Preparation of Experimental Research Report

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THE EXPERIMENTAL RESEARCH REPORT

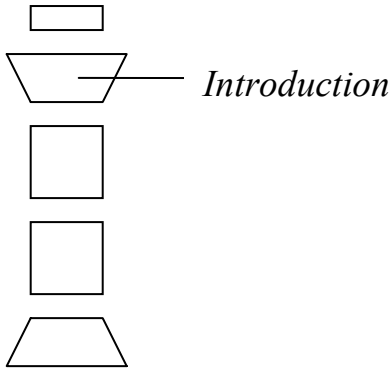
An experimental research report is a paper written by an investigator to describe a research study that he or she has completed. The purpose of the report is to explain to others in the field what the objectives, methods, and findings of the study were. The report may be published in a professional journal, it may appear as a monograph distributed by a research institution or publishing company, or it may be written in the form of a thesis or dissertation as part of the requirements for a university degree.

The general appearance of a research report are discussed in the following pages with some examples prepared by other researchers also included to understand better the format of the respected sections. An example for a full report can also be found at the end of this handout.

The sections will be in the following order in a research report: Abstract, introduction, methods, results, discussion, conclusion, and references. However, it would be very helpful to emphasis that during the report preparation, the following order is generally obeyed to control better the topics and relations between the sections: Methods, results, discussion, introduction, and conclusion. It should be also emphasized that you may see some differences in the configurations of some scientific journal in the literature. For instance, methods may be named as “Materials and Methods” and results and discussion sections may be merged and called “Results and Discussion”. However, the format of each section would be very similar to the on discussed in this handout.

INTRODUCTION:

The introduction serves as an orientation for readers of the report, giving them the perspective they need to understand the detailed information coming in the later sections.



In the introduction, the sentences are chosen so that the topic interested is described from general standpoint to more specific details. The introduction can be divided into five stages:

Stage 1: General statement(s) about a field of research to provide the reader with a setting for the problem to be reported.

Stage 2: More specific statement(s) about the aspects of the problem already studied by other researchers.

Stage 3: Statement(s) that indicate the need for more investigation.

Stage 4: Very specific statements giving the purpose/objectives of the writer's study.

INTRODUCTION

Stage 1

During the past 40 years, many countries have experienced the integration of the computer into society. Progress has been made to the point that small, inexpensive computers with expanded capabilities are available for innumerable uses. Many schools have purchased and are purchasing microcomputers for infusion into their directed learning programs.

Stage 2

Most individuals seem to agree that the microcomputer will continue to gold an important role in education. Gubser (1980) and Hinton (1980) suggested phenomena increases in the numbers of computers both in the school and the home in the near future. Schimith (1982) identified three types of microcomputer use in classrooms: the object of a course, a support tool, and a means of providing instruction. Foster and Kleen (1982) cite four uses of microcomputers in vocational agriculture: drill and practice, tutorial, simulation and problem solving.

The findings of studies examining the use of various forms of computer-assisted instruction (CAI) have been mixed. Studies by Hickey (1968) and Honeycut (1974) indicated superior results with CAI while studies by Ellis (1978), Calswell (1980) and Belzer (1976) indicated little or no significant effect. Although much work has been done to date, more studies are need to be conducted to ascertain the effects of microcomputer-assisted instruction in teaching various subjects in a variety of learning situations.

Stage 3

Stage 4

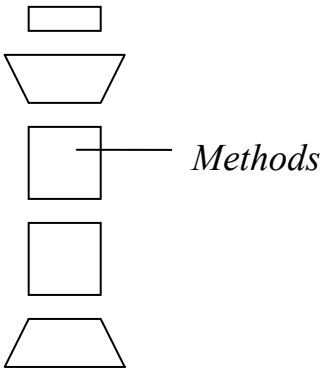
The purpose of this study was to ascertain the effect of using microcomputer-assisted instruction as compared to a lecture-discussion technique in teaching principles and methods of cost recovery and investment credit on agricultural assets to graduate students in agricultural education. This topic was identified as being of importance to teachers in providing them to the necessary background to teach lessons in farm records.

METHOD:

In this section, the steps you followed in conducting your study and the materials you used at each step are described. The method section is useful to readers who want to know how the methodology of your study may have influenced your results, or who are interested in replicating or extending your study. The following information elements are included in the method:

- Overview of the Experiment
- Samples
- Restriction/Limiting conditions
- Sampling Technique
- Procedures ***
- Materials ***
- Variables
- Statistical Treatment

*** should be always included



METHOD

Overview
Sample
Restrictions

A bilingual group and a monolingual group, each comprised of 30 children were compared. In each group there were six children at each of five different age levels. The children were selected from seven day care centers in Houston. These centers accept only children from below poverty threshold; thus comparable socioeconomic status among the test subjects was insured.

Sampling Technique

The bilingual children were selected from the 99 Mexican-American children in a previous study (Corrow, 1968) on the basis of performance at age mean or above in both languages on a test of auditory comprehension. The criterion was employed to assure basic understanding of both languages.

Materials

The test instrument employed in this study was a revise version of the Auditory Test for language comprehension (Carrow 1968), which permits the assessments oral language comprehension of English and Spanish without requiring language expression. It consists of a set of 114 plates, each of which contains three black and white line drawings representing 15 grammatical categories.

Procedure

Both groups were tested by the same examiner, a Mexican American fluent in both languages. The children were brought individually to a test area where they engaged in spontaneous conversation. For the bilingual children, conservations were conducted in English and Spanish to determine the language in which each child appeared more fluent. Each bilingual subject was tested first in the language in which he demonstrated less fluency so that learning would not be a significant factor in subsequent performance when the test was administered again in the second language.

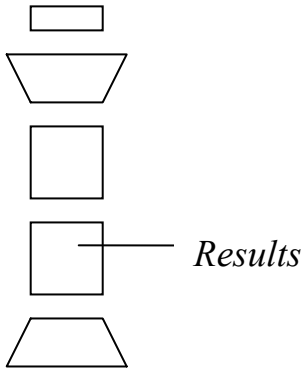
The test required the child to indicate his response by pointing to the picture which corresponded to the examiner's utterance. A score of one was given for each item passed. Test administration required 30 to 45 minutes in each language for each child.

Statistical Treatment

A 2X5 analysis of variance was used to test for age and language group differences.

RESULTS:

Sometimes this section is connected with the discussion part and called “Results and Discussion”, thus indicating more extensive comments on the findings of the study. This section presents the findings of the study both in tables/figures and in written text. Figures/tables present the complete findings in numerical terms, while the accompanying text helps the reader to focus on the most important aspects of the results and to interpret them.



The following three elements are commonly constitutes this section:

- Location of results
- Most important findings
- Comments

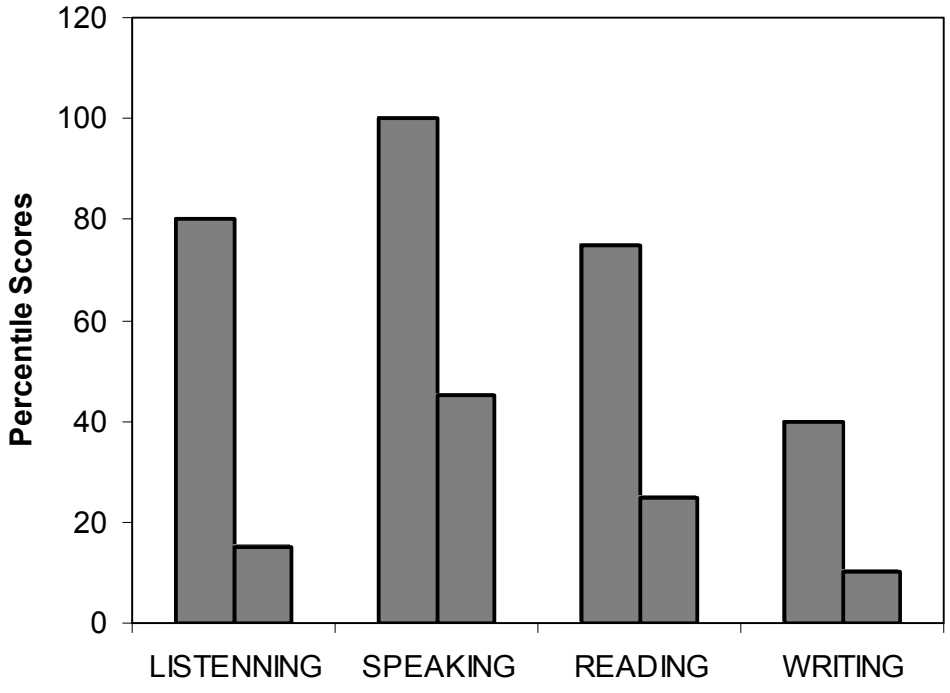
RESULTS

Location of results

Most important findings

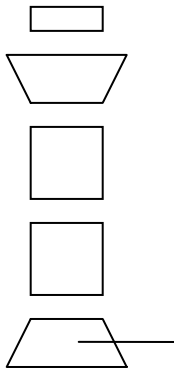
Comments

Figure 7/2 displays the mean percentile scores on the four subtests for non-immersion and immersion French students. Students in the French immersion programs performed significantly better than their non-immersion peers on all four Modern Language Association tests by more than two to one in terms of scores attained on each of the subtests. For example, in the listening subtest, immersion students scored at the 80th percentile, while non-immersion students scored at the 14th percentile. Clearly, the findings indicate that the amount of exposure to a foreign language has a positive effect on student performance. It appears that the intensity of immersion programs (an average of 75% of total instruction per week in French compared to approximately 10% for non- immersion) and use of the foreign language to study basic subjects results in substantial differences in performance in all four skill areas of the MLA test.



DISCUSSION

This section is the last major section of the experimental research report. This section moves the reader back from the specific information reported in the methods and the results sections to a more general views of how the findings should be interpreted.



The following items should be included in the discussion section of a research report:

- Original hypothesis
- Findings
- Explanation for findings
- Limitations
- Need for further research

DISCUSSION

Original hypothesis

Findings

Explanation for findings

The decremental theory of aging led us to infer that older workers in speed jobs would have poorer performance, greater absenteeism, and more accidents compared with other workers. The findings, however, go against the theory. The older workers generally earned more, were absent less, had fewer accidents, and had less turnover than younger workers. One possible conclusion is that the requirements of the speed jobs in the light manufacturing industry under study do not make physical demands on the older workers to the limits of their reserve capacity. The competence and experience of the older workers in these specific jobs may have compensated for their reduced stamina.

Limitations

This study has taken a step in the direction of defining the relationship between age, experience, and productivity in one particular industry. It is possible, of course, that other industries with a different complex of speed fobs and skill fobs may produce entirely different results. In addition, it is important to emphasize that methodological problems in the research design limit our interpretations.

Need for further research

The approach outlined in this study should be replicated in other manufacturing plants, as well as in other occupational areas in light medium and heavy industries in order to construct a typology of older worker performance in a variety of jobs.

ABSTRACT:

Abstract is the first section and also one of the major sections of an experimental research report. This section provides the reader with a brief preview of your study based on information from the other sections of the report. Many readers depend on the abstract to five them enough information about the study to decide if they will read the entire report or not. The following information is included in an abstract with the given order:

- Background
- Purpose
- Method
- Results
- Conclusion

ABSTRACT

Background With a listening typewriter, what an author says would be automatically recognized and displayed in front of him or her.

Purpose However, speech recognition is not yet advanced enough to provide people with a reliable listening typewriter. An aim of our experiment would be useful composing letters. Participants

Method dictated letters, either in isolated words or in consecutive word speech. They did this with simulations of listening typewriters that recognized either a limited vocabulary. Results indicated that some

Results versions, even upon first using them, were at least as good as traditional methods of handwriting and dictating. Isolated word

Conclusion speech with large vocabularies may provide the bases fro a useful listening typewriter.

Reference:

1. Weissberg, R., Buker, S., Experimental Research Report Writing For Students of English, Prentice Hall NJ, USA 1990.
2. RPI Materials Sci.&Eng. Dept. Student Laboratory Manual.

A REPORT ON THE COMPOSITION OF THE MOON

Bilgin Temel

Abstract:

In this study several ships with a variety of animals were sent to the moon. By observing which animals gained weight, the composition of the moon was determined. It was found that mice gained the most weight and the contents of their stomach revealed white cheese.

Introduction:

The composition of the moon has been of interest to the civilized world for many centuries. It is of current interest because the composition will affect the mechanical integrity of the surface and the ability of space ships to land. Before sending ships to the moon therefore it is important to understand the composition of the surface.

There have been several studies that removed material from the moon [1-3], but upon returning to earth for analysis the material degraded which prevent appropriate analysis. In the study by Ali Kuşcu *et. al.* [1], it was determined that the material on the moon surface is organic, but precise analysis was impossible. In this study, animals were sent to the moon to test the surface. By correlating the weight gain of each animal

species while on the moon to their traditional diet, the composition and properties of the moon's surface can be determined.

Procedure:

Three animal species were loaded on a space ship with automatic pilot and transported to the moon: mice, donkeys, and bears. The space ship design was a modification of one used by Hazarifen *et al* [4]. Upon landing at the moon each species was allowed to feed for 12 hours. Robots weighted each animal and recorded the weight gain. The animals were then returned to the ship and returned to earth.

The donkeys and bear were fed at the separate times to avoid any of the bears munching on the donkeys.

Results

The weight gain due to 12 hours of feeding on the moon was recorded for each species. This is shown in Figure 1. Notice that the bears and donkeys lost weight, while the mice gained 5%. Table 1 shows the typical diet of mice, donkeys, and bears. This was found from previous work by Bilgin Temel *et al*. [5]. One observation is that the bears became quite agitated when approached by robots. This resulted in the loss of one robot.

Upon examining the stomach contents on the mice, it was determined that the organic substance they ate was white. The other animals had no food in their stomachs.

Discussion:

By correlating the weight gain of the animals while on the moon to their traditional diet, it can be shown that the moon's surface is not made of carnivorous material (meat) or plant life. The bears and donkeys lost weight, which implies that none of their traditional diet was available. This can probable be explained by the lack of oxygen and water available on the moon.

The mice, on the other hand, gained 5% of their weight in just 12 hours. This implies that the moon is ether made of cheese or small seeds. Because the donkeys did not eat anything while on the moon, and they can also eat seeds, the only possible explanation is that the moon is made of cheese. This is not surprising conclusion given the folklore that has predicted this for generations [6].

A surprising result from this study is that bears are afraid of robots. This could be because robots are mechanized and thus similar to that guns that have caused the death of so many bears. Further study would be required, however, to explain these results.

Conclusions:

From the above study, the following conclusions can be made:

1. The moon is made of white cheese
2. Bears are not fond of robots.

References:

1. El Cabir, Journal of EliyaÇelebi. Vol.20, No.2, p138 (1550).
2. Keloğlan, Keloğlan'ın Maceraları, vol.2. no.6, p.123 (1179).
3. Nasrettin Hoca, Nasrettin Hocanın Maceraları, vol 4, no.7, p23 (1236).
4. Hazarifen Ahmet Çelebi, Journal of Galatasaray Tower, Vol.193, No.5, p.199 (1670).
5. Bilgin Temel , Journal of Karadeniz Stories. Vol. 15, No 45 p 2500 (1999).
6. Dedekorkut, Dedekorkut masalları, vol.6, no2, p.201 (0121).

ANIMAL	Typical Diet
Mice	Small seeds and cheese
Donkey	Plant life, small seeds.
Bear	Salmon, berries and occasionally humans and other creatures