A STUDY OF THE EFFECTS OF VISUAL COMMUNICATION ON THE DISTRIBUTION OF EDUCATIONAL PUBLICATIONS THROUGH VENDING MACHINES

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ABSTRACT

A STUDY OF THE EFFECTS OF VISUAL COMMUNICATION ON THE DISTRIBUTION OF EDUCATIONAL PUBLICATIONS THROUGH VENDING MACHINES

By Ralph J. Ballew

The major purpose of the study was an attempt to compare the effectiveness of various types of displays accompanying vending machines selling extension bulletins. Of secondary interest was the exploration of the vending machine as a vehicle for distribution of educational publications.

A pre-test was conducted to compare the effectiveness of two bulletin exhibits and a customer count was made at one location to check traffic flow.

Three experiments were conducted to test the effectiveness of the displays. The displays tested were: pictorial (pictures describing an extension bulletin); lettering (lettering describing an extension bulletin); combination (pictures and lettering with reference to extension bulletins in general); and no display.

An analysis of data from the three experiments gave the same results. There was no significant difference between treatments and no significant difference between time periods.

All three experiments did show a significant difference between locations.

The pre-test consisted of testing the bulletin exhibit (an actual bulletin which permitted examination by customers) and the flat-top exhibit (the front page and index of bulletin covered with acetate for protection). Both exhibits were placed on top of vending machines. An analysis of data showed a highly significant difference in the effectiveness of the two exhibits. Customers purchased approximately five times as many bulletins from machines with bulletin exhibits. Bulletin exhibits were used on all machines in the display experiments.

The traffic count consisted of taking a random sample of one-fourth the store hours for a week. The market sampled contained two exits, with a vending unit in each. Results of the count indicated a significant difference in the number of customers using one exit. The sale of bulletins was also greater at this exit, but not significantly greater.

A summary of conclusions follows:

1. A vending machine with a bulletin exhibit was significantly more effective than a machine with a flat top exhibit.

2. Displaying other type visuals with the bulletin exhibit had no significant effect on the sale of bulletins.

3. The tests revealed a significant difference between locations within the supermarkets.

4. People will buy publications through vending machines.

5. Bulletins can be successfully distributed in supermarkets by use of the free coupon ad.

6. Vending machines should be placed in locations with a large traffic flow.

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By

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INTRODUCTION

Extension workers are constantly seeking new means and methods of providing an effective educational program in agriculture and home economics. The major purpose of the extension service, as stated in the Smith-Lever Act of 1914, is . . . "to aid in diffusing among the people of the United States useful and practical information on subjects relating to agriculture and home economics, and to encourage the application of the same . . . ."[1]

Extension has long realized the value of effective communications in its educational program and employs many channels in accomplishing its goal. One of the first and most effective was the demonstration.[2] Others include meetings, personal visits, tours, training schools, letters, bulletins, newspaper articles, and radio and television. Although these channels have been successful in the past, extension is constantly seeking new channels or ways of improving the old.

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[1] Federal Legislation, Regulations, and Rulings Affecting Cooperative Extension Work in Agriculture and Home Economics (Washington, D.C.: USDA Misc. Pub. No. 285, 1937), p. 7.

[2] Joseph C. Bailey, Seaman A. Knapp (New York: Columbia University Press, 1945).

Much of extension's information on the latest research findings from the experiment station of the land-grant college is printed in extension bulletins. These educational publications, usually written by extension specialists, contain up-to-date information on all subjects relating to agriculture and home economics.

Most of the bulletins are free of charge and can be obtained by visiting the county extension office and asking for the particular bulletin desired. Bulletins are also distributed at extension meetings, training schools, and through the mail. This is an effective method of getting needed information to extension's clientele.

The extension service distributes many bulletins and publications annually, but this number in comparison with our total population is relatively low. The urban and suburban population are increasing annually while the farm population continues to decrease. The Cooperative Extension Service of Michigan distributed two million bulletins in 1960. Of these, 1,700,000 were free bulletins and 300,000 sold for a small fee to cover cost of printing.[3] The population of Michigan in 1960 was 7,795,182, with the city of Detroit

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[3]Interview with Roy Starr, supervisor, Bulletin Office and Information Service, Michigan State University, February 14, 1961.

having 1,678,613.[4] Certainly extension has new frontiers to conquer in service to its clientele.

While this thesis will explore a new vehicle for distribution of extension bulletins, the major emphasis will be concerned with the kind and amount of visual communication accompanying the vehicle. The study then, is concerned with the distribution of extension bulletins through vending machines with emphasis on the visual displays accompanying these machines.

MAJOR HYPOTHESIS:

The major theoretical hypothesis for the study is: THE TYPE DISPLAY ACCOMPANYING VENDING MACHINES SELLING EXTENSION BULLETINS WILL INFLUENCE THE SALE OF BULLETINS. The major hypothesis was broken into sub-hypotheses for testing as follows:

1. People who see vending machines with pictorial displays will purchase more extension bulletins from them than people who see vending machines with lettering displays.

2. People who see vending machines with lettering displays will purchase more extension bulletins from them than people who see vending machines with a combination display.

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[4] I. A. Beegle and J. F. Thaden, Population Changes Michigan 1950-60 (Agricultural Experiment Station, Michigan State University, 1960).

3. People who see vending machines with a combination display will purchase more extension bulletins from them than people who see vending machines with no display.

4. People who see vending machines with bulletin exhibits will purchase more extension bulletins from them than people who see vending machines with flat top exhibits.

DEFINITION OF TERMS

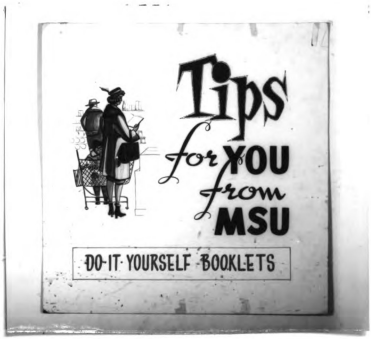
DISPLAY:

1. Combination Display--A two ft. by two ft. sign with pictorial illustrations and lettering. A general display with reference to extension bulletins in general. As this type referred to no particular bulletin it could be used with any bulletin. This display was used on a vending unit (two vending machines). See Plate I B.

PLATE I

B

Combination Display

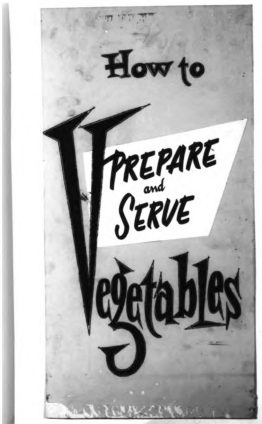


2. Lettering Display--A one ft. by two ft. sign containing lettering describing an extension bulletin offered for sale. This display was used on single vending machines (one-half a vending unit). See Plate II C.

3. Pictorial Display--A one ft. by two ft. sign with pictorial illustrations describing an extension bulletin offered for sale. This display did contain a minimum amount of plain lettering. This display was used on single vending machines (one-half a vending unit). See Plate II D.

PLATE II

C
Lettering Display



D
Pictorial Display

EXHIBIT:

1. A-Frame Exhibit--A ten inch by thirty inch cardboard folded at the ten inch and twenty inch line. The two loose ends were taped together forming an a-frame. The front portion of this exhibit contained the front page and index of the bulletin offered for sale. This portion was covered with acetate for protection. The exhibit was placed on top of machine to advertise bulletin in machine. See Plate III.

PLATE III

A-Frame Exhibit

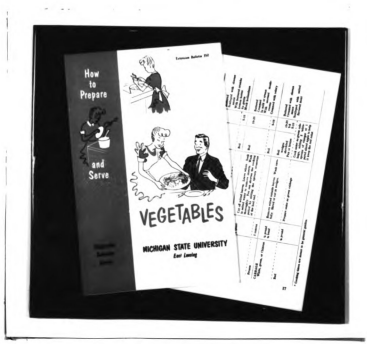
2. Bulletin Exhibit--A ten inch by ten inch cardboard containing a laminated or plain extension bulletin. The bulletin was stapled to the cardboard and placed on top of machine to permit examination by customers. See Plate IV.

PLATE IV

Bulletin Exhibit

PLATE V

Flat-top Exhibit



3. Flat-top Exhibit--A ten inch by ten inch cardboard containing the front page and index of extension bulletin offered for sale. The pages were fastened to the cardboard with glue and covered with acetate for protection. These were placed on top of machines to give customers an idea of bulletins in machines. See Plate V.

COLOR: All displays and exhibits used in the experiment were prepared by the Audio-Visual Center at Michigan State University. Color was utilized to the fullest extent possible in all visuals but was not a part of the experiment. This variable was controlled by using identical colors in the pictorial and lettering display for a particular bulletin.

OTHER IDENTIFICATION: Each machine contained a yellow cardboard fastened to the front of the machine with black lettering, as follows: Michigan State University, Cooperative Extension Service, booklet 10 cents. The machines also contained an extension service decal on one end. See Plate VI.

PLATE VI

Extension Identification

LAMINATED BULLETIN: A bulletin identical to ones offered for sale, but coated with plastic for protection. A note on the bulletin explained to customers that only the bulletin exhibit was plastic coated.

VENDING MACHINE: A machine that mechanically dispenses extension bulletins.

EXTENSION BULLETINS: Bulletins published by the Cooperative Extension Service, Michigan State University, and USDA bulletins.

VENDING UNIT: Two machines were placed together to make a unit. As each machine would sell only one bulletin, two bulletins were offered for sale at each location.

LOCATION: The study was conducted at the following locations in Michigan: The ten Shop Rite stores in Lansing and East Lansing area; Wrigleys Supermarket in Frandor Shopping Center; City Market in Lansing; Vandervoort's in Lansing; four AFL-CIO Labor Union Halls in Lansing; Boles Hairdresser in Lansing and Simmons Hairdresser in East Lansing.

PURPOSE OF STUDY

The primary purpose of the study was to test the effectiveness of the various types of displays. It was hypothesized that the pictorial display would be the most effective, followed by the lettering display, the general display and no display. Research reported in the following chapter indicates

that a combination of pictures and words is superior to either alone. This would indicate that the general display should be most effective, however, it should be mentioned that the pictorial and lettering displays gave specific information concerning the bulletin offered for sale, while the general display gave no reference to any particular bulletin.

A secondary purpose of the study was to gain information on the vending machine as a vehicle for distribution of educational publications. The study was not designed to test the economics of this method and no conclusions will be drawn in this respect. The study will, however, make recommendations for extended research in this area.

CHAPTER II

REVIEW OF LITERATURE

This chapter is concerned with the extension bulletin as a means of communicating and teaching. The major emphasis will be based on a review of literature concerned with visual aids (attempting to discover the most effective visual to communicate information concerning bulletins); vending machines (exploring vending principles and the possibility of the vending machine as a vehicle for the distribution of bulletins; and extension bulletins (some past research dealing with the various methods of distributing bulletins and their effectiveness).

According to Burritt,[1] three general methods or means of teaching are open for county agents to use: (1) the demonstration method or teaching to do by showing or doing, (2) the lecture method, by means of the spoken word, and (3) the reading method, through publications, letters or some other form of the written word. Each of the three means are used in attempts to make a desired change in the target system. If the target or client has changed his behavior, he has

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[1] M. C. Burritt, The County Agent and the Farm Bureau (New York: Harcourt Brace and Company, 1922), p. 38.

learned. "The final goal of education is not memorized information; it is a changed individual who lives differently because he has learned."[2]

Carl Rogers has the following to say about teaching and learning. "It seems to me that anything that can be taught to another is relatively inconsequential, and has little or no significant influence on behavior."[3] Certainly this fits extension's philosophy of "Learning by Doing." "Indeed one aim of all good teaching is to teach people how to teach themselves-to help them learn how to learn: to move from guided learning to learning by themselves."[4] Literature related to this study has been reviewed in three areas. These are: (1) Visual Aids, (2) Vending Machines, and (3) Extension Bulletins.

VISUAL AIDS:

All of the senses are important in learning. According to Dent,[5] the most important is the visual, but it is

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[2]Edgar Dale, Audio-Visual Methods in Teaching (New York: The Dryden Press, 1954), p. 11.

[3]Carl Rogers, "Personal Thoughts on Teaching and Learning," Unpublished paper from talk presented to the Harvard conference on "Classroom Approaches to Influencing Human Behavior," April 5, 1952.

[4]Edgar Dale, op. cit., p. 13.

[5]Ellsworth C. Dent, The Audio Visual Handbook (Chicago, Ill.: Society for Visual Education, Inc., 1949), p. 1.

inter-linked with the other senses in such a way that it would be difficult to separate the stimuli, one from another, or to determine the individual contributions of each.

Studies have been made which emphasize the importance of using more than one channel in communication.

> A summary of the findings in many extension studies made by M. C. Wilson, Division of Field Studies and Training of the Extension Service, United States Department of Agriculture, and by others shows that as the number of different types of contact, or kinds of exposure to extension teaching increases from one to nine methods, the number of farm families changing behavior increase from 35 to 98 percent. If exposed in five different ways, approximately seven out of every eight families receiving extension information change their behavior. The conclusion is rather obvious--we need to use many kinds of visual aids and other methods if we expect to change the behavior of farm people.[6]

Hearne[7] states that the results above also fit in with the research of Dr. Ralph Tyler -- people learn differently, some by one method or aid, some by others; No one series of learning activities has proved equally effective with all people. This suggests a principle of communication. "The greater the number of channels in parallel between the communicator and his audience, the more effective that message will be in achieving intended change in target or audience

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[6]Cannon C. Hearne, "Report of The National Visual Aids Workshop" (Ithaca, N.Y.: Cornell University, July 11-16, 1949) p. 80.

[7]Ibid., p. 81.

behavior."[8]

According to Johnson,[9] one of the pioneers in the experimental investigation of visual aids is Professor Joseph J. Weber, formerly of the University of Arkansas. Two of Weber's investigations concerned: (1) the distribution of the primary sense experiences; (2) the value of a simple drawing in creating a composite visual image.

> In order to determine quantitatively the nature of the primary sense experiences which have contributed to a person's total knowledge and skills, Weber prepared a list of fifty words from the Ayre's speeling scale and submitted them to a large number of graduate students. They were to look at each word and think of the sense or senses through which its meaning had come originally. The results indicated that forty percent of our conceptual learning can be traced to visual experiences; twenty-five percent to auditory impressions; seventeen percent to tactile; fifteen percent to miscellaneous organic sensations; and three percent to sensations of smell and taste.[10]

In another experiment Weber attempted to compare verbal presentation with pictorial presentation in the development of a composite visual image. "One group of children was shown the picture of an imaginary animal composed of parts of familiar animals; a second group heard a description of

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[8] G. H. Axinn, "A Conceptual Framework for Evaluative Research In Extension," Unpublished paper, November, 1960.

[9] William H. Johnson, "Fundamentals in Visual Instruction," The Educational Screen, Inc. (Chicago, Ill., 1927), p. 22.

[10] Ibid., p. 23.

this composite animal; a third group saw the picture and heard the description simultaneously and a fourth group was shown the picture, the instructor tracing the outline during the exposure, thus calling attention to various parts."[11] Weber drew the following conclusions:

1. In developing a composite visual image, pictorial presentation is more effective than verbal presentation.

2. This increase in learning is characterized by (a) more memories, (b) clearer ideas, (c) better organization, (d) less misinterpretation.

3. Verbal description, when aided by pictorial presentation is the most effective method of the three.

A summary of the findings in 36 studies in visual aids by G. Gallup[12] indicates the value of pictures, charts, and graphs.

1. Photographs and other pictures attract attention, arouse interest, and motivate people to learn.

2. People will not take time to figure out a picture; therefore a picture should be taken in at a glance.

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[11] Ibid., p. 24.

[12] G. Gallup, What Research Shows About Visual Aids, Review of Extension Studies, July to December, 1949, USDA Extension Service Circular 464 (Washington: U.S. Printing Office, Jan., 1950), p. 14.

3. Photographs or art, photographic in detail, will stop twice as many people as will an advertisement without photographs or such art.

4. Identification is important. If you want to stop the maximum number of women of 35 years of age, use pictures of women about the same age.

5. The more often a visual aid is used and the greater the number of exposures, the greater the number of people that will be reached.

6. The greater the number of visual aids used (within limits of expense) the greater the likelihood of learning.

Seth Spaulding[13] summarizes research on pictorial illustrations as follows.

1. Illustrations are an effective interest-getting device.

2. Illustrations help the reader interpret and remember the content of the accompanying test material.

3. Realistically colored illustrations are more effective than black-and-white, but the amount of added effectiveness may not always be significant.

4. The larger the illustration, the more probable that it will attract attention.

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[13]Seth Spaulding, "Research on Pictorial Illustrations--Audio Visual Communication Review," Vol. 3, No. 1 (1955), p. 43.

5. The content of the illustration must be related to the life and interest of the reader to be effective.

6. Headlines or capitons may help attract attention, but only if they are complete and add something descriptive.

7. There is some question as to the effectiveness of the addition of one color to black-and-white illustrations.

A summary of an experiment conducted on the comprehension of pictorial symbols in rural Brazil show that:[14]

1. Comprehension is reduced either by excessive unnecessary detail or excessive deletion of detail.

2. Recognizable, familiar objects presented in an illustration add to comprehensibility.

3. The illustration of a process involving separate steps or actions should have at least as many individual pictures or frames as there are main steps or actions of the depicted process.

4. Pictorial symbols should be as realistic as possible.

5. Special care should be taken with symbols which have both a literal and a figurative meaning, since people of limited education tend to give its more limited literal interpretation of such pictorial symbols.

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[14] Luiz Fonsica and Bryant Kearl, "Comprehension of Pictorial Symbols; An Experiment in Rural Brazil," Dept. of Ag. Journalism Bulletin 30 (University of Wisconsin, April, 1960).

6. Illiterate people do a significantly poorer job of interpreting pictorial symbols than literate.

7. Age relates to the ability to comprehend symbols, but to a lesser degree than formal education.

John C. Raymond and Alexander Frazier feel that if properly planned, the pictorial essay might become a medium of communication in itself.

> We do know that the photographic essay, with its planned sequence or organization of photographs, dealing primarily with factual and significant subjects, whose meaning is expanded by fast-research, concise functional writing and visual organization and layout has already become a standard feature in most of the popular magazines. We may even suspect that the picture essay is well on its way toward becoming a new medium of communication in itself.[15]

I. A. Taylor states that the meaning obtained from a visual communication is largely due to previous experience. "A symbol written in Chinese is incomprehensible to a person unfamiliar with that language."[16] Taylor lists five uses of visual communication.

1. Identification. The most familiar technique of presentation is to show the key identifying marks of a particular product.

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[15]John C. Raymond and Alexander Frazier, "Reading Pictures: Report of a Unit," English Journal, XXXVII (1948), pp. 394-399.

[16]I. A. Taylor, "Research, Principles and Practices in Visual Communication." ed. John Ball and Francis C. Byrnes (American Association Land Grant Colleges and State Universities, 1960), p. 67.

2. Characterization. At times a visual presentation is shown in terms of its ingredients or characteristics by means of a closeup showing small details and the fine texture or through an analytic breakdown.

3. Evaluation. When the purpose is to evoke various degrees of favorable or unfavorable feelings about an object, the communication will contain evaluative symbols.

4. Prescription. Another intent may be to prescribe or suggest a course of action, sometimes simply portrayed by an arrow.

5. Relating. Whenever it is desirable to go beyond the object itself for purposes of comparing it with other objects so as to provide a relative frame of reference, some techniques permitting relation are used.

There is good evidence that the picture alone is inadequate for maximum communication. Dr. Frank N. Freemon, in summarizing the results of a series of experiments conducted by himself and twelve others in eight cities and three universities, states that there is, ". . . no support to a belief that pictures may be substituted for a language. It does indicate, however, that they have a definite function to perform."[17]

Robert C. Snider provides facts on the relationship of

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[17]Ellsworth C. Dent, op. cit., p. 24.

words and pictures. "According to Elisabeth McCausland, a conception needs to be developed to distinguish between the content which language convey and the content which pictures convey."[18]

This matter is discussed by William Hicks.[19]

> There are those who believe there is a bright future for extended statement in still photography without the aid of words. From the photo-journalistic standpoint, this view is not sound. The wordless picture story, narrational or expository, is and will be, the exception. The point is not whether photographs can get along without words, but whether, with words, they can perform their own function better . . . . The photograph does not always tell how an emotion was caused, what its effect will be later. Of a man of forty, unless he has been a subject of detailed photobiography through the years, the camera cannot say what he was like when he was ten years old, or what he had for breakfast this morning, or what train he will take tomorrow. So it becomes the duty of words to provide the facts of before and after . . . the camera can go just so far. Words go the rest of the way.

Hicks tells us that "pictures and words together perform a more effective function than either can perform alone."[20]

Halbert found that children "get more relevant ideas from reading a story with pictures than from reading a story alone or from the pictures alone."[21]

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[18]Robert C. Snider, "Research, Principles, and Practices in Visual Communication," ed. John Ball and Francis C. Byrnes (American Association Land Grant Colleges and State Universities, 1960), p. 122.

[19]Ibid., p. 122.

[20]Ibid., p. 122.

[21]Marie G. Halbert, "An Experimental Study of Children's Understanding of Instructional Materials," Bulletin of the Bureau of School Service (University of Kentucky, June, 1943).

Snider reports that research conducted by Kerrick indicates that captions can modify the judgments of readers regarding the pictures they accompany, and may even change interpretations. "This investigation provides evidence that a caption will tend to cause a significant general modification of judgments regarding the picture it accompanies. Also, that it is possible for a caption to cause a complete change in interpretation so that, for example, a picture which is usually judged a 'happy' picture, will be judged a 'sad' one."[22]

According to Snider,[23] words accompanying a picture may have a considerable influence on the meaning people will get from that picture. In a like manner, pictures used together and viewed in a particular sequence may be given certain meaning beyond their individual content simply because of their location in the sequence of pictures and because of the pictures closely related to them physically. Hicks refers to this phenomenon as "the third effect" and explains that when certain pictures are placed side by side, something happens; their individual effects are combined and enhanced, and a third effect is enduced in the reader's mind.

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[22]Robert C. Snieder, op. cit., p. 123.

[23]Ibid., p. 124.

An experiment conducted by M. D. Vernon on words and pictures with grammar school children gave the following results.

> The conclusion seems to be that pictures, no matter how selected, and even if they make the book more interesting, will not have much effect in impressing upon the child of this age the logically inter-related steps of a continuous argument, of cause and effect or of historical continuity.[24]

This research indicates that a combination of pictures and words result in an increased understanding of the message over words or pictures alone.

For maximum communication of any graphic visual, certain principles should be employed in their construction.[25] These principles should be considered for proper arrangement of the art elements; form, color, texture, and space. These principles are as follows:

1. Focus - Center of interest
2. Originality - Uniqueness
3. Simplicity - Essentials only
4. Balance - Equality of weight
5. Variety - Slight difference

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[24] M. D. Vernon, "The Instruction of Children by Pictorial Illustration," British Journal of Educational Psychology, XXIV (1954), p. 178.

[25] A Course in Interpretation in Audio-Visual Instruction, Wilfred L. Veenendaal, Winter Quarter, 1961.

6. Contrast - Extreme difference

7. Rythm - Repetition

8. Proportion - Relationship

9. Fitness - Suitability

10. Consistency - Similarity of form

11. Harmony - Similarity of color

12. Unity - Oneness

A. A. Lumsdaine[26] states that four questions should be answered in planning communication goals.

1. What is the need to be met by the communication you are going to make?

2. What are the types of communication goals you are going to try to reach?

3. What are the obstacles to be overcome in reaching your goal?

4. What are the specific outcomes you need to attain in order to reach the general goal you have set out to achieve?

In using visual aids we are interested in their contribution to the achievement of change in the behavior of the target (client) system. If there is communication, there is change

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[26]A. A. Lumsdaine, "Research, Principles, and Practices in Visual Communication," ed. John Ball and Francis C. Byrnes (American Association Land Grant Colleges and State Universities, 1960), p. 79.

in behavior.[27]

VENDING MACHINES:

A knowledge of some of the concepts and principles of vending is necessary for an understanding of the operation of the industry.[28] Perhaps we should begin with a definition of vending. Martin V. Marshall describes it this way. "Vending is a method of selling goods which employs a vending machine to complete automatically a sales transaction upon the insertion of coins by the customer. The distinctive characteristic of vending is the completion of a sales transaction without the aid of a sales clerk."[29]

The vending business is not new. The first automatic selling machine was built in 219 B.C. by the Greek inventor, Hero Cstebus.[30] Hero's device was built to sell holy water to the worshippers in Greek Temples. The principle used in delivering the holy water is still the basic principle

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[27]Extension Seminar in Program Planning and Evaluation, G.H. Axinn, Winter Quarter, 1961.

[28]The experiment was not designed to test vending principles; however, some of the principles developed in this review of literature were supported by data from the experiment.

[29]Martin V. Marshall, Automatic Merchandising (Cambridge, Mass.: The Riverside Press, 1954), p. 3.

[30]G. R. Schreiber, Automatic Selling (New York: John Wiley & Sons, Inc., 1954), p. 2.

employed by the modern mechanical merchant.

According to Brown,[31] the real beginning of automatic selling in the United States came two thousand years later in 1888, when Thomas Adams, the chewing gum maker installed gum ball machines on the platforms of New York's elevated lines.

The federal government was one of the early supporters of automatic selling. An order, issued November 24, 1905, authorized the Post Office Department to set up a committee to look into the possibilities of selling stamps automatically.[32] In his report for the fiscal year ending June 30, 1907, Postmaster General Meyer pointed out that, "any measure that promotes the convenience of the public should be utilized whenever possible to do so without undue cost."

One of the greatest obstacles to early vending was the use of slugs. By the 1920's the business of cheating the machines had become almost a national sport.[33] The machines were also too unreliable mechanically to risk more than a penny value.

Modern automatic selling in the United States began in

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[31]Sanford Brown, "The Clink of Coins-Louder," Newsweek, L (Aug. 5, 1957), pp. 75-77.

[32]G. R. Schreiber, op. cit., p. 4.

[33]Sanford Brown, op. cit., p. 75.

1926 with the invention and operation of the first cigarette vending machine designed by William H. Rowe.[34]

The push button era in retailing really began in 1946, and its growth has continued at an accelerated pace since.[35] This growth was caused by perfection of the slug rejectors and the addition of coin changing mechanisms, which gave automatic selling a flexibility it had previously lacked. Today's vending machine is virtually slugproof, and returns money if it is empty.[36] The latest innovation is a bill changer which will reject counterfeit or foreign money.[37] We are truly in the age of vending machines. The gross sales from vending in 1960 was 2.4 billion dollars.[38] They are found in hotels, motels, stores, factories, taverns, airports, bus terminals, amusement parks, apartment houses, clubs, ball parks, bars, bowling alleys, theatre lobbies, office buildings, restaurants, hospitals, schools, public buildings, army camps, and other such locations. Wherever a crowd is likely to gather, vending

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[34]Martin V. Marxhall, op. cit., p. 5.

[35]G. R. Schreiber, op. cit., p. 11.

[36]"Modern Living, The Automatic Salesman," Time, LXXV (May 16, 1960), pp. 93-94.

[37]"How Will Vending Boom Affect Selling," Printers Ink, CCLXIX (Oct. 30, 1959), p. 65.

[38]Detroit Free Press, Dec. 21, 1960.

machines may be found selling everything from hosiery to whiffs of pure oxygen for hangovers.

SOME EXPERIMENTS IN VENDING:

Austin J. Smith spent two years and a hundred and fifty thousand dollars to perfect a machine he called the "Insuraide."[39] The machine was introduced in 1951 in the Grand Central Travel Bureau of the New York, New Haven, and Hartford Railroads and would sell any amount of travel insurance to any type person. Mr. Smith believed it more of a risk to walk down a New York sidewalk than to ride the common carriers of the day. His idea paid off.

William Filen's and Son Department store in Boston conducted an experiment in automatic merchandising in 1950.[40] Batteries of twenty-five machines selling an assortment of goods ranging from handkerchiefs, socks, and underwear, to toys, gloves, and jewelry at prices up to $1.75 were installed in Boston's Greyhound Bus Depot and the Logan International Airport. After about two years of operation, Filene's very quietly abandoned the experiment. The project was given up because, (1) the traffic wasn't heavy enough at either location,

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[39] "For the Road," New Yorker, XXVII (June 2, 1951), p. 20.

[40] "Where Vending Machines Fall Short," Business Week (Feb. 21, 1953), p. 154.

(2) people didn't want to buy the higher priced items ($1 or above), nor did they seem to want to buy style goods in a vending machine. It was the cheaper trinkets, the small toys, key chains, puzzles, and tools that sold well.

Hudson Co. of Detroit experimented in 1950 with the sale of all-occasion cards, hoseries and other low priced items of normal heavy turnover in vending machines placed in strategic locations in their stores.[41] The project failed because: (1) cutsomers were not familiar with the machines, (2) Hudson Co. made no effort to advertise or promote use of the machines.

Macy's of New York report business jumped 20 percent in 1951 when they began vending drugs.[42] This was successful because: (1) saves consumers shopping time by 2/3, (2) gives wide assortment of display, (3) spurs impulse buying.

Several attempts have been made to vend books and magazines. The first record of an attempt to sell books by machines was in 1895. A Brussels book publisher, Philip Reclam, developed a book vending machine, which he placed in German railroad stations.

> These vendors featured pamphlets on travel and lecture subjects, and later a line of popular paper-bound books. Although there was no evidence that Reclam's book vending

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[41] "Can Robots Sell?" Business Week (May 13, 1950), p. 83.

[42] "Drug-O-Mat, Saves Time for Shoppers--Saves Work for Storekeepers," Business Week (July 28, 1951), p. 52.

> business enjoyed any great success, his vendor was used in Germany as late as the 1930's and served as a model for the development of several book vendors in the United States during the 1930's and 1940's.[43]

In 1950, Avon Publishing House spent $30,000 in the development of the "Vendavon Book Machine" which hold 350 to 650 copies of 24 Avon reprints which sell for twenty-five cents.[44] Likely places for the machines include hospitals, hotels, docks, supermarkets and ferries. Avon believes that the new machine will give a clear idea of what sort of books people will buy without the opportunity of examining it. To sell in the machine the book must depend even more upon the title, author, and art work than it has before.

One pocket company vended books for five years before giving up the idea.[45] It figured that 10,000 locations beyond regular distribution points are needed for profitable vending and there weren't that many locations available. Impractical, was the reason for failure in vending 96 titled paper book reprints in the "Dadson Vending Machine" after a short trial run.[46]

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[43] Martin V. Marshall, op. cit., p. 7.

[44] "Avon Introduces New Book Vending Machine," Publishers Weekly, CLVIII (Aug., 1950), pp. 575-576.

[45] "Coincidence? or Safety First," Business Week (May 17, 1952), p. 42.

[46] "Avon Introduces New Book Vending Machine," Publishers Weekly, CLVIII (Aug., 1950), pp. 575-576.

Schreiber reports on a successful experiment conducted by National Grocery Company.

> An experiment in supermarket vending, which may have far reaching effect, was launched in 1953 by the National Grocery Company. Working with a vending specialist, National installed an automatic cafeteria near the exit of its new 15,000 square ft. store in Elizabeth, New Jersey. The objective was to put customers in a better mood for buying. The automatic buffet featured sandwiches, milk, ice cream, coffee, pie, and candy. National found that take-home sales increased because of the cafeteria. Shoppers, refreshed, were in a better frame of mind. They spent more time in the store and they spent more money.[47]

Automatic vending has demonstrated that it can sell products in the take-home market.[48] Outdoor ice vending stations and the growing number of installations to sell milk in quart and half gallon cartons, prove the practicability of this idea. Agriculture Secretary, Ezra Taft Benson had this to say about milk vending, "I have been impressed with the popularity of automatic milk vending machines where I have seen them in operation. They should go far to increase consumption of milk and help the dairy industry in its great campaign to solve the lack of balance between supply and demand."[49]

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[47] G. R. Schreiber, op. cit., p. 136.

[48] Ibid., p. 20.

[49] Ibid., p. 142.

Most vending machines depend on displays of some type to advertise their product. These include merchandise displays, decals and illuminated and animated signs. Some milk vendors are using giant reproductions of the milk carton mounted above the machines. Spot-lights illuminate the colorful displays at night and attract the attention of motorists.[50] Vending machines selling pocket sized books effectively display the front covers of the book, but no more. The publishers found that the blurbs on the back cover are often as important to the sale of the book as the front illustrations.[51] A greeting card vending machine introduced in 1953 displays the front of the cards in machines and in addition contains a book chained to the machine with samples of all cards offered for sale. This gives the customer a chance to thoroughly examine the card before making a purchase.[52]

SOME VENDING PRINCIPLES:

The site or location is the first big job for successful vending. Traffic count and the kind of traffic is important in selecting the location.[53] The importance of location was

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[50] Ibid., p. 143.

[51] Ibid., p. 55.

[52] Ibid., p. 55.

[53] Ibid., p. 86.

discovered long ago by machine shoeshine operators. They found that customers were embarrassed to get mechanical shines in public. According to Brown,[54] their machines really began to pay off when they were installed in the relative privacy of men's rest rooms. New York's Hasco Syndicate has found that motel rooms make an ideal location for its 25 cent Slendorama Massage machines, which average one massage per guest. William C. McConnell, Jr., president of Automatic Merchandising says the big problem is to find just the right location.[55]

Success in the past has been largely with products that will sell by "impulse." The coin vending industry relies chiefly on two things: traffic and impulse buying, which together spell volume.[56] The best bet for vending machines have always been "impulse" sellers like candy, soft drinks and cigarettes.[57]

Some characteristics that contribute to the "impulse" value of a product are as follows:[58]

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[54]Sandford Brown, op. cit., p. 77.

[55]"Food Sales Machines Move In," Business Week (Nov. 13, 1954), p. 130.

[56]"Where Vending Machines Fall Short," Business Week (Feb. 21, 1953), p. 154.

[57]Sandford Brown, op. cit., p. 77.

[58]"Vending-Machine Business, Its Blooming-But No Field For A Novice," Changing Times, XII (Aug., 1958), p. 17.

1. They are low priced, 25 cents or under.

2. They are used by a large number of people.

3. They are used or consumed on the spot.

4. They are well-known brand-name products, easily identified.

5. They meet an immediate need.

The convenience and service provided by machines determine to a large extent their success. Of all the methods of in-plant feeding in industry, only vending pays its own way.[59] Here vending serves a captive audience and provides a convenient service which makes it a profitable enterprise.

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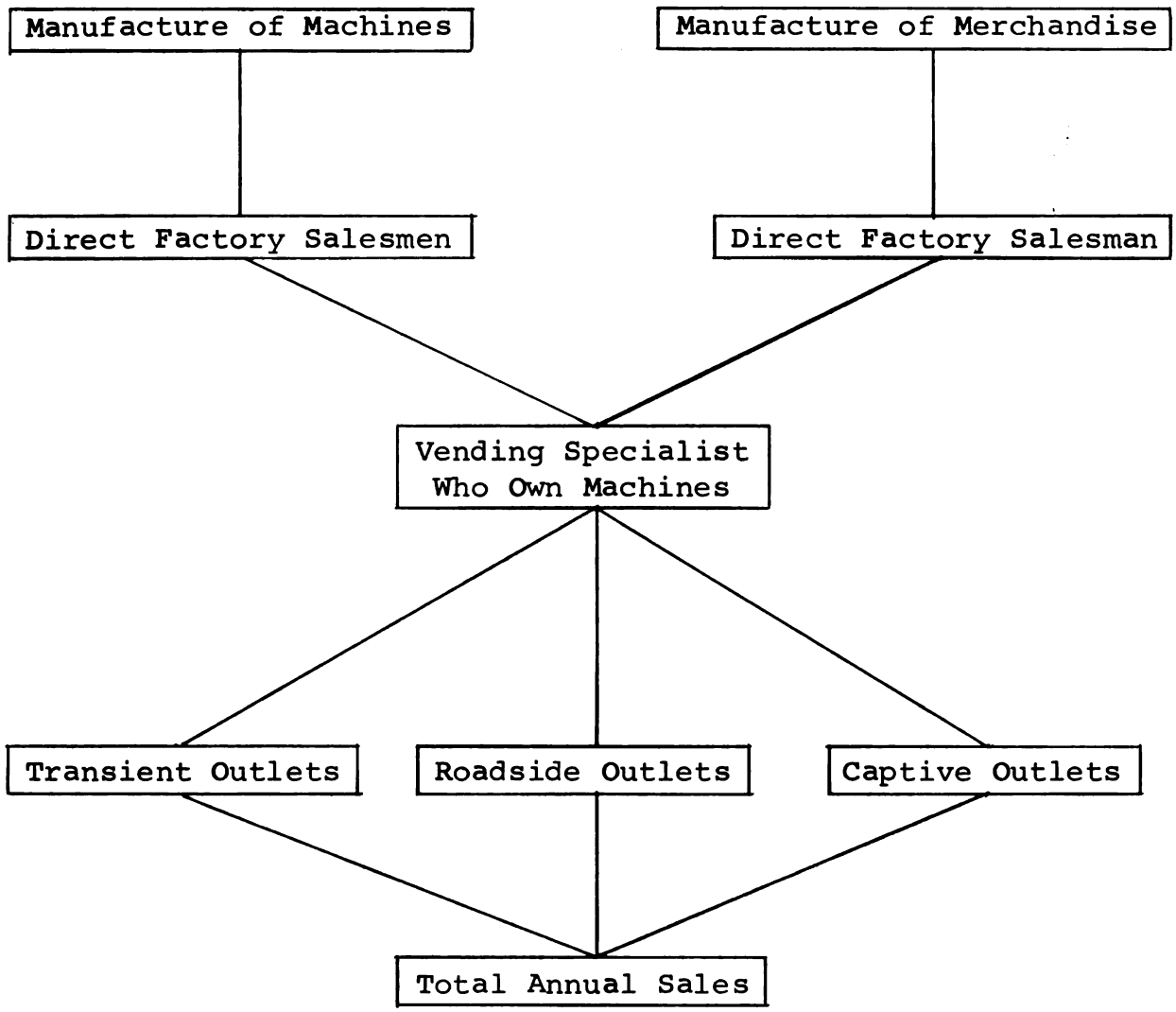
[59] G. R. Schreiber, op. cit., p. 96.

The general organization of automatic functions reported by Schreiber[60] are as follows:



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[60] Ibid., p. 23.

The factors which place certain limits on the future growth of automatic selling are:[61]

1. Price
2. Package (including physical size)
3. Consumer Reaction
4. Brand acceptance
5. Product appeal

Other limitations include: overcoming the natural hostility of labor unions and sales people toward any device that eliminates jobs, overcoming the barrier of consumer resistance as to the reliability of machines, zoning laws and public health regulations, and confusion in the public mind between vending operations and slot machines.

This review of literature has failed to reveal the use of vending machines as an educational tool. "However, it does seem reasonable that a project in the vending of educational publications could serve the following useful purposes."[62]

1. It could facilitate wide public distribution of educational materials.

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[61] Ibid., p. 57.

[62] Robert C. Anderson, "Vending Educational Publications, A New Concept of Adult Education" (Unpublished Term Paper, Michigan State University, Fall 1960).

2. It could provide for thousands of low cost distribution points for educational materials.

3. It could provide additional opportunities to give timely mass publicity to available educational publications.

4. It would contribute both a convenience and a service to the general public.

5. It could become an effective educational tool in other areas of emphasis.

EXTENSION BULLETINS:

Some information relative to research concerned with bulletin distribution will be helpful in understanding the problem. This review is an attempt to describe research conducted with the various methods of distributing extension bulletins.

"According to information obtained for 3,698 representative farms in 1912, in four sections of the country, 43 percent had obtained bulletins, of these, 84 percent read them and 48 per cent had made some practical application of the information contained in them."[63] A similar study of 1,676 farms in typical areas in Minnesota, Wisconsin, and Ohio was made in 1927 by Wilson.[64] At that time 62 percent of the farmers

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[63] C. Beamen Smith and K. H. Atwood, The Relation of Agricultural Extension Agencies to Farm Practices (U. S. Department of Agriculture, Bureau of Plant Industry, Circular 117, Washington, 1913).

[64] M. C. Wilson, Distribution of Bulletins and Their Use by Farmers (Washington, D.C.: USDA Extension Service Circular 78, 1928).

had received bulletins and of these, 86 percent reported reading them and 62 percent used the information in solving farm and home problems.

A study by Venne[65] of direct mail announcements of agricultural publications in Wisconsin indicate that only 10 to 15 percent of the farmers will respond to this type distribution. Rural boxholders in 67 Wisconsin counties were so selected as to give an economic stratification and geographic distribution. Four groups were tested over a period of a year and a final card was sent to respondents of the first four mailings. The respondents to the last card were sent a mail questionnaire. Forty-four percent of all respondents had never seen or used extension publications before receiving a direct-mail announcement card. Only about 33 percent of the respondents had sufficient direct contact with the county or home agent to obtain bulletins through that contact. Only 23 percent actually obtained extension publications from this source.

Carpenter[66] obtained the following response from an interview of farmers who had received two Wisconsin Extension

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[65] R. V. Venne, Direct Mail Announcement of Agricultural Publications (Madison, Wisconsin: Wisconsin Agricultural College, Dept. of Ag. Journalism, 1954).

[66] W. J. Carpenter, Length, Detail and Farmer Acceptance of Agricultural Publications (Madison, Wisconsin: Wisconsin Agricultural College, 1955).

Service publications on feeding dairy cattle. Out of 159 farmers interviewed, 59 stated a preference for a 64 page Dairy Feeding Handbook; 44 preferred a four page leaflet, "Feeding the Dairy Herd," 22 were undecided; 31 had seen but not read the publication; 31 had not seen them; and eight were classified as miscellaneous.

A study by Harl[67] on women's opinions of Extension bulletins in New York indicate the need to make more people aware of the bulletin. A pre-tested questionnarie was sent to a random sample of women in New York who ordered by mail either a charge publication, "Re-upholstering Chairs With Foam Rubber," or a free publication, "A House Cleaning Handbook," during a specified period of time. The study was made to help with publication decisions. Eight in ten respondents considered the bulletins easy to use and about as many considered them easy to read; nine in ten kept their copies after original use. About three-fourths felt the free bulletin met their expectations and about nine in ten so agreed regarding the charge bulletin. The largest number of suggestions concerned making more people aware of the bulletins.

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[67] E. Harl, Findings and Implications From A Study of Women's Opinions of Two Extension Homemaking Bulletins and The Use Made by Them (Ithaca, N. Y.: Cornell University).

Considering cost and effectiveness, bulletins and circulars constitute one of the most economical channels for reaching farmers and helping them to better practices.[68]

". . . The bulletin has been one of the chief means of recording and distributing accurate and valuable records of agricultural truths acquired through years of painstaking experimental work . . ."[69] In the last analysis one who wants definite or detailed information will usually want to have it in written or printed form.

This review of literature has revealed some important research findings relating to visual aids in communication and successful vending. It has also pointed out some of the problems involved in the distribution of extension bulletins.

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[68]Clarence B. Smith and Mereidth C. Wilson, The Agricultural Extension System of the United States (New York: John Wiley & Sons, Inc., 1930).

[69]M. C. Burritt, op. cit., p. 56.

CHAPTER III

METHODOLOGY

The primary purpose of this study was an attempt to measure the effectiveness of various types of displays accompanying vending machines selling extension bulletins. Four treatments or displays were used in the test and were assigned letters to simplify record keeping and minimize error. These were: pictorial display (D); lettering display (C); combination display (B); and no display (A).

A total of thirty vending machines were available for the experiment, although the highest number used at one time was twenty-nine. The variability in the number of machines used was due to the time required to locate and obtain permission from store owners to conduct the experiment in their stores and businesses.

The experiments were conducted in the Lansing, Michigan, area. Permission for use of all locations in the experiment was obtained by Doris Wetters.[1] The author also visited each location to obtain permission to use the display with the vending machine. All locations were most cooperative in

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[1]Doris Wetters, Consumer Marketing Information Agent, Michigan State University.

assisting with the study.

The displays and bulletin exhibits used in the test were prepared by the Audio-Visual Center, Michigan State University. Various colors were used, but were equalized as a pictorial and lettering display of a bulletin containing the same colors. The combination (B) display was a general display with no reference to any particular bulletin. The pictorial (D) and lettering (C) displays contained information about the bulletin offered for sale; therefore, new displays were prepared and used each time bulletins were changed.

SELECTION OF BULLETINS:

The physical characteristics of the vending machines set certain limits on the bulletins that could be vended. The bulletin had to be approximately six inches by nine inches in size and contain a minimum of 20 pages. Bulletins with fewer pages were too thin to vend successfully in the machines.

An attempt was made to select bulletins that would fit the mood of customers at the various locations of vending machines. Bulletins dealing with food which were thought to appeal more to women were selected for supermarkets. Bulletins dealing with hunting and fishing which were thought to appeal more to men were selected for labor union halls and the sporting goods store.

TIME PERIOD:

A total of three experiments were conducted to test displays. The time period at test one was two weeks and at test two and three one week. All locations ran for a total of four time periods. The research design called for new bulletins at the beginning of each time period. This plan was followed with two exceptions when displays were not completed and the bulletins ran an extra week.[2] This did not affect the design of the experiment.

RESEARCH DESIGN:

After consulting with Dr. William D. Baten[3] the analysis of variance (latin square) was selected as the most appropriate means of testing the effectiveness of the various types of displays. For this model, four similar locations were needed. One of the four treatments would be used at each location during a time period after which treatments would be rotated according to schedule. A total of four time periods would be needed for the four treatments to be tested at each location.

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[2]See Appendix A, Table 17, p. 72; Table 22, p. 74; Table 24, p. 75.

[3]William D. Baten, Experiment Statistician, Agricultural Experiment Station, Michigan State University, a personal interview.

MEASURING INSTRUMENT:

The vending machine is a natural instrument for research purposes. There is no guess work involved, either customers purchased bulletins or passed the machines by. This was accurately determined by a count of the money in the machine. At the beginning of the test all machines were checked biweekly to insure an adequate supply of bulletins and proper operation of the machines. After the first few weeks a weekly schedule was prepared and all machines were checked and serviced each Friday. An accurate record of all sales was recorded according to location, time period, and treatment.

LOCATION OF VENDING UNIT IN MARKETS:

The majority of vending units were placed near the exit of supermarkets. It was not possible, however, to locate all machines in similar positions due to space, arrangement, type building, etc. This variable was controlled as all four treatments had the same advantage or disadvantage as the case might be.

PLACEMENT OF DISPLAYS WITH MACHINES:

The two machines in each location were placed side by side, making a vending unit. The proper display was placed on the front door of the vending machine cabinet with two sided masking tape. This method held the displays firmly in

place. They could be removed at the end of the time period and with new tape be placed securely in the new location.

FIRST PHASE OF EXPERIMENT:

Eleven locations were approved by the middle of November, 1960. Four of these locations were food markets.[4] These made the first experiment in the analysis of variance model for testing displays. They will be referred to in this report as test one. Four of the locations were labor union halls[5] and made the second experiment for testing displays. They will be referred to as test two. The other three locations were miscellaneous[6] (two hair dressers, and one sporting goods store) and were not statistically tested, but were used for a comparison of locations for vending machines. These machines used the A-frame exhibit.

A vending unit was installed in each location with the exception of the last three locations mentioned, where single

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[4]Wrigleys Supermarket in Frandor Shopping Center, one unit in each entrance; City Market, 333 North Cedar Street, one unit; and Shop Rite Supermarket, 5016 South Logan Street, one unit.

[5]One unit each at the following labor union halls: 540 Clair Street; 462 Clair Street; 2510 West Michigan Avenue; and 1010 River Street, Lansing.

[6]Boles Hairdresser, 224 Hillsdale Avenue, Lansing; Simmons Hairdresser, 1720 Linden Avenue, East Lansing; and Vandervoort Hardware Company, 232 North Washington Avenue, Lansing.

machines were used. This gave a total of 19 machines (8 vending units, 3 single machines) in operation during the first phase of the experiment. The machines were placed in operation on November 19, 1960. The displays were placed with machines December 2, 1960.

PRE-TEST:

A pre-test was conducted with the two vending units in Wrigleys Supermarket at Frandor Shopping Center. It was hypothesized that vending machines with bulletin exhibits would be more effective than vending machines with flat-top exhibits. The purpose of the pre-test was to check the flat-top exhibit against the bulletin exhibit so that these variables could be eliminated in the major test. The pre-test began November 19 and ran through December 2, 1960. Bulletin exhibits were placed on one vending unit in Wrigleys and flat-top exhibits on the other unit. Sales were recorded and the procedure was reversed. The design of the pre-test is shown in the table below.

TABLE 1

Pre-Test on Exhibits, Wrigleys Supermarket

	Shopping Entrance	Parking Entrance
t^1	Bulletin Exhibit	Flat-top Exhibit
t^2	Flat-top Exhibit	Bulletin Exhibit

TREATMENT ROTATION FOR DISPLAYS:

To determine the rotation schedule for the displays, the author went to a table of random numbers. Directions were followed in selecting numbers to determine schedule. The following rotation schedules were obtained and used.

TABLE 2

Treatment Rotation for Food Market Stores - Test One

	L_1 Wrigleys-Shop. Ent.	L_2 Shop Rite	L_3 Wrigley-Park.Ent.	L_4 City Market
t^1	D	B	C	A
t^2	A	C	D	B
t^3	B	D	A	C
t^4	C	A	B	D

TABLE 3

Treatment Rotation for Labor Union Halls - Test Two

	L_1 1010 River St.	L_2 450 Clair St.	L_3 462 Clair St.	L_4 2510 W. Mich.Ave.
t^1	A	B	C	D
t^2	D	C	B	A
t^3	B	A	D	C
t^4	C	D	A	B

SECOND PHASE OF EXPERIMENT:

Permission was obtained from the managers of Shop-Rite Supermarkets in the Lansing area to conduct the experiment in their stores. This meant that all the machines could be placed in operation, as there were nine other Shop-Rite stores to be served. It also meant that some machines would be moved from previously selected locations to accommodate all nine markets. On January 4, 1961, slightly over a month after the first machines were placed in operation, the vending units were pulled from labor union halls and placed in Shop-Rite markets. Other machines not in operation were placed in the markets to give a total of 29 machines in use.

Eight of these markets were divided into two latin squares to test the displays. Time periods were one week in contrast to the two week periods in the original tests. The rotation schedule for each latin square was obtained from a table of random numbers. The ninth store was used as a check and was not statistically tested.

TABLE 4

Treatment Rotation for Shop-Rite Markets - Test Three

	No. 1 3630 S. Cedar	No. 2 1910 W. Saginaw	No. 3 1109 E. Gd. River	No. 4 2416 N. East
t^1	B	D	C	A
t^2	D	C	A	B
t^3	C	A	B	D
t^4	A	B	D	C

TABLE 5

Treatment Rotation for Shop-Rite Markets - Test Four

	No. 5 2401 W.St.Joseph	No. 7 2519 S.Cedar	No. 8 2301 E.G.River	No. 9 555 E.G.River
t^1	A	B	C	D
t^2	C	D	B	A
t^3	B	A	D	C
t^4	D	C	A	B

TRAFFIC COUNT:

As mentioned earlier, a vending unit was located in each exit of Wrigleys supermarket. A traffic count was taken to determine the possibility of the relationship between the sale of bulletins and the number of customers. A random sample of one-fourth of the store hours for a week was taken. The hours were selected from a table of random numbers. After three hours each day had been selected by this method the week day was selected to match the hours from the table of random numbers. The hours samples were as follows:

Monday	(1) 9-10 a.m.	(2) 12-1 p.m.	(3) 6-7 p.m.
Tuesday	(1) 1-2 p.m.	(2) 3-4 p.m.	(3) 7-8 p.m.
Wednesday	(1) 12-1 p.m.	(2) 6-7 p.m.	(3) 8-9 p.m.
Thursday	(1) 10-11 a.m.	(2) 4-5 p.m.	(3) 8-9 p.m.
Friday	(1) 2-3 p.m.	(2) 4-5 p.m.	(3) 7-8 p.m.
Saturday	(1) 8-9 a.m.	(2) 3-4 p.m.	(3) 5-6 p.m.

The count was taken Wednesday, December 14, through Tuesday, December 20, 1960.

ADVERTISING BULLETINS:

The vending industry relies to a large extent on the use of nationally advertised products. To familiarize the customers of Shop-Rite markets with the Extension bulletins and make them aware of the vending units in the stores, a small space in each of their biweekly advertisements in the State Journal on Monday, January 9 and Thursday, January 12, 1961, was devoted to the Extension bulletin. In addition to announcing the availability of extension bulletins through vending machines in their markets, a coupon offering a free bulletin was carried in each of the advertisements. The interest in this project was twofold: (1) the number of people that would redeem the coupon for a free bulletin and (2) the effect this might have on the sale of bulletins in the markets. This material was not statistically analyzed.

STATISTICS USED:

Three groups of statistical data were collected in this test. In the order of their collection they were: (1) Pre-test on bulletin exhibits at Wrigleys, (2) customer count at Wrigleys and (3) display data.

The Chi square was selected as the statistical model for

testing the pre-test and customer count. "When the data of research consist of frequencies in discrete categories, the X^2 test may be used to determine the significance of differences between two independent groups."[7] The chi square formula used was: $X^2 = \Sigma \frac{(O_1 - E_1)^2}{E_1}$. Where O_1 = actual frequency of cases in any category, E_1 = expected frequency in any category, Σ = direction given to sum over all categories. The degrees of freedom = (r-1) (k-1) where r = the number of rows and k = the number of columns.

The display data was a comparison of four independent samples. The model used for testing whether these samples came from identical populations was the analysis of variance (latin square of F test).

> Sample values almost always differ somewhat, and the problem is to determine whether the observed sample differences signify differences among populations or whether they are merely the chance variations that are to be expected among random samples from the same population. The assumptions associated with the statistical model underlying the F test are that the observations are independently drawn from normally distributed populations, all of which have the same variance.[8]

The latin square or F test permitted the testing of variance among all the means at the same time. While the test would

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[7] Sidney Siegel, Nonparametric Statistics (New York: McGraw-Hill Book Co., 1956), p. 104.

[8] Ibid., p. 174.

indicate whether a group differed significantly from chance expectation, it did not specify the interaction within the group. The studentized range was used to determine this.[9]

The formula used for the analysis of variance, after consulting with Dr. William Baten was:

TABLE 6

Analysis of Variance Formula

	Sum of Squares	d.f.
Total	$\Sigma X^2 - \frac{T^2}{N}$	15
Time (Rows)	$\frac{\Sigma t^2}{N} - CT$	3
Location (Columns)	$\frac{\Sigma L^2}{N} - CT$	3
Treatments (A B C D)	$\frac{\Sigma T^2}{N} - CT$	3
Error	Total (-) Time, Location, and Treatment	6

Explanation of Formula:

Total - ΣX^2 is the sum of each score squared for all four groups.

T is the total scores of the four groups. N is the number in the sample.

[9]William Baten, op. cit.

Time - $\Sigma t^2 = t_1^2 + t_2^2 + t_3^2 + t_4^2$. N is the number of time periods. C T is the correcting term $\frac{T^2}{N}$.

Location - $\Sigma L^2 = L_1^2 + L_2^2 + L_3^2 + L_4^2$. N is the number of locations. C T is the correcting term $\frac{T^2}{N}$.

Treatment - $\Sigma T^2 = T_1^2 + T_2^2 + T_3^2 + T_4^2$. N is the number of treatments. C T is the correcting term $\frac{T^2}{N}$.

The degrees of freedom used for the F test were K-1 for total group and N - 1 for the time, location and treatment. K = the total number in the sample and N = total time periods, total locations or total treatments.

The five percent level of significance was selected as the confidence level for accepting or rejecting the statistical hypothesis.

STATISTICAL HYPOTHESIS:

The theoretical hypothesis was stated in statistical form for testing. The pre-test was the first to be tested; therefore, it will be listed first.

1. There is no significant difference between the sale of bulletins in vending machines with bulletin exhibits and vending machines with flat-top exhibits.

   Sale of bulletins from machines with flat-tops = sale of bulletins from machines with bulletin exhibits.

2. There is no significant difference between the sale of bulletins in vending machines with pictorial displays, lettering displays, combination displays and machines with no displays. Sale of bulletins from machines with D = C = B = A.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

The pre-test on bulletin exhibits and flat-top exhibits was conducted at Wrigleys Supermarket in Frandor Shopping Center, November 19 through December 2, 1960. Results of the test are shown in the table below:

TABLE 7

Results of Pre-Test on Vending Exhibits

	Wrigleys Shopping Ent.	Bulletins Sold	Wrigleys Parking Ent.	Bulletins Sold
t^1	Flat-top Exhibit	13	Bulletin Exhibit	64
t^2	Bulletin Exhibit	30	Flat-top Exhibit	6

The chi square test for significance was applied to the observed and expected data from the experiment. A chi square value of 45 was obtained with the critical value at the five percent level of confidence with one degree of freedom being 3.84. The highly significant results leads to the rejection of the statistical hypothesis that the bulletin exhibit and flat-top exhibit are equally effective. There is evidence to be confident at the five percent level in support of the theoretical hypothesis that people who see vending machines with

bulletin exhibits will purchase more extension bulletins from them than people who see vending machines with flat-top exhibits.

The pre-test led to the elimination of all flat-top exhibits, and only bulletin exhibits were used in testing the displays.

A traffic count was made at Wrigleys supermarket in Frandor to get some idea of the number of people passing machines and the number using each exit of the market. Only adults entering the market were counted. The judgment decision of separating children from adults was made by the person making the count. The following table shows the results of the traffic count.

TABLE 8

Traffic Count-Wrigleys Supermarket

Day	Door A[1]	Door B[2]	A(4)	B(4)	Total
Monday					
9-10 a.m.	35	35			
12-1 p.m.	73	89	704	812	1,516
6-7 p.m.	68	79			
Tuesday					
1-2 p.m.	62	72			
3-4 p.m.	70	78	728	976	1,704
7-8 p.m.	50	94			
Wednesday					
12-1 p.m.	60	119			
6-7 p.m.	111	145	1,088	1,404	2,492
8-9 p.m.	101	87			

TABLE 8 (Continued)

Day	Door A[1]	Door B[2]	A(4)	B(4)	Total
Thursday					
10-11 a.m.	28	63			
4-5 p.m.	76	112	624	948	1,572
8-9 p.m.	52	62			
Friday					
2-3 p.m.	81	99			
4-5 p.m.	114	143	1,332	1,476	2,808
7-8 p.m.	138	127			
Saturday					
8-9 a.m.	15	19			
3-4 p.m.	209	159	1,476	1,372	2,848
5-6 p.m.	145	165			
TOTAL	1,488	1,747	5,952	6,988	12,940

[1]Door A - Door next to Shopping Center.

[2]Door B - Door next to Parking area.

A total of 1,488 adults entered door A and 1,747 entered door B during the sample period. As the sample included only a fourth of the store hours, figures were multiplied by four to give a total adult customer count for the week. The total for door A was 5,952 and door B 6,988 with the grand total being 12,940.

The chi square test for significance was applied to the observed and expected data from the experiment. On a weekly

basis a chi square value of 82 was obtained with the critical value at the five percent level of confidence with one degree of freedom being 3.84. The total figures were divided by six and the chi square test applied. A chi square value of 13 indicated a significant difference on a daily basis in favor of door B. The statistical hypothesis that an equal number of customers use each exit was rejected. There was evidence to be confident at the five percent level that more customers used door B than door A.

Although this test was not in the original research design it was made in order to give some idea of the traffic passing machines and the possibility of the relationship between traffic and the sale of bulletins.

ANALYSIS OF DISPLAY DATA:

At the end of the test the data from the three experiments were summarized and submitted to statistical test.

Comparison of the mean scores of the four groups in each of the three experiments revealed no significant difference between treatments. See Tables 9, 10, and 11.

TABLE 9

Analysis of Variance (Latin Square) - Test One

Source of Variation	df	Sum of Squares	Mean Square	F	5% Level
Total	15	2,737.94			
Time	3	114.12	38.04	.58	4.76
Location	3	2,024.19	674.73	10.36*	4.76
Treatment	3	209.19	69.73	1.07	4.76
Error	6	390.44	65.07		

*Significant at the five percent level.

TABLE 10

Analysis of Variance (Latin Square) - Test Three

Source of Variation	df	Sum of Squares	Mean Square	F	5% Level
Total	15	768.0			
Time	3	33.5	11.6	.83	4.76
Location	3	585.5	195.16	14.64*	4.76
Treatment	3	62.0	20.66	1.54	4.76
Error	6	80.0	13.33		

*Significant at the five percent level.

TABLE 11

Analysis of Variance (Latin Square) - Test Four

Source of Variation	df	Sum of Squares	Mean Square	F	5% Level
Total	15	813.94			
Time	3	82.19	27.39	1.13	4.76
Location	3	558.69	186.23	7.74*	4.76
Treatment	3	58.19	19.56	.81	4.76
Error	6	114.84	24.14		

*Significant at the five percent level.

The three experiments tell the same story. There is no significant difference between time periods and no significant difference between treatments. All three tests, however, did show significance between locations. There is no evidence from the experiments to indicate that $D \neq C \neq B \neq A$. The statistical hypothesis that $D = C = B = A$ cannot be rejected.

The studentized range test was used to compare one location with another. Tables 12, 13, and 14 points out these comparisons.

TABLE 12

Differences in Mean Scores Between Locations in Test One

------Significant Studentized Range for 5% Level Test---------		
2	3	4
3.46	3.58	3.64
----------Shortest Significant Ranges For Averages----------		
(2)	(3)	(4)
13.94	14.42	14.66
----------Results----------		

Locations	L2	L4	L1	L3
Means	8.5	13.5	26.5	37.2

Note: Any two means connected by the same line are not significantly different. Any two means not connected by the same line are significantly different.

TABLE 13

Differences in Mean Scores between Locations in Test Three

------Significant studentized ranges for 5% level test--------		
2	3	4
3.46	3.58	3.64
----------Shortest significant ranges for averages----------		
(2)	(3)	(4)
6.29	6.51	6.62
----------Results----------		

Locations	L4	L3	L2	L1
Means	1.25	5.25	6	17.5

Note: Means underscored by the same line are not significantly different. Means not underscored by the same line are significantly different.

TABLE 14

Differences in Mean Scores between Locations in Test Four

------Significant studentized ranges for 5% level test--------			
2		3	4
3.46		3.58	3.64
----------Shortest significant ranges for averages----------			
(2)		(3)	(4)
8.48		8.77	8.91
----------Results----------			
Locations	L7	L5	L8	L9
Means	6.7	7.7	9.7	21.5

Note: Means underscored by the same line are not significantly different. Means not underscored by the same line are significantly different.

It was not the purpose of this test to compare locations. The statistical model used permitted this comparison along with the comparison of treatments. Since locations for vending machines are one of the major items contributing to their success or failure it seems very important to realize this difference. This test pointed out significant differences among locations even though the machines were in the same chain of supermarkets, served generally the same type merchandise and used similar advertising. This thesis will not attempt to explain this difference other than to list the following hypothesis concerning locations.

The greater the number of customers patronizing a supermarket, the greater the chance of selling extension bulletins

through vending machines. There are good and bad locations within a given market. The closer the machines are located in respect to the good location, the greater the chance of selling extension bulletins through vending machines. Additional research is needed to test the above hypothesis.

RESULTS OF BULLETIN ADVERTISEMENT:

An extension bulletin ad was carried in the regular Shop-Rite advertisements of the State Journal on January 9 and 12 respectively.[1] A coupon offering a free extension bulletin to the bearer was included.

The bulletin offered free in exchange for the coupon was Bulletin E-256, "Planning the Use of the Family Dollar." This bulletin was also one of the two bulletins offered for sale in the vending machines during this week and the following week. Results of the free coupon ad are shown in the table below:

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[1] See Appendix C, pp.91-92.

TABLE 15

Free Coupon Ad - Shop-Rite Markets

Store No.	Address	Coupons Redeemed
1	3630 South Cedar	380
2	1910 W. Saginaw	162
3	1109 E. Grand River	110
4	2116 N. East St.	63
5	2401 W. St. Joseph St.	72
6	5016 South Logan	219
7	2519 South Cedar St.	53
8	2301 E. Grand River	133
9	555 E. Grand River	183
10	4206 N. East St.	191
	TOTAL	1,566

The sale of bulletins through machines was the second highest the week of the free ad and highest the following week of any time in the test. Sales recorded during these periods were 152 bulletins the week of the ad and 159 the following week. This occurred although one of the bulletins offered for sale these two weeks was identical to the one given away free in exchange for the coupon. This was the total sale

from all locations and not just the Shop-Rite stores, although 20 of the 29 machines were in Shop-Rite markets.

TEST TWO - LABOR UNION HALLS:

The labor union halls comprised the second experiment conducted with the analysis of variance (latin square) model. This test ran December 2, 1960, through January 4, 1961. During this period it became apparent that one of the basic principles of vending, namely traffic, was missing at these locations. It was learned after placement of vending units that meetings at some of the halls were held on a monthly basis and the traffic between meetings was relatively small. As the Shop-Rite markets were engaged and more machines were needed, the experiment at the labor union halls was abandoned January 4, 1961. Not enough traffic was the major reason for removing vending units from these locations.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This was a study to compare the effectiveness of various types of displays accompanying vending machines selling extension bulletins. The study also included a pre-test to determine the most effective display to accompany the machines in the major test.

The entire experiment ran for 70 days, excluding Sundays and holidays. This included the pre-test of exhibits and the analysis of variance test of the displays. A total of 1,205 bulletins were sold during this period, for an average of 17.2 bulletins per day. All bulletins sold for ten cents.

The pre-test was conducted at Wrigley's supermarket in Frandor Shopping Center. The flat-top exhibits were placed on one vending unit and the bulletin exhibits on the other unit. After a specified period of time the exhibits were switched.

Data from the study indicate that the bulletin exhibit was highly significant in comparison with the flat-top exhibit. Machines with bulletin exhibits sold approximately five times as many bulletins as machines with flat-top exhibits. Bulletin exhibits were used on all machines in testing the effectiveness of the displays.

A traffic count was taken at Wrigley's to give an idea of people passing machines and the approximate number using each exit. Data from this test revealed a significantly greater number using door B (door next to parking area) than door A on a daily basis. When this is compared with the sales from the two doors, we find the same relationship, but in a smaller degree. Total sales at door B were 220 bulletins compared with 207 at door A. This is not a significant difference in sales from door B to door A. This cannot be explained other than to hypothesize that people entering door A were in a better shopping mood and noticed vending machines more than people entering door B. The vending unit in door A occupied a more conspicuous position than the unit in door B.

To test the four displays, which were pictorial (D), Lettering (C), Combination (B), and No display (A), a total of three experiments were conducted. Each experiment consisted of four similar locations which ran for four time periods. This permitted the testing of each variable in each location.

All three tests gave the same results. There was no significant difference between treatments and no significant difference between time periods. All three tests, however, indicated a highly significant difference between locations.

There was an excellent response to the free coupon ad carried in the regular Shop-Rite advertisements on January 9

and 12. A total of 1,566 bulletins were exchanged free for the coupons in the ten Shop-Rite stores the week the ads appeared. This seemed to have a positive effect on the sale of bulletins as sales were second highest the week of the ad and reached the highest peak the following week. This lends support to the principle of vending in the review of literature that successful vendors rely on nationally advertised products. It also seems to indicate that the public is not fully informed on the availability of extension bulletins.

The sale of bulletins at miscellaneous locations (hairdressers and a sporting goods store) were in general lower than sales at the markets. Here again, the big item of not enough traffic seemed to be the explanation for low sales. The free coupon ad information and the sales at miscellaneous locations were not subjected to statistical analysis.

CONCLUSIONS:

This study has supported certain conclusions concerning the vending of extension bulletins.

1. People like to see and examine a product before buying. A vending machine with a bulletin exhibit on top was significantly more effective than a machine with a flat-top exhibit.

2. Displaying other type visuals with the bulletin exhibit had no significant effect on sales. Vending machines with

bulletin exhibits did as well as machines with bulletin exhibits plus pictorial displays, lettering displays or combination displays.

3. The tests revealed a highly significant difference between locations within the supermarkets. This suggests that the location of the machine in a given market as well as the customer count might influence sales.

4. People will buy publications through vending machines. A total of 1,205 bulletins were sold during the 70 day period.

5. Bulletins can be successfully distributed in supermarkets by use of the free coupon ad. A total of 1,566 bulletins were exchanged for coupons in one week in ten Shop-Rite stores in the Lansing area. This suggests that present distribution facilities reach only a small portion of extension's potential clientele.

6. Vending machines must be placed in locations with a large traffic flow. Supermarkets seemed to satisfy this need better than labor union halls, hair dressers or the sporting goods store.

RECOMMENDATIONS:

Although this experiment has revealed some important facts on vending extension bulletins, it has also brought to light other important questions.

1. Could a similar study in vending extension bulletins

reveal the reason for the highly significant difference between locations? The inference here is the individual difference found between supermarkets belonging to the same chain, selling approximately the same line of groceries and using similar advertising, etc.

2. Would vending machines offering a selection of 10 to 12 extension bulletins and placed in strategic locations throughout the country make a unique contribution to adult education? The motive of the Cooperative Extension Service regarding distribution of extension bulletins would not be a profit one, but one to place the publications at the finger-tips of the majority of the population. The author would hypothesize that vending machines, placed in strategic locations and offering an assortment of 10 to 12 extension bulletins with enough space to hold at least a four weeks' supply could provide the Cooperative Extension Service with an additional low cost but effective educational vehicle.

3. Other questions that remain to be answered have to do with the quality of the bulletin.

(a) Did the customer make additional purchases as new bulletins were offered for sale?

(b) Did the bulletin meet the expectations of the purchaser?

(c) Was it filed for later use?

(d) What type person made the majority of purchases? Age, education, income, etc?

This experiment has been a means toward the end of expanded service to extension's clientele. The test has indicated a demand for extension's resources by urban people and the author is confident that regardless of the vehicle used, extension must expand its services to include more of the population.

APPENDIX A

TABLE 16

Results of Bulletin Sale - Test One

	L1	L2	L3	L4*	Total
t^1	D 16	B 14	C 51	A 4	85
t^2	A 25	C 5	D 35	B 11	76
t^3	B 37	D 9	A 36	C 8	90
t^4	C 28	A 6	B 27	D 4	65
TOTAL	106	34	149	22	

*City Market was open only three days per week and actual sales were doubled in statistical test to give this location a six day week.

TABLE 17

The Sale of Individual Bulletins - Test One

		L1	L2	L3	L4	Total
t^1	Vegetables	6	7	25	2	40
	Good Eating	10	7	26	2	45
t^2	Planning Meals	13	1	14	5	33
	Salads	12	4	21	6	43
*t^3	Family Dollar	10	3	16	4	33
	Food & Your Wt.	27	6	20	4	57
*t^4	Family Dollar	4	1	4	0	9
	Food & Your Wt.	3	2	10	0	15
	Gardening	10	1	7	1	19
	Outdoor Cookery	11	2	6	3	22

*See Time Period, p. 42.

TABLE 18

Results of Bulletin Sales - Test Two

	L1	L2	L3	L4	Total
	A	B	C	D	
t^1	1	5	14	1	21
	D	C	B	A	
t^2	7	2	0	1	10
Total	8	7	14	2	

TABLE 19

The Sale of Individual Bulletins - Test Two

		L1	L2	L3	L4	Total
t^1	Venison	1	3	6	1	11
	Good Eating	0	2	8	0	10
t^2	Family Dollar	5	0	0	1	6
	Color	2	2	0	0	4

TABLE 20

The Sale of Individual Bulletins Pre-test - Wrigley's Supermarket

		L1	L2	Total
t^1	Vegetables	4	32	36
	Good Eating	9	32	41
t^2	Vegetables	12	2	14
	Good Eating	18	4	22

TABLE 21

Results of Bulletin Sales - Test Three

	Store 1	Store 2	Store 3	Store 4	Total
t^1	B 18	D 12	C 7	A 0	37
t^2	D 23	C 3	A 4	B 2	32
t^3	C 19	A 8	B 3	D 0	30
t^4	A 10	B 1	D 7	C 3	21
TOTAL	70	24	21	5	

TABLE 22

The Sale of Individual Bulletins - Test Three

		Store 1	Store 2	Store 3	Store 4	Total
t^1	Family Dollar	12	4	2	0	18
	Food & Your Wt.	6	8	5	0	19
*t^2	Good Eating	10	2	2	2	16
	Vegetables	13	1	2	0	16
*t^3	Good Eating	12	5	2	0	19
	Vegetables	7	3	1	0	11
t^4	Gardening	6	0	2	0	8
	Outdoor Cookery	4	1	5	3	13

*See Time Period, p. 42.

TABLE 23

Results of Bulletin Sales - Test Four

	Store 5	Store 7	Store 8	Store 9	Total
t^1	A 8	B 6	C 20	D 22	56
t^2	C 11	D 6	B 5	A 18	40
t^3	B 4	A 8	D 2	C 20	34
t^4	D 8	C 7	A 12	B 26	53
TOTAL	31	27	39	86	

TABLE 24

The Sale of Individual Bulletins - Test Four

		Store 5	Store 7	Store 8	Store 9	Total
t^1	Family Dollar	1	1	4	7	13
	Food & Your Wt.	7	5	16	15	43
$*t^2$	Good Eating	4	3	3	10	20
	Vegetables	7	3	2	8	20
$*t^3$	Good Eating	3	7	2	9	21
	Vegetables	1	1	0	11	13
t^4	Gardening	4	3	4	11	22
	Outdoor Cookery	4	4	8	15	31

*See Time Period, p. 42.

TABLE 25

The Sale of Bulletins from Miscellaneous Locations

Date	Boles Hairdresser	Simmon's Hairdresser	Vandervoorts Store
Nov. 23	Color 0	Color 2	Venison 1
Nov. 28	Color 0	Color 0	Venison 3
Dec. 2	Color 3	Color 4	Venison 1
Dec. 9	Discipline 1	Good Eating 1	Venison 10
Dec. 16	Discipline 0	Good Eating 0	Venison 1
Dec. 22	Vegetables 0	Discipline 3	Fish 1
Dec. 27	Vegetables 0	Discipline 0	Fish 3
Dec. 30	Vegetables 0	Discipline 1	Fish 5
Jan. 6	Planning Meals 1	Discipline 0	Fish 0
Jan. 13	Planning Meals 0	Family Dollar 5	Fish 2
Jan. 20	Entertainment 0	Salads 7	Fish 0
Jan. 27	Entertainment 1	Salads 0	Fish 0
Feb. 3	Food & Your Wt. 2	Food & Your Wt. 3	Fish 2
Feb. 10	Food & Your Wt. 1	Food & Your Wt. 3	Fish 1
Total	9	29	30

TABLE 26

The Sale of Bulletins by Weeks

Date	Machines in Use	Total Sales
Nov. 23	19	53
Nov. 28	19	56
Dec. 2	19	56
Dec. 9	21	108
Dec. 16	21	44
Dec. 22	21	54
Dec. 27	21	20
Dec. 30	21	34
Jan. 6	29	99
Jan. 13	29	152
Jan. 20	29	159
Jan. 27	29	115
Feb. 3	29	123
Feb. 10	29	132
	Total	1,205

TABLE 27

Total Sale of Bulletins from all Locations by Titles

Title	Bulletin Number	Number Sold
Venison	E-253	40
Good Eating	E-252	235
Family Dollar	E-256	154
Color Planning	E-366	13
Home Garden	E-4	73
Good & Your Wt.	No. 74 (USDA)	254
Vegetables	E-350	168
Outdoor Cookery	E-354	82
Planning Meals	E-306	70
Salads	E-368	96
Fish	E-313	14
Entertainment	E-343	1
Discipline	E-348	5
	Total	1,205

APPENDIX B

PLATE VII

A-Frame Exhibit on Vending Machine in Sporting Goods Store

PLATE VIII

Vending Unit in Supermarket with Treatment A (no display)
Note Bulletin Exhibit on Top of Machines

PLATE IX

Vending Unit in Supermarket with Treatment B (combination display)

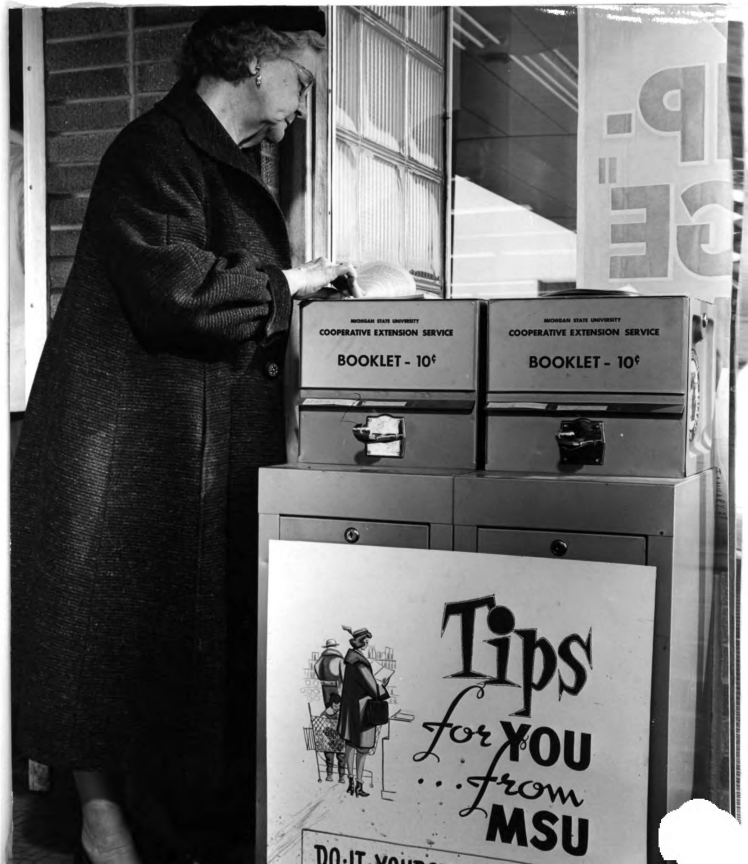


PLATE X

Vending Unit in Supermarket with Treatment C (lettering Display)

PLATE XI

Vending Unit in Supermarket with Treatment D (Pictorial display)

PLATE XII

The Lettering (C) and Pictorial (D) Displays of Bulletin E-253

How to Prepare and Serve Venison

PLATE XIII

The Lettering (C) and Pictorial (D) Displays of Bulletin E-252

Good Eating from Woods and Fields

PLATE XIV

The Lettering (C) and Pictorial (D) Displays of Bulletin E-256

Planning the Use of the Family Dollar

PLATE XV

The Lettering (C) and Pictorial (D) Display of Bulletin E-366

Color Planning for Home Interiors

PLATE XVI

The Lettering (C) and Pictorial (D) Displays of Bulletin E-4

The Home Vegetable Garden

PLATE XVII

The Lettering (C) and Pictorial (D) Displays of Bulletin No. 74 (USDA)

Food and Your Weight

PLATE XVIII

The Lettering (C) and Pictorial (D) Displays of Bulletin E-354
Outdoor Cookery for the Family

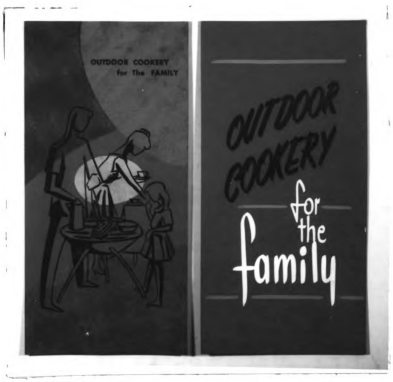


PLATE XIX

The Lettering (C) and Pictorial (D) Displays for Bulletin E-306
Planning Everyday Meals

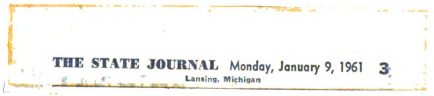
PLATE XX

The Lettering (C) and Pictorial (D) Displays of Bulletin E-368

Versatile Salads

APPENDIX C

The Coupon Ad Information Concerning the Vending of Extension Publications Was Carried in Shop-Rite's Regular Advertisement in the State Journal on Monday, January 9, 1961.



Save 14c . . .
With Coupon and
Food Purchase of
$5.00 or More

REGULAR
BOX

19¢

ROSE CROIX
Sliced Pears 3 No. 2½ CANS $1

Shop-Rite Markets in co-operation with M. S. U. are now offering an assortment of Extension Bulletins through Bulletin Vending Machines located in all our markets.

In order to acquaint you with the bulletins . . . a free bulletin is being offered this week with coupon at the right . . .

Shop-Rite

TIDE WASHDAY DETERGENT reg. box 19c

With Coupon and Food Purchase $5 or More
Coupon Good thru Wednesday, Jan. 11, 1961

Shop-Rite

Shop-Rite

Michigan State University
Extension Bulletin 256

Planning the Use of the Family Dollar

Free . . . No Purchase Required . . . Free
Coupon Good thru Wednesday, Jan. 11, 1961

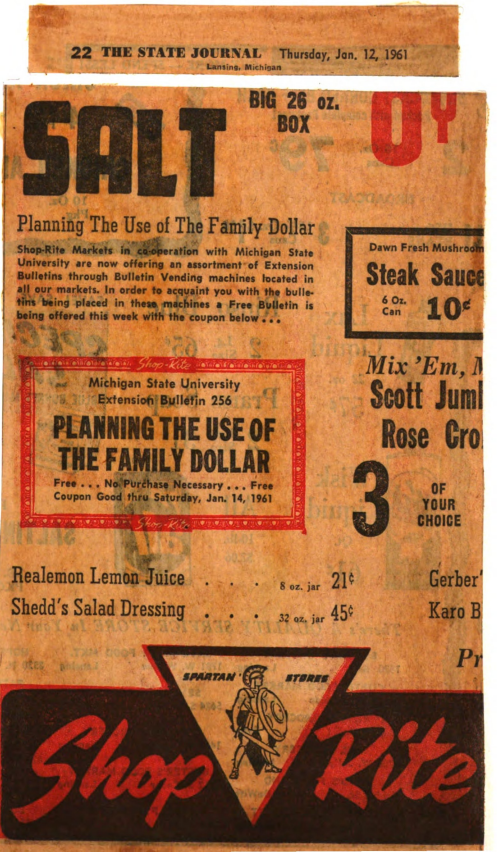
Shop-Rite

DOUBLE ACE-HI GIFT STAMPS EVERY WEDNESDAY

- 1109 E. Grand River — EAST LANSING — OPEN 9 A. M. TO 9 P. M. MONDAY THRU FRIDAY 9 A. M. TO 6 P. M. SATURDAY
- 555 E. Grand River — EAST LANSING — OPEN 9 A. M. TO 9 P. M. MONDAY THRU FRIDAY SATURDAY TO 6 P. M.
- Logan at Jolly Rd. — OPEN 9 A. M. TO 9 P. M. MONDAY THRU SATURDAY
- 2401 W. St. Joseph
- 2301 E. Grand River — OPEN 9 A. M. TO 9 P. M. MONDAY THRU SATURDAY
- 3630 S. Cedar — OPEN 9 A. M. TO 10 P. M. 7 DAYS A WEEK
- 1910 W. Saginaw
- 4206 N. East St. — OPEN 9 A. M. TO 10 P. M. 7 DAYS A WEEK SDD DEALER
- 2519 S. Cedar
- 2416 N. East St. — SDD DEALER — OPEN 9 A. M. TO 9 P. M. MONDAY THRU SATURDAY

WE RESERVE THE RIGHT TO LIMIT QUANTITIES

The coupon and vending bulletin ad was repeated in Shop-Rite's advertisement in The State Journal on Thursday, January 12, 1961.



22 THE STATE JOURNAL Thursday, Jan. 12, 1961
Lansing, Michigan

SALT

BIG 26 oz. BOX

Planning The Use of The Family Dollar

Shop-Rite Markets in co-operation with Michigan State University are now offering an assortment of Extension Bulletins through Bulletin Vending machines located in all our markets. In order to acquaint you with the bulletins being placed in these machines a Free Bulletin is being offered this week with the coupon below . . .

Shop-Rite

Michigan State University
Extension Bulletin 256

PLANNING THE USE OF THE FAMILY DOLLAR

Free . . . No Purchase Necessary . . . Free
Coupon Good thru Saturday, Jan. 14, 1961

Shop-Rite

Dawn Fresh Mushroom
Steak Sauce
6 Oz. Can 10¢

Mix 'Em, M
Scott Juml
Rose Cro

3 OF YOUR CHOICE

Realemon Lemon Juice . . . . 8 oz. jar 21¢
Shedd's Salad Dressing . . . . 32 oz. jar 45¢

Gerber'
Karo B

Pr

SPARTAN STORES

Shop Rite

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BIBLIOGRAPHY

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