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The effects of color and design on audience attitude, behavior, and perception of media

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The effects of color and design
on audience attitude, behavior, and perception of media

by

Carol M. Ouverson

A Thesis Submitted to the
Graduate Faculty in Partial Fulfillment of the
Requirements for the Degree of
MASTER OF SCIENCE

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Signatures have been redacted for privacy

Iowa State University
Ames, Iowa

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TABLE OF CONTENTS

	Page
CHAPTER 1: INTRODUCTION	1
CHAPTER 2: LITERATURE REVIEW	7
CHAPTER 3: METHODOLOGY	26
CHAPTER 4: RESULTS	49
CHAPTER 5: DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS FOR FURTHER RESEARCH	69
BIBLIOGRAPHY	78
ACKNOWLEDGMENTS	84
APPENDIX A: CORRESPONDENCE AND QUESTIONNAIRE	85
APPENDIX B: <i>THE FAMILY DAYCARE AS A BUSINESS BROCHURE</i>	102

LIST OF TABLES

	Page
Table 1. Response rate showing number of subjects returning pretests and posttests according to brochure variations	31
Table 2. Rotated factor matrix for Professional Attitude	34
Table 3. Rotated factor matrix for Business Attitude	37
Table 4. Rotated factor matrix for Use of Media	39
Table 5. Source of Word Pair List	41
Table 6. Rotated factor matrix for Brochure Evaluation	43
Table 7. Comparison of content placement	46
Table 8. Analysis of variance of Attitude toward Professional Worthiness by posttest scores of experimental and control groups	50
Table 9. Analysis of variance of Attitude toward Professional Skills by posttest scores of experimental and control groups	50
Table 10. Analysis of variance of Attitude toward Business Profit by posttest scores of experimental and control groups	51
Table 11. Analysis of variance of Attitude toward Fees and Penalties by posttest scores of experimental and control groups	51
Table 12. Analysis of variance of Attitude toward Professional Worthiness by color of brochure and design of brochure	52
Table 13. Analysis of variance of Attitude toward Professional Skills by color of brochure and design of brochure	53
Table 14. Analysis of variance of Attitude toward Business Profit by color of brochure and design of brochure	54

Table 15.	Analysis of variance of Attitude toward Fees and Penalties by color of brochure and design of brochure	54
Table 16.	Difference of means of pretest and posttest scores on Attitude toward Professional Worthiness	55
Table 17.	Difference of means of pretest and posttest scores on Attitude toward Professional Skills	56
Table 18.	Difference of means of pretest and posttest scores on Attitude toward Business Profit	56
Table 19.	Difference of means of pretest and posttest scores on Attitude toward Fees and Penalties	56
Table 20.	Means for indices of Professional Attitude and Business Attitude Factors	57
Table 21.	Analysis of variance of change in banking account by color of brochure and design of brochure	58
Table 22.	Analysis of variance of change in food program participation by color of brochure and design of brochure	59
Table 23.	Analysis of variance of change in insurance coverage by color of brochure and design of brochure	59
Table 24.	Analysis of variance of change in registration by color of brochure and design of brochure	60
Table 25.	Analysis of variance of Use of Media by color of brochure and design of brochure	60
Table 26.	Analysis of variance of Evaluative Factor by posttest scores of experimental and control groups	61
Table 27.	Analysis of variance of Stylistic One Factor by posttest scores of experimental and control groups	62
Table 28.	Analysis of variance of Potency Factor by posttest scores of experimental and control groups	62

Table 29.	Analysis of variance of Stylistic Two Factor by posttest scores of experimental and control groups	62
Table 30.	Analysis of variance of Activity Factor by posttest scores of experimental and control groups	63
Table 31.	Analysis of variance of Evaluative Factor by color of brochure and design of brochure	64
Table 32.	Analysis of variance of Stylistic One Factor by color of brochure and design of brochure	64
Table 33.	Analysis of variance of Potency Factor by color of brochure and design of brochure	65
Table 34.	Analysis of variance of Stylistic Two Factor by color of brochure and design of brochure	65
Table 35.	Analysis of variance of Activity Factor by color of brochure and design of brochure	66
Table 36.	Means of Semantic Differentials for Brochure Evaluation	67

LIST OF FIGURES

	Page
Figure 1. Factorial design for study using two levels of color and two levels of design	27
Figure 2. Semantic differential profile for Brochure Evaluation	68

CHAPTER 1: INTRODUCTION

Color is a powerful force in communication. It affects human perception, giving different impressions of objects. It affects human emotion. Certain color hues are used by business and industry to elicit specific behavioral responses. Costigan (1984) points out that orange is recommended for fast food restaurants because it makes people hungry; beige is used in offices because it makes people neat and efficient; and bubble-gum pink is used in rooms to calm delinquents and criminals. But what about color on the printed page? Color that surrounds people may not elicit the same response as color applied to books, magazines, brochures, and other printed pieces.

This study looked at the effects of color when used for printed materials. In spite of a multitude of books and articles that have been written about color and a large body of scientific research on the subject, very limited empirical research addresses use of color on the printed page (Lee and Barnes, 1990). Color is widely used in advertising to influence emotional behavior. However, when advertisers decide what color to make a catalog cover or what background color should be used in an ad, the decisions are “based more on hunches than on fact” (Feucht, 1987, p. 18). Practitioners venturing into the realm of color are much like the second grader at last allowed to use a box of 48 crayons instead of a first grader’s

meager eight; much that they learn will be by trial and error.

When practitioners turn to authorities or consultants on color, they find a confusing collection of information. For example, so many psychological attributes have been ascribed to color that very little has the ring of truth to it. The color green is said to be both peaceful and terror-filled. Purple is said to convey both dignity and desperation. White means pure and normal. Color is said to excite or calm and to be masculine or feminine. Sandage, Fryburger, and Rotzoll (1979) suggest that color in a printed piece may serve such functions as attracting attention, and enlivening the content. Practitioners are told that, used correctly, color can be a strong psychological tool (Cheskin, 1954). But, poor choice and application of colors can repel readers immediately after their attention has been aroused (Turnbull and Baird, 1980).

Even when research demonstrates that color has particular qualities in specific situations, broad generalizations about color should not be made (Sharpe, 1974). Consider findings about the colors blue and green, for example. Green light was shown to have a calming effect in comparison to red light (Wilson, 1966). Blue light was shown to make subjects feel that time passed more slowly than did red light (Smets, 1969). Will green or blue paper or green or blue ink used in a brochure or on a package, therefore, have a calming effect? People associate certain colors with specific objects such as green trees or blue skies. But many associations are not so obvious and research may be called for before a color selection is

made (Turnbull and Baird, 1980). Conover (1990) reported that sugar manufacturers learned that their product would not sell if packaged in green. Not that the green evoked so much calm that the package was left on the shelf. They found that sugar sells best when the package is predominantly blue. Apparently blue is the color of sweetness and green is associated with an astringent taste, like a lime. In addition to evoking calm, green also can mean sour.

Some practitioners have looked at color as something esthetic and emotional, a mere frill to vision and a useless expenditure of money (Birren, 1961). Studies can be found to show that black and white is as effective as color (Guest, 1966). Yet, Hornik (1980) found that different combinations of colors are capable of evoking different reactions. Conover (1990) reported one study that showed advertisements for air conditioners are more effective if they use cool colors. Birren (1961) stated that color should be considered first when planning a printed communication.

Part of the problem is that scientific research into color is usually conducted to test theory and for the overall purpose of adding to an understanding of the human race. What practitioners want is an understanding of color that will help them sell products and services or promote ideas. Market-research investigators test color in relation to specific objects such as cars, coats, or cameras. Some problems with product-based color research are that different designs may lend themselves to different colors and that results may represent only what is currently popular, rendering the

findings obsolete in a short time (Sharpe, 1974).

To further complicate the problem of color choice for the printed page, color often goes hand-in-hand with graphic design in printed material. Like color, design itself communicates and adds meaning to content, visually conveying what the writer expresses in words (Bohle, 1990). Layout serves the function of presenting a message in a logical, clear, unified manner (Sandage, Fryburger, and Rotzoll, 1979). Danger (1987) recommends graphics in a printed piece in order to make an impact on the subconscious, teach, and create a desire to read. Little empirical research has been done to determine whether one element, color or graphic design, is more important than the other or which should be considered first. Birren (1961) stated that color, rather than shape, is more important and more closely related to emotion. Danger (1987) stated that to succeed, printed material must attract attention, create a desire to read (as well as be legible), and communicate a message in the most appealing way. He listed three main elements to be considered: graphic design, including shape, form and balance; color(s) used as part of the graphic design or as background; and the marketing aim.

Even though much of the study of human response to color and design on the printed page is time specific or product specific, small pieces of information gradually will build to a better understanding.

This study proposed to add information about the effects of

color and design. The study examined whether differing colors and graphics in a printed piece would significantly change audience perception, attitude, and behavior. The study also was undertaken to find how best to communicate in print with a targeted audience. The printed piece used in the study was *Family Daycare as a Business*, one of 14 brochures in a series called the *Family Daycare Exchange*. The series was an educational effort aimed at family daycare providers in Iowa and was produced by Iowa State University Extension.

This brochure was selected because the entire *Family Daycare Exchange* series was redesigned and new colors were used in the late 1980s. The specific brochure, *Family Daycare as a Business*, contained information intended to improve the daycare providers' professional attitudes and willingness to adopt business practices. The question could then be asked, did the change of color and design significantly change these professional attitudes and cause the providers to show more willingness to use business practices?

Chapter 2 of this thesis presents research that is reported in the literature and that pertains to color and design. Some of the studies presented are classics and give a background in color and design research. Other studies presented in the chapter are more current. Chapter 2 concludes with the hypotheses formulated on the basis of findings from the literature review. Chapter 3 presents methods used to carry out the present study, covering experimental design, sampling methods, instrumentation,

treatment, data collection, and data analysis methods to be used. Chapter 4 presents the results from the data analysis. Chapter 5 presents conclusions based on the results and suggestions for further research.

CHAPTER 2: LITERATURE REVIEW

There is no such thing as color in the absence of an observer; "color" is in fact a subjective sensation, experienced by an observer through the light-sensitive receptor mechanism of the eye (Chamberlin, 1980, p 1).

This chapter reviews research related to the physiological, psychological, and optical qualities of color, as well as research related to media use of color and design. To know what one is doing with color on the printed page, one must have some understanding of the human reaction to color. Some research has examined physical effects caused by specific colors. Other research has looked at the interaction of personality and color. Still other studies have examined human perception of color. Some media studies have looked at behaviors brought about by color. Other studies asked respondents for evaluation of the medium itself when differing designs and colors were used.

Physiological Qualities of Color

One study done by Gerard (1958) investigated the effect of different colors on psychophysiological measures that indicate emotional changes. Blue, red, and white lights of equal brightness were each projected for 10 minutes on 24 normal adult males. Findings showed that the autonomic nervous system and visual cortex were significantly less aroused during blue than during red or white illumination. Different colors also brought out significantly different feelings—greater relaxation, less anxiety and hostility

during blue; more tension and excitement during red illumination.

Findings from additional studies support these physiological reactions to color. Red and green colors were used in a study by Wilson (1966). Twenty subjects were each exposed for 60 seconds to five red and five green slides in alternate order. Two electrodermal measures (conductance level and conductance change) were taken. Results showed that red is a more “arousing” color than green.

A study by Smets (1969) looked at the difference warm and cool colors made in a subject’s sense of time passing. The findings showed that the subject perceives the time interval spent before a red color stimulus to be shorter than objectively the same time interval spent watching a blue color stimulus.

The present study made use of two colors; one color was decidedly warmer than the other color. Findings that show warm colors and cool colors cause different physiological effects may be related to the present study, if the two colors used in this experiment do cause a significant difference in reader attitude and behavior, or in reader perception of the printed piece itself.

Psychological Qualities of Color

Some color experts have long held that human color preference has something to do with personality. Bjerstadt (1960) found that personality type can be related to warm or cool color preference. In his study, the subjects described different colors on

semantic differentials, constructed scenes on variously colored stage floors, used a color-adjective matching procedure, and took the Rosenweig test with red or blue test forms. After determining whether subjects preferred warm or cool colors, subjects were studied to see whether their personality traits could be separated as well. Warm-color selectors were described as direct, up-tempo, more easily activated, and quicker reactors. They were expected to have an attitude of "life-enjoyment." Cool-color selectors tended toward stimulus reworking or selectivity. Younger people chose warm color patterns more often than older people.

When asking for color preferences, some researchers found that more men chose cool colors and more women chose warm colors. Luckiesh (1927) examined 115 male and 121 female college undergraduates. They were shown the colors in pairs by means of projected light and asked to choose their preference in each pair. The females preferred a pure red above all others with blue ranked second. The males ranked the blue first and the pure red second. Poffenberger (1928) found that women prefer red but dislike orange, green, and blue. Men prefer blue but dislike orange and yellow. Eysenck (1941) tabulated the ratings of various colors by 21,000 American subjects, mostly college students, female and male in equal numbers. They looked at ten Ostwald colored papers, 5 1/2 by 3 1/2 inches, pasted onto cardboard. The colors were blue, red, green, violet, orange, yellow, all fully saturated; green, red, and orange tints; and a yellow shade. He found gender

agreement, with both sexes ranking the fully-saturated colors first in the following order: blue, red, green, and violet. However, females rated yellow before orange and males rated orange before yellow.

Many current color researchers hold that stated color preferences are not reliable indicators of true color preference. For example, Cheskin (1954) reported that the Color Research Institute conducted preference tests by indirect methods and association-type tests with thousands of women and men. The tests showed clearly that normally both women and men liked red, that orange-red had the lowest preference rating of all the reds, but that orange-red had very great appeal to children. Golden (1974) examined the effect of gender on color with 219 college students. He used the Stroop Color and Word Test, which requires the subject to name the color of ink a color word is printed in when the word and the color do not match. He found that females were quicker at naming the colors than males. Hoyenga and Wallace (1979) reported gender differences in the types of color experiences reported during the perception of an after image. The subjects viewed flashes of light through one of four colored filters. Males saw proportionately more blues and greens; females saw proportionately more reds, pinks, and yellows. He concluded that the two sexes may have different retinal and/or central processing of visual information.

The research on gender difference in color preferences is

inconclusive and needs further study. The present study used different colors for a printed publication. The fact that gender may cause differences in color preference would relate to findings from this study, if significant differences were found in reader attitude or behavior, or in reader perception of the printed piece itself.

A study conducted by Peretti (1974) looked at color and mood associations. This study did not examine physiological changes or attempt to uncover unconscious color choices. Students were to read either a Shakespearean tragedy or a comedy. After completing the reading, they selected one of three colored posters to indicate how they felt. The posters were solid blue, yellow, or gray. Students reading the tragedy usually selected blue; those reading the comedy chose yellow. This study would have been more reliable if the students had made unconscious color choices. Many people in western culture have been conditioned to know that they should feel "blue" after a tragedy and "sunny" when happy. Sharpe (1974) reports a research study that used nursery-school children to study color-mood association. The children were divided into two groups. One group was told a sad story; the other group was told a happy story. Both groups were then given a choice of a brown or yellow crayon with which to color the clothing on a sketch of a girl. Children who heard the happy story most frequently chose yellow; children who heard the sad story most frequently chose brown. The researchers concluded that nursery-school children do have color-mood associations.

Research indicated that color is related to mood. According to Sharpe (1974), people's response to color is more related to emotion than to intellect. Therefore, a printed piece presented in different colors may be associated with different emotions. Perhaps the content of the printed piece should be emotionally related to the colors selected. In fact, a study by Bartholet (1968) indicated that one color can be associated with differing emotions, depending on who the subject is thinking of. The study involved student nurses who wrote down the first color associated with a list of words. The words fell into two categories, (1) words that pertained to the nurse's self-image or image of other nurses, and (2) words that pertained to the nurse's perception of patients. White, when associated with nurses, meant clean, cold, crisp, and efficient; when associated with patients, white meant timid, passive, and scared. Orange, when related to nurses, meant enthusiastic; when related to patients, orange meant anxious and difficult. Red, as a nursing-related color, meant bold, brassy, cruel, dominating, hasty, nose, and sarcastic; as a patient-related color, red meant apprehensive, belligerent, distressed, touchy, hot, and hurt. The present study used as subjects family daycare providers whose work is to care for children. The fact that color is associated with specific moods or with specific roles in which a person is cast is related to the present study; the colors used for the printed piece may effect reader response to the material presented in that piece.

It should be emphasized, however, that "people are not

generally conscious of the effects of color” (Turnbull and Baird, 1980, p 236). People do not notice that red increases their respiration rate or that blue has a calming effect. Also, when conducting research, it is best not to let subjects know that use of color is being studied (Garcia, 1986). Apparently, when subjects know color is being studied, they will take more notice of it than usual. Also, they seem to judge color based on what they think the researcher wants to hear. Subjects’ color preference is influenced by ego-involvement and prestige identifications that:

exert their power on an unconscious level. People cannot tell what colors they like. For a number of psychological reasons they generally do not know what they like, and if they do think they know, they may not be willing to tell (Cheskin, 1954, p 236).

Another color expert suggested:

Experiments in subjective color should be initiated very carefully. Any suggestion that subjective color may reveal character or mode of thought and feeling should be avoided. Many people have inhibitions about showing themselves as they are (Itten, 1973, p 23).

According to Turnbull and Baird (1980), the following testing methods allow the researcher to study reactions to color so that subjects are unaware that their behavior is being evaluated— observation tests in which the testers are hidden, often behind one-way glass; memory tests in which persons are questioned to determine how much and what they recall of items in print; and sales and inquiry tests in which items are advertised for sale through the mail. For this last method, some ads run in black-and-

white, others in color.

Based on this information, the present study was planned so as to cloak color preferences. Subjects would be tested to see whether one color caused a greater change in attitude or behavior than another color; subjects also would be tested to see whether one color caused a more favorable evaluation of the printed piece than did another color.

In addition to physiological and psychological meaning, humanity has been assigning symbolic meaning to colors for ages. In China, yellow was reserved to the emperor, the Son of Heaven. No one else was allowed to wear a yellow garment (Itten, 1973). Color can have varying symbolic meaning from one culture to another and within one culture. In Western civilization people are conditioned to associate red with festivity, blue with distinction, green with nature, and yellow with sunshine (Cheskin, 1954). Yet, in Western culture, "feeling blue" means sad, "looking a little green around the gills" means poor health, "red with rage" could spoil any festivity, and yellow journalism has little to do with sunshine. Anyone applying color to the printed page also should understand its various symbolic meanings. Any differences brought about by color in the present study should, therefore, be examined in light of symbolic meaning.

Optical Qualities of Color

Some colors catch the eye more than others. Red and yellow

are the best eye-catchers, both having a high degree of visibility (White, 1990). This is true when seen from a distance or when seen at close range. Warm colors have more visibility than cold colors (Danger, 1987). However, the eye can weary of color if the exposure is too much and too long (White, 1990). For example, black on yellow makes a highly visible poster or billboard, but yellow pages in a book would build up a strong afterimage of blue and tire the reader (Birren, 1945). Although white makes a good background for a book, it lacks attention value. Soft white or pale ivory will promote ease of reading, but color may be better (Danger, 1987).

Just as color attracts the eye, so can color play tricks on the eye. Place a blue color next to a strong red and the blue will take on a greenish cast (Arnheim, 1974). Likewise, colors on the printed page relate to one another and change when placed next to each other. A particular color could be greatly influenced by other colors in a printed piece. For example, a blue might appear warm or cool, depending on what other colors are adjacent to it (Marx, 1973).

Visibility and attraction power should not be confused with legibility and ease in reading. In fact, the most legible colors on the printed page are the least visible at a distance. Yellow is the most visible at a distance; black is the least visible (Danger, 1987). The best color choice for lengthy reading matter would be the least vibrant colors (Cheskin, 1954). Danger (1987) reported that speed-of-reading tests suggest that a bright white paper impeded

reading and should not be used for materials that require sustained reading. Instead, he suggested using a tinted paper or soft matt whites and creams that reduce glare. Danger (1987) stated that in many cases color may provide better results. He listed several advantages of colored paper: it attracts attention, creates a desire to read, makes reading easier, reduces contrast, improves the appearance of the whole, provides a creative tool, improves the effect of illustration, provides an alternative to process color, and provides a means of coding and identification.

Cheskin (1954) stated that typeface colors should be combined with black to improve their legibility. He also stated that the legibility of any ink color is affected by the background color or paper color. When selecting color for lengthy copy, he advised using an ink color related to the paper color.

In conducting the present study, legibility factors of color had to be considered. Not only was it necessary to select colors that might be associated with attitude or behavior change or with evaluation of the printed piece, but also it was necessary to consider whether a given color combination (paper and ink) was more readable than another color combination. The study also could relate to reader preference for readability of colors.

Color in Media Studies

Guest (1966) looked at color versus black and white in advertising. His research found that color in advertising is not

more prestigious than black and white. Findings may not be reliable because the method used to obtain information was direct questioning. Interviewers asked the respondents directly whether they would have taken notice of an ad. The interviewers had a copy of the ad, separated from the magazine or newspaper, and asked whether the respondent would have noticed it. Respondents also were asked to give the company mentioned in the ad a numerical rating. This would have been a more reliable study if subjects had been tested in an actual reading situation so that observers or instruments could detect whether the ad actually did cause subjects to stop and take notice.

Schweiger and Hruschka (1980) found that color increased inquiries. The number of inquiries increased with the number of colors in the ad (1, 2, 3, 4). The experiment was done with German technical journals, which contained few color ads, so the impact of color might have been more effective than in a publication containing more color ads.

The present study examined behavior not as a response to an ad but as a change in business behavior such as buying insurance, which the printed piece, *Family Daycare as a Business*, suggested as an appropriate business purchase. The study also looked at evaluation of the printed piece itself, rather than at an evaluation of the organization that produced the printed piece.

The following four studies looked at reader evaluation of newspapers based upon whether or not the newspapers used color.

Newspapers have been slow to adopt color, one reason being that editors feared color might detract from the serious tone of the news. Pasternack and Utt (1986) cautioned newspapers against use of color lest they be viewed as less than trustworthy.

However, the above study was replicated later by Smith (1989) with differing results. He hypothesized that students in his study would view the colorful newspapers less harshly than did students in the Pasternak-Utt study. He made an effort to keep his study similar to Pasternack and Utt's study, obtaining copies of the research slides from them. Also, he chose to evaluate the newspapers using the same seven-point semantic differential scale of nineteen characteristics that Pasternack-Utt used. Smith concluded that use of color does not lower readers' perceptions of the trustworthiness of newspapers. However, there is further need, Smith pointed out, to study readers' reactions to color in general and to specific colors.

Bohle and Garcia (1986) held all other variables on the printed page constant so that the effect of color could be isolated. Rather than using different papers, this study used fifteen different versions of a front page, six of a lifestyles page, and three of sports front pages. Content of the pages was kept nearly identical, with differences only in the kind and amount of color used. As with the Smith study, the authors used a semantic differential scale, this time with twenty word-pairs. These word pairs were said to give results in five areas: evaluative, ethical, stylistic, potency, and

activity.

Bohle and Garcia (1986) wanted to find whether the use of color would negatively affect the serious tone of important news. They also suggested that mechanical measures of eye movement would be better than a test administrator's judgment or self report. The study used eighty-three subjects. Data from the study showed color to be a stronger attraction than a main photo and stronger than any other page element in moving the eye across the page. They concluded that color did not affect how readers felt about the ethical quality of a newspaper but that color did make readers rate the paper as more interesting, pleasant, exciting, and powerful.

Stempel and Click (1976) tested the effects of color halftones versus black and white halftones on reader evaluation of newspapers. Using newspapers that differed in their use of photos, Stempel and Click hypothesized that readers would prefer newspapers with four-color halftones on the front pages over those with black-and white halftones on the front pages. They found that readers preferred color. They suggested that a newspaper could enhance its image by using color news pictures. The researchers used a twenty word-pair semantic differential scale as a rating instrument.

One purpose of the present study was to determine whether color would make a significant difference in reader evaluation of the printed piece itself. The above research indicated that readers preferred color in newspapers. The present study examined

whether readers would rate more highly a fully saturated, warm color combination or a more neutral color combination. The printed piece, however, was a brochure rather than a newspaper so it did not carry news of the day, but rather provided information to help the reader in his or her business.

The purpose of many publications is to impart information that the reader will remember. Tests have shown that some colors add to the retention power of an image. For example, Cheskin (1954) stated that both a triangle and an oval are images than can be easily recalled. Yet, neither image in black on white remains in the memory as long as they do in black on yellow or in black on orange-red. However, Hendon (1973) held that color is better for attention; black and white for recall. Results from the present study could be effected if one color combination caused the material to be more readily retained than another color combination. The following three studies provided more insight.

Hatfield (1981) found that color did not help subjects recall information in running text. This study used normal Roman type, bold face Roman, italic, and normal Roman printed in red ink. Color was used to highlight a random selection of sentences rather than to highlight significant points. The study found no difference between recall of highlighted material and black on white material.

However, color is usually used to highlight significant points and may be valuable to the reader as a means to quickly locate key passages in lengthy reading material. According to Bundesen and

Pedersen (1983), color does help the viewer organize and assemble objects.

Color increased recall of peripheral material but did not improve learning of central material that advanced the plot in a study by Katzman and Nyenhuis (1972). The study also showed that color can cause material to be rated higher than black and white material. Slides were used in the study to show posters and comic book strips to the subjects. Based upon these three studies, the researcher concluded that a more colorful brochure would not cause more learning than a less colorful brochure.

Design in Media Studies

The present study also examined reader reactions to two different designs. Publication designers use art principles to create page layouts for print materials. However, good design is a matter of personal taste. Covert (1987) examined whether flat artwork that pleased the artists' sense of visual aesthetics also would please the viewers. The researcher measured audience response to visual stimuli. Data from the study showed some evidence that an artist's design may not necessarily please an audience. However, the researcher did not control for color, which could have played an important part in personal response to a composition. The present study used two colors and two designs and examined whether a color or a design or a combination of the two would cause a publication to be evaluated more highly.

Siskind (1979) used four newspaper front pages to examine the scope that design can have on reader evaluation. The four front pages represented traditional, contemporary, well-designed traditional, and well-designed contemporary. It is noteworthy that the subjects in the study chose the best designed paper (what was considered by the experts to be the best designed paper) over the other three. The study found that prospective newspaper readers rated contemporary and/or well-designed newspapers as more informative and interesting than those defined as traditional or of average design. The author suggested that newspaper owners and staff members be concerned with quality of design and a contemporary appearance.

In conclusion, research shows that color selection for a printed piece is a complex process in which the physiological, psychological and optical qualities of color must be considered. In addition, the psychological qualities of design should be considered. Anyone selecting color for the printed page should have an understanding of human reaction to color, its physical effects, how it interacts with personality, and how color is perceived by humans. Findings show warm colors make the viewer more animated; cool colors make the viewer more relaxed. Data from the current study must be interpreted with an understanding that color can produce a physical response. The fact that color is associated with specific emotions or with specific roles in which a person is cast also must be considered when looking at data from the study. Family daycare

providers who work with children may have a different emotional response to color when associating it with children than when associating it with themselves. Human subjects may not wish to reveal themselves when color preferences are being studied or may try to ascertain what the researcher wants. Therefore, indirect methods should be used to find color preferences or differences in attitudes or actions based on color. Also, differences found to be associated with color should be examined in light of color's symbolic meaning. Not only is it necessary, in the selection of colors, to have a physiological, psychological and symbolic understanding of color, it also is necessary to consider legibility of a given color combination (paper and ink). Media studies can examine attitude change and behavior change brought about in relation to color and design. Studies also can examine reader response to the printed piece itself. Research is conflicting in whether or not color or black-and-white produces greater response in advertising. Studies indicated that readers preferred color in newspapers. Research indicated that color helps peripheral material to be more readily retained by the reader and that color makes no difference in the retention of central or thematic material. One purpose of the present study was to determine whether color and design would make a significant difference in reader attitude and behavior. A second purpose was to determine whether color and design would make a significant difference in reader evaluation of the printed piece itself.

Hypotheses

The purpose of this study was to examine whether differing colors and graphics in a printed piece would significantly change reader perception of the printed piece itself, reader attitude, and reader behavior. Based on color preference research cited in this chapter—women dislike orange (Poffenberger, 1928), women prefer five other colors to orange (Eysenck, 1941), and orange-red had the lowest preference rating of all the reds (Cheskin, 1954)—and optical qualities of color cited in the chapter—the eye can weary of color if the exposure is too much and too long (White, 1990) and soft white or pale ivory promote ease of reading (Danger, 1987)—it was decided to use orange paper stock and cream white paper stock for the test brochures. The orange paper stock also would set up a difference between a warm color and a neutral color. In order to maintain the warm color scheme, the orange paper was printed with dark warm red ink. The neutral cream white paper was printed with a dark warm black. The cream/ black combination would promote more ease of reading than the orange/red combination.

Two graphic designs were used. One was less pleasing to the researcher and editors of the publication and used stiff, amateurish artwork. The design preferred by the researcher and editors used dynamic, rounded figures with much more realistic detail, which had been created by a professional illustrator. The researcher

formulated hypotheses based on the conclusion that the brochure with the most legible color combination and with the more professional artwork would be preferred by the reader and have the most effect. The following hypotheses were formulated.

Hypothesis one: The publication printed on cream paper stock and with dynamic artwork will cause readers to have a more positive professional attitude than the publication printed on orange paper stock and with static artwork.

Hypothesis two: The publication printed on cream paper stock and with dynamic artwork will cause readers to be more willing to adopt business practices than the publication printed on orange paper stock and with static artwork.

Hypothesis three: The publication printed on cream paper stock and with dynamic artwork will cause readers to practice more positive professional behavior than the publication printed on orange paper stock and with static artwork.

Hypothesis four: The publication printed on cream paper stock and with dynamic artwork will be rated more highly than the publication printed on orange paper stock and with static artwork.

CHAPTER 3: METHODOLOGY

The purpose of this study was to investigate whether or not four different versions of a brochure would have a significant effect on the professional attitudes, business behaviors, and color and design preferences of potential readers. This chapter describes the research procedures used in the study: (1) research design, (2) sampling method, (3) instrumentation, (4) treatment, (5) data collection, and (6) methods for data analysis.

The Experimental Design

This study used a 2 x 2 factorial design. Cozby, Worden and Kee (1989) state that such designs allow a study to more closely resemble real-world situations in which one often finds a combination of independent variables. Variables investigated in this study included two levels of color and two levels of design for the *Family Daycare as a Business* brochure. When the two levels of the two independent variables were combined, a total of four groups was produced: (1) static artwork, orange paper; (2) dynamic artwork, orange paper; (3) static artwork, cream paper; (4) dynamic artwork, cream paper (Figure 1).

Factorial designs provide main effects and interaction effects (Sproull, 1988). Main effects indicated whether or not color made a difference in the dependent variables—attitudes, behavior, and evaluation of the brochure—and whether or not design made a

Independent variables	Design 1 (static)	Design 2 (dynamic)
Color 1 (orange)	static artwork orange	dynamic artwork orange
Color 2 (cream)	static artwork cream	dynamic artwork cream

Figure 1. Factorial design for study using two levels of color and two levels of design

difference in the dependent variables. Interaction effects indicated whether or not different combinations of color and design—perhaps cream paper and dynamic artwork—produced more change than another combination—perhaps orange paper and static artwork.

It was further desired to control for the possibility that a pretest might sensitize the four experimental groups to the treatment. Therefore, it was decided to use one experimental group and one control group for each of the four brochure variations or a total of eight groups.

Sampling Method

The publications used in this study were targeted at family daycare providers in Iowa. Therefore, it was decided to find subjects from that population. An accurate count of the population—family daycare homes in Iowa—does not exist because the state does not have mandatory registration. Also, the population undergoes

rapid change. The Iowa Department of Human Services (DHS) licenses family daycare homes. According to DHS figures, a number of caregivers either enter or leave the field each month. For example, 112 homes dropped out during September of 1983 and 145 homes were newly registered (Osburn and Maney, 1984). In 1983, the DHS estimated that in addition to the 2,000 to 3,000 providers on its rolls, from 8,000 to 9,000 providers were not registered (Osburn and Maney, 1984).

However, through Iowa State University Extension, it was possible to obtain listings for individual counties, although some counties had more complete lists than others. The listing of family daycare providers was obtained from county extension home economists (EHEs). County EHEs keep family daycare provider mailing lists, which they obtain using a variety of means: DHS registration lists, neighborhood family daycare provider groups, referrals by Extension clients who are daycare providers, and referrals by Extension clients who also are daycare clients. This networking system had been in place for several years in many counties and provided the most complete listing possible.

All county EHEs in the state were contacted, using Exnet, Extension's electronic mail system. ISU Extension has county EHEs operating out of 100 county offices. Some home economists, however, have a two-county assignment. By asking each of the home economists to participate, it was possible to obtain family daycare providers from across the state and from rural and urban areas. Not

all EHEs could provide lists, however.

One potential problem to validity in the experiment was that the family daycare providers who were on EHE lists might already have received brochures in the *Family Daycare Exchange* series, resulting in a previously formed opinion of the brochures. Therefore, EHEs were asked to contribute names only of providers who had not been sent the brochures. One area of the state—the southwest—is not represented because EHEs have a policy of sending the brochures as soon as providers are added to their rolls. Because of this problem, it took several weeks—from mid-June to mid-August, 1991—to collect a sample large enough for the experiment.

The sampling frame for each participating county was the family daycare provider mailing list supplied by the county extension office. In two communities, additional contacts were made, on the recommendation of the EHEs. In Ames and Des Moines, a separate agency maintained a more complete listing. In Story County (Ames) both a list for Story County and a separate list for Ames were obtained. In Polk County, one listing from the agency was used.

The 306 family daycare provider names were supplied to the researcher on typewritten or computer printout lists, grouped by county and sometimes by city within the county. These lists were kept in random order. Names were given numbers 1 to 306 only after the cutoff date. Next, the subjects needed to be divided into

four groups, one for each brochure variation. This resulted in two groups of 76 and two groups of 77. A random numbers table was used to select a starting point for assigning subjects to the four groups. Finally, subjects within each brochure variation were assigned to an experimental or control group, once again using a random number table to select a beginning place.

Data Collection

It would have been difficult to get a sample of 306 family daycare providers from across the state together in one place at one time for the study. Therefore, a mail survey questionnaire was designed. Both a pretest and a posttest version were created, the pretest to be mailed before the provider saw the brochure, the posttest to be mailed with the brochure and to be completed after reading the brochure.

All 306 subjects were mailed the appropriate questionnaire on August 15, 1991, the 153 subjects in the experimental groups receiving the pretest, the 153 subjects in the control groups receiving the brochure with posttest. Two weeks later a reminder letter with questionnaire was mailed to non-respondents. Two weeks later another reminder letter was mailed to those still not responding. Respondents to the pretest (experimental group) were mailed the brochure and posttest two weeks after returning their first questionnaires. Those not responding within two weeks

were then mailed a reminder letter and second posttest. One more reminder letter was mailed to nonrespondents in the experimental group.

Of the 153 subjects in the experimental groups, 92 returned the pretest as follows: 24 from Group aa (static design, orange brochure); 24 from Group ba (dynamic design, orange brochure); 20 from Group ab (static design, cream brochure); 24 from Group bb (dynamic design, cream brochure). Of these 92 subjects returning the pretest, 58 returned the posttest as follows: 16—Group aa, 13—Group ba, 15—Group ab, and 14—Group bb.

Of the 153 subjects in the control groups, 76 returned the posttest as follows: 22 from Group aa (static design, orange brochure); 17 from Group ba (dynamic design, orange brochure); 19 from Group ab (static design, cream brochure); 18 from Group bb (dynamic design, cream brochure) (Table 1).

Table 1. Response rate showing number of subjects returning pretests and posttests according to brochure variations

	Groups aa	Groups ba	Groups ab	Groups bb
Experimental	24	24	20	24
Pretest	16	13	15	14
Posttest				
Control				
Posttest	22	17	19	18

Instrumentation

Both the pretest and posttest versions of the questionnaire contained the same initial 45 items. The posttest contained an additional 20 items (46-65) added at the end.

The dependent variables to be operationalized by the questionnaire included attitude toward daycare as a profession, attitude toward business practices, and professional behavior.

The dependent variable, attitude toward daycare as a profession, was operationalized by ten questions that showed attitudes toward the field as a profession of value, and attitudes toward the self as a person worthy of the profession. These items were:

1. I want to consider myself a professional daycare provider.
2. I want other people to consider me a professional daycare provider.
3. I take pride in being able to love and understand children.
4. Running a daycare service contributes to my community.
5. Children receive better care at home than in a family daycare service.
6. Family daycare services require providers who enjoy children.
7. Being a family daycare provider is the same as being a babysitter.
8. Most of the work I do each day in my daycare service could be done by almost anybody.

9. Most of the work I do each day in my daycare service does not require special skills.

10. Most of the work I do each day in my daycare service does not require special understanding.

These questions were asked because they related specifically to information in the brochure. *Family Daycare as a Business* contained material designed to enhance perception of daycare as an important human service and to enhance perception of a child-care provider's skills as unique, desirable, and important. Items 1-10 were written to measure intensity of opinion so the responses offered were on a five-point scale labeled: strongly disagree, disagree, neutral, agree, strongly agree. It was felt that respondents needed to have a middle ground and not feel forced to make a choice; therefore the neutral response was offered (Converse and Presser, 1986). These ten questions were then used in a factor analysis to determine what underlying dimensions there were to the providers' professional attitude. Initially, the program was allowed to produce as many separate factors as it found. After studying the factor loadings, the researcher asked for three factors to be extracted. In the subsequent analysis, all three factors showed eigenvalues greater than one. However, one of the factors had only two items (5 and 7) that loaded significantly; it was considered too few to be a reliable measure of professional attitude. Groupings that emerged from the rotated factor matrix are shown in Table 2.

Table 2. Rotated factor matrix for Professional Attitude

Variable	Factor 1	Factor 2
1 Consider self professional	.92	-.13
2 Others consider professional	.91	-.13
3 Take pride in child care	.75	-.35
4 Contributes to community	.69	-.33
6 Providers enjoy children	.55	-.15
8 Anybody could do work	-.29	.79
9 Special skill not required	-.31	.77
10 Understanding not required	-.34	.71
Eigenvalue	4.82	1.34

Factor One was called Professional Worthiness. Survey items that loaded on this factor (1, 2, 3, 4, 6) then formed the following index of professional worthiness: I want to be a professional, I want others to see me as a professional, I take pride in my work, I contribute to the community, and I enjoy children.

Factor Two was called Professional Skills. Survey items that loaded on this factor (8, 9, 10) were then used in the following index of professional skills: My work could be done by anybody, my work does not require special skills, my work does not require special understanding.

The dependent variable, attitude toward business practices, was operationalized by sixteen questions, items 21 through 36 on the questionnaire:

21. I want to earn some money, but do not want to handle many business details.
22. I want parents who use my daycare services to view me as a business person.
23. The amount I earn as a family daycare provider is just about right.
24. The Child Care Food Program helps family daycare providers make more profit.
25. The Child Care Food Program helps family daycare serve nutritious meals.
26. Using a profit margin in pricing family daycare services helps providers make more profit.
27. Charging penalty fees for "late pick-ups" will mean fewer late pick-ups.
28. Charging penalties for non-payment of fees will help keep customers current on their payments.
29. Charging penalty fees for "late pick-ups" will drive away customers.
30. Charging penalties for non-payment of fees will drive away customers.
31. Keeping up-to-date records is necessary to run a profitable business.
32. Keeping up-to-date records helps family daycare providers look professional.

33. Advertising family daycare services helps to get customers.
34. Keeping a separate bank account for a daycare business helps keep track of earnings.
35. One of the drawbacks to registering with the department of human services is the possibility of being inspected.
36. There are several benefits to registering my daycare service with the department of human services.

These questions were asked because *Family Daycare as a Business* included material designed to give daycare providers a sense of entrepreneurship and a sense that they have a right to make money because they provide a service of value to families. The brochure also included information to help daycare providers improve recordkeeping, to urge them to keep separate bank accounts, and to suggest that registration with the Iowa Department of Human Services offers them benefits. These sixteen questions also were written to measure intensity of opinion so the responses offered were on the same five-point scale labeled: strongly disagree, disagree, neutral, agree, strongly agree. The questions were then used in a factor analysis to determine what underlying dimensions there were to the providers' business attitude. In the initial analysis, the program extracted five factors, all showing eigenvalues greater than one. One of the factors had only one item that loaded significantly and another two factors had only two items that loaded significantly. The researcher then asked for four factors to be

extracted, but the loadings were not as clearly defined. Therefore, the five-factor solution was used, even though three of the five factors were not retained as reliable measures of business attitude. The two factors that were retained from the rotated factor matrix are shown in Table 3.

Table 3. Rotated factor matrix for Business Attitude

Variable	Factor 1	Factor 2
22 Parents view as business	.69	-.00
23 Food program helps profit	.65	-.17
31 Records help make profit	.61	.24
26 Profit margin helps profit	.55	.04
32 Records look professional	.53	.32
34 Bank account helps records	.42	.05
33 Advertising gets customers	.23	.68
35 DHS inspection a drawback	-.02	.46
30 Penalty fees lose customers	-.27	.43
29 Late fees lose customers	-.34	.43
Eigenvalue	1.74	1.25

Factor One was called Business Profit. Survey items that loaded on this factor (22, 24, 26, 31, 32, 34) were then used to form the following index of business profit: parents view as a business, food program makes profit, records make profit, profit margin, records are professional, and bank account.

Factor Two was called Fees and Penalties. Survey items that loaded on this factor (29, 30, 33, 35) were used to make the

following index of fees and penalties: advertising, DHS inspection, penalty fees and late fees.

The dependent variable, professional behavior, was operationalized by four questions to which subjects could respond yes or no:

41. Do you have a separate bank account for your family daycare service?
42. Do you currently participate in the Child Care Food Program?
43. Are you currently registered with the Department of Human Services?
44. Do you currently have separate liability insurance for your daycare?

In addition, another variable, the providers' need to know information about improving their child care services and information in general, was operationalized by questions 11 through 17 of the survey:

11. I look for ideas to improve my work with children.
12. I look for ideas to improve my daycare service as a business.
13. I read the newspaper.
14. I read Extension newsletters.
15. I listen to radio newscasts.
16. I listen to the county home economist's radio program.
17. I watch local TV newscasts.

These seven questions examined frequency of use on a five-point scale: hardly ever, seldom, occasionally, frequently, and very often. The items were used in a factor analysis of information sources. In the analysis, two factors were extracted, both with eigenvalues greater than one. One of the factors had only two items that loaded significantly and was not used as a reliable measure. Groupings that emerged from the rotated factor matrix are shown in Table 4.

Table 4. Rotated factor matrix for Use of Media

Variable	Factor 1
13 Read newspaper	.78
15 Listen to radio newscasts	.74
14 Read Extension newsletters	.61
17 Watch local TV newscasts	.50
Eigenvalue	2.30

Factor One was called Use of Media. Survey items that loaded on this factor (13, 14, 15, 17) were used to make the following index of use of media: newspaper, radio, newsletters, and TV.

According to Converse and Presser (1986), survey respondents are sensitive to the context in which a question is asked. The researcher divided the questionnaire into sections so as to keep some items separate. For example, the questions about

parental attitude toward providers as professionals and questions about penalizing parents who don't pay on time appear on two separate pages. Also, the background section was placed at the end so that subjects could begin with questions of more interest to them.

Additional data about each subject were covered by the questionnaire:

1. Sex of provider.
2. Number of years operating a daycare.
3. Whether or not subject was previous recipient of brochure in the *Family Daycare Exchange* series.

One objective of the study was to find whether or not color and design would have a significant effect on the way a potential reader would evaluate the brochure. Therefore, a brochure-evaluation section was added to the posttest after examining studies done by Stempel and Click (1976), Siskind (1979), Pasternack and Utt (1985), Garcia (1986), and Smith (1989). These studies used seven-point semantic differential scales with 19 or 20 word pairs. From these lists the following 20 word pairs were developed: *important-unimportant, informative-uninformative, responsible-irresponsible, active-passive, accurate-inaccurate, professional-unprofessional, valuable-worthless, pleasant-unpleasant, interesting-boring, readable-unreadable, clear-unclear, neat-messy, organized-disorganized, attractive-unattractive, modern-old fashioned, complete-incomplete, colorful-drab, strong-weak, fresh-*

stale, exciting-dull. Nine of the word pairs were used by all five studies, two word pairs were used by four studies, three word pairs were used by three studies, another three word pairs were used by two studies, and two word pairs were used by one study. One word pair (attractive-unattractive) was added by the researcher (Table 5).

Table 5. Source of Word Pair List

Word-pair	Year of Study ^a				
	1976	1979	1985	1986	1989
Important/unimportant	x	x	x	x	x
Responsible/irresponsible	x	x	x	x	x
Active/passive	x	x	x	x	x
Accurate/inaccurate	x	x	x	x	x
Valuable/worthless	x	x	x	x	x
Interesting/boring	x	x	x	x	x
Neat/messy	x	x	x	x	x
Modern/old fashioned	x	x	x	x	x
Exciting/dull	x	x	x	x	x
Colorful/drab (colorless)	x		x	x	x
Fresh/stale	x		x	x	x
Informative/uninformative		x	x		x
Pleasant/unpleasant		x	x		x
Strong (powerful)/weak	x	x	x		
Professional/unprofessional			x		x
Readable/unreadable			x		x
Organized/disorganized			x		x
Clear/unclear		x			
Complete/incomplete		x			
Attractive/unattractive					

^aStempel and Click (1976), Siskind (1979), Pasternack and Utt (1985), Garcia (1986), and Smith (1989).

The 20 word pairs were used in a factor analysis to determine the underlying dimensions of the brochure evaluation. The five aforementioned studies each found five factors that were labeled: Evaluative, Ethical, Potency, Activity, and Stylistic. In an initial analysis of the present study, four factors were extracted with two items loading evenly on three factors. Also, seven of the items loaded on Factor One, labeled Evaluative. Items loading on the Evaluative Factor were split into two factors (Evaluative and Ethical) in the five previous studies. Therefore, a second analysis was done, specifying five factors. In the analysis, five factors emerged with eigenvalues equal to or greater than one. However, the same seven items loaded on the Evaluative Factor. Also, two factors in the present study were made up of items that had loaded on one factor, Stylistic, in the five previous studies. Groupings that emerged from the rotated factor matrix are shown in Table 6. All items were retained.

Factor One was called Evaluative. Items that loaded on this factor (46, 47, 48, 50, 51, 52, 53) referred mainly to professional and ethical qualities of the brochure: responsible, informative, important, valuable, accurate, professional, and pleasant. Factor Two was called Stylistic One. Items that loaded on this factor (54, 55, 56) referred to qualities of text: readable, clear, and interesting. Factor Three was called Potency. Items that loaded on this factor (57, 60, 61, 63) referred to appearance and strength of the brochure: complete, modern, strong, and neat. Factor Four was

Table 6. Rotated factor matrix for Brochure Evaluation

Variable	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
48 Resp/irrespons	.84	.07	-.02	.11	.09
47 Inform/uninform	.81	.32	-.09	.15	.01
46 Imp/unimportant	.78	.07	-.08	.16	.09
52 Value/worthless	.74	.44	-.15	.21	.03
50 Accur/inaccurate	.69	.22	-.10	.17	.06
51 Prof/unprofessionl	.66	.48	-.20	.13	.01
53 Pleas/unpleasant	.56	.15	-.31	.32	.17
55 Read/unreadable	.29	.84	-.15	.07	.20
56 Clear/unclear	.27	.81	-.18	.13	.17
54 Interest/boring	.43	.67	-.15	.37	.10
61 Comp/incomplete	-.11	-.18	.82	-.15	-.04
60 Modern/old	-.12	-.12	.80	-.15	-.18
63 Strong/weak	-.24	-.06	.78	-.16	.18
57 Neat/messy	.05	-.12	.62	.19	-.24
62 Colorful/drab	.19	-.03	-.02	.83	.22
65 Exciting/dull	.24	.34	-.15	.79	-.09
64 Fresh/stale	.29	.42	-.13	.62	-.12
59 Attract/unattract	.29	.07	-.35	.34	.70
58 Org/disorganized	.34	.27	-.30	.05	.59
49 Active/passive	-.20	.22	.30	-.26	.45
Eigenvalue	8.29	2.09	1.49	1.24	1.00

called Stylistic Two. Items that loaded on this factor (62, 64, 65) referred to the mood created by the brochure: colorful, exciting, and fresh. Factor Five was called Activity. Items that loaded on this factor (49, 58, 59) referred to visual, dynamic qualities: attractive, organized, active.

Treatment

Two independent variables were used in the study, the color of the brochures and the design of the brochures. The content of the brochures was controlled as much as possible.

Two colors of uncoated, seventy-pound offset paper were selected, Hammermill Cream White and Mountie Autumn Orange. The cream brochure was printed with warm black ink, Pantone 412U; the orange brochure was printed with dark warm red ink, Pantone 179U. The warm black ink on cream paper had better contrast without glare (legibility) than the warm red ink on orange paper.

Two graphic designs were selected, one being the format used for the series when it was printed in 1980, the other being the current format first used in 1988. The 1980 format used amateurish, static artwork depicting providers and children. The 1988 format used professional, dynamic artwork depicting providers, children and daycare objects that were more realistic than those from the 1980 brochure. Both brochures were 8 1/2 x 11 inches.

Both the graphic design and color of the orange brochure with the older artwork were the same as they appeared in 1980. The cream color with warm black ink was selected to test the difference between a highly legible color combination and a less legible combination. Neither orange or cream were used in the 1988 series. If money and sample size had permitted, the

researcher would have tested a third combination, a pastel blue with dark blue ink. This would have introduced a favored color—blue is one of the two most often selected colors when asking subjects to name a favorite (Luckiesh, 1927; Petterson, 1982)—into the experiment. It also would have contrasted a warm color, a cool color and a neutral.

The page placement of content did vary from the older graphic design to the newer graphic design (Table 7). Both versions placed on the cover a short article that described a professional daycare provider. Page two content, charging for child care costs, also was the same. However, content placement changed on page three although the licensing/registration article appeared on page three in both versions. But insurance information appeared on page three in the new version whereas it appeared on page nine in the old version. One content change was that the article on information for reporting income tax was dropped in the new version.

The new design contained a checklist of daycare expenses on page four which appeared on pages nine and ten in the old version. The record-keeping article which appeared on page four in the old version appeared on page five in the new version (it also was expanded with comments that appeared with sample record-keeping forms in the old version).

Page five in the old version contained two sample record-keeping forms. The new version showed each record-keeping form

Table 7. Comparison of content placement

Subject or title	Page in new design	Page in old design
Professional provider characteristics	cover	cover
Charging for child care costs	2-3	2
Licensing/registration	3	3
Information for reporting income ^a	dropped	3
Keeping track of your daycare business	5	4
Daily attendance sheet	11	4
Customer account sheet	6	5
Income summary	7	5
Mileage record	8	6
Authorization form	12	6
Business expense record	9	7
Expense summary	10	7
The Child Care Food Program	13	8
Tax deductible items ^a	13	none
Hints for record keeping ^a	14	none
Advertise your services	15	8
Make sure you're covered; liability insurance	3	9
Checklist of daycare expenses	4	9-10
Idea exchange	15	10
Information sources	16	11

^aContent change

as a full-page document and devoted seven pages to the forms. This allowed the provider to duplicate the forms from the brochure. The old version included condensed samples of the forms on four pages.

Following the record-keeping forms, both versions of the brochure described the Child Care Food Program, page thirteen in

the new version, page eight in the old version. Page thirteen in the new version included an article on tax-deductible items, a content change from the old to new versions. Page fourteen in the new version also included an article on hints for record keeping, another content change.

Both the old and new version contained the articles on advertising (page eight in the old; page fifteen in the new) and idea exchange (page ten in the old; page fifteen in the new). Both versions of the brochure closed with resource lists for additional information.

Printing plates for the old version were no longer available, so the artwork was scanned, the text was word processed using the same typeface and size, and all materials were then placed in a page layout by computer as they appeared in the original. Printing plates were available for the new version of the brochure.

Each of the four brochures was assigned a letter identification code: *aa*, *ba*, *ab*, and *bb*. The first letter indicated the design: *a*=static ; *b*=dynamic. The second letter indicated the color: *a*=orange; *b*=cream. Thus *aa* equals static orange, *ba* equals dynamic orange, *ab* equals static cream, and *bb* equals dynamic cream.

Data Analysis Method

The data were analyzed using the Statistical Package for the Social Sciences (SPSS-PC). Descriptive statistics, including

frequency counts, percentages, and means for each item on the questionnaire were computed.

One-way analysis of variance was used to test for a significant difference between the experimental and control groups on the posttest. T-tests were used to examine the means of pretest and posttest scores of the experimental groups on Professional Attitude and Business Attitude factors. In addition, two-way analysis of variance (ANOVA) was used to test for significant differences among experimental groups on the difference between pretest and posttest scores for the Professional Attitude, Business Attitude, and Use of Media factors. ANOVA was also used to test for significant differences among groups on the business behavior items and the brochure evaluation factors. A .05 level of significance was used for each of these tests.

CHAPTER 4: RESULTS

One purpose of this study was to find whether differing colors and designs of an informational brochure could significantly change the professional and business attitudes and the behavior of the readers. A second purpose was to find whether differing colors and designs could significantly effect reader evaluation of the brochure.

Test for Experimental and Control Group Differences

As was previously explained in Chapter 3, the design of the study included both experimental and control groups. The purpose of the control groups was to test whether or not giving a pretest to the experimental groups would effect their scores on the posttest. Analysis of variance was used to test whether or not there was a significant difference between the experimental and control groups on any one of the four dimensions of attitude. The F statistic was not significant on any of these four tests (Tables 8 - 11). The F statistics were: Professional Worthiness— $F(1, 128) = .782$; Professional Skills— $F(1, 127) = .438$; Business Profit— $F(1, 125) = .472$; Fees and Penalties— $F(1, 127) = .465$. Therefore, it was concluded that the change in scores was not due to the subjects having been exposed to a pretest.

Table 8. Analysis of variance of Attitude toward Professional Worthiness by posttest scores of experimental and control groups

Source	df	Sum of squares	Mean square	F-ratio	p
Between groups	1	.366	.366	.077	.782
Within groups	127	605.511	4.768		
Total	122	586.260	4.805		

Table 9. Analysis of variance of Attitude toward Professional Skills by posttest scores of experimental and control groups

Source	df	Sum of squares	Mean square	F-ratio	p
Between groups	1	3.135	3.135	.606	.438
Within groups	126	652.232	5.176		
Total	127	655.367			

Table 10. Analysis of variance of Attitude toward Business Profit by posttest scores of experimental and control groups

Source	df	Sum of squares	Mean square	F-ratio	p
Between groups	1	1.858	1.858	.520	.472
Within groups	124	443.357	3.580		
Total	125	445.214			

Table 11. Analysis of variance of Attitude toward Fees and Penalties by posttest scores of experimental and control groups

Source	df	Sum of squares	Mean square	F-ratio	p
Between groups	1	.982	.982	.536	.465
Within groups	126	230.760	1.831		
Total	127	231.742			

Analysis of the Null Hypothesis for Reader Attitude and Behavior

This section reports results in reference to three of the four research hypotheses stated in Chapter 2. The research hypotheses are stated here in the null form. A probability level of .05 was established as the criterion for rejection of the null.

Hypothesis one

The publication printed on cream paper stock and with dynamic artwork will not cause readers to have a more positive professional attitude than the publication printed on orange paper stock and with static artwork. For each of the two dimensions of daycare providers' professional attitude, it was desired to determine whether a change in color of paper and type of artwork would create a change in professional attitude. To test this hypothesis, a two-way analysis of variance was conducted (Tables 12-13). In no case was the variation significant at the .05 level. Therefore, the null hypothesis was not rejected.

Table 12. Analysis of variance of Attitude toward Professional Worthiness by color of brochure and design of brochure

Source	df	Sum of squares	Mean square	F-ratio	p
Color of brochure	1	.000	.000	.000	.998
Design of brochure	1	.511	.511	.225	.638
Interaction	1	1.165	1.165	.512	.478
Explained	3	1.676	.559	.246	.864
Residual	47	106.912	2.275		
Total	50	108.588	2.172		

Table 13. Analysis of variance of Attitude toward Professional Skills by color of brochure and design of brochure

Source	df	Sum of squares	Mean square	F-ratio	p
Color of brochure	1	.202	.202	.054	.818
Design of brochure	1	1.059	1.059	.281	.598
Interaction	1	7.870	7.870	2.091	.155
Explained	3	9.158	3.053	.811	.494
Residual	47	176.881	3.763		
Total	50	186.039	3.721		

Hypothesis two

The publication printed on cream paper stock and with dynamic artwork will not cause readers to have a more willing attitude to adopt business practices than will the publication printed on orange paper stock and with static artwork. For each of the two dimensions of daycare providers' attitude toward business methods, it was desired to determine whether a change in color would create a change in attitude toward business methods. To test this hypothesis, a two-way analysis of variance was conducted (Tables 14-15). In no case was the variation significant at the .05 level. Therefore, the null hypothesis was not rejected.

Table 14. Analysis of variance of Attitude toward Business Profit by color of brochure and design of brochure

Source	df	Sum of squares	Mean square	F-ratio	p
Color of brochure	1	7.328	7.328	2.033	.161
Design of brochure	1	5.856	5.856	1.624	.209
Interaction	1	.565	.565	.157	.694
Explained	3	13.393	4.464	1.238	.306
Residual	47	169.431	3.605		
Total	50	182.824	3.656		

Table 15. Analysis of variance of Attitude toward Fees and Penalties by color of brochure and design of brochure

Source	df	Sum of squares	Mean square	F-ratio	p
Color of brochure	1	3.419	3.419	1.379	.246
Design of brochure	1	4.773	4.773	1.926	.171
Interaction	1	6.252	6.252	2.522	.119
Explained	3	14.155	4.718	1.904	.141
Residual	50	123.938	2.479		
Total	53	138.093	2.606		

Even though significant differences between groups were not found, it should be noted that an analysis of means showed that there was improvement of scores. The mean score on the Attitude

toward Professional Worthiness Factor went up 1.33 from the pretest to the posttest. The mean score on the Attitude toward Professional Skills Factor went down (the desired direction for improvement) .55 from 7.60 to 7.05. The mean score on the Attitude toward Business Profit went up 1.22; on the Attitude toward Fees and Penalties the mean score went down .85, again the desired direction for improvement. T-tests were used to examine the means of pretest and posttest scores of the experimental groups (Tables 16 - 19). None were significant at the .05 level.

The mean scores for indices of Attitude toward Professional Worthiness, Attitude toward Professional Skills, Attitude toward Business Profit, and Attitude toward Fees and Penalties are shown in Table 20. For Professional Worthiness and Business Profit, the desired response is that the subject agree with the statement. With the exception of the advertising item, the desired response for Professional Skills and Fees and Penalties is that the subject disagree with the statement.

Table 16. Difference of means of pretest and posttest scores on Attitude toward Professional Worthiness

Group	N	D.F.	Mean	Std. Dev.	T-value
Pretest	61	60	22.16	5.41	1.81
Posttest	61		23.49	1.74	

Table 17. Difference of means of pretest and posttest scores on Attitude toward Professional Skills

Group	N	D.F.	Mean	Std. Dev.	T-value
Pretest	60	59	7.60	2.57	1.91
Posttest	60		7.05	1.77	

Table 18. Difference of means of pretest and posttest scores on Attitude toward Business Profit

Group	N	D.F.	Mean	Std. Dev.	T-value
Pretest	60	59	22.11	3.43	1.80
Posttest	60		23.43	2.07	

Table 19. Difference of means of pretest and posttest scores on Attitude toward Fees and Penalties

Group	N	D.F.	Mean	Std. Dev.	T-value
Pretest	60	59	12.70	1.77	1.80
Posttest	60		11.85	3.57	

Table 20. Means for indices of Professional Attitude and Business Attitude Factors

Factor indices	Pretest	Posttest
PROFESSIONAL WORTHINESS		
Consider self professional	4.19	4.62
Others consider professional	4.36	4.65
Take pride in child care	4.57	4.77
Contribute to community	4.36	4.58
Enjoy children	4.41	4.55
PROFESSIONAL SKILLS		
Anybody can care for children	2.90	2.65
Special skill not required	2.63	2.60
Special understanding not required	1.88	1.68
BUSINESS PROFIT		
Parents view service as a business	3.99	4.26
Food program helps profit	3.04	3.29
Keeping records helps profit	4.33	4.56
Using profit margin helps profit	3.07	3.33
Keeping records looks professional	4.29	4.44
Separate bank account helps records	3.18	3.47
FEES AND PENALTIES		
Advertising for customers	3.46	3.49
Inspection a drawback to registration	2.82	2.43
Penalty fees lose customers	2.85	2.72
Late fees lose customers	2.97	2.91

Hypothesis three

The publication printed on cream paper stock and with dynamic artwork will not cause readers to practice more positive business behavior than the publication printed on orange paper

stock and with static artwork. Analysis of variance was used to test whether or not there was a significant difference among the groups on any of the four business behaviors: change of banking account, participation in the Child Care Food Program, purchase of separate insurance, and registration with the Iowa Department of Human Services. The F statistic was not significant on any of the tests (Tables 21 - 24). Therefore, the null hypothesis was not rejected.

As previously stated in Chapter 3, the providers' information needs and sources was included in the test in the event that a significant difference in group scores was found. It was thought that groups that showed a greater change also might have shown a greater need for information. As all groups showed about the same degree of change, the Use of Media Factor did not need to be considered in relation to the change.

Table 21. Analysis of variance of change in banking account by color of brochure and design of brochure

Source	df	Sum of squares	Mean square	F-ratio	p
Color of brochure	1	.284	.284	.280	.598
Design of brochure	1	.511	.511	.225	.638
Interaction	1	1.223	1.223	1.207	.275
Explained	3	1.632	.544	.536	.659
Residual	85	86.166	1.014		
Total	88	87.798	.998		

Table 22. Analysis of variance of change in food program participation by color of brochure and design of brochure

Source	df	Sum of squares	Mean square	F-ratio	p
Color of brochure	1	.191	.191	.260	.612
Design of brochure	1	.076	.076	.103	.749
Interaction	1	.825	.825	1.121	.293
Explained	3	1.094	.365	.496	.686
Residual	85	62.547	.736		
Total	88	63.640	.723		

Table 23. Analysis of variance of change in insurance coverage by color of brochure and design of brochure

Source	df	Sum of squares	Mean square	F-ratio	p
Color of brochure	1	1.568	1.568	1.761	.188
Design of brochure	1	.690	.690	.775	.381
Interaction	1	.011	.011	.012	.913
Explained	3	2.286	.762	.856	.467
Residual	85	75.669	.890		
Total	88	77.955	.886		

Table 24. Analysis of variance of change in registration by color of brochure and design of brochure

Source	df	Sum of squares	Mean square	F-ratio	p
Color of brochure	1	.114	.114	.250	.618
Design of brochure	1	.054	.054	.119	.731
Interaction	1	.226	.226	.496	.483
Explained	3	.395	.132	.290	.833
Residual	85	38.661	.455		
Total	88	39.056	.444		

The Use of Media Factor did reveal an interaction between color and design (Table 25). The interaction was significant as follows: $F(1, 50) = 4.520, p < .05$. The interaction found was that the static design/orange paper had the least variation in scores and the dynamic design/cream paper had the most variation in scores.

Table 25. Analysis of variance of Use of Media by color of brochure and design of brochure

Source	df	Sum of squares	Mean square	F-ratio	p
Color of brochure	1	5.106	5.106	1.354	.250
Design of brochure	1	1.977	1.977	.524	.472
Interaction	1	17.051	17.051	4.520	.038*
Explained	3	24.380	8.127	2.154	.105
Residual	50	188.602	3.772		
Total	53	212.981	4.019		

* $p < .05$.

Experimental and Control Differences on Brochure Evaluation

This section pertains to the second purpose of the study, which was to find whether differing colors and designs could significantly affect reader evaluation of the brochure. Before testing the fourth research hypothesis, however, the researcher tested for differences between the experimental and control groups on the brochure evaluation. This test was conducted so that, in the event that no differences were found, scores from both the experimental and control groups could be used together to increase sample size for some of the data analysis. An analysis of variance test showed that there were no significant differences between the experimental and control groups on any of the five factors of the brochure evaluation. The F statistics were: Evaluative—F (1, 124), .312 = .578; Stylistic One—F (1, 127), .879 = .350; Potency—F (1, 122), .375 = .541; Stylistic Two—F (1, 125), .560 = .456; Activity—F (1, 121), .453 = .503 (Tables 26 - 30). Therefore, both the experimental and control group scores on the four brochures were used together in a comparison of means reported later in the chapter.

Table 26. Analysis of variance of Evaluative Factor by posttest scores of experimental and control groups

Source	df	Sum of squares	Mean square	F-ratio	p
Between groups	1	10.369	10.369	.312	.578
Within groups	123	4090.319	33.255		
Total	124	4199.688			

Table 27. Analysis of variance of Stylistic One Factor by posttest scores of experimental and control groups

Source	df	Sum of squares	Mean square	F-ratio	p
Between groups	1	7.166	7.166	.879	.350
Within groups	126	1027.452	8.155		
Total	127	1034.617			

Table 28. Analysis of variance of Potency Factor by posttest scores of experimental and control groups

Source	df	Sum of squares	Mean square	F-ratio	p
Between groups	1	7.014	7.014	.375	.541
Within groups	121	2262.661	18.700		
Total	122	2269.675			

Table 29. Analysis of variance of Stylistic Two Factor by posttest scores of experimental and control groups

Source	df	Sum of squares	Mean square	F-ratio	p
Between groups	1	5.844	5.844	.560	.456
Within groups	124	1294.482	10.440		
Total	125	1300.326			

Table 30. Analysis of variance of Activity Factor
by posttest scores of experimental and control groups

Source	df	Sum of squares	Mean square	F-ratio	p
Between groups	1	2.581	2.581	.453	.503
Within groups	120	684.379	5.703		
Total	121	686.959			

Analysis of the Null Hypothesis for Evaluation of the Brochure

This section reports results in testing the fourth research hypothesis which was formulated to find whether differing colors and designs could significantly effect reader evaluation of the brochure. The fourth research hypothesis is stated here in the null form. A probability level of .05 was established as the criterion for rejection of the null.

Hypothesis four

The publication printed on cream paper stock and with dynamic artwork will not be rated any more highly than the publication printed on orange paper stock and with static artwork. To test this hypothesis, a two-way analysis of variance was conducted for each of the five brochure factors (Tables 31-35). Significant variation was found for brochure color in the Evaluative Factor: $F(1, 47) = 5.772, p < .05$; for brochure color in the Potency Factor: $F(1, 47) = 3.921, p < .05$; for explained—both brochure color and design added together with the interaction effect—in the

Stylistic Two Factor: $F(3, 47) = 2.971, p < .05$; for brochure color in the Activity Factor: $F(1, 49) = 16.534, p < .01$; and for explained in the Activity Factor: $F(3, 49) = 6.882, p < .01$.

Table 31. Analysis of variance of Evaluative Factor by color of brochure and design of brochure

Source	df	Sum of squares	Mean square	F-ratio	p
Color of brochure	1	195.135	195.135	5.772	.020*
Design of brochure	1	19.595	19.595	.580	.450
Interaction	1	.001	.001	.000	.995
Explained	3	217.291	72.430	2.143	.107
Residual	47	1588.865	33.806		
Total	50	1806.157	36.123		

* $p < .05$.

Table 32. Analysis of variance of Stylistic One Factor by color of brochure and design of brochure

Source	df	Sum of squares	Mean square	F-ratio	p
Color of brochure	1	18.040	18.040	2.069	.157
Design of brochure	1	8.360	8.360	.959	.333
Interaction	1	26.964	26.964	3.092	.085
Explained	3	53.866	17.955	2.059	.118
Residual	47	409.821	8.720		
Total	50	463.686	9.274		

Table 33. Analysis of variance of Potency Factor
by color of brochure and design of brochure

Source	df	Sum of squares	Mean square	F-ratio	p
Color of brochure	1	62.687	62.687	3.921	.054*
Design of brochure	1	7.787	7.787	.487	.489
Interaction	1	.002	.002	.000	.991
Explained	3	71.388	23.796	1.488	.230
Residual	47	751.436	15.988		
Total	50	822.824	16.456		

*p < .05.

Table 34. Analysis of variance of Stylistic Two Factor
by color of brochure and design of brochure

Source	df	Sum of squares	Mean square	F-ratio	p
Color of brochure	1	38.406	38.406	3.598	.064
Design of brochure	1	31.460	31.460	2.947	.093
Interaction	1	23.853	23.853	2.235	.142
Explained	3	95.138	31.713	2.971	.041*
Residual	47	501.686	10.674		
Total	50	596.824	11.936		

*p < .05.

Table 35. Analysis of variance of Activity Factor
by color of brochure and design of brochure

Source	df	Sum of squares	Mean square	F-ratio	p
Color of brochure	1	65.478	65.478	16.534	.000*
Design of brochure	1	6.219	6.219	1.570	.216
Interaction	1	9.293	9.293	2.347	.132
Explained	3	81.762	27.254	6.882	.001*
Residual	49	194.049	3.960		
Total	52	275.811	5.304		

*p < .01.

Although the researcher's expectation was not met that the more readable paper stock (cream) would be evaluated more highly than the less readable paper stock (orange), the ANOVAs indicated that color did make a significant difference. Also, a comparison of means for each of the five brochure evaluation factors showed that the orange brochure with the dynamic artwork was rated more highly than any of the other three brochures on all five of the evaluation factors (Table 36). The orange/static artwork brochure was rated second on three of the five factors. The cream brochure with the static artwork was rated second highest on one of the five factors—stylistic one. The cream brochure with the dynamic artwork also was rated second highest on one of the five factors—potency. Otherwise, both the cream brochures were rated lower than both of the orange brochures.

Table 36. Means of Semantic Differentials for Brochure Evaluation

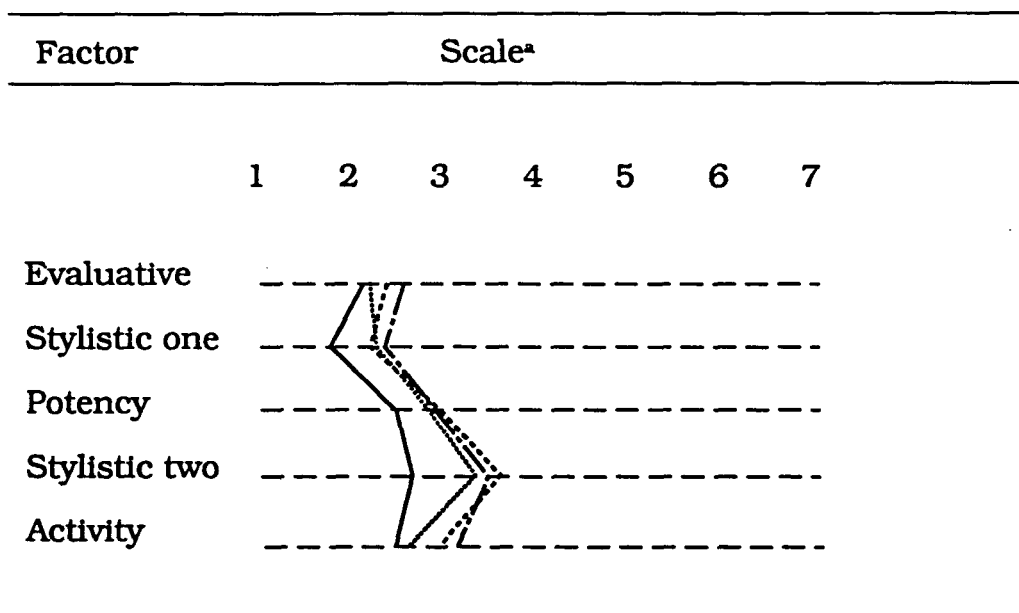
Evaluation Factor	aa	Brochures		
		ba	ab	bb
Evaluative	2.06	2.01	2.39	2.51
Stylistic one	2.07	1.70	2.03	2.27
Potency	2.75	2.40	2.83	2.63
Stylistic two	3.20	2.63	3.53	3.43
Activity	2.63	2.43	2.90	3.03
OVERALL MEAN	2.54	2.23	2.74	2.77

Scale was 1 to 7, 1 being the best rating. Legend: aa=orange paper, static artwork; ba=orange paper, dynamic artwork; ab= cream paper, static artwork; bb=cream paper, dynamic artwork. N=127.

Although the design of the brochure did not make a significant difference among group scores in the ANOVAs, when comparing group means, design did make a difference in ratings of the two orange brochures. The orange/dynamic art brochure was rated higher than the orange/static art brochure in all five of the evaluation factors. However, the cream/dynamic art brochure was rated ahead of the cream/static art brochure only twice. Apparently, when the color pleases the reader, a pleasing design will further increase the rating. When the color is not as pleasing to the reader, the design does not consistently increase the rating. For a graphic representation of group means, see Figure 2.

Even though design did not prove to be a significant main

effect in variation among groups rating the brochure, color did prove to be a significant main effect. Therefore, on the basis of the significant effect of color, the null hypothesis was rejected.



^aScale used was 1 to 7 with 1 being the best rating. Graph shows mean scores for each factor.

Figure 2. Semantic differential profile for Brochure Evaluation:
 aa = , ba = ——— , ab = - - - - - , bb = - . - . -

CHAPTER 5: DISCUSSION, CONCLUSION, RECOMMENDATIONS FOR FURTHER RESEARCH

This study investigated whether a change in color and design of an informational brochure would show significant differences in the professional and business attitudes and the behavior of potential readers. It also investigated whether a change in color and design would affect the providers' evaluation of the brochure in five factors, evaluative, potency, activity, and stylistic one and two. Four variations of the brochure, *Family Daycare as a Business*, were used in the study. They were two orange brochures, one with static artwork and one with dynamic artwork, and two cream brochures, one with static artwork and one with dynamic artwork.

Discussion of Readers' Attitudes, Behaviors

The null hypothesis was not rejected for any of the four ANOVAs testing the provider-attitude factors—professional worthiness, professional skills, business profit, and fees and penalties. One reason for this may be attributed to the short span of time between reading the brochure and answering the questionnaire. The time span (it could have been as little as one hour to as long as two weeks) may not have been long enough for a change in attitude to surface. If this study had included retesting again in six weeks, perhaps more attitude change would have occurred. Perhaps retesting in six months would have produced

still more attitude change. Another reason for null results may be that repetition of the message is necessary before attitude change will occur. This study included a one-time only reading of the information in the brochure. To bring about change in attitudes toward a profession or toward business methods may well require more than a one-time-only presentation of the information. Yet another reason for null results may be that color and design are not as important as content in changing attitudes. Even though color and design may need to be used to attract readers to the content, this experiment put the content in the readers' hands. Some change in attitude did occur as demonstrated by group means, but it was uniform among brochure groups. No one color and design combination caused significantly greater change in attitude. Therefore, it would seem that content caused the change because content was nearly the same in all brochure variations.

In addition to these reasons for color and design not bringing about a significant difference in change of attitude, another is that for the professional worthiness factor, the researcher did not find as low a professional attitude score as expected. A mean of 22.16 out of a possible 25.00 does not leave much room for change. The mean indicates that nearly all of the daycare providers agreed or strongly agreed with the pretest items comprising this factor. Mean scores on the other factors did leave ample room for change, however, so this observation applies only to the professional worthiness factor.

As for behavior change, the results would indicate that little or no behavior change will occur until attitude changes. The ANOVAs indicated that the level of changes between groups and in groups was not significant. Apparently, the increments in attitude change—indicated by the mean scores for all groups—are not large enough to bring about much change in behavior. In fact, examination of frequencies showed that only three changes occurred among the groups. Those three changes were in purchase of insurance. One person in each of three brochure groups purchased insurance sometime between the pretest and the posttest. As with testing for attitude change, however, it may be that more time was needed between tests before a change in behavior would occur. Even if the daycare provider had decided to look into participating in the Child Care Food Program, purchasing insurance, opening a new bank account, or registering with the state, it may well have taken longer than two weeks to make the necessary contacts and arrangements.

Additionally, the brochure, *Family Daycare as a Business*, is only one of a fourteen-part series. Perhaps repeating the message fourteen times would result in a much larger overall change in attitude and behavior. Testing that potential for change, however, was beyond the time and money limits of the present study.

Discussion of Brochure Evaluation

Throughout the following discussion of the brochure evaluation, it should be remembered that each group of subjects

was evaluating only one brochure. The subjects did not see the other brochures used in the study. Therefore, they were not ranking the four brochures in order of preference; they were rating one brochure on a numerical scale.

Analysis of variance tests found that color caused significant differences in the brochure rating on four of the five evaluation factors. Comparison of means showed that both orange brochures as a unit were given a higher rating than the cream brochures in all factors. Also, the orange brochure with the more dynamic artwork was given a higher rating than any other brochure in all factors. Two separate groups of subjects—the experimental and the control groups—ranked the brochures in the same way. From these results, it is apparent that a bright, warm color pleases the reader more than a subdued, neutral color.

Comparison of means does show that all four brochure variations were rated highly on all five factors. The lowest ratings, for example, were the two cream brochures (3.53 and 3.43) on the stylistic two factor which included colorful/drab, fresh/stale, and exciting/dull word pairs. The low rating on these word pairs would indicate, once again, that the reader appreciated a colorful brochure and considered color more exciting and fresh. But even with those ratings that approached the mid-point on the seven point scale, overall rating of the brochures was between two and three on the scale. That would indicate a favorable rating of all four of the brochures, even though the orange/dynamic art brochure was consistently rated first. Perhaps that relatively high rating for all

brochures is a positive evaluation of the content, even though color caused the orange brochures to be rated more highly.

Based on the results of the brochure evaluation, the present study supports use of color over a neutral black and white in a publication. The orange paper/red ink combination was very clearly rated more highly than the cream paper/black ink combination. These findings are contrary to findings from the studies by Guest (1966) and Pasternak and Utt (1985) in which subjects gave no higher ratings to color or rated color lower than black and white. The findings support studies done by Smith (1989), which found that readers rated a publication more highly in the evaluative factor if it used color; by Stempel and Click (1976), which found that readers prefer color to black-and-white in all five publication evaluation factors; and by Bohle and Garcia (1986), which found that color makes a publication more interesting, pleasant, exciting, and strong.

The present study also relates to findings of the Katzman and Nyenhuis (1972) study that examined color versus black-and-white in audio-visual material. Similar findings are that material is rated higher if it is presented in color than in black-and-white.

The Covert (1987) study looked at design without considering the effect of color. Results showed that flat artwork that pleased the artists' sense of visual aesthetics did not necessarily please the viewers' sense of visual aesthetics. The present study found that the design favored by the editors and

graphic artists who created the brochure also was rated more highly by the viewers, but only when the design was combined with the color favored by the viewers.

A study by Siskind (1979) found that readers rated a publication labeled as contemporary and well-designed more highly than one labeled as traditional or average. The present study supports these findings in that readers rated the current, more dynamic publication higher than they did the older, more static design. It should be pointed out again, however, that the preference for design was shown only when the reader also rated the color higher. The publication was rated higher primarily because of color.

The present study also relates to color preference research. Luckiesh (1927) found that women prefer red; Poffenberger (1928) found that women prefer red but dislike orange; Eysenck (1941) found that women prefer orange only after blue, red, green, violet and yellow; and Cheskin (1954) found that women like red but give orange-red the lowest rating of all reds and that orange-red has great appeal to children. All the subjects in the present study were female; they clearly preferred orange and red to black and cream. No dislike of orange is apparent from findings of the study. Perhaps the study by Bartholet (1968) relates: student nurses had different emotional meanings for color, depending on whether they were thinking of the patient or themselves. It could be inferred that part of the daycare provider's positive response to the orange brochure is that they are surrounded by children most of their day.

They see children's books, toys, and clothing, all of which usually show more and brighter colors than do most people's work surroundings. Perhaps a brochure that depicts children and is about caring for children is more liked if it uses colors associated with children, whether or not the adult reading the brochure prefers the color in association with herself. Based on this inference, print editors and designers should consider whether the printed piece pertains to the reader's occupation and use colors that the reader favorably associates with the occupation. More research in this area, however, is needed to give greater plausibility to this recommendation.

The present study indicates that, even though the eye can grow weary of too much color (White, 1990), the providers who were subjects in the study apparently did not tire of the bright colors. Perhaps they read the brochure only for short periods at a time, as their schedules permitted. This would indicate that reading habits of the intended audience also must be considered in color and design choices.

One limitation of the present study is that it included only two colors and two designs. A third color, such as a light blue paper/dark blue ink-combination, would have introduced a cool color and another preferred color into the experiment. Money limitations and too few subjects made this an impossibility. The study also had all female subjects so any gender differences for color and design could not be shown. The subjects also belong to

only one occupation; therefore, it is not clear that the color preferences shown are generalizable to another occupation or that different occupations have different color preferences. Another limitation is that the study pertains specifically to print; it does not pertain to humankind's response to color and design in general but only as they appear on the printed page. Although the latter is a limitation, it also can be a strength when making recommendations about print communication. Further study is needed to meet limitations such as these.

Recommendations for Further Research

This study examined the relation of color and design of a printed piece to audience attitude, behavior and preferences. The following recommendations for further research are made.

1. Test the same two colors used in this study for a brochure directed to a different audience such as accountants, bankers, or chemical engineers to see whether subjects with a different occupation would have the same response to the colors. Obtain subjects of both genders to determine if there is gender preference for either color.
2. If possible, add a third color to the experiment, such as blue, a strongly preferred, cool color, to see whether the warm color would still be rated more highly and if both colors would be preferred to the neutral.

3. Test other color combinations and other publications to see whether certain colors are preferred for specific topics.
4. Chart the attitude and behavior change throughout a several-part series to see at what point repetition of the message begins to make a difference, if any.
5. Test two designs in which one is much less readable than the other (consider making line length too long, typefaces unsuitable for body copy, using little white space, and adding other distracting page elements) to see when readability of content causes less favorable evaluation and results.
6. Test a much less legible color combination, such as yellow ink on white paper, also to see when readability of content causes less favorable evaluation and results.

Conclusion

In conclusion, this study has shown that color is an important consideration in print communication. Color does not overshadow content, but it should be considered before design. The legibility of color is important, but when a slightly more readable choice is a neutral, selection of a pleasing color may produce better results. Much has been written about color. However, practitioners should apply the findings of market research and other time- and product-specific research with care because broad generalizations about color may not hold true.

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Thank you to my husband, Paul, whose belief in me and whose support of me has been unswerving and a continued source of strength.

And thank you, God, for giving me all these wonderful people to help accomplish this goal.

APPENDIX A: CORRESPONDENCE AND QUESTIONNAIRE

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

College of Liberal Arts and Sciences
Department of Journalism
and Mass Communication
114 Hamilton Hall
Ames, Iowa 50011-1180
515 294-4340

Summer, 1991

To: Participants in the 1991 Family Daycare As A Business Study

I would appreciate your help and need a few minutes of your time. I am seeking your views and opinions about family daycare as a business. I also am evaluating the potential value that the booklet, *Family Daycare as a Business*, offers to family daycare providers. From you, and other providers in Iowa, I hope to secure information about current business practices and needs of family daycare providers. I also hope to secure your reactions to the *Family Daycare as a Business* booklet. This research project is being conducted under the guidance of Dr. Kim Smith, professor of Journalism and Mass Communications at Iowa State University. To verify authenticity of this project you can reach Dr. Smith at (515) 233-6681.

The enclosed survey form will take only a few minutes of your time to complete and return in the postage-paid reply envelope. Most of the questions can be answered by circling a response or writing a brief phrase of two or three words. PLEASE BE ASSURED THAT YOUR RESPONSES WILL NOT BE IDENTIFIED WITH YOUR NAME AND THAT YOUR NAME WILL NOT APPEAR IN ANY REPORT. THE NUMBER APPEARING ON THE SURVEY WILL NOT BE USED TO IDENTIFY YOU BY NAME, BUT IS USED FOR RECORD-KEEPING PURPOSES ONLY.

After you have returned the enclosed survey, a copy of the booklet, *Family Daycare as a Business*, and a follow-up questionnaire will be mailed to you. Reading the booklet and completing the follow-up questionnaire will probably not take more than one and one-half hours.

Your response is important. Your name was chosen as part of a random sample which is representative of family daycare providers in your area. The accuracy of the study depends heavily upon your response to assure that the views and opinions reflect family daycare providers in your area.

Your prompt cooperation and participation in this survey is appreciated. Please take a few minutes today to complete the questionnaire and return it in the envelope provided. Thank you for your time and cooperation.

Sincerely

Carol M. Ouverson, graduate student,
Journalism and Mass Communications

Enclosures

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

College of Liberal Arts and Sciences
Department of Journalism
and Mass Communication
114 Hamilton Hall
Ames, Iowa 50011-1180
515 294-4340

September, 1991

To: Participants in the 1991 Family Daycare As A Business Study

Two weeks ago you received a survey questionnaire about family daycare as a business. If you have recently mailed the questionnaire, thank you for your time and cooperation. If you have not yet returned the questionnaire or have misplaced it, I am enclosing a second copy and would appreciate your help. The questionnaire will take only a few minutes of your time.

I am seeking your views and opinions about family daycare as a business. I also am evaluating the potential value that the booklet, *Family Daycare as a Business*, offers to family daycare providers. This research project is being conducted through the Department of Journalism and Mass Communications at Iowa State University.

PLEASE BE ASSURED THAT YOUR RESPONSES WILL NOT BE IDENTIFIED WITH YOUR NAME AND THAT YOUR NAME WILL NOT APPEAR IN ANY REPORT. THE NUMBER APPEARING ON THE SURVEY WILL NOT BE USED TO IDENTIFY YOU BY NAME, BUT IS USED FOR RECORD-KEEPING PURPOSES ONLY.

After you have returned the enclosed survey, a copy of the booklet, *Family Daycare as a Business*, will be mailed to you along with a follow-up questionnaire. The booklet will probably not take more than an hour to read.

Your response will help to assure that findings from the study are accurate. Your name was chosen as part of a random sample. Your response will represent the views of family daycare providers in your area.

Your prompt cooperation and participation in this survey is appreciated. Please take a few minutes today to complete the questionnaire and return it in the envelope provided. Thank you for your time and cooperation.

Sincerely

Carol M. Ouversen, graduate student,
Journalism and Mass Communications

Enclosures

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

College of Liberal Arts and Sciences
Department of Journalism
and Mass Communication
114 Hamilton Hall
Ames, Iowa 50011-1180
515 294-4340

September, 1991

To: Participants in the 1991 Family Daycare As A Business Study

Thank you for completing the questionnaire about current family daycare business practices and needs. Your help and cooperation is greatly appreciated. Please read the enclosed booklet, *Family Daycare as a Business*, at your leisure over the next two weeks. The booklet will probably not take more than an hour total reading time. A questionnaire asking your reactions to the booklet is also enclosed. The questionnaire will take about 15 to 20 minutes of your time. Please complete the questionnaire after you have read the booklet and return it in the postage-paid reply envelop.

PLEASE BE ASSURED THAT YOUR PARTICIPATION IN THIS STUDY WILL NOT BE IDENTIFIED WITH YOUR NAME AND THAT YOUR NAME WILL NOT APPEAR IN ANY REPORT.

Your cooperation is important. Your name was chosen as part of a random sample which is representative of family daycare providers in your area. The accuracy of the study depends heavily upon your participation to assure that the views and opinions reflect family daycare providers in your area.

Your participation in this survey is appreciated. Please take the necessary time during the next two weeks to read through the booklet. Thank you for your time and cooperation.

Sincerely,

Carol M. Ouverson, graduate student,
Journalism and Mass Communications

Enclosures

IOWA STATE UNIVERSITY
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October 1991

To: Participants in the 1991 Family Daycare As A Business Study

Three to four weeks ago you received a copy of the booklet, *Family Daycare as a Business*, and a questionnaire. The booklet and questionnaire are the final step in a study I am conducting. From you, and other providers in Iowa, I hope to secure information about current business practices and needs of family daycare providers. I also hope to secure your reactions to the *Family Daycare as a Business* booklet. I have not received a reply from you, as yet. If you have misplaced the questionnaire, I am enclosing another and hope you will have an opportunity to complete it and return it in the business reply envelope, also enclosed. This research project is being conducted under the guidance of Dr. Kim Smith, professor of Journalism and Mass Communications at Iowa State University.

I hope you have had a chance to read the booklet, *Family Daycare as a Business*. It probably does not take more than an hour total reading time. The questionnaire will take about 15 to 20 minutes of your time.

PLEASE BE ASSURED THAT YOUR PARTICIPATION IN THIS STUDY WILL NOT BE IDENTIFIED WITH YOUR NAME AND THAT YOUR NAME WILL NOT APPEAR IN ANY REPORT.

Your cooperation is important. Your name was chosen as part of a random sample, which is representative of family daycare providers in your area. The accuracy of the study depends heavily upon your participation to assure that the views and opinions reflect family daycare providers in your area. Your reply could make the difference in whether or not the study goals will be met.

Thank you for your time and cooperation.

Carol M. Ouverson, graduate student,
Journalism and Mass Communications

Enclosures

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

College of Liberal Arts and Sciences
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515 294-4340

Summer, 1991

To: Participants in the 1991 Family Daycare As A Business Study

I would appreciate your help and need a few minutes of your time. I am seeking your views and opinions about family daycare as a business. I also am evaluating the potential value that the booklet, *Family Daycare as a Business*, offers to family daycare providers. From you, and other providers in Iowa, I hope to secure information about current business practices and needs of family daycare providers. I also hope to secure your reactions to the *Family Daycare as a Business* booklet. This research project is being conducted under the guidance of Dr. Kim Smith, professor of Journalism and Mass Communications at Iowa State University. To verify authenticity of this project you can reach Dr. Smith at (515) 233-6681.

Please read the enclosed booklet, *Family Daycare as a Business*, at your leisure over the next two weeks. The booklet will probably not take more than an hour total reading time. A questionnaire asking your reactions to the booklet is also enclosed. The questionnaire will take about 15 to 20 minutes of your time. When you have completed the questionnaire, please return it in the envelop provided.

PLEASE BE ASSURED THAT YOUR PARTICIPATION IN THIS STUDY WILL NOT BE IDENTIFIED WITH YOUR NAME AND THAT YOUR NAME WILL NOT APPEAR IN ANY REPORT.

Your cooperation is important. Your name was chosen as part of a random sample which is representative of family daycare providers in your area. The accuracy of the study depends heavily upon your participation to assure that the views and opinions reflect family daycare providers in your area.

Your participation in this survey is appreciated. Please take the necessary time during the next two weeks to read through the booklet. Thank you for your time and cooperation.

Sincerely

Carol M. Ouverson, graduate student,
Journalism and Mass Communications

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IOWA STATE UNIVERSITY
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515 294-4340

September 1991

To: Participants in the 1991 Family Daycare As A Business Study

In August you received a copy of the booklet, *Family Daycare as a Business*, and a questionnaire. The booklet and questionnaire are part of a study I am conducting. From you, and other providers in Iowa, I hope to secure information about current business practices and needs of family daycare providers. I also hope to secure your reactions to the *Family Daycare as a Business* booklet. I have not received a reply from you, as yet. If you have misplaced the questionnaire, I am enclosing another and hope you will have an opportunity to complete it and return it in the business reply envelope, also enclosed. This research project is being conducted under the guidance of Dr. Kim Smith, professor of Journalism and Mass Communications at Iowa State University.

I hope you have had a chance to read the booklet, *Family Daycare as a Business*. It probably does not take more than an hour total reading time. The questionnaire will take about 15 to 20 minutes of your time.

PLEASE BE ASSURED THAT YOUR PARTICIPATION IN THIS STUDY WILL NOT BE IDENTIFIED WITH YOUR NAME AND THAT YOUR NAME WILL NOT APPEAR IN ANY REPORT.

Your cooperation is important. Your name was chosen as part of a random sample which is representative of family daycare providers in your area. The accuracy of the study depends heavily upon your participation to assure that the views and opinions reflect family daycare providers in your area.

Thank you for your time and cooperation.

Sincerely

Carol M. Ouverson, graduate student,
Journalism and Mass Communications

Enclosures

Information for Review of Research Involving Human Subjects
Iowa State University

(Please type and use the attached instructions for completing this form)

1. Title of Project 1991 Family Daycare As A Business Study

2. I agree to provide the proper surveillance of this project to insure that the rights and welfare of the human subjects are protected. I will report any adverse reactions to the committee. Additions to or changes in research procedures after the project has been approved will be submitted to the committee for review. I agree to request renewal of approval for any project continuing more than one year.

Carol M. Ouverson 5/16/91
Typed Name of Principal Investigator Date Signature of Principal Investigator

Journalism & Mass Communication 103C Morrill 4-9640
Department Campus Address Campus Telephone

3. Signatures of other investigators Date Relationship to Principal Investigator
_____ 5/16/91 Thesis Advisor

4. Principal Investigator(s) (check all that apply)
 Faculty Staff Graduate Student Undergraduate Student

5. Project (check all that apply)
 Research Thesis or dissertation Class project Independent Study (490, 590, Honors project)

6. Number of subjects (complete all that apply)
300 # Adults, non-students _____ # ISU student _____ # minors under 14 _____ other (explain)
_____ # minors 14 - 17

7. Brief description of proposed research involving human subjects: (See instructions, Item 7. Use an additional page if needed.) ISU Extension seeks to help family daycare providers see their child care service as a professional business. One method ISU Extension uses to reach daycare providers is the Family Daycare Exchange, a series of 12 brochures. This study seeks to learn whether changing the appearance of the series can be associated with changing the self-perception of providers, changing their understanding of business methods, and changing their adoption of professional behaviors. A random sample of 240 family daycare providers will be selected from Iowa, using the county home economists' mailing lists. A pretest will be mailed to the providers. When the pretests have been returned, the Family Daycare Exchange brochure, Family Daycare As A Business, will be mailed to the providers. Two weeks later, the posttest will be mailed to the providers. Subjects are to complete the questionnaire (pre and posttests) and read and evaluate the brochure. This study will use the Solomon model; some of the subjects will receive only the brochure and posttest.

(Please do not send research, thesis, or dissertation proposals.)

8. Informed Consent: Signed informed consent will be obtained. (Attach a copy of your form.)
 Modified informed consent will be obtained. (See instructions, item 8.)
 Not applicable to this project.

9. Confidentiality of Data: Describe below the method used to ensure the confidentiality of data obtained. (See instructions, item 9.)
- Code numbers will be used on the survey instrument. The number will be used for record-keeping purposes only. Names and code numbers will not be matched in the data analysis. The survey instruments, once completed, will be kept in closed files. No mention of the subject's name will be made in the thesis or subsequent articles.

10. What risks or discomfort will be part of the study? Will subjects in the research be placed at risk or incur discomfort? Describe any risks to the subjects and precautions that will be taken to minimize them. (The concept of risk goes beyond physical risk and includes risks to subjects' dignity and self-respect as well as psychological or emotional risk. See instructions, item 10.)

N/A

11. CHECK ALL of the following that apply to your research:
- A. Medical clearance necessary before subjects can participate
 - B. Samples (Blood, tissue, etc.) from subjects
 - C. Administration of substances (foods, drugs, etc.) to subjects
 - D. Physical exercise or conditioning for subjects
 - E. Deception of subjects
 - F. Subjects under 14 years of age and/or Subjects 14 - 17 years of age
 - G. Subjects in institutions (nursing homes, prisons, etc.)
 - H. Research must be approved by another institution or agency (Attach letters of approval)

If you checked any of the items in 11, please complete the following in the space below (include any attachments):

Items A - D Describe the procedures and note the safety precautions being taken.

Item E Describe how subjects will be deceived; justify the deception; indicate the debriefing procedure, including the timing and information to be presented to subjects.

Item F For subjects under the age of 14, indicate how informed consent from parents or legally authorized representatives as well as from subjects will be obtained.

Items G & H Specify the agency or institution that must approve the project. If subjects in any outside agency or institution are involved, approval must be obtained prior to beginning the research, and the letter of approval should be filed.

1991 Family Daycare As A Business Questionnaire

Life As A Family Daycare Provider

Please answer by circling the number of the response that most closely describes your opinion.

	Strongly disagree	Disagree	Neither Disagree or Agree	Agree	Strongly Agree
1. I want to consider myself a professional daycare provider.	1	2	3	4	5
2. I want other people to consider me a professional daycare provider.	1	2	3	4	5
3. I take pride in being able to love and understand children.	1	2	3	4	5
4. Running a daycare service contributes to my community.	1	2	3	4	5
5. Children receive better care at home than in a family daycare service.	1	2	3	4	5
6. Family daycare services require providers who enjoy children.	1	2	3	4	5
7. Being a family daycare provider is the same as being a babysitter.	1	2	3	4	5
8. Most of the work I do each day in my daycare service could be done by almost anybody.	1	2	3	4	5
9. Most of the work I do each day in my daycare service does not require special skills.	1	2	3	4	5
10. Most of the work I do each day in my daycare service does not require special understanding.	1	2	3	4	5

Your Information Needs and Sources

Please answer the following items by circling the response that best describes how often you do these activities.

	Hardly ever	Seldom	Occasionally	Frequently	Very often
11. I look for ideas to improve my work with children.	1	2	3	4	5
12. I look for ideas to improve my daycare service as a business. .	1	2	3	4	5
13. I read the newspaper.	1	2	3	4	5
14. I read Extension newsletters.	1	2	3	4	5
15. I listen to radio newscasts.	1	2	3	4	5
16. I listen to the county home economist's radio program.	1	2	3	4	5
17. I watch local TV newscasts.	1	2	3	4	5

Please answer by circling the number of the response that most closely describes your opinion.

Strongly disagree	Disagree	Neither Disagree or Agree	Agree	Strongly Agree
-------------------	----------	---------------------------	-------	----------------

18. I started my daycare business because I'm good at working with children.	1	2	3	4	5
19. I started my daycare business so that I could stay home with my children.	1	2	3	4	5
20. I started my daycare business because I'm not qualified for other jobs.	1	2	3	4	5
21. I want to earn some money, but do not want to handle many business details.	1	2	3	4	5
22. I want parents who use my daycare services to view me as a business person.	1	2	3	4	5
23. The amount I earn as a family daycare provider is just about right.	1	2	3	4	5
24. The Child Care Food Program helps family daycare providers make more profit.	1	2	3	4	5
25. The Child Care Food Program helps family daycare providers serve nutritious meals.	1	2	3	4	5
26. Using a profit margin in pricing family daycare services helps providers make more profit.	1	2	3	4	5
27. Charging penalty fees for "late pick-ups" will mean fewer late pick-ups.	1	2	3	4	5
28. Charging penalties for non-payment of fees will help keep customers current on their payments.	1	2	3	4	5
29. Charging penalty fees for "late pick-ups" will drive away customers.	1	2	3	4	5
30. Charging penalties for non-payment of fees will drive away customers.	1	2	3	4	5
31. Keeping up-to-date records is necessary to run a profitable business.	1	2	3	4	5
32. Keeping up-to-date records helps family daycare providers look professional.	1	2	3	4	5
33. Advertising family daycare services helps to get customers.	1	2	3	4	5
34. Keeping a separate bank account for a daycare business helps keep track of earnings.	1	2	3	4	5
35. One of the drawbacks to registering with the department of human services is the possibility of being inspected.	1	2	3	4	5
36. There are several benefits to registering my daycare service with the department of human services.	1	2	3	4	5
37. Information available at the county extension office could be helpful to me in my business.	1	2	3	4	5

Background Information

38. Circle one: 1. Female 2. Male

39. Number of years operating your own family daycare service: _____

40. Have you received any of the brochure series, Family Daycare Exchange, from your local Extension service?

Circle One 1. Yes 2. No

41. Do you have a separate bank account for your family daycare service?

Circle One 1. Yes 2. No

42. Do you currently participate in the Child Care Food Program?

Circle One 1. Yes 2. No

43. Are you currently registered with the Department of Human Services?

Circle One 1. Yes 2. No

44. Do you currently have separate liability insurance for your daycare?

Circle One 1. Yes 2. No

45. Which of the following methods have you used to advertise your daycare service?

Circle all that apply.

1. Word-of-mouth
2. Asking friends for names of working mothers, then contacting them by phone.
3. Contacting the local Human Services or Public Welfare office for names of families looking for child care.
4. Listing your home with a Resource and Referral Service.
5. Placing ads in the local newspaper or advertiser.
6. Placing notices on bulletin boards.
7. Leaving your name with daycare centers.
8. Leaving your name and telephone number with the local grade school.
9. Other _____

1991 Family Daycare As A Business Follow-up Questionnaire

Life As A Family Daycare Provider

Please answer by circling the number of the response that most closely describes your opinion.

	Strongly disagree	Disagree	Neither Disagree or Agree	Agree	Strongly Agree
1. I want to consider myself a professional daycare provider.	1	2	3	4	5
2. I want other people to consider me a professional daycare provider.	1	2	3	4	5
3. I take pride in being able to love and understand children.	1	2	3	4	5
4. Running a daycare service contributes to my community.	1	2	3	4	5
5. Children receive better care at home than in a family daycare service.	1	2	3	4	5
6. Family daycare services require providers who enjoy children.	1	2	3	4	5
7. Being a family daycare provider is the same as being a babysitter.	1	2	3	4	5
8. Most of the work I do each day in my daycare service could be done by almost anybody.	1	2	3	4	5
9. Most of the work I do each day in my daycare service does not require special skills.	1	2	3	4	5
10. Most of the work I do each day in my daycare service does not require special understanding.	1	2	3	4	5

Your Information Needs and Sources

Please answer the following items by circling the response that best describes how often you do these activities.

	Hardly ever	Seldom	Occasionally	Frequently	Very often
11. I look for ideas to improve my work with children.	1	2	3	4	5
12. I look for ideas to improve my daycare service as a business. .	1	2	3	4	5
13. I read the newspaper.	1	2	3	4	5
14. I read Extension newsletters.	1	2	3	4	5
15. I listen to radio newscasts.	1	2	3	4	5
16. I listen to the county home economist's radio program.	1	2	3	4	5
17. I watch local TV newscasts.	1	2	3	4	5

Please answer by circling the number of the response that most closely describes your opinion.

Strongly disagree	Disagree	Neither Disagree or Agree	Agree	Strongly Agree
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18. I started my daycare business because I'm good at working with children.	1	2	3	4	5
19. I started my daycare business so that I could stay home with my children.	1	2	3	4	5
20. I started my daycare business because I'm not qualified for other jobs.	1	2	3	4	5
21. I want to earn some money, but do not want to handle many business details.	1	2	3	4	5
22. I want parents who use my daycare services to view me as a business person.	1	2	3	4	5
23. The amount I earn as a family daycare provider is just about right.	1	2	3	4	5
24. The Child Care Food Program helps family daycare providers make more profit.	1	2	3	4	5
25. The Child Care Food Program helps family daycare providers serve nutritious meals.	1	2	3	4	5
26. Using a profit margin in pricing family daycare services helps providers make more profit.	1	2	3	4	5
27. Charging penalty fees for "late pick-ups" will mean fewer late pick-ups.	1	2	3	4	5
28. Charging penalties for non-payment of fees will help keep customers current on their payments.	1	2	3	4	5
29. Charging penalty fees for "late pick-ups" will drive away customers.	1	2	3	4	5
30. Charging penalties for non-payment of fees will drive away customers.	1	2	3	4	5
31. Keeping up-to-date records is necessary to run a profitable business.	1	2	3	4	5
32. Keeping up-to-date records helps family daycare providers look professional.	1	2	3	4	5
33. Advertising family daycare services helps to get customers.	1	2	3	4	5
34. Keeping a separate bank account for a daycare business helps keep track of earnings.	1	2	3	4	5
35. One of the drawbacks to registering with the department of human services is the possibility of being inspected.	1	2	3	4	5
36. There are several benefits to registering my daycare service with the department of human services.	1	2	3	4	5
37. Information available at the county extension office could be helpful to me in my business.	1	2	3	4	5

Background Information

38. Circle one: 1. Female 2. Male

39. Number of years operating your own family daycare service: _____

40. Have you received any of the brochure series, Family Daycare Exchange, from your local Extension service?

Circle One 1. Yes 2. No

41. Do you have a separate bank account for your family daycare service?

Circle One 1. Yes 2. No

42. Do you currently participate in the Child Care Food Program?

Circle One 1. Yes 2. No

43. Are you currently registered with the Department of Human Services?

Circle One 1. Yes 2. No

44. Do you currently have separate liability insurance for your daycare?

Circle One 1. Yes 2. No

45. Which of the following methods have you used to advertise your daycare service?

Circle all that apply.

1. Word-of-mouth
2. Asking friends for names of working mothers, then contacting them by phone.
3. Contacting the local Human Services or Public Welfare office for names of families looking for child care.
4. Listing your home with a Resource and Referral Service.
5. Placing ads in the local newspaper or advertiser.
6. Placing notices on bulletin boards.
7. Leaving your name with daycare centers.
8. Leaving your name and telephone number with the local grade school.
9. Other _____

Family Daycare As A Business Brochure Evaluation

Following are 20 word pairs that have opposite meanings. Circle the number that most closely indicates your impression of the brochure. An example has been worked for you.


EX. Strong 1 2 (3) 4 5 6 7 Weak

The circled number is closer to *Strong* than it is to *Weak* so the answer shows that the brochure is more strong than weak. Circling the 1 or 2 would show that the brochure is even stronger. Circling the 5, 6, or 7 would show that the brochure is thought to be more weak than strong with 7 being the weakest rating.

- | | | | | | | | | |
|-----------------------------|---|---|---|---|---|---|-------------|----------------|
| 46. Important | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Unimportant |
| 47. Informative | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Uninformative |
| 48. Responsible | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Irresponsible |
| 49. Passive | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Active |
| 50. Accurate | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Inaccurate |
| 51. Professional | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Unprofessional |
| 52. Valuable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Worthless |
| 53. Pleasant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Unpleasant |
| 54. Interesting | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Boring |
| 55. Readable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Unreadable |
| 56. Clear | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Unclear |
| 57. Messy | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Neat |
| 58. Organized | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Disorganized |
| 59. Attractive | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Unattractive |
| 60. Old fashioned | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Modern |
| 61. Incomplete | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Complete |
| 62. Colorful | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Drab |
| 63. Weak | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Strong |
| 64. Fresh | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Stale |
| 65. Exciting | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Dull |

APPENDIX B. *FAMILY DAYCARE AS A BUSINESS BROCHURE*

Test brochure versions
aa (static art on orange paper)
and ab (static art on cream
paper)



family daycare
exchange of information and ideas

"A professional is an occupation with its own jargon and its own code of ethics."
- Anonymous

Family Daycare as a Business

One characteristic of the professional daycare "mother or father" is arrival in the job. You're not a gum-chewing, refrigerator-raising housewife who goes into a family's home to keep one eye on the TV and one eye on the kids while the parents are out for an evening.

Instead, you're concerned with the growth and development of the child. As you love, feed, and care for children on a regular basis, you develop attachments to the youngsters and work toward their best interests.

This same concern for quality should be reflected in your attitude toward your work. Your job is important - a career to be taken seriously. It's nursing or home economics.

But if you wish to be taken seriously, it's important to adopt this same attitude in business relations. You can do this by presenting yourself as an organized and efficient person in your interactions with parents and with organizations and agencies in your community. Even recordkeeping can contribute to the image you project by showing that you take your business seriously enough to be concerned about its progress and its future.

BU Extension Communications Test Subunit-108
Summer 1981

charging for child care costs

How do you figure out how, what and when to charge for daycare?

As with most other businesses that provide services, the answers will depend upon your clientele, established patterns in your community and your own needs.

Are most of your parents factory workers who may get paid twice a month, office workers paid weekly or government employees paid once a month? You may wish to arrange to have them pay when they have money on hand. It may be helpful to sit down with parents to work out a system that satisfies both of you.

But remember, you are running the business—the actual decision is up to you. Even though it inconveniences some parents, it might be easier for you if all parents paid at the same time. Or you may need money coming in at certain times of the month to meet bills for running the daycare.

The actual amount you charge will depend, in part, upon what other daycare providers charge in your community and whether you offer special services and facilities—like field trips, outdoor playground equipment, or daily trips to the neighborhood park.

In addition, consider the following points when you tally your charges: Does a child require special foods or infant formula that you are asked to purchase? Will you provide special transportation (for instance, taking a child to physical therapy sessions)? Will you feed more meals to one child if he/she arrives early enough for breakfast, for example? Does a parent ask you to wash diapers?

You can charge parents a flat rate (so much per week or per day), an hourly figure, or a flat or hourly rate with money added for "extras" (like those mentioned above).

The only drawback to charging a flat rate is that some parents may take advantage of your services by leaving children with you beyond your regular daycare hours. If that happens, you might change your pricing to charge by the hour with special "over-time" rates.

And, if a parent has more than one child in your daycare, you might charge a lower rate for that second child.

Whatever you do, be consistent, so a parent won't hear about you charging lower rates to someone else.

It's best to have agreements written out—and signed—ahead of time. Then, if a parent is consistently late with payment, you can show him/her the mutual agreement form. This formal agreement will be helpful too, if you ever have to go to small claims court to collect money owed you by a parent.

You also may want to specify ahead of time just how much advance notice you want when children are going to be taken out of daycare on vacations. This advance notice may allow you to temporarily fill the gap with another child, so you won't lose money on those days.

licensing/registration

The state you live in has regulations on the registration and/or licensing of family daycare homes. In some cases it is a voluntary process, in others a compulsory process. Registration or licensing has distinct advantages for you. When you advertise for children you can mention your status with the state. There may be money available to pay the costs of child care

for families who are eligible for Title XX or other public funds. And you may be able to have the costs of the food you serve the children paid back to you. For more information about licensing or registration contact your county office of Department of Social Services or Public Welfare.

"must" information for reporting income



In the past, you may not have declared your income on a tax return. But the law requires that you report all earned income.

In fact, tax laws allowing parents to claim family child care expenses now require them to list the child care provider by name and the provider's social security number. So, if you aren't reporting this as income on your tax return, you could get into trouble for deceiving the government.

In declaring income for tax purposes, it can either be reported under "added income" or as a business income. One advantage of reporting your income as a business is that you then will be eligible to deduct the costs of running the daycare, thereby paying taxes on a much smaller amount.

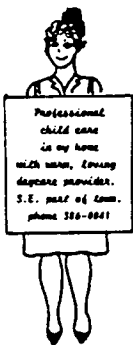
But in order to declare business deductions, you must keep accurate records of all income and expenses. For more specific information on running a business out of your home, send for the free government pamphlet listed on the last page of this newsletter.

the Childcare Food Program

The Childcare Food Program (CCFP) provides money to family daycare homes to help pay for nutritious meals and snacks served to children. The amount you receive depends on the number and type of meals served. In addition to being reimbursed for the childcare you care for, you may be eligible to be reimbursed for the cost of serving your own children.

In order to be eligible you must be registered or licensed with the state and have a sponsor. A sponsor is a non-profit organization that agrees to accept responsibility for CCFP management. The sponsor will answer questions, help fill out forms and authorize payment.

The sponsor will also provide training and answer questions regarding menu planning, preparation, sanitation and record keeping. For more information about your participation in the Childcare Food Program, contact your local county office of Social or Human Services or Public Welfare.



seven ways to advertise your services

Many daycare "mothers" and "fathers" rely on word-of-mouth to recruit parents and children for their services. But an organized attempt at advertising may prove more successful.

Some of the ways you can advertise are:

- by asking friends and neighbors for names of working mothers with small children, then contacting these mothers in person or by telephone
- by contacting the local Social or Human Services or Public Welfare office and local or state daycare associations. They often supply names to families looking for quality child care
- by placing ads in the local newspaper or advertiser

a checklist of daycare expenses

When you're totaling up daycare expenses for income tax deductions or as a way of determining charges to clients—it's easy to overlook some things, for so many items used in your business are found in most households as well.

But if the materials were purchased or used strictly for your daycare work, then they are considered legally tax deductible.

To help keep your accounts accurate, we've organized the following list for you to check off against your own business records. Did you remember to account for:

- telephone installation or extension
- bulletin boards or other items used to post emergency numbers
- locks or other equipment used to secure medicines and cleaning supplies
- first-aid supplies and a thermometer
- safety caps for electrical outlets
- safety barriers
- repair of playground equipment
- payment to a substitute daycare provider when you were ill
- purchase or rental of any games or equipment for the daycare children (blocks, books, tricycles, etc.)
- meals and snacks for the children
- dishes and eating utensils for the children
- paper or photoduplication of daycare records
- diapers
- infant formula
- newspaper ads about your services

make sure you're covered

Even under the most watchful eye, children sometimes get hurt on swingsets, coffee tables, and many other household and play objects. So it's wise for you to carry liability insurance for your daycare.

Talk to your insurance agent to see whether your present tenant or homeowner's policy provides liability coverage—most policies will not because you are earning money by caring for the children.

And if you care for other people's children in a home or apartment you rent, make sure it's allowed in your lease.

If you need additional insurance, contact several agencies and compare rates. It's also a good idea to find out about group plans. Often, the insurance is less costly if several daycare homes or agencies join together to purchase it.

This is one reason to consider joining or forming a home daycare provider association.



idea exchange—

Q One of the parents I work for is a real dilly when it comes to paying for her child's care. She works and seems to be able to afford everything else—trips, a new car, and clothing. But she invents a dozen excuses every time I ask her to pay her bill to me. Got any suggestions?— "Tired of OURS"

A It looks as if you will have to make an appointment to sit down and talk to her sometime when the child is not present.

Explain that you are a working person just like she is and that you have business-related expenses, like food, insurance, and play equipment—which must be paid for on a regular basis. But you cannot meet these expenses or stay in operation unless the parents you work for meet their obligations to you and pay you on a regular basis.

If there is some problem with the schedule of payments, you might offer to rearrange the due dates on bills— if it would be convenient for you and if it would be easier for her to pay at another time, for instance after each paycheck.

Usually, this personal appeal will help correct matters—at least for a while. But in the long run, it's best to protect yourself with a written contract. That way you will have something to back you up when a parent is always late or defaults on payments.

- mileage for transportation for the children
- products (like bathroom bars or an air purifier) to modify your home for handicapped children
- field trip costs
- mortgage or rent*
- property taxes*
- utility payments*
- phone bills*
- tax preparation
- stamps and envelopes for mailing bills
- bedding for the children
- a fire extinguisher
- additional medical insurance for yourself
- additional liability insurance
- registration or tuition fees for daycare training or information meetings
- transportation costs to the meetings (above)
- magazines, books or journals on children

* These expenses may be deducted on a proportional basis depending upon how much of your home is used for your daycare business. To find out how to figure these deductions, write to the Internal Revenue Service for pamphlet 587, "Business Use of Your Home."



for more information

You can get the following publications about business management and income tax preparation from the U.S. government:

"Business Use of Your Home" (Publication 587)
 "Child Care and Disabled Dependent Care" (Publication 503)
 and "Credit for Child Care Expenses" (Form 2441)
 are all available from the Internal Revenue Service.

"Getting the Facts for Income Tax Reporting"
 (Small Marketers Aide No. 1-44)

"Insurance Checklist for Small Businesses"
 (Small Marketers Aide No. 1-40)

and "Steps in Meeting Your Tax Obligations"
 (Small Marketers Aide No. 1-42)

are available from the Small Business Administration.

Prepared by Dorothy Pinsky, former extension specialist in human development and family life, Iowa State University, written by Elizabeth Parsons.

Family daycare as a business



Family Daycare exchange

One characteristic of the professional daycare provider is pride in the job. You're not a quack, refrigerator-raiding babysitter who goes into a family's home to keep one eye on the TV and one eye on the kids while the parents are out for an evening.

Instead, you're concerned with the growth and development of the child. As you love, feed, and care for children on a regular basis, you develop attachments to the youngsters and work toward their best interests.

This same concern for quality should be reflected in your attitude toward your work. Your job is important—a career to be taken seriously, like nursing or home economics.

But if you wish to be taken seriously, it's important to adopt this same attitude in business relations. You can do this by presenting yourself as an organized and efficient person in your interactions with parents and with organizations and agencies in your community. Even record keeping can contribute to the image you project by showing that you take your business seriously enough to be concerned about its progress and its future.

ISU Extension Communications Team Bulletin-106
Ames, Iowa 50011
Summer 1991

For your information

IRS Helps With Taxes

IRS, Internal Revenue Service, can provide you with help. Find out the toll free telephone number for your location by dialing your Area Code + 800-555-1212. Ask for IRS number. They have a number of publications available. Check whether these publications with these numbers are current. There may be additional ones when you check.

- 503 Child Care and Disabled Dependent Care
- 505 Tax Withholding and Declaration of Estimated Tax
- 533 Information on Self-Employment Tax
- 535 Tax Information on Business Expenses
- 548 Tax Information on Deductions for Bad Debts
- 552 Record-Keeping Requirements and a Guide to Tax Publications
- 583 Record-Keeping for a Small Business
- 587 Business Use of Your Home
- 596 Tax Benefit for Low-Income Individuals
- 2441 Credit for Child Care Expenses
- 4562 Depreciation and Amortization

Another Resource: There are an increasing number of commercial resources available for family daycare providers and more outlets are stocking these resources. One such place is:

Resources for Child Care Inc.
906 North Dale St.
St. Paul, MN 55103

They carry specific materials for family daycare as well as other resources of use to family daycare as well as parents and child care center staff. They have materials available to help with record keeping and income/other taxes.



Prepared by Dorothy Liberman, extension specialist in human development and family life, with assistance from Baid Abirah, extension communications Designer and illustrated by Lonna Naeffgen. This publication was originally developed by Liberman in cooperation with Elizabeth Johnson, extension communications specialist, Iowa State University, and was partially funded by the Title V Rural Development Act of 1972.

FAM Family 106 7

Charging for child care costs

How do you figure out how, what, and when to charge for daycare?

As with most other businesses that provide services, the answers will depend upon your clientele, established patterns in your community, and your own needs.

Are most of your parents factory workers who may get paid twice a month, office workers paid weekly or government employees paid once a month? You may wish to arrange to have them pay when they have money on hand. It may be helpful to sit down with parents to work out a system that satisfies both of you.

But remember, you are running the business — the actual decision is up to you. Even though it inconveniences some parents, it might be easier for you if all parents paid at the same time. Or you may need money coming in at certain times of the month to meet bills for running the daycare.

The actual amount you charge will depend, in part, upon what other daycare providers charge in your community and whether you offer special services and facilities—like field trips, outdoor playground equipment, or daily trips to the neighborhood park.

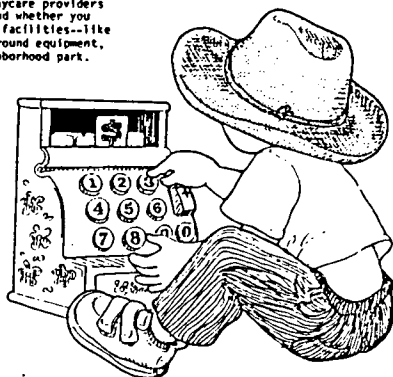
In addition, consider the following points when you tally your charges: Does a child require special foods or infant formula that you are asked to purchase? Will you provide special transportation (for instance, taking a child to physical therapy sessions)? Will you feed more meals to one child (if he/she arrives early enough for breakfast, for example)? Instead

of raising your fees, should you look into the Child Care Food Program for covering the costs of meals and snacks you feed the children? Does a parent ask you to wash diapers?

You can charge parents a flat rate (so much per week or per day), an hourly figure, or a flat or hourly rate with money added for "extras" (like those mentioned above).

To prevent parents from "taking you for granted" and doing an errand before picking the child up, you might want to have an "over time" rate. Some providers allow ten minutes grace and then charge \$1.00 a minute for the first five minutes, \$5.00 a minute for the next five, etc.

And, if a parent has more than one child in your daycare, you might charge a lower rate for that second child.



2

Licensing/ registration

Whatever you do, be consistent, so a parent won't hear about you charging lower rates to someone else.

It's best to have agreements written out—and signed—before of time. Then, if a parent is consistently late with payment, you can show him/her the mutual agreement form. This formal agreement will be helpful too, if you ever have to go to small claims court to collect money owed you by a parent.

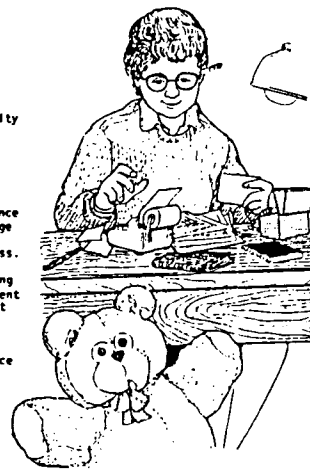
You also may want to specify ahead of time just how much advance notice you want when children are going to be taken out of daycare on vacations. This advance notice may allow you to temporarily fill the gap with another child, so you won't lose money on those days.

The state you live in has regulations on the registration and/or licensing of family daycare homes. In some cases it is a voluntary process, in others a compulsory process. Registration or licensing has distinct advantages for you. When you advertise for children you can mention your status with the state. There may be money available to pay the costs of child care for families who are eligible for Title XX or other public funds. And you may be able to have the costs of the food you serve the children paid back to you. For more information about licensing or registration contact your county office of Department of Social/Human Services or Public Welfare.

Liability insurance

It is wise for providers to carry liability insurance for the daycare business. Unfortunately, insurance rates have increased substantially and the type of coverage can be costly and difficult to find.

Most existing homeowner or tenant insurance policies DO NOT provide liability coverage when providers are being paid for caring for children, i.e. childcare as a business. There are companies that will provide coverage. If you have difficulty locating any for information, contact the Department of Social/Human Services (the agency that licenses/registers your family daycare home); your Child Care Food Program sponsor, if you participate; your county Extension home economist; or the Insurance Commission or Insurance Office at your state capital.



3

Authorization for special activities outside the home

I give permission for my child, _____
to leave the Day Care Home for trips in a car, on foot, or by public transportation to special places, to the park, on shopping trips
Restrictions on such trips: _____

(parent's signature) _____ (date) _____

Family Daycare exchange

Authorization for special activities outside the home

I give permission for my child, _____
to leave the Day Care Home for trips in a car, on foot, or by public transportation to special places, to the park, on shopping trips
Restrictions on such trips: _____

(parent's signature) _____ (date) _____

Family Daycare exchange

The Child Care Food Program (CCFP)



If you are licensed or registered, you can participate in the Child Care Food Program. The Child Care Food Program (CCFP) reimburses family daycare homes for nutritious meals and snacks served to children. The amount you receive depends on the number and type of meals served. In addition to being reimbursed for the children you care for, you may be eligible to be reimbursed for the cost of serving your own children.

In order to be eligible you must be registered or licensed with the state and have a sponsor. A sponsor is a non-profit organization that agrees to accept responsibility for CCFP management. The sponsor will answer questions, help fill out forms and authorize payment.

The sponsor will also provide training and answer questions regarding menu planning, preparation, sanitation and record keeping.

For more information about your participation in the Child Care Food Program, contact your local/county office of Social or Human Services or Public Welfare. Parents will be pleased to know that their children are receiving nutritious meals and snacks.

Potpouri of deductible items

Some items that you may be using for your daycare business may be deductible.

These include:

Lawn tools
aluminum foil
facial tissue
plastic wrap
plastic bags
paper towels
paper plates
paper cups
napkins
scouring pads
dish soap
hand soap

room air fresheners
toilet bowl cleaners
floor cleaners
vacuum cleaner
vacuum cleaner bags
electrical outlet plugs
salt for water softener
drain cleaner/openers
toilet bowl deodorizers
pest control service
lawn mower fuel
waste baskets
toilet paper

Look carefully into your expenditures and take advantage of all those deductions that are rightfully yours and that you can back up with positive proof.

lawn hoses
paint
bleach
floor wax
dust mop
wet mop
broom
light bulbs
toilet cloth deodorizers
dish towels
wash cloths
hand towels
plunger

weed killers
bug killers
pesticides
laundry soap
fabric softener
stain removers
window cleaners
childproof locks
curtain rods
window shades
furniture polish

lawn mower (depreciate)
fencing around yard (depreciate)

lawn sprinkler (asset to be depreciated)
weed-eater (asset also to be depreciated)

Helpful hints for record keeping

(To save you time with your record keeping)

* Get, keep, and record a receipt for your expenditures. Don't count on your cancelled check to be your proof of expenditures. Your cancelled check does not prove what you actually paid for---a receipt does.

* Itemize each receipt as soon as possible and file each receipt in date order until you have time to record it. On each receipt, note your check number.

* After your receipts are recorded, file them away, again in date order. A business-sized envelope is a good storage place. Use one (or more if needed) envelope for each month.

* When setting up ledger sheets, record pages, etc., use only the front side of the page. You use more paper this way---but the time saved will be well worth the cost.

Posting on the front side only means fewer mistakes when you try to balance your accounts. If you use both sides of a sheet, you may forget or not notice that entries have been made on the back side of a page. If this happens, you will pick up the wrong balance of that account and your account totals will not balance. You might spend several minutes finding the error.

* When posting receipts, total each page at the bottom---then when you are sure that the page is balanced, that is, all debit totals equal all credit totals, carry your totals to the top line of the next page. Continue this procedure throughout the entire year. If you have not totalled and balanced each page as you go but instead total and balance at the end of the month, year, whatever---you might find yourself spending hours looking back through journal pages to find an error.



Idea exchange

Q One of the parents I work for is a real dilly when it comes to paying for her child's care. She works and seems to be able to afford everything else---trips, a new car, and clothing. But she invents a dozen excuses every time I ask her to pay her bill to me. Got any suggestions? ---"Tired of IOUs"

A It looks as if you will have to make an appointment to sit down and talk to her sometime when the child is not present.

Explain that you are a working person just like she is and you have business-related expenses, like food, insurance, and play equipment, that must be paid for on a regular basis. But you cannot meet these

expenses or stay in operation unless the parents you work for meet their obligations to you and pay you on a regular basis.

If there is some problem with the schedule of payments, you might offer to rearrange the due dates on bills --- if it would be convenient for you and if it would be easier for her to pay at another time, for instance after each paycheck.

Usually, this personal appeal will help correct matters---at least for a while. But in the long run, it's best to protect yourself with a written contract. That way you will have something to back you up when a parent is always late or defaults on payments.

Advertise your services

Many daycare providers rely on word-of-mouth to recruit parents and children for their services. But an organized attempt at advertising may prove more successful.

Some of the ways you can advertise are by:

- asking friends and neighbors for names of working mothers with small children, then contacting those mothers in person or by telephone.

- contacting the local Social or Human Services or Public Welfare office and local or state daycare associations. They often supply names to families looking for quality child care.

- listing your home with a Resource and Referral Service (RRS). These programs are being set up in many communities to help match the child care needs of individual families with available openings.

- placing ads in the local newspaper or advertiser.

- placing notices on bulletin boards in laundromats, churches, shopping centers, and social clubs.

- leaving your name with daycare centers in case they receive more requests than their facilities can handle.

- contacting the local employment office. When unemployed people find jobs, they often need child care too.

- leaving your name and telephone number with the grade school secretary and principal.

And, if you're willing to organize a list of persons offering family daycare in your area, you might persuade the grade school principal to let you pass out the list during kindergarten registration. Some of the parents there may be looking for half-day care for their kids.

