error, having send maple instead of the ordered fruitwood. Will you please rush us the needed twenty-five chairs in the correct finish. We need them by the end of July.

Sincerely yours,


Harold Plant
Purchasing Agent

HLP/ew

*In Morning
Mail July 10...
Check Today*

fine furniture

CLARK COMPANY

WAREHOUSE INVENTORY

WAREHOUSE INVENTORY DEPARTMENT 4

IN - BASKET ITEM C

ITEM	DESCRIPTION	QUANTITY
723	Sugar	598
60	Flour Lamps.	787
465	Side Chair	128
1082	Low Seat	<u>277</u>
	Total	1690
Ann - need for On Script 7-10-71		
Verify R.R.		

CLARK COMPANY
Interoffice Memorandum

IN - BASKET ITEM K

TO *Ann*
DEPT
FLOOR OR
BRANCH
SUBJECT

FROM *R.R.*

DEPT

FLOOR & EXT.
OR BRANCH

DATE

Friday July 7, P.M.

*Need the following list of names
put in order for filing. I want
to set up a file in my bureau
for my Monday trips ... here are the names...*

- 1. Judson Interiors*
- 2. Mr. A. J. Wixom*
- 3. Handy & Little Company*
- 4. Thomas G. Hardy*
- 5. Ralph C. Churney*
- 6. Larry G. Little*
- 7. J. L. Hudson*
- 8. Peace Products*
- 9. The Roger Smith Hotel*
- 10. A. and J. Company*
- 11. J. Brown*
- 12. Jay Brown*

FILING

In-basket item K contains a list of names to be filed. On this form, list the names in the correct filing order, and according to correct filing rules.

This image shows a single sheet of white paper with horizontal black ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

CLARK COMPANY
WAREHOUSE INVENTORY

WAREHOUSE INVENTORY DEPARTMENT 10

IN - BASKET ITEM F

[illegible]

CLAIM FOR LOSS/DAMAGE OR OVERCHARGE

IN-BASKET ITEM B

TO: NAME OF CARRIER <i>Yellow Freight</i>		CLAIM NO. <i>4087</i>
ADDRESS <i>10439 - W. 16th Street</i>		CARRIER'S NO. <i>89</i>
CITY <i>Detroit, Michigan</i>		DATE <i>July 4, 1971</i>
ATTENTION: FREIGHT CLAIM AGENT <i>Sam Jacobs</i>		
SHIPPER'S NAME <i>Jackson Furniture</i>		
SHIPPER'S ADDRESS <i>Lenoir North Carolina</i>		ORIGIN <i>Lenoir, NC</i>
CONSIGNEE <i>Quality Furniture</i>		DESTINATION <i>E. LANS. MI</i>
DATE OF SHIPMENT (M/Y) <i>5-31-71</i>	CAR NO. <i>67250</i>	PAID FREIGHT BILL (PRO. NO.)
DESCRIPTION OF SHIPMENT <i>SOFAS</i>	NO. PIECES <i>16</i>	WEIGHT <i>3200</i>
ROUTE <i>VIA DETROIT</i>		
CLAIM DETAILS - NUMBER PIECES LOST <input type="checkbox"/> OR DAMAGED <input checked="" type="checkbox"/> NATURE AND EXTENT OF LOSS, INVOICE PRICE, AMOUNT OF CLAIM, ETC. IF CLAIM IS FOR OVERCHARGE, SHOW DETAILS AND TARIFF AUTHORITY.		
<i>3 SOFAS Fabric ripped</i>		AMOUNT
		<i>75. -</i>
		<i>115. -</i>
		<i>35. -</i>
		TOTAL <i>225. -</i>
SUPPORTING DOCUMENTS		
1. ORIGINAL BILL OF LADING <input checked="" type="checkbox"/>	2. ORIGINAL PAID FREIGHT BILL <input checked="" type="checkbox"/>	3. CERTIFIED COPY OF INVOICE <input checked="" type="checkbox"/>
4. CERTIFICATE OF VALUE <input type="checkbox"/>	5. INDEMNITY BOND CLAUSE EXECUTED IN LIEU OF BILL OF LADING AND/OR FREIGHT BILL. <input type="checkbox"/>	
BOND OF INDEMNITY		
CLAIMANT AGREES TO INDEMNIFY CARRIER OR CARRIERS AGAINST DUPLICATE CLAIM SUPPORTED BY ORIGINAL BILL OF LADING AND/OR ORIGINAL FREIGHT BILL. INASMUCH AS IT IS POSSIBLE TO PRODUCE THESE DOCUMENTS IN SUPPORT OF THIS CLAIM.		SIGNED <i>H. H. Sindum</i>
CERTIFICATE OF VALUE		
THIS IS TO CERTIFY THAT THE PRICES ON WHICH THIS CLAIM IS BASED ARE TRUE AND CORRECT.		SIGNED <i>H. H. Sindum</i>
THE FOREGOING STATEMENT OF FACTS IS HEREBY CERTIFIED AS CORRECT.		SIGNED <i>H. H. Sindum</i>

*Ann -
Send this down to Claims R.R. ...
Verify addition*

THE MID MICHIGAN TOASTMASTERS ASSOCIATION

612 SOUTH STATE STREET, MIDLAND, MI

IN-BASKET ITEM Z

July 3, 1971

Mr. Bob Ranger V.P.
Clark Company
45 Fifth Street
East Lansing, Michigan 48823

Dear Bob:

The Mid Michigan Toastmasters Association invites you to be our guest speaker at our monthly meeting, tuesday September 15, 1971 at the Midland Hotel. The topic will be our new trends in home furnishings, and we think you are the expert.

As is our policy we will pay you for your expenses and provide lodging if you should decide to spend the entire day with us. Will you please let us know as soon as possible if you would honor us with your presence and fine words of wisdom.

Sincerely yours,


Henry Jackson

HWjck

*In Morning Mail
July 10.*

CLARK COMPANY
Interoffice Memorandum

IN - BASKET ITEM 1

TO
DEPT
FLOOR OR
BRANCH
SUBJECT

Don - get this out Monday

FROM R.R.

DEPT.

FLOOR & EXT.
OR BRANCH

DATE

July 6, 1971

Gentlemen:

We are now in the process of returning to you the entire shipment of lamp bases on our purchase order #1045... dated July 1, 1971.

We have found the entire shipment is defective. The bases you shipped are #639, we ordered #439.

Please be advised we are returning your shipment at once freight C.O.D. We would appreciate your sending the correct bases at once.

Sincerely yours
R.R.

CLARK COMPANY
Interoffice Memorandum

IN - BASKET ITEM P

TO
DEPT
FLOOR OR
BRANCH
SUBJECT

Ann

FROM *R.R.*

DEPT.

FLOOR & EXT.
OR BRANCH

DATE

Friday July 9

Worked late ... I just remembered that I can not make that 10:00 A.M. appointment on Monday ... I just have to much to do in view of the trip. Also, please try and break that 3:00 appointment with Fry ... just try and put him off until after I get back from my trip. Also, change my plane reservation to a 6:00 P.M. departure for Monday (July 10), if possible

Thank you

R.R.

IN-BASKET #2A

For Non-Media

DIRECTIONS:

Your name is Mary. You have been hired as a temporary replacement for Mr. Jackson's receptionist. Mr. Jackson is the manager of Quality Tire Company located in Jackson, Michigan. Quality Tire Company manufactures small tires for boat and camping trailers. When you arrive at the office at 9:30 a.m., Thursday, September 7, 1971, you find the items enclosed in the envelope on your desk and in your "In-Basket".

You are to DO the following:

1. Organize the items according to their priority, items you would do at once, those before noon, etc. There are a set of "in-basket organizer sheets" provided for you to organize these items. Each item has a letter A - B - C etc., list the items by their letter and indicate what action you would take on each item in the space provided in the in-basket organizer sheets.
2. One item, item N, requires you to check one list of names against another. You are to check the list and note any needed corrections on item N.
3. Certain items require you to verify, or check arithmetic. If the arithmetic is correct write "correct" and sign "Mary". If the arithmetic is incorrect, correct the totals and sign "Mary".

In order to make this simulation more real, you will find interruptions in your in-basket material. These will be labeled "Interruption #1..2, etc. These are interruptions such as you would find in a busy office. When you find these interruptions, you are to note these on the provided "Interruption Sheet". It is important that you note on this sheet how you would handle these interruptions at your desk. Space is provided for your answers.

You have 30 minutes to complete this In-Basket from the time you begin.

IN-BASKET #2

For Media

DIRECTIONS:

Your name is Mary. You have been hired as a temporary replacement for Mr. Jackson's receptionist. Mr. Jackson is the manager of Quality Tire Company located in Jackson, Michigan. Quality Tire Company manufactures small tires for boat and camping trailers. When you arrive at the office at 9:30 a.m., Thursday, September 7, 1971, you find the items enclosed in the envelope on your desk and in your in-basket.

You are to DO the following:

1. Organize the items according to their priority, items you would do at once, those before noon, etc. There are a set of "in-basket organizer sheets" provided for you to organize these items. Each item has a letter A-B-C-etc., list the items by their letter and indicate what action you would take on each item in the space provided on the in-basket organizer sheets.
2. One item, item N, requires you to check one list of names against another. You are to check the list and note any needed corrections on item N.
3. Certain items require you to verify, or check arithmetic. If the arithmetic is correct write "correct" and sign "Mary". If the arithmetic is incorrect, correct the totals and sign "Mary".

In order to make this simulation more real, there will be the sounds and sights of an office as you would see it from your office desk. Occasionally an interruption will occur on the screen. At the time of such an interruption, you are to note this on the provided "Interruption Sheet". It is important that you note on this sheet how you would handle these interruptions at your desk. Space is provided for your answers.

You have 30 minutes to complete this In-Basket from the time you begin.

SEPTEMBER 1971

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
				1	2
				IN CALIFORNIA	
4 LABOR DAY	5 IN CALIFORNIA	6 EVENING MEETING 10:30 JAMES FROM BUSSET AND 12:00 LEAVE BY 3:00 B. SMITH 8:00 BUSSET MEETING	8 FROM BUSSET AND 11:00 A.M. BRYAN JL HADWIN - DETROIT	9 ROSH HASHANA	
11	12 NEW APPT - CLARK 1:00 - BOARD MEETING	13	14	15	16
18 YOM KIPPUR	19 DAY OFF	20	21	22	23
25	26	27	28	29 IN FLINT	30

APPENDIX 3.6

BEST DEAL

tire company

fourth and thirsdal streets, linden, ohio

IN BASKET ITEM X

September 1, 1971

Quality Tire Inc.
P.O. Box 7600
Jackson, Michigan, 49201

Gentlemen:

We are having problems with several tires ordered August 2, 1971 on our purchase order number 6123. The tires we are having problems with are the number 90 tires for boat trailer use. We have sold three sets of these tires to customers over the recent weeks and all of the tires have seperated at the inner seam. None of the tires have resulted in a flat tire condition, but we have been forced to replace these tires with a higher grade tire at our loss.

It has been our practice in the past to request a replacement shipment to be sent to us from our suppliers. The supplier normally ships us the tires with no freight charge and we return the tires freight C.O.D. Because you are a new supplier to us we would like to continue our policy with you. At any rate we feel that all the number 90 tires you shipped to us can not be sold through Best Deal tire.

If your manager will agree to the above procedure, we would like a new shipment of number 90 tires out of your plant by Sept. 8th, 1971. This would give us the shipment in time for our annual fall sale which begins the 26th of September.

Sincerely yours

Jim Campbell
Jim Campbell
Sales Manager

*In Morning Mail -
Received Sept 7-1971
Complete by the 8th*

Interoffice Memorandum

- - - - Quality Tire, Incorporated - - - -

IN BASKET ITEM B

TO:

Mary

FROM:

A. J.

Over the past 12 months there has been an increasing number of small charges by company salesmen. These charges are in the form of extra days stay while on business... higher meal charges... higher bar tabs. In view of this I feel it is necessary for us to discuss and set guidelines for our sales staff on spending of company money. We have in the past left this matter up to the sales manager and his staff; however I feel that we can no longer operate in this fashion. I have discussed this matter with manager Tom Perry and he and his staff will abide by any guidelines and policies that are set down.

Mary - Need 12 copies
of this for our budget meeting
Sept 7. Thanks
A. J.

Interoffice Memorandum

- - - - Quality Tire, Incorporated - - - -

IN BASKET ITEM Z

TO:

Mary

FROM:

*Sept 6 - P.M.
A.J.*

We are having problems collecting on the account of Ohio Rubber and Tire Company of Cleveland, Ohio. I noticed that they owe us several thousand dollars and the account is 30 days past due. Better have their file and record of their account on my desk tomorrow morning.

Hande

Interoffice Memorandum

- - - - Quality Tire, Incorporated - - - -

IN BASKET ITEM N

TO:

Mary

FROM:

A.J.

Correct List

Daniel W. Pierson	145.76
Jackson Tire Inc.	754.03
William F. Straus	45.06
Jacobsens Inc.	849.45
Rly-rite Tire	62.58

Holmes Tire Co.	319.45
Peele Motors	918.53
Iverson Tire Co.	821.72
Packard & Bunker	38.47
Brock & Kellogg	64.83

Ripley T. Stacey	28.96
Parks Service Station	145.80
Ken Rall Stouffer	268.39
Eagle Chain & Rack	49.84
M.W. Sollenberg	789.45

List to be checked

William F. Strauss	45.06
Jacobsens Inc.	849.45
Jackson Tire Inc.	745.03
Ply-rite Tire	62.58
Daniel W. Peirson	145.76

Iverson Tire Co	821.72
Packard & Bunker	38.47
Brock & Kellog	64.83
Holmes Tire Co.	379.45
Peele Motors	918.53

Ken Rall Stouffer	268.39
W.M. Sollenberg	789.45
Parks Service Station	145.80
Ripley T. Stacey	28.96
Eagle Chain & Rack	49.84

*Need this first
thing this Friday
Morning*

QUALITY TIRE

TIME SHEET

NAME OF WORKER JIM MEYER DATE Sept 1-71

DEPT. Deck KIND OF WORK Loading

RATE PER HOUR \$5.00 CLOCK NO. 14

PRODUCTIVE HOURS 40 NON-PRODUCTIVE HOURS 5

[illegible]signature of employee Jim Meyer

verified by _____

IN BASKET ITEM W
U. S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS BUREAU OF FOREIGN COMMERCE
SHIPPER'S EXPORT DECLARATION

OF SHIPMENTS TO FOREIGN COUNTRIES OR NONCONTIGUOUS TERRITORIES OF THE UNITED STATES
EXPORT SHIPMENTS ARE SUBJECT TO U. S. CUSTOMS INSPECTION

READ CAREFULLY THE INSTRUCTIONS ON BACK TO AVOID DELAY AT SHIPPING POINT
Clearance will not be granted until shipper's declaration has been filed with the Collector of Customs. This declaration
will not be used to effect any exportation after the expiration date of the export license referred to herein, except as specifically
authorized by export regulations.
DECLARATIONS SHOULD BE TYPEWRITTEN OR PREPARED IN INK

Do Not Use This Area		District	Port	Country (For customs use only)
1. Exporting Carrier (if vessel, give name, flag and pier number) USS POTSDAM		2. From (U. S. Port of Export) CHICAGO		
3. Exporter (Principal or seller—licensee) QUALITY TIRE, INCORPORATED		Address (Number, street, place, State) P.O. BOX 7600, JACKSON, MICHIGAN		
4. Agent of Exporter (Forwarding agent) MIDLAND EXPORT OF CHICAGO		Address (Number, street, place, State) 1600 WEST DIVISION STREET CHICAGO		
5. Ultimate Consignee HOLLAND TIRE AND RUBBER LIMITED		Address (Place, Country) AMSTERDAM, NETHERLANDS		
6. Intermediate Consignee NONE		Address (Place, Country) -----		
7. Foreign Port of Unloading (For vessel and air shipments only) AMSTERDAM, NETHERLANDS		8. Place and Country of Ultimate Destination (Not place of transshipment) AMSTERDAM, NETHERLANDS		
(8) Marks and Nos.	(10) NUMBER AND KIND OF PACKAGES DESCRIPTION OF COMMODITIES EXPORT LICENSE NUMBER EXPIRATION DATE (OR GENERAL LICENSE SYMBOL) (Use the commodity in sufficient detail to permit verification of the Schedule B commodity numbers assigned. Do not use general terms. Insert required license information on line below description of each item)	(11) WEIGHT (Gross) IN POUNDS (required for vessel and air shipments only)	(12) SCHEDULE B COMMODITY NO.	(13) NET QUANTITY in Schedule B Units (State unit)
	45 BOAT TIRES quantity 175	1750		
	license # 745			
	65 BOAT TIRES quantity 160	1840		
	license # 687			
	78 CAMPER TIRES quantity 200	760		
	license # 495			
	TOTAL. 4250			TOTAL. \$5390.-
16. Waybill or Manifest No. (of Exporting Carrier) 1609543		17. Date of Exportation (Not required for shipments by vessel)		

18. The Undersigned Hereby Authorizes MIDLAND EXPORT OF CHICAGO, 1600 West Division Street, Chicago
to Act as Forwarding Agent for Export Control and Customs Purposes. (Name and address—Number, street, place, State)

Exporter _____ by _____ (Duly Authorized Officer or Employee)

19. I Declare That All Statements Made and All Information Contained in This Export Declaration Are True and Correct. I Am Aware of the Penalties Provided for False Representation. (See Paragraphs 1 (c), (d), on reverse side.)

20. Subscribed and sworn to before me on _____, 19____ Signature _____ (Duly authorized officer or employee of exporter or named forwarding agent)

for _____ (Name of corporation or firm and capacity of signer, e. g., secretary, export manager, etc.)

Address _____

(TITLE OR DECLARATION) Notary Public, etc., or those authorized to administer oaths under Sec. 446, Tariff Act of 1930

*Many
check totals...
Need Sept 7
for
Joe Freehill
A.J.*

VERIFIER W. J. [Signature] Are total number of hours correct?
If not, what is the correct total

IN BASKET ITEM O

QUALITY TIRE

TIME SHEET

NAME OF WORKER

DEPT

RATE PER HOUR

PRODUCTIVE HOURS

KIND OF
WORK

CLOCK NO.

NON-PRODUCTIVE HOURS

[illegible]

signature of employee _____

verified by _____

Interoffice Memorandum

- - - - Quality Tire, Incorporated - - - -

IN BASKET ITEM C

TO:

Mary
type 30 pins
needed today

FROM:

A. J.

To: Tilton Rubber Supply
 649 - Swann Street
 Houston Texas.

Dear Dick..

Last week our buyer informed me that
 our latex shipments are being delayed.
 I am not sure but I think this is
 a rail delay around Chicago. I think
 this because we have had delays in
 other goods and it has always been
 the Chicago problem. In view of this
 I suggest you try the next shipment
 by truck. According to my records
 our next shipment is 22nd. Let's
 try truck

Yours
A. J.

NON-RISK TIRE
305 west michigan street
san francisco, california

IN BASKET ITEM J

No. 1601 53-37
113August 18 19 71PAY TO THE
ORDER OFQuality Tire Company : 60.00
Sixty & 00/100 DOLLARS

SAN FRANCISCO STATE
SAN FRANCISCO, CALIFORNIA

Max Lord
TREASURER,

⑆0⑆⑆3⑆0037⑆ 6⑆2⑆0436⑆

NON-RISK TIRE
305 west michigan street
san francisco, california

Detach This Stub Before Cashing This Check

- To QUALITY TIRE INCORPORATED
- P.O. BOX 7600
- JACKSON, MI 49201

Your Invoice No.	Date	Memo	Amount	Discount	Net Due
5043	Aug 5, 1971		60.00	--	60.00

Many -
This is incorrect...
Non-Risk once we \$600.-
Not #60 better write them
a letter and return this letter
check to them... Also better
get a copy of our invoice #5043
to send along
P.J.

HENRYS tire sales & service
4512 cross avenue
Fargo, north dakota service since 1934

IN BASKET ITEM A
purchase order- 7521

Date Aug. 14, 1971

Ship Via Lockert Truck

Terms 2% 10--net 30

Ordered By J. Maller *J.M.*

F.O.B.

Quantity	Description	Cat. No.	Price	Amount
16 sets	little duffy trailer tires	423	\$10.00 per set	\$ 160.00
20	Camper tires	823	\$15.00 each	300.00
80	boat tires	945	\$ 9.00 each	730.00
45	boat tires- white sidewall	578	\$20.00 each	900.00
				<u>\$2090.00</u>

Mary:
Check the math in this
purchase order ... Henrys usually
is off someplace ... I want
to show this to Joe Freewell
this Thursday

A.J.

Interoffice Memorandum

- - - - Quality Tire, Incorporated - - - -

IN BASKET ITEM D

TO: Mary

FROM:

A.J.
Sept 6. P.M.

Something has
 Come up at home ...
 I will have to take
 Friday Sept 8 off ... better
 Cancel anything on the
 calendar

A.J.

P.S. Will not be in until 11:00 A.M.
 Monday the 7th.

IN-BASKET #3A

For Non-Media

DIRECTIONS:

Your name is Sue. You have been hired as a temporary replacement for Mr. Hansen's secretary. Mr. Hansen is manager of the Grand Rapids Bakery located in Grand Rapids, Michigan. The bakery supplies baked goods mainly to chain grocery stores. When you arrive at the office at 9:30 a.m., Monday, March 6, 1971, you find the items enclosed in the envelope on your desk and in the "In-Basket".

You are to DO the following:

Decide in what order you would take care of these items.

Each item has a letter. List these items by their letter on the provided "In-Basket Organizer Sheets".

One item, (item H) asks you to organize several names in correct filing order. There is an answer sheet stapled to item H for you to list the names in correct filing order.

One item, (item Z) requires you to check one list of names against another. You are to check the list and note any needed changes or corrections on item Z.

Certain items require mathematical verification. You are to check to see if the math is correct. If it is correct, write "correct" on these sheets and sign "Sue". If the math is incorrect, write "incorrect" and put in the correct figures.

In order to make this simulation more real, you will find interruptions in your in-basket material. These will be labeled "Interruption #1..2, etc. These are interruptions such as you would find in a busy office. When you find these interruptions, you are to note these on the provided "Interruption Sheet". It is important that you note on this sheet how you would handle these interruptions at your desk. Space is provided for your answers.

You have 30 minutes to complete this In-Basket from the time you begin.

IN-BASKET #3

For Media

DIRECTIONS:

Your name is Sue. You have been hired as a temporary replacement for Mr. Hansen's secretary. Mr. Hansen is manager of the Grand Rapids Bakery located in Grand Rapids, Michigan. The bakery supplies baked goods mainly to chain grocery stores. When you arrive at the office at 9:30 a.m., Monday, March 6, 1971, you find the items enclosed in the envelope on your desk and in the "In-Basket".

You are to DO the following:

Decide in what order you would take care of these items. Each item has a letter. List these items by their letter on the provided "In-Basket Organizer Sheets".

One item, (item H) asks you to organize several names in correct filing order. There is an answer sheet stapled to item H for you to list the names in correct filing order.

One item, (item Z) requires you to check one list of names against another. You are to check the list and note any needed corrections in item Z.

Certain items require mathematical verification. You are to check to see if the math is correct. If it is correct, write "correct" on these sheets and sign "Sue". If the math is incorrect, write "incorrect" and put in the correct figures.

In order to make this simulation more real, there will be the sounds and sights of an office as you would see it from your office desk. Occasionally an interruption will occur on the screen. At the time of such an interruption, you are to note this on the provided "Interruption Sheet". It is important you note on this sheet how you would handle these interruptions at your desk. Space is provided for your answers.

You have 30 minutes to complete this In-Basket from the time you begin.

MARCH 1971						
SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
			1	2	3	4
5	6 9:30 - KLARS 10:30 - MILES 12:00 - STAPPANICH 2:00 - OLSEN 3:00 - ARCHER 8:00 P.M. - MEETING IN LAUSING	7 MIAMI FLORIDA	8	9 10:30 - SMORE 4:00 - SPRAGUE	10 12:00 - HICKS	11
12	13 ALPENA MICH	14	15	16 11:00 - STAFF MEETING	17 ST. PATRICK'S DAY	18
19	20	21	22	23 GREEN BAY, WIS	24	25
26	27	28	29	30 PASSOVER	31 GOOD FRIDAY	

APPENDIX 3.9

IN-BASKET ITEM Z

GRAND RAPIDS BAKERY
Interoffice Memorandum

TO: *See*
 SUBJECT: *Need this list
 checked for my
 Miami flight*
Correct

FROM: *H.H.*
 DATE: *3-3-P.M.*

Louis J. Harding	915.48
Lithograph Co., Inc.	346.30
Louis J. Handey	523.58
A.J. Detrick	84.56
Peter N. Peterson	247.53
O. John Krear	371.45
Betty B. Bloop	49.81
Bake Rite Stores	217.93
A.G. Home Shop	38.56
Stoeckmann Brothers	230.27

List to be checked

A.J. Detrick	84.56
Peter N. Petersen	247.53
Lithograph Co., Inc.	356.30
Louis J. Harding	915.48
Louis J. Handy	523.98
Bake Rite Stores	21973
A.C. Home Shops	38.56
O. John Krear	371.48
Stoeckman Brothers	230.27
Betty B. Bloop	49.81

GRAND RAPIDS BAKERY

CHECK RECORD ENTRY SHEET

record all checks received via mail

IN- BASKET ITEM K

DATE	CHECK NO.	SENDER	IN PAYMENT OF	AMOUNT
2-17	603	Stop Rite	# 4302	239.05
2-17	6731	Tigona Co	# 4368	859.50
2-18	704	Alma College	# 100432	600.-
2-20	517	Stop Rite	# 4304	105.-
2-21	609	Big Burger	# 4400	200.-
2-21	71101	STAR Top	# 4040	215.50
2-21	68423	Jack's truck stop	# 4102	50.-
				<u>\$ 2,268.05</u>
<p> <i>See the math</i> <i>Verify the need</i> <i>in the Mills apt</i> <i>for 3-6 H.H.</i> </p>				

IN-BASKET ITEM R

GRAND RAPIDS BAKERY
Interoffice Memorandum

TO: *Sam* FROM: *H. H.*
SUBJECT: DATE: *3-5-P.M.*

Typical busy Monday -
I'm not sure, but I think I leave on
Flight 523 7:00 AM on Tuesday ... better
check this for me. Oh yes, better notify
all the staff of the 12:00 lunch, I want
everyone there. Also contact Mr.
Briggs on 5th floor (tel-346-2400) ...
I want him in my office for the
Milla appointment ... and of course
Happy birthday.. I understand Monday
is your birthday

IN-BASKET ITEM E

THE ROUNDTABLE

1651 WILLOW STREET

GRAND RAPIDS, MICH.

March 3, 1971

Harry Hansen, Manager
Grand Rapids, Bakery
711 High Street
Grand Rapids, Michigan 49500

Dear Mr. Hansen:

There is a possibility that we will be increasing our orders of bread and rolls over the next few weeks. We have signed a contract to supply these products to certain schools in the rural areas and we would like to continue to use the Grand Rapids Bakery as our source. The contract we signed would triple our usual needs of your products. In view of this I am exploring the possibility of obtaining a better price on these products from you or a similiar supplier.

One of the items of interest I have discovered, is that the Main Street Bakery will offer us a price which is 1 per cent below your current prices. I am under some pressure to make the arrangements for our supplier and hence I am eager to discuss this with you. If your secretary could call me before noon on monday and make an appointment, I would be most appreciative.

Sincerely yours,

Gil Klangdon
Gil Klangdon

*In Morning
3-6-71
Mail
check this before
noon H.H.*

GRAND RAPIDS BAKERY

IN-BASKET ITEM G

TIME RECORD

WORKER HARVEY ANDERSON date 3-3-71

rate per hour 4.1

total hours worked 17

DOE IN PAYROLL OFFICE NOON 3-6-71

[illegible]

VERIFIER:

are total number of hours shown correct? _____
if not what is the correct total _____

signature of VERIFIER _____

IN-BASKET ITEM N

GRAND RAPIDS BAKERY
711 high street
grand rapids, michigan

PURCHASE ORDER

8-399
(REV. 11-68)

TO General Bakery Supply Company
851 Highland Street
Detroit, Michigan 48200

CODE

—ABOVE ORDER NUMBER MUST APPEAR ON
ALL INVOICES, CORRESPONDENCE, ETC.
PERTAINING TO THIS ORDER.

DATE March 3, 1971

SHIP TO (PLANT DESIGNATION AND ADDRESS, WHEN SHOWN) MUST APPEAR ON ALL SHIPPING PAPERS.		SHIP VIA		INVOICE IN (3) COPIES ON DAY OF SHIPMENT TO		
Grand Rapids Bakery 711 High Street Grand Rapids, MI 49500		Yellow Freight		Grand Rapids Bakery 711 High Street Grand Rapids, MI 49500		
DATE REQUIRED AT DESTINATION March 17, 1971		F.O.B. Detroit		CODE		
				PAYMENT TERMS 2X 10- net 30		
ITEM NO.	QUANTITY	ITEM CODE	DESCRIPTION	UNIT PRICE	UNIT	TOTAL AMOUNT
	200	6942	100# bags of flour	\$15.00		3000.-
	25	387	Baker frosting...50# tins	35.00		775.-
	10	487	Baker frosting...50# tins	35.50		355.-
	15	420	Yeast..... 5# packages	30.00		450.-
	75	320	Bun boxes.....100 per crate	12.00		900.-
	2	8	Clear plastic.....3000foot rools	55.00		110.-
						<u>\$5590.-</u>

Give -
Check all the math
on this need this
for my Lansing meeting
on Monday H.H.

THIS PURCHASE ORDER IS SUBJECT TO THE CONDITIONS AND SPECIFICATIONS ON THE REVERSE SIDE OF THIS SHEET AND/OR ATTACHED HERETO.

BY

H. Hansen

IN-BASKET ITEM A

GRAND RAPIDS BAKERY
Interoffice Memorandum

TO: Sue

FROM: H. H.

SUBJECT:

DATE: 3-5-P.M.

To all Division
Grand Rapids Bakery

Over the past few months we have been receiving many complaints about broken wrappings on packages. I have checked with the dock and they have explained this is due to laying steams ... such as returning racks on top of the sealed packages. As you know it is against state law for our firm to deliver goods in this condition. Further this situation can lead to loss of business. Please be more careful. H. H.
(Sue - Get out later on Monday -)

IN-BASKET ITEM T

THE GREATER JACKSON AREA CHAMBER OF COMMERCE

160 West Kalloway Avenue
Jackson, Michigan

March 2, 1971

The Grand Rapids Bakery
711 High Street
Grand Rapids, Michigan 49500

Gentlemen:

The Greater Jackson Area Chamber of Commerce is conducting a survey to determine the background experience of secretaries in the state of Michigan. The survey we are conducting does not include all business establishments in Michigan rather this survey is of the sample type. Your firm has been among those selected for the survey. The actual survey will not begin until June of this year and the survey will be conducted by people from our staff.

In these early month of March and April we are attempting to line up various firms who will agree to being in this survey. Our staff would be at your firm no longer than one day and would take no longer than twenty minutes from each secretary that we interviewed. In most firms we would have enough staff to complete the interviews within one-half day. Our people will attempt not to disturb your daily operation in any way.

We would like to hear from you in the near future if you will agree to becoming a part of our survey. Please reply to us by the middle of April and we will supply further information on our study.

Sincerely yours,

Robert B. Schultz
Robert B. Schultz

In Morning Mail
3-6-71

IN-BASKET ITEM X

PURCHASE ORDER

Mark Order No. on all
invoices and packages**BIG BURGER**

p.o. box 7767, grand rapids, MI

ORDER
NO. 1589DATE
3-3-71

TERMS

SHIP VIA
your truckTO. Grand Rapids Bakery
711 High Street
Grand Rapids, Michigan 49500

QUANTITY	CAT. NO.	DESCRIPTION	PRICE	TOTAL
20 dozen	45	hot dog buns	\$.20 per dz	4 -
145 dozen	46	Hamburger buns	\$.24 per dz	34 80
23 loaves	10	bread	\$.30 per	6 90
45 loaves	15	bread	\$.32 per	14 40
35 loaves	16	bread	\$.29 per	10 15
				<u>60 35</u>

3-invoices in duplicate

Need 3-9-71

S. J. Jorgensen
PURCHASING AGENT

Sure -
 I noticed that Big
 Burger ordered #46 ... couple
 We took that item off a
 week ago and have a #56
 instead ... it is made with
 potatoe flour is the only
 change ... better call
 Jorgensen ... he is in
 in by four in
 the afternoon
 J.H.

IN-BASKET ITEM H

GRAND RAPIDS BAKERY
Interoffice Memorandum

TO: *Sam*FROM: *H. H.*

SUBJECT:

DATE: *3-5-P.M.*

*Had a file set
up for my trip to
Green Bay. Here are names
set up the file...*

1. LEE JONES INC
2. LAKE HURON ACRES
3. 44th STREET STORE
4. ANTHONY LEE JONES
5. DR. REX G. GREEN
6. SISTER ANN LOUISE
7. DEPARTMENT OF COMMERCE STATE OF MICHIGAN
8. MR. R. G. GREEN

FILING

In-basket item H contains a list of names to be filed. On this form, list the names in the correct filing order, and according to correct filing rules.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

APPENDIX E

The Answer Sheets

For The Multi-Media

And Non-Media In-Baskets

IN-BASKET ORGANIZER SHEETS

There are four in-basket organizer sheets. The different sheets indicate the PRIORITY with which you would handle the various items. The four sheets are as follows:

- #1 -- for listing items requiring immediate action
- #2 -- for listing items requiring action before noon, July 10
- #3 -- for listing items requiring action before 5:00 p.m.,
July 10
- #4 -- for listing items that can be done after July 10.

IMPORTANT -- You are organizing these items for completing during the normal busy work day. In any normal office there will be many other things to do during the day, such as taking telephone calls and handling orders from your boss.

Organizer Sheet #1 . . . ITEMS REQUIRING IMMEDIATE ACTION

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take is any _____

ITEM...Letter # _____

Action you would take if any _____

Organizer Sheet #2 . . . ITEMS REQUIRING ACTION BEFORE NOON

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

Organizer Sheet #3 . . . ITEMS REQUIRING ACTION BEFORE 5:00 P.M.

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

Organizer Sheet #4 . . . ITEMS THAT CAN BE COMPLETED AFTER TODAY

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

ITEM...Letter # _____

Action you would take if any _____

INTERRUPTION SHEET

INTERRUPTION #1

Action you would take _____

INTERRUPTION #2

Action you would take _____

INTERRUPTION #3

Action you would take _____

INTERRUPTION #4

Action you would take _____

INTERRUPTION #5

Action you would take _____

INTERRUPTION #6

Action you would take _____

INTERRUPTION #7

Action you would take _____

INTERRUPTION #8

Action you would take _____

INTERRUPTION #9

Action you would take _____

INTERRUPTION #10

Action you would take _____

INTERRUPTION #11

Action you would take _____

INTERRUPTION #12

Action you would take _____

INTERRUPTION #13

Action you would take _____

INTERRUPTION #14

Action you would take _____

INTERRUPTION #15

Action you would take _____

Appendix F
Norms of S.R.A. Sheet
Test of Clerical Ability

Table 26
 Norms for Short Tests of Clerical Ability
 Based on Employed Office Personnel

Percentile	Test scores			
	Arith. Pt. 1 N=326	Checking N=325	Directions N=368	Filing N=330
99	26	65	36	41
95	23	57	30	33
90	21	53	27	28
85	19	50	24	24
80	18	48	21	22
75	17	46	19	20
70	16	44	17	18
60	14	42	15	16
50	13	39	13	14
40	12	37	12	12
30	11	34	10	9
25	10	32	9	8
20	9	30	8	7
15	8	28	7	6
10	6	24	6	5
5	5	19	4	2
1	1	10	2	1
Mean	13.8	39.5	15.0	15.2
SD	5.5	11.3	7.9	8.9

Appendix G

**Tables: Multivariate Analysis of Index of Response
for Pre and Post S. R. A. Criterion Tests**

Table 27

Effect of Interaction Between Treatment, School, and I. Q. Factors
on Index of Response for Experimental and Control Groups

F-Ratio for Multivariate Test of Equality of Mean Vectors = 1.1039

D. F. = 24 and 158.1963 P Less Than 0.3454

S. R. A. Variables	Between Mean SQ	Univariate F	P Less Than	Step Down F	P Less Than
Following Directions	9.8869	0.5874	0.7387	0.5874	0.7387
Checking	68.9030	1.0078	0.4314	1.0572	0.4815
Arithmetic	20.0345	2.3418	0.0460	2.2457	0.0554
Filing	22.3885	0.6408	0.6971	0.6721	0.6726

Degrees of Freedom, for Hypothesis = 6
Degrees of Freedom, for Error = 48

Table 28

Effect of Interaction of Treatment and I. Q. on Index of Response for Experimental and Control Groups
 F-Ratio for Multivariate Test of Equality of Mean Vectors = 1.0893

D. F. = 8 and 90.0000 P Less Than 0.3781

S. R. A. Variables	Between Mean SQ	Univariate F	P Less Than	Step Down F	P Less Than
Following Directions	3.8785	0.2304	0.7951	0.2304	0.7951
Checking	138.3254	2.0233	0.1434	1.9219	0.1577
Arithmetic	4.3482	0.5083	0.6048	0.9911	0.3790
Filing	46.7457	1.3379	0.2721	1.2599	0.2936

Degrees of Freedom, for Hypothesis = 2
 Degrees of Freedom, for Error = 48

Table 29

Effect of Interaction of Treatment and School Factors on Index of Response
for Experimental and Control Groups

F-Ratio for Multivariate Test of Equality of Mean Vectors = 1.5568

D. F. = 12 and 119.3503 P Less Than 0.1137

S. R. A. Variables	Between Mean SQ	Univariate F	P Less Than	Step Down F	P Less Than
Following Directions	32.6658	1.9408	0.1356	1.9408	0.1356
Checking	151.3529	2.2139	0.0986	1.7151	0.1768
Arithmetic	10.0722	1.1773	0.3283	0.5311	0.6633
Filing	68.0889	1.9488	0.1344	2.1222	0.1107

Degrees of Freedom for Hypothesis = 3
Degrees of Freedom for Error = 48

Table 30

Effect of Interaction Between School and I. Q. Factors on Index of Response for Experimental and Control Groups

F-Ratio for Multivariate Test of Equality of Mean Vectors = 0.7841

D. F. = 24 and 158.1963 P Less Than 0.7526

S. R. A. Variables	Between Mean SQ	Univariate F	P Less Than	Step Down F	P Less Than
Following Directions	17.8643	1.0614	0.3987	1.0614	0.3987
Checking	39.2750	0.5745	0.7487	0.4472	0.8433
Arithmetic	8.6048	1.0058	0.4327	0.8574	0.5332
Filing	27.9987	0.8013	0.5738	0.8386	0.5468

Degrees of Freedom for Hypothesis = 6
Degrees of Freedom for Error = 48

Table 31

Effect of I. Q. on Index of Response for Experimental and Control Groups

F-Ratio for Multivariate Test of Equality of Mean Vectors = 1.2677

D. F. = 8 and 90.0000 P Less Than 0.2704

S. R. A Variables	Between Mean SQ	Univariate F	P Less Than	Step Down F	P Less Than
Following Directions	28.9567	1.7204	0.1899	1.7204	0.1899
Checking	126.3650	1.8484	0.1686	1.4361	0.2481
Arithmetic	18.4093	2.1518	0.1274	1.2511	0.2958
Filing	20.2393	0.5793	0.5642	0.7325	0.4864

Degrees of Freedom for Hypothesis = 2
 Degrees of Freedom for Error = 48

Table 32

Effect of Treatment on Index of Response for Experimental and Control Groups

F-Ratio for Multivariate Test of Equality of Mean Vectors = 1.8700

D. F. = 4 and 45.0000 P Less Than 0.1323

S. R. A Variables	Between Mean SQ	Univariate	P Less Than	Step Down F	P Less Than
Following Directions	62.7387	3.7275	0.0595	3.7275	0.0595
Checking	226.3128	3.3103	0.0751	2.4514	0.1242
Arithmetic	4.4900	0.5248	0.4724	0.0838	0.7736
Filing	25.4422	0.7282	0.3978	1.2000	0.2792

Degrees of Freedom for Hypothesis = 1
 Degrees of Freedom for Error = 4

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