A COMPARISON OF READER EVALUATIONS OF IDENTICAL NEWS STORIES PRINTED ON GREEN, WHITE, RED AND BLUE BACKGROUNDS

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PREFACE

The purpose of this study was to determine if color affects reader perception of news stories. The results indicated it does not; however, the author believes color may have an effect in some way that was not tested for.

My thanks to the members of my committee: Dr. Walter J. Ward, Dr. William R. Steng and Dr. Ed Paulin. Their advice, help in finding literature for review, and assistance in survey administration were essential for the completion of this project.

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CHAPTER I

INTRODUCTION

> Concern with communication is probably as old as man himself, but the history of the scientific investigation of communicative activity begins relatively recently. Only within the last quarter of a century has there been an effort to describe communication as a systematic process.[1]

Early philosophies portrayed the communication process as a passive event. Aristotle defined it as a linear process with a source, message and interpreter.[2] The meaning of the message was contained in the words making up that message. Thus, it was believed that effective communication took place when the message was "shot" into the receiver. The "Bullet Theory" of communication:

> Communication was seen as a magic bullet that transferred ideas or feelings or knowledge or motivations almost automatically from one mind to another. Thus, for example, the Columbia Encyclopedia has defined communication as 'the transfer of thoughts,' even though that idea has been out of date for many years; it is messages, not ideas or thoughts, that pass from communicator to receiver. To sum up, then, in the early days of communication study, the audience was considered relatively passive and defenseless, and communication could shoot something into them, just as an electric circuit could deliver electrons to a light bulb.[3]

Much of early communication study was primarily concerned with the production of words and their proper usage.

However, words are only a small part of the communication process.

> To focus exclusively upon the words humans interchange is to eliminate much of the communicational process from view and, thus, from purposive control. Obviously, in such a situation the conditions of context, which give special emphasis to lexical change, become critical.[4]

Berlo stated it more succinctly in The Process of Communication: "If meanings are found in words, it would follow that any person could understand any language, any code."[5] That, of course, is not true. Studies soon disproved the "Bullet Theory."

A 1947 study by Cooper and Jahoda showed that prejudiced people react differently at antiprejudiced propaganda.[6] Some respondents used the propaganda to reinforce their beliefs, while others showed signs of weakening in their prejudicial beliefs after hearing the same message.

Lasswell, in 1948, outlined communication as: "Who ... says what ... in which channel ... to whom ... with what effect?" Lasswell's writing was concerned with sociological influences, recognizing that many nonverbal factors affect the communication process.

> In society, the communication process reveals special characteristics when the ruling element is afraid of the internal as well as the external environment. In gauging the efficiency of communication in any given context, it is necessary to take into account the values at stake, and the identity of the group whose position is being examined. In democratic societies, rational choices depend on enlightenment, which, in turn, depends upon

> communication; and especially upon the equivalence of attention among leaders, experts and rank and file.[8]

In Personal Influence, Katz and Lazarsfeld revealed the results of a study with two major findings.[9] The results indicated that many parallels could be drawn between interpersonal communication and mass communication. Katz and Lazarsfeld theorized that messages sent out by mass communication methods often do not go directly to the ultimate receiver, but pass through opinion leaders who affect the message.

The results also further disproved the "Bullet Theory" by indicating that, as Lasswell has theorized, many factors affect communication such as the method of transmission, message construction, and the meanings attached to the message by the sender and the receiver.

Berlo stated, "People can communicate on many levels, for many reasons, with many people, in many ways."[10] Clearly, communication is more than words containing meanings "shot" from sender to receiver.

Purpose and Hypothesis

This study deals with nonverbal communication; more specifically, the messages that newspapers convey to readers without the use of words.

The use of color in newspaper production on a widespread basis is a relatively new phenomenon. However, "the first user of true editorial color was the New York Journal, which

in 1897 reproduced sketches that Frederic Remington had drawn in Cuba."[11] Perhaps the first to use color on a regular basis was the St. Petersburg Times. Editorial color began appearing in it 30 years ago.[12]

The intrusive effects of message construction on readers is a continuing concern for editors and publishers. This study will deal with reader perception under the hypothesis that news stories printed on colored paper will elicit higher objectivity, readability, and writing quality ratings by respondents than news stories printed on plain white paper.

Newspapers and Business

From its beginning, the news business has been somewhat commercial. Even in the late 18th century a publisher had to earn enough to cover expenses. However, dedication to information dissemination usually took precedence over making money. Ownership was individual--one paper, one owner. A newspaper often was passed from generation to generation like a family heirloom. The published reports were carefully edited, for each copy was a symbol of credibility and, sometimes, opinion. The newspaper earned the respect, sometimes the ire, of the community. At the very least, it was thought provoking.

Yet the necessity of profit always remained. As our society has embraced the desire to maximize profits, sometimes at the expense of principles, the news business has

put more emphasis on profit margins and expense cutting. In our capitalistic society the emphasis on profits

> ...is not so much a function of the journalist as it is a prerequisite of his existence. It is recognized, of course, that there always have been journalists and media willing to risk financial losses in order to tell the 'truth,' but such individuals and operations are likely to survive only so long as the basic institutions survive.[13]

The total number of newspapers is declining. In 1976 there were 1,762 newspapers in the United States.[14] The 1985 Ayer Directory of Publications listed 1,687 in 1984 and 1,679 in 1985.[15]

The lure of quick riches and lack of interest among descendants is signalling the end of independently-owned family newspapers. "Of some 1,700 daily newspapers in the nation, only 530 are owned by individuals or small newspaper chains, according to statistics compiled by Lynch, Jones & Ryan, a New York-based stock brokerage firm.[16] Some sales occur because of heavy estate taxes that can be met only by selling the newspaper. Jessica Hobby Catto, whose family recently sold the Houston Post to the Toronto Sun Group, said there was not anyone "who was the right one at the right time" to take over the Post.[17]

> John Morton, who follows the newspaper industry for the Wall Street firm of Lynch, Jones & Ryan, observes that 'by the third or fourth generation, company shares usually are dispersed widely among cousins, in-laws and shirttail relatives, many of whom have little sense of allegiance to the family business.[18]

Quimby Melton, Jr., who in 1982 sold the Griffin (Georgia) Daily News to the Thomson Newspaper Group, said, "Almost anything has a price."[19]

The newspaper business is big business and it is steadily getting bigger. "Today 96 percent of the American cities with daily newspapers have only one publisher. One study predicts that fewer than two dozen firms will own all of the dailies by the 1990s."[20] Thomson Newspapers Ltd. of Toronto is the largest, owning 92 U.S. dailies and another 39 in Canada. Even with its recent acquisition of the Des Moines Register and three other dailies, Gannett Company remains number two with 85 daily newspapers.[21]

At the end of 1984, 12 of the larger publicly-owned newspaper companies released their earnings for the year. That group, including Dow Jones and Company, Knight-Ridder, A.H. Belo Corporation, Multimedia, New York Times Company, and the Washington Post Company, showed average earnings of $91.6 million and a combined total of nearly $1.1 billion.[22]

Consider this passage by Richard Reeves, national editor of Esquire magazine.

> When I got to The (New York) Times in 1966, reporters were called 'Mister'--except for the few who were called 'Mrs.' or 'Miss.' When you screwed up your expense account, a woman from the accounting department would call and say: 'Mr. Reeves, I'm sorry to bother you, but if you have some time ....' By 1971, the same woman, who was quite nice about it all, would summon you to her office and inform you that if you did not clear up your account forthwith, you would receive no more out-of-town assignments. The accountants had taken over....[23]

Contemporary newspaper executives are distinguished from their predecessors by their priorities.

> The new breed of publisher is as different from the abrasive old publishers of the past as smooth Henry Ford II is different from cantankerous old Henry I. Most of them are even-tempered businessmen who are more concerned with the balance sheet than with whether liberalism and internationalism are the devil's progeny out of Franklin D. Roosevelt. Economics determines their thinking more than politics does. The new era was probably epitomized by Samuel Newhouse, who collected Democratic and Republican newspapers like stamps and cared little where they stood as long as they remained solvent. His policy worked well. By 1977, the Newhouse papers were second in total circulation in the United States.[24]

Today's newspaper executives are often profit-oriented while those of yesterday were usually politically oriented. Those newspaper lords of yesterday--William Randolph Hearst, Joseph Pulitzer and Colonel Robert McCormick--used their papers to influence elections, preach ideology and to settle vendettas. Newspaper executives today tend to view newspapers as products, not as mouthpieces for their own ideologies. Within the Gannett chain, holdings are referred to as "products" or "units" rather than newspapers. Recently a Gannett executive was asked if Chairman Allen Neuharth considered himself primarily a newspaperman or primarily a businessman. The executive answered unhesitatingly, "A businessman."[25]

"Neuharth himself once answered a stock analyst's question about how to pronounce the Gannett name ('GANnett or GanNETT?) by smiling and saying, 'MONey.'" The late Lord Thomson, a Canadian entrepreneur, is believed to have said, "I

buy newspapers to make money to buy more newspapers to make more money. As for editorial content, that's the stuff you separate ads with. "[21]

The consequences of chain ownership have mixed effects. A decline in media pluralism does not automatically signal a threat to "the Miltonian ideal wherein truth and falsehood can grapple in the marketplace of ideas."[28] What must be considered is message pluralism. Many large newspaper conglomerates leave editorial content decisions to individual editors, resulting in a better, more responsible product. Allen Neuharth stated, "We believe completely in the concept of local autonomy--letting our individual editors and publishers decide their own news play and endorsements and everything else."[29] In the 1976 presidential election, Gannett newspapers split their endorsements--60 percent for Gerald Ford and 40 percent for Jimmy Carter--and there is no evidence that Gannett tries to dictate news and/or editorial policy to individual papers.[30]

And on that subject, Donald Newhouse of Newhouse Newspapers stated simply, "There's no corporate policy."[31]

When large conglomerates buy a newspaper, changes sometimes are made. Staff writers may begin to receive bylines, or an editorial page may be added. Most knowledgeable observers agree that Gannett's purchase of the St. Cloud, Minnesota and Salem, Oregon papers resulted in better products.[32] However, chain ownership and newspaper publishing do not exist in total harmony.

> Many of the corporations claim to permit great freedom to the journalists, producers, and writers they employ. But when their most sensitive economic interests are at stake, the parent corporations seldom refrain from using their power over public information.[33]

Otis Chandler is a director of the Times Mirror Company and publisher of the Los Angeles Times. Early in the 1970s his dual role as director of the two companies affected news coverage and helped damage the general credibility of the press.

> In the late 1960s, Chandler joined the board of GeoTek Resources Fund, Inc., founded by his friend Jack Burke to sell partnerships in oil well-drilling ventures. Chandler talked up the company to Times Mirror executives, political figures, and Hollywood personalities, convincing another Times Mirror executive to serve on the board and attracting such investors as Evelle Younger, soon to be California's attorney general. But all was not well at GeoTek. By 1971 the Securities and Exchange Commission was checking into the company and by early 1972 Chandler requested that Burke resign and filed a lawsuit against him. It was a good story, but the Times didn't write it.[34]

On August 11, 1972 the Wall Street Journal ran a front page story about the affair. Only then did the Times report on it, burying the story on page eight.

Sometimes parent corporations use their power for political influence. A well-known case involved the Panax Corporation, publisher of eight dailies and 40 weeklies. The corporation told its papers to publish two articles critical of then-President Jimmy Carter. Two editors in Michigan refused. Panax President John McGoff fired one, and the

other resigned under pressure. Clearly, the combination of big business and newspaper publishing sometimes "introduces a profound conflict of interests in the media and invites hypocrisy in media owners whose function, as A.J. Liebling once noted, is 'to inform the public, but whose role is to make money.'"[35]

Hypocrisy in the media is not restricted to owners and upper-level management, however. Reporters have been irresponsible as well. Media credibility was severely damaged in 1981 when it was revealed that Janet Cooke's Pulitzer Prize-winning Washington Post story, "Jimmy's World," about an eight-year-old heroin addict, was not factual but a fabrication. The Pulitzer Prize was returned with apologies, but the damage was done. A Newsweek article stated:

> There is nothing more important to journalists and journalism than credibilty--and even before "Jimmy's World" was exposed as a hoax, the public had reservations about how much the news media could be trusted. The Cooke affair undoubtedly deepened those reservations.[36]

Alistair Reid, a writer for The New Yorker magazine, aroused a storm of criticism in 1984 when he admitted taking liberties with facts, concocting pithy remarks by interviewees and creating composite characters in his stories, a practice he had used periodically since 1961. The New Yorker is a prestigious magazine, well known for its meticulous checking of facts. That a writer on the staff of such a highly respected publication would engage in such behavior was particularly

distressing. William Thomas, editor of the Los Angeles Times, said, "It is an indulgence we cannot afford in this business."[37]

> To critics it did not matter that Reid's deviations were mainly inconsequential. Any departure from fact is the first step on a slippery slope toward unbelievability. Facts are what people can agree on. Truth can be determined by each reader.[38]

But most errors are the result of negligence rather than premeditated dishonesty. Speed and accuracy are high priorities in the news business and often they do not mix well. The necessity of quick reporting often does not allow for the checking, double checking and even triple checking of facts that is required for accuracy. In 1981,

> in the scramble to find a woman named Shirley McGill who was said to know the killer of at least six black children in Atlanta, The Miami Herald mounted an investigation that led to a 26-year-old drug addict and prostitute. A few hours after the paper published a detailed account of her checkered past, it discovered to its horror that it had the wrong Shirley McGill.
>
> In the chaos surrounding the release of the American hostages from Iran, a Newsweek correspondent in Weisbaden filed a report that quoted Elizabeth Ann Swift as accusing her Iranian captors of 'torture.' In his haste to get the file off, the correspondent failed to specify that he had seen the quote in a West German newspaper that he regarded as reliable. Swift later denied having said anything about torture, and Newsweek apologized in print the following week.[39]

Errors, whether deliberate or the result of human miscalculation, injure the reputation of the press among the

general public and cause it to view press credibility dubiously.

Press Image and the Polls

Denunciations of press credibility have existed almost as long as the press itself. In a letter to Edward Carrington, Thomas Jefferson wrote in 1787,

> Were it left to me to decide whether we should have a government without newspapers or newspapers without government, I should not hesitate a moment to prefer the latter.[40]

But perhaps more typical of Jefferson's sentiments were comments made early in the 19th century.

> In 1801 Jefferson condemned newspapers for 'their lying faculties.' In 1803 he spoke of 'their abuses,' in 1807 of 'their abandoned prostitution of falsehood,' in 1801 of 'their scurrilities.' In 1814 Jefferson concluded that newspapers had forfeited 'all title to belief,' and in 1815 he commented that rulers 'must rise above these vehicles of passion.'[41]

Press criticism has continued throughout this century. Will Irwin published, in Collier's, from January through July 1911 a series of critical articles called "The American Newspaper."

> Upton Sinclair's savage Brass Check followed in 1919. George Seldes bitterly attacked in Freedom of the Press in 1935, then in a newsletter, In Fact, which was published in the 1940s. During the 1930s, newspapers were targets in the general attacks on business, especially in such books as America's House of Lords by Harold Ickes and Ferdinand Lundberg's Imperial Hearst.[42]

In 1947, the Commission on the Freedom of the Press, a group of distinguished citizens, gathered to study press freedom and its future, and released the report A Free and Responsible Press. In it, the Hutchins Commission recognized the Miltonian right of free and open discussion, complete with truths as well as unintentional errors. But it also chastised the press for its propensity to emphasize audience attraction rather than serving as a medium for public discussion.

> The right of free public discussion does include the right to be in error. Liberty is experimental. Debate itself could not exist unless wrong opinions could be rightfully offered by those who suppose them to be right. But the assumption that the man in error is actually trying for truth is of the essence of his claim for freedom. What the moral right does not cover is the right to be deliberately or irresponsibly in error.[43]

> The worse offenders in this direction are to be found among the newspaper columnists and radio commentators. The members of this craft have come to perform an indispensable function in American public discussion. But they must attract the maximum audience, too. Some of them have thought the way to do this is to supply the public with keyhole gossip, rumor, character assasination, and lies.[44]

The opening paragraph in a Time magazine article entitled "Journalism Under Fire" perhaps best characterizes the public's view of the press today.

> They are rude and accusatory, cynical and almost unpatriotic. They twist facts to suit their not-so-hidden liberal agenda. They meddle in politics, harass business, invade people's privacy, and then walk off without regard to the pain and chaos they leave behind. They are arrogant and self-righteous, brushing aside most criticism as the uninformed carping of cranks and

> and ideologues. To top it off, they claim that their behavior is sanctioned, indeed sanctified, by the U.S. Constitution.[45]

Empirical evidence of the decline in public respect for journalism abounds. The image of media members has changed from one of a low-paid, highly dedicated perfectionist to one of a glory-seeker, interested more in money and renown than accuracy or a story's impact after publication. For example,

> ... the image of journalism has shifted in movies from the diligent crusading in All the President's Men to the reckless destruction of people's lives Absence of Malice, the corrupting collaboration with Nicaraguan revolutionaries in Under Fire and the intrusive bufoonery in The Right Stuff.[46]

James J. Kilpatrick wrote,

> The motion picture The Right Stuff depicted TV and newspaper reporters as a mob of shrill and insolent hoodlums; it was a caricature, but the essence of caricature lies in its kernel of truth.[47]

Public disdain for journalism is evidenced by court actions, too. Libel verdicts and awards are indicative of a public desire to punish journalists. "Juries are the American people," says Eugene Patterson, editor of the St. Petersburg Times. "They want to punish us."[48] Marc Franklin, law professor at Stanford University, said since 1976, 85 percent of 106 major libel verdicts were defeats for journalists. Of those nearly two dozen involved, damage awards totalled more than $1 million.[49] The Libel Defense Resource Center secretly conducted a study that revealed more than

60 percent of juries rule in favor of plaintiffs.[50] However, nearly 70 percent of the judgments against journalists are reversed on appeal, further indicating that the public will, manifested in juries, is to punish the craft at every opportunity, whether the individual journalist is guilty or not.[51]

When U.S. Marines and Rangers, along with troops from several other countries, invaded Grenada on October 25, 1983, members of the press were banned from the island. Journalists immediately sounded the alarm, saying "the people's right to know" had been violated.

> NBC commentator John Chancellor, in a Nightly News broadcast, voiced the press' vision of what was happening: 'The American Government is doing whatever it wants to, without any representative of the American public watching what it is doing.'[52]

Public opinion, however, was overwhelmingly against the press.

> Time's 225 letters on the issue ran almost 8 to 1 against the press.
>
> The trade publication Editor and Publisher found, in an informal survey of about a dozen dailies, that letters to the editor were running 3 to 1 in favor of the Reagan Administration's exclusion of the press.
>
> ABC anchor Peter Jennings said that '99%' of his mail from viewers on the issue supported Reagan.
>
> In 500 letters and phone calls to NBC, viewers supported the press ban in Grenada 5 to 1.[59]

Indeed, the public seemed almost delighted that the so-called arrogant press had gotten its just deserts. A caller to a New York newspaper was quoted, "I just want you know the press

had no business in Grenada and I'm glad they kept you out."[60] Max Frankel, editorial page editor for the New York Times, said,

> The most astounding thing about the Grenada situation was the quick, facile assumption by some of the public that the press wanted to get in, not to witness the invasion on behalf of the people, but to sabotage it.[55]

At a meeting of the International Press Institute in 1969 at Ottawa, Canada, George Gallup perhaps best summarized current press posture by saying, "Never in my time has journalism of all types--book publishing, television, radio, newspapers, magazines, movies--been held in such low esteem."[56]

However, statistical evidence, revealed by various polls, indicates press image is not as vitiated. A Roper poll conducted for Fortune magazine simply asked in 1937: "Is the press fair?" Just over 66 percent said it was, 26.5 percent said it was unfair and 7.3 percent had no opinion.[57]

A 1948 study by the National Opinion Research Center asked respondents if they thought newspapers were generally fair in giving both sides of public questions. Fifty-five percent said newspapers were fair, 37 percent said they were unfair and eight percent had no opinion.[58]

Just over 21 years later, a Gallup poll revealed significantly different results. In December 1969, the poll asked: "What about the newspapers--in presenting the news dealing with political and social issues--do they deal fairly with all sides, or do they tend to favor one side?" Confidence in

newspapers had dropped; 37 percent said they were fair, 45 percent said they were unfair and 18 percent had no opinion.[59]

In 1976 the Gallup Opinion Index Report revealed the results of a study that asked respondents the honesty and ethical standards of 11 different occupations. Journalists finished fourth, with 82 percent of respondents ranking journalists as average, high or very high in honesty and ethics. Medical doctors, engineers and college teachers were ranked higher, while lawyers, building contractors, besiness executives, U.S. senators, U.S. congressmen, labor union leaders and advertising practitioners ranked lower.[60]

In a comparison between public confidence in newspapers and public confidence in television, newspapers ranked higher, according to the results of a 1979 poll by the Gallup organization. Fifty-one percent said they had a "great deal" or "quite a lot" of confidence in newspapers, compared to only 38 percent expressing the same attitudes toward television. Those results are in contrast to 1973 results when only 39 percent of respondents expressed a "great deal" or "quite a lot" of confidence in newspapers, compared to the "about equal" 37 percent expressing the same attitudes toward television.[61]

A 1980 poll by the Gallup organization revealed some disturbing and somewhat contradictory public views of the press. Respondents were asked: "What has been your experience: in things you have known personally, has your newspaper got the facts straight, or has it been inaccurate?" Forty-seven

percent said it reported the facts straight, 34 percent said it was inaccurate and 19 percent could not say.[62]

Despite that confidence in press accuracy,

> ... the American people lean heavily, 2 to 1, to the view that the present curbs placed on the press are not 'strict enough' rather than 'too strict.'[63]

Thirty-seven percent advocated stricter controls; 17 percent believed they are too strict; 32 percent said they are "about right" and 14 percent had no opinion.[64] Those who favored more restrictions did so for three main reasons.

> -Newspapers publish information--including news about the government and about foreign affairs--that should not be made public because it is not in the best interests of the nation.
>
> -Newspapers distort and exaggerate the news in the interest of making headlines and selling newspapers.
>
> -Newspapers do not devote enough time to getting all the facts straight before they publish.[65]

The Los Angeles Times conducted a national poll in 1981 and the results were not encouraging. Forty percent of the respondents said they think the mass communication industry is irresponsible. Meanwhile, 20 percent said abuses should be dealt with more sternly by government regulators. Only 25 percent thought the media was ethical and 66 percent said it was not fair in handling the news.[66]

A master's thesis written by Terry Horne in 1982 studied respondents' attitudes toward the perceived credibility of three media--radio, television and newspapers. Respondents

resided in the Tulsa, Oklahoma area. Although the differences in mean attitudes were small (Television News, 4.82; Radio News, 4.79; Newspapers, 4.68), newspapers were ranked lowest of the three in credibility. In fact, none was rated particularly high in credibility. The mean for all three was only 4.76 on a scale of 1 to 7, with 4 being neutral.[67]

In 1959 Elmo Roper and Associates of New York, now the Roper Organization, Inc., was chosen to do a series of studies of television image. The Television Information Office requested the study in wake of the quiz show scandals. Although enacted for television, the studies reveal public opinion trends toward newspapers as well.

For years, newspapers were considered the dominant information medium. However, in 1963, that position was lost to television, and newspapers have steadily fallen further behind since. Respondents were asked:

> First, I'd like to ask you where you usually get most of your news about what's going on in the world today --from the newspapers or radio or television or magazines or talking to people or where?[68]

In 1959 newspapers led by six percentage points, 57 percent to 51 percent. In 1963 television moved ahead of newspapers by two percentage points, 55 percent to 53 percent. By 1974 newspapers had fallen further behind, 65 percent for television to 47 percent for newspapers. And as of December 1984 television had increased its lead to 24 percentage points, 64 percent to 40 percent.[69]

Among the college educated, newspapers were the primary

source of news until 1972. After 1972 newspapers and television exchanged positions, neither ever ahead by more than two or three percentage points, until 1984 when newspapers fell behind by a significant margin--ten points.[70]

The Roper poll also asked questions to determine each medium's share of audience. The results from December 1984 indicate that nearly half, or 46 percent, of all respondents named television alone as their only source of news. Of six categories naming various combinations of news sources, only 39 percent named a category that included newspapers.[71]

Concerning the relative credibility of media, the Roper poll asked:

> If you got conflicting or different reports of the same news story from radio, television, the magazines and the newspapers, which of the four versions would you be the most inclined to believe--the one on radio or television or magazines or newspapers?[72]

Since 1961 television has led newspapers as the most believable medium by 39 percent to 24 percent. Newspapers have continued to fall further behind, and in 1984 were behind television by more than 2 to 1--53 percent for television to 24 percent for newspapers.[73]

Newspapers and Marketing

This empirical and statistical evidence indicates the Fourth Estate is held in low esteem by much of the public. Perhaps a by-product of this is a net loss of readers. Although the total circulation of daily newspapers has remained

relatively constant for 20 years; it has not increased in proportion to the increase in population.[74] A recent survey by the Library of Congress indicates almost half--44 percent --of Americans know how to read but choose not to.[75] Harvey Jacobs, editor of The Indianapolis News, says these people are "aliterate"--they have no will to read. In his words,

> This society is simply not attuned to newspapers as it should be. It is not oriented toward books, as it should be. It is not a reading society, as it should be. I say this with regret, but I can say it with certainty, inspite of the excellent sales of Sunday papers, of magazines and books. The total sales look large, but in comparison to our total population they are small.[76]

Newspaper moguls are realizing that in addition to editorial soul-searching they must begin to promote their products, too. Again, Harvey Jacobs:

> Our traditional dignity and reticence may need to be put aside as newspapers fight for readers in a time when reading itself is in jeopardy.
>
> Some newspapers need to come off their elitist high horses and recoginze that you sell newspapers the same way you sell soap or brushes.
>
> We should be enlisting our personnel across the board in a brainstorming effort to make our product readable and to sell that readability to the readers.
>
> We persuade others to sell like hell--why not us?[77]

Thomas Guifridda is publisher of the Palm Beach Post and former circulation director of the Atlanta Journal and Constitution. He remarked that "total circulation numbers remain very important. Circulation is the clearest indication if a newspaper is doing well."[78] Newspapers are using varied means

to maintain and increase readership. Some are making minute changes such as changing typefaces, while others are going to far greater effort like the Los Angeles Herald. It recently renovated the building's facade to give it a more contemporary look.

The Herald recently launched a $3 million promotion campaign designed to increase circulation and emphasize the quality of the newspaper itself. The Herald purchased a series of billboard advertisements featuring celebrities such as Mayor Tom Bradley, Los Angeles Dodgers' pitcher Fernando Valenzuela, Lee Majors and Roger Moore. The Herald also purchased a full-page advertisement in the Los Angeles Times highlighting its staff critics on the arts. Associate Editor Sheena Patterson, who is directing the campaign as a special assignment, said,

> It was decided that promotion efforts should be directed primarily to pointing up the quality of the editorial product with particular emphasis on the paper's main strengths: sports, entertainment, local coverage and the excellence of the writing.[79]

Other newspapers prefer "give-aways" as a method of increasing readership. The St. Louis Globe-Democrat is giving away free copies in what is believed to be the first total-market distribution for a metropolitan Sunday newspaper. The Globe-Democrat is attempting to break the Sunday monopoly held by its rival, the St. Louis Post-Dispatch, by initially distributing to 425,000 households in the city and St. Louis County. The 48-page Sunday edition will be distributed by

165 carriers and will contain a 40 percent news hole featuring local, national and international news, sports, color comics, a television schedule and the Globe Weekend magazine. Publisher Jeffrey M. Gluck said,

> This is the most dramatic thing we could ever do to compete with the Sunday Post and the Wednesday Journals. It's our answer to where we are vulnerable to the Post and where we're vulnerable to the Journals.[80]

Some newspapers focus on their own employees to boost circulation. Prizes vary from the old constants--baseball caps, T-shirts, sweatshirts--to hotel packages to automobiles. The prizes are brand-name items from companies like Seiko, Kraft Foods and Apple Computers. At the St. Petersburg Times and Evening Journal the top prize was a red and silver 1985 Ford Escort. Every carrier who signed 25 orders during a recent two-month campaign was automatically entered in the drawing for the car.

At the Sacramento Bee, route carriers receive an "Action Scratch Off Card" for every new subscription. The cards at the minimum pay two dollar commissions and can pay up to $100. "It's a terrific promotion for us. We went through 11,000 cards in one six-week promotion," said Lou Cerutti, circulation-promotion manager at the Bee."[81]

The marketing of newspaper involves not just increasing circulation by motivating members of the delivery system, but solving the problem of subscription cancellation. Ronald J. Myatt, circulation director of the Rocky Mountain News, said,

> We still have too many publishers who believe the only solution to circulation problems is to change circulation directors. We need to do more communicating with publishers.
>
> More emphasis must be placed, not only on training, but also on training district managers how to be good at training others.[82]

Circulation managers are being taught to look at things from the carrier's perspective. The Milwaukee Journal and Sentinel have a motivational slide show and tape geared to younger route carriers. It features rock music and "off-the-wall humor" from local disc jockeys.

The efforts of publishers may be paying off. A May 1985 report by the Audit Bureau of Circulation revealed big circulation gains for the nation's 25 largest newspapers.

> Almost everyone of the top 25 newspapers gained Sunday and daily average paid circulation for the six months ending March 31 (1985)--and many outpaced the slowing economy of their metropolitan areas.[83]

The report also revealed two other trends developing during the last few years. Sunday circulation is increasing faster than daily circulation. The Cleveland Plain Dealer and the Philadelphia Enquirer both lost daily circulation, but were especially strong in Sunday circulation gains.

Also, big newspapers that recently achieved a monopoly in their respective cities due to the disappearance of competitors are struggling to maintain big circulation gains achieved when their competition folded.[84]

Publishers are discovering that actually changing their

product also is necessary. Many newspapers are being redesigned and color usage is part of that design. Caroline John, circulation director of the Atlanta Constitution and Journal, said, "Newspapers are the poorest wrapped and displayed products in America today."[85] She stressed that newspapers must improve the wrapping and displaying of their products in order to increase and hold on to circulation.[86]

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CHAPTER II

LITERATURE REVIEW

Color and Behavior

The increased use of editorial color by newspaper publishers is part of their effort to increase readership. Color attracts attention and, hopefully, more readers.

> In attention-value or pulling power, no doubt, certain superficial characteristics are more important, in general, than those of deeper appeal.[1]

Al Gollin, researcher for the Newspaper Advertising Bureau, once said, "Visual stimulation, including the use of color, is another effective way of attracting ... readers."[2] So more color is appearing in newspapers in the form of color pictures and tint blocks--a block of solid color with a story printed on it. But in addition to being aesthetically pleasing, color directly may affect humans, both physically and mentally.

Alexander Schauss, a clinical psychologist and director of the American Institute of Biosocial Research in Tacoma, Washington, believes the response to color is determined in an area of the brain called reticular formation. This area serves as the relay for the body's nerve impulses.[3] Harry

Wohlfarth is a visual arts professor at the University of Alberta. He believes that perception of color by the eye triggers the release of biochemicals which, in turn, affect moods and activities such as breathing and heart rate.[4]

Faber Birren and Kurt Goldstein have conducted numerous experiments on human behavior. Both have concluded that the presence of color has a direct influence on biological functions and emotions. In 1939, Goldstein wrote,

> It is probably not a false statement if we say that a specific color stimulation is accompanied by a specific response pattern of the entire organism.[5]

In 1963, Birren, dean of American color researchers, was less hesitant when he wrote, "There is little question that visible light and color influence and affect living things."[6]

Researchers have classified colors in the visible spectrum as "warm," "cool" and "neutral." The warm end of the spectrum contains pink, red, orange and yellow, with green being neutral; the cool end of the spectrum contains blue, violet and purple. In general, colors at the warm end of the spectrum are believed to induce exciting or stimulating effects, while cool colors possibly induce calming effects on test subjects.[7]

The results of some studies have supported this theory, while others have not. Gilbert Brighouse conducted a study in which he measured the muscular reactions of college students under colored lights. He found muscular reactions

under red light were 12 percent quicker than reactions under green light.[8]

But while red may produce quicker muscular reactions, it may also hinder performance. Goldstein concluded that:

> Green favors performance in general, in contrast to red. The effect of red probably goes more in the direction of an impairment of performance, in the direction of shock reaction.[9]

However, a study by Schauss indicated that a warm color, pink, may have a calming effect, and a cool color, blue, may have an exciting effect on individuals in certain situations. He measured arm strength while subjects were looking at various colors. After establishing a base amount of force for each subject, a pink card was held in front of the subject's face. On subsequent trials the amount of force exerted greatly diminished. But when a blue card was held up, the amount of force increased--usually equal to the original amount.[10]

Dr. Humphrey Osmond is a Scottish psychiatrist who has done revealing research on schizophrenia. In the December 1979 issue of the Journal of Orthomolecular Psychiatry he wrote that, upon sight of pink, an individual's muscles weaken in 2.7 seconds. Sighting blue will restore strength in precisely 3.8 seconds.[11]

A group of researchers at the University of Northern Colorado studied respondent grip strength, power and precision after the respondents viewed red, blue and pink lights. They

found no significant differences in power and precision after the respondents had viewed each of the three colors. However, the results for grip strength were significantly different. Grip was significantly stronger in the presence of red light than in blue or pink. There was no significant difference between grip strength under blue or pink light. This particular finding is somewhat contradictory to the general philosophy of the effect of warm colors (pink) and cool colors (blue) on the body.[12]

The possibility that color affects muscular strength indicates that it may also affect motor skills. The result of one study indicated that, when surrounded by colors of preference, students may perform better in school. Cindy Bross and Karen Jackson at Texas Women's University conducted an investigation of students' performances when surrounded by their most- and least-preferred colors. Sixty girls in grades seven, eight and nine were given two questionnaires, each asking their most- and least-preferred colors. Fifty indicated the same color preferences on both questionnaires. Each of those 50 was asked to trace a star pattern three times while looking into a mirror in her most-preferred room and three times in her least-preferred room. The girls made fewer errors in rooms of their most-preferred colors with no significant differences in the amount of time required to complete the tasks. This suggests that "liked" colors may have decreased muscular tension.[13]

Color apparently affects people stricken with some

types of cerebellar disease. In a 1942 article, Goldstein wrote about a woman stricken with a malady that caused her to fall unexpectedly. He found her symptoms were significantly more pronounced when she wore a red dress. But when she wore green or blue clothing her equilibrium almost was restored.[14]

Other tests conducted by Birren indicated that red light may have a profound effect on people stricken with epilepsy. He concluded that,

> In what is called photogenic epilepsy, flickering red light is more likely to induce radical brain waves and clinical seizures than other colors.[15]

Birren discovered that the filtering of red light reduced the frequency of clinical seizures even when medication had been discontinued.[16]

Goldstein found that exposure to color also can affect judgment. Under red light, the passage of time was likely to be over-estimated, while under green or blue light it was likely to be under-estimated. When respondents were asked to estimate the length of sticks, Goldstein found that lengths were over-estimated during the presence of red light and under-estimated in the presence of green light. Also, under red light, weights were judged heavier than under green light.[18]

Robert Gerard, now a California clinical psychologist, also found significant differences in reactions to different colors. He found that respiration, frequency of eyeblinks

and blood pressure increased when the subject was exposed to red light and decreased when the subject was exposed to blue light. Cortical activity increased during exposure to red and blue light but over time, activity consistently was greater under red light.[19]

In addition to studying color's physical effects on the human body, Gerard also studied color's effects on emotions. His study investigated the effects of various colors on psychophysiological measures indicative of emotional changes. Twenty-four adults were subjected to 10 minutes each of red and blue light of equal brightness. The results were consistent with those of most tests. Red light created more tension and excitement, while blue light elicited greater relaxation and less anxiety and hostility.[20]

Some empirical evidence indicates that pink walls in jails may help reduce hostility among prisoners. Mike Miller, commander of the Santa Clara County Jail in San Jose, California, believes pink walls do calm inmates.

> We had 15 or 20 guys waiting to be processed in a holding area. A lot of the guys got boisterous and yelling and I knew there was going to be a fight. So I had them moved into the pink room.
>
> Within a matter of minutes two guys got up in the middle of the room and started telling jokes. The other guys were laughing ... and the whole mood, the anger, changed to an almost complacent attitude. I saw that and as far as I'm concerned, painting that room pink was worth it just to stop one altercation.[21]

Pink walls are more humane and less expensive than using

psychotropic drugs, which often are necessary to calm troubled juveniles, according to Dr. Paul Boccumini, clinical services director for the San Bernardino County, California Probation Department. An isolation room was painted pink at the Kuiper Youth Center and the changes were noticeable. Boccumini said,

> We have reams of reports describing how staff members would literally have to sit on troubled juveniles to calm them down and then they would go back to their rooms and blow up again. But since we painted one room pink we have had only one case where the reaction was not so good.
>
> Violent outbursts usually end within 15 minutes of the time a youngster is placed in the pink room. Then we still have to talk to them. But first we get them out of an agitated state and calmed.[22]

Others believe that the use of pink walls is nothing more than a fad with no real scientific proof to support jailers' claims.

> Ann Price, color studio manager of Glidden Paint, agrees that color can affect mood. But Price, who gives advice on color schemes for commercial buildings and detention facilities, disagrees with Schauss about the effects of pink.
>
> 'I have heard these claims and I know there has been some research by some psychologists who claim pink calms, but we think just the opposite is true. The warmer colors of the palette tend to excite, not relax--colors like the yellow of the sun and the red of fire--and pink is just a letdown of red.[23]

When pressed for hard scientific proof of his claims about pink rooms, Schauss tempers his philosophies by saying that pink may initially calm inmates but those left in a

pink room too long may become agitated. In two separate locations--the Seattle Navy brig and the Cabell County, West Virginia police drunk tank--two prisoners left in pink rooms for extended periods tried to hang themselves.[24]

The use of color in the design of school buildings is gaining greater acceptance because of its apparent stimulation of children's minds. Steven P. Papadatos is an architect in New York City. He contends that brighter, warmer colors help create surroundings that draw children to school. The use of these colors can help create an atmosphere where teachers are more contented and students are better able to adjust to longer lessons in the same room.[25]

A rigorous study by researchers at the University of Kansas studied how long people looked at Japanese art when the gallery was painted dark brown as opposed to light beige. Sensors were placed beneath the carpet in front of various works of art. Analyses showed that people spent three times as long looking at art in the beige gallery as they did in the dark brown gallery.[26]

Whether color causes certain behaviors or is merely associated with them, as some psychologists claim, is still a mystery. Birren perhaps stated it best when he said that certain behaviors may be a combination of both reaction to and association with colors.

> It may thus be generalized that color affects muscular tension, cortical activation, heart rate, respiration, and other functions of the autonomic nervous sytem--and certainly that it arouses

> definite emotional and aesthetic reactions, likes and dislikes, pleasant and unpleasant associations.[27]

Some researchers now believe that the presence of color may affect the body even when the color is not visible. A study by Goldstein,

> ... called for a subject to stretch out his arms horizontally in front of his body. When colors were employed, red light would cause the arms to spread away from each other. Green light would cause cause them to approach each other in a series of jerky motions. In cases of torticollis (twitching), exposure to red light increased restlessness, while green light decreased it. In similar experiments, when face and neck are illuminated from the side, the outstretched arms will deviate toward the light if red, and away from it if blue.[28]

These results were achieved with the subjects' eyes covered to prevent the entrance of any light.

Results of this type have increased speculation that reaction to color may not all be learned. It is believed that some reactions are innate.

> The sense of color is probably inborn in man, and even persons blind since birth have an 'instinct' for color and its emotional significance.[29]

In attempting to prove this theory, researchers have sought patterns of associations between moods or emotional states and various colors. A study by Louis Wexner at Purdue University was designed to measure the degree to which certain colors are associated with moods. She hypothesized there is a positive relationship between certain colors and

moods. Each in a group of 94 students was asked to select a color for certain word groups provided by Wexner. The designated colors were yellow, orange, red, blue, green, brown and black.

No significant differences in responses by sex were found. The results indicated a positive relationship between certain word groups and certain colors.

> For instance, in some cases one color 'goes with' a mood-tone significantly more often than does any other color (of the particular shades of colors used in this experiment). Red is more often associated with exciting-stimulating, blue with secure-comfortable, orange with distressed-disturbed-upset, blue with tender-soothing, purple with dignified-stately, yellow with cheerful-jovial-joyful, and black with powerful-strong-masterful.[30]

Virtually all researchers agree that cultural conditioning plays a part in these color-mood associations. Those tested were adults and it is impossible to determine what effect culture had on their responses. However, in 1940, J.P. Guilford wrote that experimental results

> ... point very strongly to a basic communality of color preferences among individuals. This commmunality probably rests upon biological factors, since it is hard to see how cultural factors could produce by conditioning the continuity and system that undoubtedly exists.[31]

In an attempt to neutralize possible cultural factors, researchers began testing children, hoping to study them before much conditioning had taken place. A study conducted at Daemen College in Buffalo, New York, compared color-mood

associations of adults with those of seven- and eight-year-old children. Twenty-four children viewed 20 slides and rated them as happy or sad on a nine-point scale. Only the four with the highest "happy" rating and the four with the highest "sad" rating were used. A group of 80 children viewed the eight slides and were asked after each slide to color a square with the color of their choice. The colors available were red, orange, black, yellow, green, blue and brown. The same procedure was used with the adults. Twenty-two initially judged the slides with 34 coloring squares.

A chi-square test indicated a significant relationship between the emotional tone of the pictures and the color preferences of the children and adults. The children designated yellow, orange, green and blue as happy colors and red, brown and black as sad. The adults made the same assignments with the exception of blue.

> The results indicated a strong and reliable association between emotional tone and color. The fact that young children respond as the older subjects has been used to argue for the innate association of color and emotions.[32]

Carol O. and Edward E. Lawler III conducted a study at the University of California, Berkeley, using even younger children to test for innate responses to color. Twenty-seven female and 21 male nursery school children, ranging in age from three years and three months to four-and-one-half years, were individually shown a picture of a little girl. An accompanying story was read to the child. One story was sad; the

other was happy. Each child heard only one story. After hearing a story, each child was asked to color the girl's dress yellow or brown.

There were no significant differences in the results by sex. However, there was a significant difference in color choices. The children hearing the sad story chose brown, while children hearing the happy story chose yellow.

> The fact that preschool children who have been subjected to relatively little cultural conditioning have strong color-mood associations similar to those found in adults gives some support to Guilford's theory that color choices are biologically determined. Of course, this finding does not rule out the possibility that cultural conditioning plays an important role in determining color-mood associations, since even children of preschool age may have been subjected to some cultural conditioning in this area.[33]

Whether the result of cultural conditioning or genetic factors, it is clear people do directly react to color. Businesses, and newspapers, can capitalize on this by using color to entice potential buyers. Many publishers are realizing that the use of color sells. Dr. Robert Chestnut, research director of the Advertising Research Foundation, said:

> Color means a different perception. The same information with color is of different value to us than without. Color increases the chance that information will get by our selective attention; that we will like it; that we will understand it; and that we will eventually take action upon it.[34]

Design and Color

> What newspapers have discovered is that how they present the news visually is as important as how it is presented verbally. Newspaper editors and publishers realize now that good design is not mere decoration, but a valuable tool in communication to readers in an increasingly competitive information marketplace.[35]

So to compete, or perhaps remain in business, newspapers are being redesigned with simplicity in mind. Many are now better organized, utilizing sections with a master index on the front page and smaller indexes on the front of each section. Because of tradition, many newspapers continue to use Text or Blackletter for nameplates, but have switched to the more modern Gothic race of types for some headlines. Roman typefaces are still used for editorials and news stories; however, the bolder typefaces are increasingly being used to provide sharper contrast.

Many newspapers are converting to the standard advertising unit system created by advertisers and newspapers to establish a uniform nationwide system for advertising. This allows the use of a modular format for the news hole, which is better organized and eliminates dogleg columns that are hard to read.

The more traditional nine-colum format is being replaced by the more modern six-column format. Some newspapers like The Tulsa Tribune print some stories in a four-column format to create a sense of variety. In The Art of Editing, Baskette, Sissors and Brooks imply that a page with a variety of shapes

is more pleasing to the eye.

> If there are too many vertically shaped stories all leading the reader's eyes downward, then the page looks old-fashioned and unattractive. Newspapers circa 1850 were all vertical in shape, and vertical makeup is distinctly old-fashioned. However, a page using horizontally shaped stories exclusively may be as monotonous as one where all stories are vertically shaped. The best looking pages have a mixture of shapes.[36]

Edmund C. Arnold devoted a large part of his book Modern Newspaper Design to the distinction between traditional and modern design practices. He acknowledged that neither is inherently superior to the other, but that research indicates modern design is more readable.[37]

However, in a study by Click and Stempel, the modern, six-column format of the Los Angeles Times had only average appeal when compared to the Charleston Daily Mail which uses a horizontal format. In fact, the newspapers utilizing a horizontal format scored higher on stylistic scales than did those using a balanced format. The Buffalo Evening News uses a balanced format and was rated lowest on stylistic scales by respondents. The results also gave slight indication that horizontal make-up might be viewed as sensational.[38]

Six years later, the results of a study by Click and Stempel indicated respondents preferred modern to traditional design with "no indication that newspapers with modern format might be perceived as sensational."[39]

Their latest study is part of a continuing examination

of newspaper trends. Respondents were asked to rate on semantic differential scales samples of newspapers using modern and traditional formats and color. The results indicated that respondents preferred modular layout with color to modular layout without color and traditional layout with or without color.[40]

A recent study by Stone, Schweitzer and Weaver analyzed the relationships between the adoption of modern design and street sales and circulation. They found that higher street sales by percentage and greater zone circulation usually follow the adoption of a modern design makeup.[41]

After a redesign of the Washington Post by Walter Bernard and Milton Glaser, Publisher Donald Graham said, "We wanted to see if we could do something about the reader's ability to find things inside an increasingly bigger package."[42] At first, reader reaction was about evenly divided pro and con. Post management said that complaints trickled off quickly and indications are that the new look has been accepted.

The New York Times underwent a redesign including the use of more photography, visual indexes, large initials at the beginning of stories, and greater use of more modern typefaces in headlines. After the inception of four modernly designed weekly sections, sales increased 35,000 copies a day.[44]

The New York Times overwhelmingly was voted the nation's best designed newspaper in a 1984 poll of Society of Newspaper

Design members. The Morning Call of Allentown, Pennsylvania was second and USA Today finished third.[45]

Respondents were asked to rank the five best designed newspapers on the basis of use of typography; story and photo layout; use of sketches, diagrams and other informational graphics; and over-all organization of the paper's elements. Respondents were also asked to rank the five newspapers "using color in the most appropriate and effective fashion."[46]

USA Today was the landslide winner in the color category with The Register of Santa Ana, California finishing second and the St. Petersburg Times third. Forty percent of those responding stated the usage of color in their local papers had changed because of USA Today's presence.[47]

Although third in the color usage category, the St. Petersburg Times has won some awards, too.

> It was recently judged the 'World's Best' in Eastman Kodak Company's International Run for the Money color reproduction contest. Time magazine this spring (1984) named the Times, which has a Pulitzer Prize to its credit, one of the 10 most influential newspapers in the United States. One of the strengths cited by Time was the paper's pioneering use of color graphics.[48]

Thirty years ago, the late Nelson Poynter, past owner, editor and president of the St. Petersburg Times, envisioned his newspaper as a color newspaper. When a new printing plant was built, Poynter had the necessary equipment installed to print in color, enabling the Times to pioneer in the use of editorial color. The newspaper prints charts, graphs, and

maps and uses color in home, food, arts/leisure/travel, fashion, news, sports and business sections.[49]

The number of newspapers using color continues to grow. According to a 1985 survey by the Newspaper Advertising Bureau, 28 percent of the nation's daily newspapers were using color regularly. Fifty-three percent of dailies surveyed with circulation over 100,000 were using full color on a regular basis.[50]

But the use of color is not limited to large newspapers. Many smaller newspapers use color, including:

> ... the Fairbanks Daily News-Miner. The Sun Chronicle in Attleboro, Massachusetts, The Free Lance-Star in Fredericksburg, Virginia, the Independence (Kansas) Daily Reporter, Citizen Tribune of Morristown, Tennessee, The Brawley (California) News, the Daily News-Record at Harrisonburg, Virginia, and the Orlean (New York) Times Herald.[51]

These newspapers and several others were using color before 1982 when USA Today first appeared.

Whether used by large or small newspapers, editors believe color usage is directly related to increased readership. James Correau, production manager of The Dallas Morning News, stated,

> Color brings readers--there's definitely no question about that. Color is part of our aim to provide our readers the very best newspaper.[53]

"Our circulation department reports street sales go up every time we run color on the front page," stated Leonard Lowrey,

executive editor of the Hattiesburg American in Hattiesburg, Mississippi.[54] And San Diego Tribune Editor Neil Morgan stated, "The newspaper looks drab when you don't have color. When it's used, readers are more likely to be drawn into the story."[55]

In Using Color to Sell, Danger expressed the role of color usage in the effort to sell products. It is applicable to newspapers, too.

> Color is not the only factor that helps a package to so a selling job but it is an important part of the whole. People do not buy a package for itself, but for what it contains, but in choosing between competitive packs they are motivated by factors which are often subconscious. There is usually little point in asking people whether they like a package or not, because they react to it at a subconscious level. They rarely deliberate over a package, but are attracted to it and by it; this is why color is so important--it often provides the sales impulse.[56]

A 1976 study by Click and Stempel indicated that when color was used in conjunction with news, respondents overwhelmingly preferred newspapers with color. Each respondent judged four newspapers--two that used color and two that did not. Each respondent was asked to rate each paper on 20 semantic differential scales. Ratings for the newspapers printed with color were higher on 19 of the 20 scales, a significant margin.[57]

But many in the newspaper business are concerned that color is overused. They are concerned that newspapers may be developing a philosophy that has overtaken television

news--it is not a good story unless accompanied by good footage. Or in the case of newspapers--it is not a good story unless accompanied by a color photograph or a tint block.

A former feature editor at a large suburban daily is concerned about color's effects on editorial decisions. She believes that the overuse of color results in too many "happy stories," that color does not lend itself to issue-oriented stories so they often do not appear in page one where they should be.[58] However, Chris Anderson, editor of The Register in Santa Ana, California, stated,

> We never use color for color's sake. We select the best possible illustration for stories and where possible use color. We design with color in mind whenever we can, but we don't print bad photos or bad art because we have a color position available to us.[59]

Walter Bernard, who has redesigned several magazines and newspapers, is concerned about the intrusive effects of new designs and color usage on readers.

> I don't think it's good for newspapers to become too playful and magazine-like in their design. I don't think a newspaper is about design except in the basic sense, as a background for the content.
>
> The voice of a newspaper is very important: unique, classical, clean, well-presented. It should not overtake its content.[60]

Researchers have conducted studies to determine if the structural characteristics of a message affect the impact of

that message. In an old but important study, researchers at the University of Minnesota studied the effects of typography on the legibility and pleasantness of printed samples. Two separate groups of respondents judged the printed samples. One group judged the material for legibility, while the other judged the pleasantness of the material. No attempt was made to define pleasantness. In all cases, the judged legibility and pleasantness showed agreement. In fact, the authors concluded, "In general, the agreement is so close that we are warranted in concluding that judged legibility may be accepted as equivalent to pleasingness."[61]

In 1964 researchers at the University of Wisconsin studied the effects of various typefaces on a message. Three groups were asked to rate each of a set of standard typefaces. The selections were made from two typeraces--Roman and Gothic. Bodoni and Garamond were chosen from the Roman race and Spartan and Kabel from the Gothic race. Each family was judged in upper and lower cases and regular and italic inclinations. The variations in family, case and inclination produced significant differences in the connotative judgments of the message.[62]

The results of these studies seem to support the concerns of Walter Bernard--that the method by which a newspaper presents news can affect the perception of the content.

Research in Color Usage

Color may be largely responsible for affecting a message.

It is potent weapon in our society of color-conscious consumers. It attracts attention and may be responsible for increased sales. Publishers adamantly proclaim that color sells newspapers and increases sales of products advertised in color. Yet a seven-month search revealed only a few actual studies of the effects of color on message perception.

Color tint-blocks often are used for hard and soft news stories. A poll of readers for the Hackensack Record revealed that color was not as readily accepted in hard news stories but was often associated with soft news such as food, sports and lifestyle stories.[63] Yet none of the following deals with color's effects on news; rather, it shows bearing on advertising and sales.

In 1963 Starch conducted a study of the effects of advertisement size and color usage on readers. The study was sponsored jointly by the Boston Globe, Milwaukee Journal, Philadelphia Bulletin, St. Louis Post-Dispatch and the now bankrupt Washington Star. More than 20,000 people were interviewed. Men and women were scored separately on three degrees of impact: noted, seen-associated and read-most.

Noted included those who remembered an advertisement but not necessarily the product or advertiser. Seen-associated included those who associated the advertisement with the product or advertiser. Read-most included those who read half or more of the advertisement copy.

For half-page-size advertisements in black and white, the score for each sex was very close: noted, 33 percent;

seen-associated, 30 percent; and read-most, 10 percent. When one color was added to the advertisement, the scores for men changed very little; however, the scores for women jumped: noted, 44 percent; seen-associated, 40 percent; and read-most, 14 percent.

When full color was added, the scores for both sexes increased. Men increased to 41 percent for noted, 38 percent for seen-associated and 11 percent for read-most. The scores for women jumped even more: noted, 53 percent; seen-associated, 49 percent; and read-most, 16 percent.

When scores for every product category and advertisement size were combined, Starch found that the use of color shows up significantly in the scores for both men and women.[64]

Sparkman and Austin conducted a study based on the results of two separate experiments conducted by the Long Beach Independent Press-Telegram in 1968 and 1978.[65] Both experiments were similar. Seven different products were selected for the 1968 study and six for the 1978 study. On alternating Saturdays, products were advertised in one-color and black-and-white at reduced prices. The special prices were in effect only for the following Sunday and Monday.

Retailers were asked to keep accurate sales records and do no additional promoting of the advertised products. The authors concluded that exogenous variables were adequately controlled.

> Prior to the test, participating stores were carefully briefed on the importance of providing

> the same in-store atmosphere around the item each week. That requirement was to assure the same environment for customers when the advertisement was in color and when it was in black and white only. Liaison with the advertiser was maintained throughout the test to monitor and validate actual sales.[66]

For every product except one, hair spray, color produced significantly higher sales. The authors combined results from both tests and concluded that the use of color in advertisements increases sales by 41 percent over black-and-white advertisements.

The Washington Post conducted a study using coupons with advertisements printed in black and white, one color and full color. The indexed returns showed "100 of black-and-white, 128 of one color and 179 of full color."[67] Researchers at the Post concluded that color advertisements outsell black-and-white advertisements by 2-to-1.

The Newspaper Advertising Bureau released results of a study which indicates the use of color stimulates more reading of body copy in advertisements. According to the results, reading increased by 50 percent to 80 percent.[68]

The limited availability of research concerning color's effects on message perception indicates more studies need to be conducted, particularly since color usage in newspapers is becoming more pervasive.

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CHAPTER III

METHODOLOGY

Attitude Expression

Most publishers agree that usage of newspaper color helps sell newspapers. The figures support their claims. However, little research has been conducted to determine why color sells.

Rokeach said that a person must act in accordance to his attitudes; it is impossible not to.[1] He contends that, when an individual's behavior is inconsistent with his expressed attitudes, it is because another undisclosed attitude of greater importance has influenced his behavior.[2]

Thus, a verbal expression explaining behavior often cannot be taken at face value and is not useful for research purposes. Rokeach explains,

> There are many reasons why a particular verbal expression cannot necessarily be taken at face value. A person may be unable or unwilling to reveal to himself or to others his real (underlying) beliefs, attitudes, or values. He may need to conceal from himself, for example, his idealization of power and transform it, by a process of rationalization, into ideals of charity and responsibility.[3]

Rokeach distinguished "public" and "private" attitudes by saying that an opinion typically represents a public

attitude, but may be more representative of a private attitude when expressed in privacy.[4] Thus, for the social scientist, it is necessary to measure public and private attitudes since both influence the purchase process.

The Semantic Differential

When developing a method for measuring attitudes, Thurstone proposed that the use of opinions would be an accurate way of measuring attitudes.[5] However, given Rokeach's philosophy of the inconsistencies between attitudes and expressed opinions, a method of measurement more accurate than simply recording expressed opinions was needed. Psychologists concluded that,

> If an individual expresses a number of opinions which are, in some sense, consistent evaluations of an object over a short period of time, he will probably express consistent opinions for some time thereafter.[6]

Ward reports that very often the respondent will express the opinion he believes the researcher wants to hear. Therefore, the semantic differential can be used to "trick" the respondent into revealing what he really thinks.[7]

The semantic differential was not the result of direct research into attitude measurement, but a by-product of research in synesthesia. In his Dictionary of Psychology, published in 1934, Warren described synesthesia as a type of subconscious, Pavlovian behavior where a certain sensation would attach itself to another sensation and appear whenever

a stimulus of the latter type occurred.[8]

Karwoski and Odbert conducted studies on synesthesia; however, their research was primarily related to language and thinking. Karwoski, Odbert and Osgood found indications that various stimuli may have shared significances and elicit the same responses from various individuals.[9]

Osgood explored this further while working on his undergraduate thesis in psychology at Dartmouth. He studied five widely-separated, primitive cultures looking for semantic parallelism. He found striking general relationships among the cultures: "good" gods, places, people, etc. were characterized as up and white or light and "bad" things were characterized as down and black or dark.[10]

As a result, Karwoski, Odbert and Osgood concluded that synesthesia was connected with language in that certain word groups triggered similar responses among different people. They found that attitudes could be measured by using bipolar scales with adjectives of opposite meaning at each end.[11] The semantic differential measures attitudes by asking respondents to respond to a particular concept by rating the concept on several bipolar scales with descriptive adjectives at either end. A typical scale is presented in Figure 1.

Concept

Good ___:___:___:___:___:___:___ Bad

Figure 1. A Semantic Differential Scale

Osgood explained his measurement technique:

> The major properties of attitude that any measurement technique is expected to index are readily accommodated by this procedure. Direction of attitude, favorable or unfavorable, is simply indicated by the selection of polar terms by the subject; if the score falls more toward the favorable poles, then the attitude is taken to be favorable, and vice versa. A score that falls at the origin, defined by '4' on the scale, is taken as an index of neutrality of attitude.[12]

Through further research, Osgood found that most adjective pairs fell into one of three categories: Evalutation, Potency or Activity.[13] In The Measurement of Meaning, Osgood published his list of 50 adjective pairs with the highest variance for each of the three categories according to Thurstone's Centroid Factor Method.[14] Osgood noted that the sacles which scored high in variance fell into the evaluative category. Evaluative pairs accounted for almost 70 percent of the total variance for all of the pairs.[15] In general, the higher the factor loading or variance of an adjective pair, the greater the semantic range and the more likely it is to accurately measure a respondent's attitude. Indeed, in Attitude Measurement Heise stated that the most accurate way of selecting scales is on the basis of published factor analysis.[16]

The Instrument

The semantic differential is a very flexible tool and can be adapted to the purposes of a particular study. Osgood wrote:

> It is a very general way of getting at a certain type of information, a highly generalizable technique of measurement which must be adapted to the requirement of each research problem to which it is applied. There are no standard concepts and no standard scales; rather, the concepts and scales used in a particular study depend upon the purposes of the research.[17]

This adaptability makes the sematic differential ideal for measuring attitude changes as a result of changes in "effect." More specifically, it will be used in this study to measure attitude changes as a result of the use of a color background for news stories.

Kerlinger reports that measuring attitudes may require the use of evaluative scales only.[18] For this study, the eight evaluative scales tested by Lyle were used. Lyle asked students in a journalism class at Stanford University to write comparisons of their hometown newspapers with the New York Times and Time magazine. Ten Palo Alto Times subscribers were asked to compare said newspapers with one other they were familiar with. All descriptive adjectives were extracted from the written responses.[19]

Adjectives were also extracted from literature on newspaper reader attitudes and from letters written by readers of the Willows, California Daily Journal during a newspaper

criticism contest.[20]

After analysis, Lyle assembled a list of eight evaluative pairs, four of which had received factor loadings from Osgood's analysis. They are: 1) clean-dirty, .82; 2) good-bad, .88; 3) fresh-stale, .68; 4) fair-unfair, .83; 5) superior-inferior; 6) attractive-unattractive; 7) complete-incomplete; and 8) interesting-uninteresting. The latter four pairs were originally Lyle's and no factor loadings were available.[21]

The Sampling Procedure

The sample was drawn from students in classrooms at Oklahoma State University. A total of 384 students were sampled from various colleges, including Arts and Sciences, Agriculture and Business Administration. The author chose this method of sampling due to time and financial constraints.

Each student was asked to take a survey home, read the accompanying story, fill out the survey and return it at the next class meeting. Ninety-six received the story and survey printed on white paper, 96 on green paper, 96 on red paper, and 96 on blue paper. The shades of color were pastels commonly used in newspapers at that time. The "green," "white," "red," and "blue" stories were equally divided among each class surveyed. The news story and survey design were identical for all four color groups.

The story was a news analysis from the Associated Press, published January 29, 1986 in the Tulsa Tribune, a perennial

winner of Oklahoma Associated Press awards. The subject of the story was the January 28, 1986 explosion of the space shuttle Challenger. The ramifications of the accident on NASA safety regulations and the ambitious turn-around schedule for all four shuttles were discussed. Competition from other countries for satellite launching business was also a topic. The story was approximately 10 column inches long.

After reading the story, each respondent was asked to evaluate three concepts using the same eight semantic differential scales. The concepts judged were: 1) readability; 2) writing quality; and 3) objectivity.

Respondents were then asked to answer four brief demographic questions concerning age, sex, educational level and family income level (See Appendix A). The demographic levels correspond to those used by The Gallup Poll.

Analysis

The author used analysis of variance to analyze the effects of the treatments on the respondents' evaluations of the concepts.

> The method is general: differences of more than two groups can be tested to statistical significance. The method of analysis of variance uses variances entirely, instead of using actual differences and standard errors, even though the actual difference-standard error reasoning is behind the method. Two variances are always pitted against each other. One variance, that presumably due to the experimental (independent) variable or variable is pitted against another variable, that presumably due to error or randomness.[22]

Five independent variables were used, each having more than one level: color, four levels; age, four levels; sex, two levels; education, four levels; and income, four levels. The repeatable measures were on the ratings of the three concepts, since every respondent read the same story and rated the same concepts. Thus, the dependent variables were the respondents' ratings of the three concepts.

Three different types of analyses of variance were used to determine if the independent variables acted singly or in concert to affect respondents' ratings of the concepts.

A Treatments-by-Subjects analysis was used to determine if the entire sample as a group rated the three concepts significantly different.

A Type I or two-factor analysis with repeated measures on one factor was used to determine if any or all levels of each independent variable produced significant differences in the ratings of the concepts.

A Type III or three-factor analysis with repeated measures on one factor was used to determine if any or all levels of two independent variables acted in concert to affect the ratings of the concepts.

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CHAPTER IV

FINDINGS

Of the 384 surveys distributed, 221 were returned, for a response rate of 57.6 percent. Ninety-eight (44.3 percent) of the respondents were male and 119 (53.8 percent) were female. Four respondents did not include their age, sex, income, or educational levels and an additional respondent did not include his income level. For this reason and due to rounding of decimals, percentages do not equal 100 percent.

Ninety-six surveys in each of the four colors were distributed. The quantity and percentage returned by color is provided in Table I.

The Age, Education and Income levels of the respondents are provided in Tables II, III and IV.

Some levels within the variables were combined to provide statistically sound groups. Due to the excessive number of respondents in the 18-24 age level, the four levels were combined to form one group.

The levels of education were collapsed into high and low groups. The low group included those with a high school diploma and some college. The high group comprised those with a college degree.

TABLE I

SURVEYS RETURNED, BY COLOR

Color	Number Returned	Percent
Green	60	62.5
White	50	52.1
Red	59	61.5
Blue	52	54.2
TOTAL	221	

TABLE II

AGE BREAKDOWN OF RANDOM SAMPLE

Age	Number of Respondents	Percent
18 - 24	172	77.8
25 - 29	20	9.0
30 - 49	25	11.3
50 and older	0	0.0
TOTAL	217	98.1

TABLE III

EDUCATIONAL BREAKDOWN OF SAMPLE

Education	Number of Respondents	Percent
Less Than High School Diploma	0	0.0
High School Diploma	8	3.6
Some College	159	71.9
College Degree	50	22.6
TOTAL	217	98.1

TABLE IV

INCOME BREAKDOWN OF SAMPLE

Income	Number of Respondents	Percent
Under $10,000	23	10.4
$10,000 - $14,000	19	8.6
$15,000 - $19,000	19	8.6
$20,000 and above	155	70.1
TOTAL	216	97.7

Family income levels were collapsed into low and high groups. The low group included all whose income was $19,999 or less. The high income group comprised those whose income was $20,000 and above.

As stated in Chapter III, three types of analyses of variance were used to study the effects of the independent variables on the dependent variable--the respondents' ratings of the concepts. The five independent variables were rotated individually and in pairs. The actual structure of the cross-breaks varied with the number of independent variables studied at a given time. Figure 2 provides a general example of how the levels of independent variables were juxtaposed for the analyses of variance.

		CONCEPTS		
COLOR	SEX	Objectivity	Writing Quality	Read-ability
Green	Male			
	Female			
White	Male			
	Female			
Red	Male			
	Female			
Blue	Male			
	Female			

Figure 2. Levels of Independent Variables Juxtaposed to Illustrate Design of Analysis

The Concepts

The author wanted to know if the sample as a homogenous group assigned different ratings to the three concepts. The responses of all 221 respondents were used in the computations. Respondents' attitudes toward the three concepts varied between the neutral and slightly favorable points on the Semantic Differential scale. Table V provides the mean attitudes toward each concept.

TABLE V

MEAN ATTITUDES TOWARD THE THREE CONCEPTS

Concept	Mean
Objectivity	4.6
Writing Quality	4.9
Readability	4.8
MEAN TOTAL	4.8

A mean total of 4.8 indicates respondents were slightly favorable toward the news story as judged by the three concepts.

Even though the three means differed by only three-tenths

of a point, a treatment-by-subjects analysis indeicated there were significant differences. The F-ratio for between subjects was significant at the .0001 level (See Appendix B). A difference as large as that observed between the 221 subjects would occur by chance less than one time in 100. Thus, the author can state with 99 percent confidence that the survey instrument measured attitudes consistently.

The F-ratio for between concepts also was significant at the .0001 level (See Appendix B). The difference observed between the mean attitudes toward the three concepts would occur by chance less than one time in 1000. A gap test computation in SAS, a Duncan multiple range test, revealed that significant differences exist between all three concepts. The author can state with 99 percent confidence that each of the three concepts was measuring a separate and distinct dimension of opinion. Although the respondents were slightly favorable toward the story and the means of all three concepts were close, respondents thought writing quality was better than readability; readability was better than objectivity; and writing quality was better than objectivity. By "better," the author means a more positive meaning, as measured by the semantic differential scale.

Variations in Attitude

The following analyses were conducted to determine if any of the independent variables acted individually to affect ratings of the concepts.

Type I Analysis of Variance

Color-by-Concepts. Mean ratings from all 221 respondents were included. All the mean ratings, when separated by color and concept, differed by only five-tenths of a point, as shown in Table VI.

TABLE VI

CONCEPT MEANS BY COLOR

Concept	Color			
	Green	White	Red	Blue
Objectivity	4.5	4.5	4.5	4.7
Writing Quality	4.9	5.0	4.9	5.0
Readability	4.9	4.8	4.7	4.9
TOTAL MEAN BY COLOR	4.8	4.8	4.7	4.9

A two-factor mixed design, or Type I analysis of variance, indicated different color backgrounds caused no significant differences in the concept ratings. The F-ratio for color-by-concept was significant at the .79 level (See Appendix B). The author can state with only 21 percent confidence that use

of different color backgrounds affected the concept ratings, far too little to consider seriously.

Kerlinger reports that an .05 level of significance, or 95 percent confidence level, is most commonly used to check for statistical significance.

> The .05 level was originally chosen--and has persisted with researchers--because it is considered a reasonably good gamble. It is neither too high nor too low for most social scientific research. Many researchers prefer the .01 level of significance. This is quite a high level of certainty. Indeed, it is 'practical certainty.'[1]

Therefore, the author must conclude that different color backgrounds had no effect on the ratings of the concepts.

Sex-by-Concepts. Another Type I analysis was conducted to determine if sex affected the concept ratings. Mean ratings from 217 respondents were used. The effect of sex on the concept ratings was significant at the .67 level (See Appendix B). The author can state with only 33 percent confidence that males were distinguished from females in their mean ratings of the concepts. Thus, the author must conclude that sex did not affect respondents' ratings of the concepts.

Education-by-Concepts. Two hundred seventeen of the respondents' mean ratings were used in this analysis. The author sought to determine if educational levels of the respondents affected their ratings of the concepts. The effect of educational level on the concept ratings was significant at the .38 level (See Appendix B). The author can state with only

62 percent confidence that educational level affected the concept ratings. It must be concluded that educational level did not affect the concept ratings.

Income-by-Concepts. The final Type I analysis of variance determined if income level affected the concept ratings. Two hundred sixteen respondents' ratings were used in this analysis. Income level affected the concept ratings at the .31 level of significance, a 69 percent level of confidence (See Appendix B). Income levels were not distinguished by the ratings of the concepts. The author must conclude that income level did not affect the ratings of the concepts.

Type III Analysis of Variance

The following six analyses were conducted using a three-factor or Type III analysis of variance. The author wanted to know if any combination of two independent variables acted in concert to affect the concept ratings.

No combinations of color, sex, income level or educational level acted in concert to create a significant difference in the ratings of the concepts. Table VII provides the remaining levels of significance and confidence.

TABLE VII

SIGNIFICANCE AND CONFIDENCE LEVELS
OF THE TYPE III ANOVAS

Analysis of Variance	Level of Significance	Level of Confidence
Sex x Color x Concepts	.4016	59.84%
Education x Color x Concepts	.4536	54.64%
Income x Color x Concepts	.8884	11.16%
Sex x Education x Concepts	.3542	64.58%
Sex x Income x Concepts	.9922	00.78%
Education x Income x Concepts	.7710	22.90%

Summary of Findings

Respondents in this sample, as a homogenous group, placed significantly different judgments on the three concepts. Writing Quality was rated significantly higher than Readability. Readability was rated significantly higher than Objectivity.

Overall, the story was rated slightly positive by the respondents.

Respondents were classified according to the color of survey read, sex, income levels and educational levels. None of the four independent variables acted individually or in concert to affect the ratings of the concepts.

ENDNOTE

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CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

Purpose and Hypothesis

This study sought to determine if use of color backgrounds affected readers' perception of a news story. After reviewing literature, the author hypothesized that a story printed on a color background would elicit higher readability, writing quality and objectivity ratings than a story printed on a white background.

Limitations

The author designed this study to simulate reading a story in a newspaper. However, it could be argued that reading one story centered on a colored 8 1/2 by 11 inch sheet is different from reading the same story printed on a color tint block in a newspaper.

The levels of the demographic variables should have been better tailored to the sample rather than using the levels employed by The Gallup Poll. More than half the respondents fell into the 18-24 age group. Given the relative youth of most college students, the levels of the variable

should have been divided to more clearly define the younger audience. A more balanced sample might have resulted.

Due to financial considerations, the sample was not obtained through scientific means such as randomization. The author attempted to sample a broad cross-section of university students, but many probably were not represented.

For these reasons, it would be impossible to generalize and apply these results to any other than the sample group. However, results do deserve attention.

Conclusions

Many publishers are seizing upon color as a promotional tool to increase newspaper sales. Many newspapers now spend millions of dollars on promotional efforts including give-aways, contests, advertising and color usage. Newsday, a Long Island tabloid, recently spent $7 million to install color-capable equipment.[1] Publishers from Fairbanks, Alaska to Dallas to Hackensack, New Jersey tout color as a kind of "saviour" that will increase circulation and readership.

Many publishers attribute circulation gains to the introduction of color and seem to equate those gains with increased readership. Consequently, disproving the hypothesis, results of this study indicated color had no effect on readers' evaluations of the story. Results of a recent Roper poll, concerning attitudes toward the media, indicated that newspapers continue to fall further behind television as Americans' primary source of news.[2]

Indeed, some large dailies scoring circulation gains when they added color and/or lost a competitor due to bankruptcy are now having trouble maintaining those big gains.

The author theorizes that color usage may be temporarily increasing circulation, but not necessarily readership. Americans may be buying color newspapers for the package rather than the content. If this is true, then newspaper color is little more than a fad which, on its own merits, probably will not maintain reader allegiance.

Respondents in this study did place significantly different ratings on the three concepts. Writing Quality was rated highest; not surprising, since the story was reprinted from The Tulsa Tribune, a perennial winner of Oklahoma Associated Press awards. Although rated slightly favorable, Objectivity was rated the lowest. The author specualtes this may may be a result of the general feeling of the public that the press is often unfair. A 1981 Los Angeles Times poll found that 66 percent of those surveyed thought the press was not fair in handling the news.[3] Another contributing influence could be that most in the sample were in an age group that has never known life without television news and is accustomed to news that is short and fast with little detail. Thus, they have neither the time nor the patience to read a story and get all of the information it offers.

The mean attitude toward the story as a whole was only slightly favorable, indicating a somewhat apathetic attitude

toward the press. The author finds this disturbing, given that a report in the Gallup Opinion Index Report indicates Americans, by a 2 to 1 margin, believe curbs placed on the press are not strict enough rather than too strict.[4] That result, combined with the virtually neutral attitude indicated by this study, indicates a lack of awareness of the important role of the press in a free society. That lack of awareness could endanger press freedom if it becomes too pervasive.

Recommendations

As more and more color is splashed on front pages, publishers must determine its value. Is it merely pleasing visually, or does it have editorial value as well? Studies concerning color's effects on readers of advertising show color can increase sales by as much as 72 percent.[5] Certainly, more studies concerning color's effects on news are in order.

But while publishers are using color to sell more advertising space and increase circulation, they must get their ethical house in order. They must begin to police and discipline themselves better, as the Hutchins Commission proposed some 40 years ago:

> The gist of the recommendations in this section of our report is that the press itself should assume the responsibility of providing the variety, quantity, and quality of information and discussion which the country needs. This seems to us largely a question of the way

> in which the press looks at itself. We suggest that the press look upon itself as performing a public service of a professional kind. Whatever may be thought of the conduct of individual members of the older, established professions, like law and medicine, each of these professions as a whole accepts a responsibility for the service rendered by the profession as a whole, and there are some things which a professional man will not do for money.[6]
>
> We have repeatedly evidenced our desire that the power of government should not be invoked to punish the abberations of the press. If the press is to be accountable--and it must be if it is to remain free--its members must discipline one another by the only means they have available, namely, public criticism.[7]

This, along with continued promotional efforts, will increase profits and readership, and develop the loyal following the press so desperately needs to remain free.

ENDNOTES

[1]George Garneau, "Newsday Makes $7 million Commitment to Color," Editor and Publisher, January 12, 1985, p. 23.

[2]The Roper Organization, Inc., "Trends in Attitudes Toward Television and Other Media: A Twenty-Six Year Review," Report Distributed by the Television Information Office (New York: 1985), p. 3.

[3]Tom Johnson, "What the News Media Must Do to Bolster Public Confidence," Editor and Publisher, December 19, 1981, p. 13.

[4]George Gallup, Gallup Opinion Index Report (Princeton, January 1980), p. 23.

[5]Ken Leach, "Expanding Market Share: Color Is Key," Editor and Publisher, September 25, 1982, p. 72.

[6]The Commission on Freedom of the Press, A Free and Responsible Press, A General Report on Mass Communication: Newspapers, Radio, Motion Pictures, Magazines and Books (Chicago, 1947), p. 92.

[7]Ibid., p. 94.

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APPENDIXES

APPENDIX A

THE SURVEY

INSTRUCTIONS

The purpose of this study is to measure your attitudes toward three news concepts by having you rate them on a series of descriptive scales. Please mark your answers based on what you think of the story.

Following is a brief story about the explosion of space shuttle Challenger. Please read it and then evaluate it for readability, writing quality and objectivity by marking the corresponding scales for each separate concept at the top of the page.

For example, on a good-bad scale, if you felt readability was very closely related to good, then mark:

Good _X_:___:___:___:___:___:___ Bad

If readability was quite closely related to good, then mark:

Good ___:_X_:___:___:___:___:___ Bad

If readability was slightly more related to good than bad, mark:

Good ___:___:_X_:___:___:___:___ Bad

If readability was equally related to good and bad, or if that particular scale is irrelevant, mark:

Good ___:___:___:_X_:___:___:___ Bad

The direction toward which you check depends upon which end of the scale most accurately describes readability.

Special Note: Please do not look back and forth through the items. Make each scale a separate and independent judgment about the concept at the top of the page. Work at fairly high speed. It is your first impression we want.

NASA never sacrificed safety in rush for flights

By HARRY F. ROSENTHAL

A news analysis

CAPE CANAVERAL, Fla. (AP) — Always the pressure was on NASA to fly more, to carry more, to earn back more of the enormous cost of the space shuttle program.

"Fast turnaround" became a way of life. On each work day as they passed through the Kennedy Space Center gates, engineers and janitors alike were reminded by signboards of how many days it was until launch.

The National Aeronautics and Space Administration went to great lengths to shave a day here and there off the turnaround time. On the last mission, the shuttle was kept aloft two extra days in the vain hope that weather would permit a Florida landing and trim six days off the preparation for the next flight.

And yet, NASA never hesitated to delay a flight for safety reasons, even at the risk of offending the customers for whom it was delivering satellites to orbit. The weather had to be right, the ship had to be right. On a few occasions, computers ordered launch pad shutdowns because one instrument reading did not agree with another.

"We always strive in every flight that we perform to be as reliable and as safe as we possibly can and to do everything that we can to ensure that the vehicle and the systems are all ready to fly," shuttle director Jesse Moore said Tuesday. "Flight safety is our No. 1 priority in the space shuttle program."

The pressures on NASA came from all around: from the Air Force, from NASA's European competition, from Congress, from friends and from critics.

The agency's goal was 24 launches a year, beginning in 1988, with the four spacecraft — Columbia, Challenger, Discovery and Atlantis — flying six times each. This year, 1986, was to be the most ambitious to date, with 15 flights penciled in.

But the year started badly. The first mission was an embarrassment. Five times the crew entered the shuttle Columbia, only to climb out again hours later because of a scrub. Two more launch dates were set and then postponed until the shuttle finally made it aloft, 25 days late.

NASA promised the fastest turnaround ever, seven days from Columbia's landing to Challenger's launch. It would be tight, but the schedule would be maintained. For the first time in the shuttle program, a second launch pad was available and Challenger lifted off a respectable three days late.

"There was absolutely no pressure to get this particular launch off," said Moore.

There is no doubt, however, that NASA has been feeling the heat.

The Air Force argued vehemently that it was unwise to depend on the shuttle alone to deliver critical satellites into space. NASA contended that was "a heavy-handed scheme by the Air Force to give the shuttle a black eye" and said it counted on Air Force business for one-third of its revenue.

The European consortium Arianespace has been giving NASA intense competition for the satellite dollar, winning several contracts that otherwise would have gone to the space shuttle. Arianespace officials have said they hope to win one-third of the satellite communications business by 1995, but they, too, had a rocket blow up recently, destroying two satellites.

China announced last year it was open for commercial launch business, and Japan is developing its own capability. India has joined space-launching nations, and Brazil is building a rocket base. The Soviet Union, too, is beginning to compete for launch business.

Now the pressure on NASA is to find out what happened. It's certain to be a while before the signboards at the gates again promise a launch in a few days.

READABILITY

Clean ___:___:___:___:___:___:___ Dirty

Good ___:___:___:___:___:___:___ Bad

Stale ___:___:___:___:___:___:___ Fresh

Unfair ___:___:___:___:___:___:___ Fair

Superior ___:___:___:___:___:___:___ Inferior

Unattractive ___:___:___:___:___:___:___ Attractive

Complete ___:___:___:___:___:___:___ Incomplete

Uninteresting ___:___:___:___:___:___:___ Interesting

WRITING QUALITY

Dirty ___:___:___:___:___:___:___ Clean

Good ___:___:___:___:___:___:___ Bad

Stale ___:___:___:___:___:___:___ Fresh

Fair ___:___:___:___:___:___:___ Unfair

Inferior ___:___:___:___:___:___:___ Superior

Attractive ___:___:___:___:___:___:___ Unattractive

Incomplete ___:___:___:___:___:___:___ Complete

Interesting ___:___:___:___:___:___:___ Uninteresting

OBJECTIVITY

Clean ___:___:___:___:___:___:___ Dirty

Bad ___:___:___:___:___:___:___ Good

Fresh ___:___:___:___:___:___:___ Stale

Unfair ___:___:___:___:___:___:___ Fair

Superior ___:___:___:___:___:___:___ Inferior

Unattractive ___:___:___:___:___:___:___ Attractive

Complete ___:___:___:___:___:___:___ Incomplete

Uninteresting ___:___:___:___:___:___:___ Interesting

GENERAL INFORMATION

Please mark the appropriate response for you.

This information is for statistical analysis only.

No one will know which sheet is yours.

AGE:

___ 18-24

___ 25-29

___ 30-49

___ 50 and older

SEX

___ Male

___ Female

LEVEL OF EDUCATION

___ Less than high school diploma

___ High school diploma

___ Some college

___ College degree

LEVEL OF FAMILY ANNUAL INCOME:

___ Under $10,000

___ $10,000 - $14,000

___ $15,000 - $19,000

___ $20,000 and above

APPENDIX B

COMPUTER PRINTOUTS OF ANALYSIS OF VARIANCE

ANALYSIS OF VARIANCE PROCEDURE

DEPENDENT VARIABLE: VALUE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	222	600.84365008	2.70650293	10.07	0.0001	0.835592	10.8336
ERROR	440	118.21942685	0.26868052		ROOT MSE		VALUE MEAN
CORRECTED TOTAL	662	719.06307692			0.51834401		4.78461538

SOURCE	DF	ANOVA SS	F VALUE	PR > F
SUBJECT	220	587.49641026	9.94	0.0001
CONCEPT	2	13.34723982	24.84	0.0001 — 99.99%

ROBERT MARKS
AGE BY CONCEPTS - TREATMENT BY SUBJECTS

ANALYSIS OF VARIANCE PROCEDURE

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: VALUE
NOTE: THIS TEST CONTROLS THE TYPE I COMPARISONWISE ERROR RATE,
NOT THE EXPERIMENTWISE ERROR RATE

ALPHA=0.05 DF=440 MSE=0.268681

NUMBER OF MEANS	2	3
CRITICAL RANGE	0.0979568	0.103008

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN GROUPING	MEAN	N	CONCEPT
A	4.93348	221	WQ
B	4.82670	221	READ
C	4.59367	221	OBJ

ANALYSIS OF VARIANCE PROCEDURE

DEPENDENT VARIABLE: VALUE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	662	719.06307692	1.08619800	.	.	1.000000	0.0000
ERROR	0	0.00000000	0.00000000		ROOT MSE		VALUE MEAN
CORRECTED TOTAL	662	719.06307692			0.00000000		4.78461538

SOURCE	DF	ANOVA SS	F VALUE	PR > F
COLOR	3	3.26328857	.	.
SUBJECT(COLOR)	217	584.23312169	.	.
CONCEPT	2	13.34723982	.	.
COLOR*CONCEPT	6	0.85190064	.	.
CONCEP*SUBJEC(COLOR)	434	117.36752621	.	.

TESTS OF HYPOTHESES USING THE ANOVA MS FOR SUBJECT(COLOR) AS AN ERROR TERM

SOURCE	DF	ANOVA SS	F VALUE	PR > F
COLOR	3	3.26328857	0.40	0.7503

TESTS OF HYPOTHESES USING THE ANOVA MS FOR CONCEP*SUBJEC(COLOR) AS AN ERROR TERM

SOURCE	DF	ANOVA SS	F VALUE	PR > F
CONCEPT	2	13.34723982	24.68	0.0001
COLOR*CONCEPT	6	0.85190064	0.53	0.7894 — 21.06%

ROBERT MARKS
COLOR BY CONCEPTS - TYPE I

ANALYSIS OF VARIANCE PROCEDURE

MEANS

COLOR	N	VALUE
1	177	4.69774011
2	156	4.87051282
3	180	4.74666667
4	150	4.84333333

CONCEPT	N	VALUE
OBJ	221	4.59366516
READ	221	4.82669683
WQ	221	4.93348416

COLOR	CONCEPT	N	VALUE
1	OBJ	59	4.47966102
1	READ	59	4.73898305
1	WQ	59	4.87457627
2	OBJ	52	4.71346154
2	READ	52	4.87307692
2	WQ	52	5.02500000
3	OBJ	60	4.53333333
3	READ	60	4.86000000
3	WQ	60	4.84666667
4	OBJ	50	4.67600000
4	READ	50	4.84200000
4	WQ	50	5.01200000

ANALYSIS OF VARIANCE PROCEDURE

DEPENDENT VARIABLE: VALUE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	650	706.83542243	1.08743911	.	.	1.000000	0.0000
ERROR	0	0.00000000	0.00000000			ROOT MSE	VALUE MEAN
CORRECTED TOTAL	650	706.83542243				0.00000000	4.79385561

SOURCE	DF	ANOVA SS	F VALUE	PR > F
SEX	1	4.62483219	.	.
SUBJECT(SEX)	215	574.42392357	.	.
CONCEPT	2	13.45090630	.	.
SEX*CONCEPT	2	0.21547626	.	.
SUBJECT*CONCEPT(SEX)	430	114.12028411	.	.

TESTS OF HYPOTHESES USING THE ANOVA MS FOR SUBJECT(SEX) AS AN ERROR TERM

SOURCE	DF	ANOVA SS	F VALUE	PR > F
SEX	1	4.62483219	1.73	0.1897

TESTS OF HYPOTHESES USING THE ANOVA MS FOR SUBJECT*CONCEPT(SEX) AS AN ERROR TERM

SOURCE	DF	ANOVA SS	F VALUE	PR > F
CONCEPT	2	13.45090630	25.34	0.0001
SEX*CONCEPT	2	0.21547626	0.41	0.6666 — 33.34%

ROBERT MARKS
SEX BY CONCEPTS - TYPE I

ANALYSIS OF VARIANCE PROCEDURE

MEANS

SEX	N	VALUE
F	357	4.71736695
M	294	4.88673469

CONCEPT	N	VALUE
OBJ	217	4.59723502
READ	217	4.84746544
WQ	217	4.93686636

SEX	CONCEPT	N	VALUE
F	OBJ	119	4.50504202
F	READ	119	4.76386555
F	WQ	119	4.88319328
M	OBJ	98	4.70918367
M	READ	98	4.94897959
M	WQ	98	5.00204082

ANALYSIS OF VARIANCE PROCEDURE

DEPENDENT VARIABLE: VALUE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	647	702.67549383	1.08605177	.	.	1.000000	0.0000
ERROR	0	0.00000000	0.00000000	.	ROOT MSE		VALUE MEAN
CORRECTED TOTAL	647	702.67549383			0.00000000		4.78858025

SOURCE	DF	ANOVA SS	F VALUE	PR > F
INCOME	1	1.92268720	.	.
SUBJECT(INCOME)	214	573.21280663	.	.
CONCEPT	2	13.70466049	.	.
INCOME*CONCEPT	2	0.62046977	.	.
SUBJE*CONCE(INCOM)	428	113.21486973	.	.

TESTS OF HYPOTHESES USING THE ANOVA MS FOR SUBJECT(INCOME) AS AN ERROR TERM

SOURCE	DF	ANOVA SS	F VALUE	PR > F
INCOME	1	1.92268720	0.72	0.3978

TESTS OF HYPOTHESES USING THE ANOVA MS FOR SUBJE*CONCE(INCOM) AS AN ERROR TERM

SOURCE	DF	ANOVA SS	F VALUE	PR > F
CONCEPT	2	13.70466049	25.90	0.0001
INCOME*CONCEPT	2	0.62046977	1.17	0.3105 – 68.95%

ROBERT MARKS
INCOME BY CONCEPTS - TYPE I

ANALYSIS OF VARIANCE PROCEDURE

MEANS

INCOME	N	VALUE
H	465	4.75440860
L	183	4.87540984

CONCEPT	N	VALUE
OBJ	216	4.58935185
READ	216	4.84398148
WQ	216	4.93240741

INCOME	CONCEPT	N	VALUE
H	OBJ	155	4.52838710
H	READ	155	4.82838710
H	WQ	155	4.90645161
L	OBJ	61	4.74426230
L	READ	61	4.88360656
L	WQ	61	4.99836066

ANALYSIS OF VARIANCE PROCEDURE

DEPENDENT VARIABLE: VALUE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	650	706.83542243	1.08743911	.	.	1.000000	0.0000
ERROR	0	0.00000000	0.00000000		ROOT MSE		VALUE MEAN
CORRECTED TOTAL	650	706.83542243			0.00000000		4.79385561

SOURCE	DF	ANOVA SS	F VALUE	PR > F
EDUC	1	0.56532263	.	.
SUBJECT(EDUC)	215	578.48343313	.	.
CONCEPT	2	13.45090630	.	.
EDUC*CONCEPT	2	0.51087973	.	.
SUBJEC*CONCEP(EDUC)	430	113.82488064	.	.

TESTS OF HYPOTHESES USING THE ANOVA MS FOR SUBJECT(EDUC) AS AN ERROR TERM

SOURCE	DF	ANOVA SS	F VALUE	PR > F
EDUC	1	0.56532263	0.21	0.6471

TESTS OF HYPOTHESES USING THE ANOVA MS FOR SUBJEC*CONCEP(EDUC) AS AN ERROR TERM

SOURCE	DF	ANOVA SS	F VALUE	PR > F
CONCEPT	2	13.45090630	25.41	0.0001
EDUC*CONCEPT	2	0.51087973	0.96	0.3818 — 61.82%

ANALYSIS OF VARIANCE PROCEDURE

MEANS

EDUC	N	VALUE
H	150	4.74000000
L	501	4.80998004

CONCEPT	N	VALUE
OBJ	217	4.59723502
READ	217	4.84746544
WQ	217	4.93686636

EDUC	CONCEPT	N	VALUE
H	OBJ	50	4.50600000
H	READ	50	4.86600000
H	WQ	50	4.84800000
L	OBJ	167	4.62455090
L	READ	167	4.84191617
L	WQ	167	4.96347305

ANALYSIS OF VARIANCE PROCEDURE

DEPENDENT VARIABLE: VALUE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	232	595.00192320	2.56466346	9.59	0.0001	0.841783	10.7898
ERROR	418	111.83349922	0.26754426		ROOT MSE		VALUE MEAN
CORRECTED TOTAL	650	706.83542243			0.51724680		4.79385561

SOURCE	DF	ANOVA SS	F VALUE	PR > F
SEX	1	4.62483219	17.29	0.0001
COLOR	3	4.49458489	5.60	0.0009
SEX*COLOR	3	6.80510976	8.48	0.0001
SUBJECT(SEX*COLOR)	209	563.12422892	10.07	0.0001
CONCEPT	2	13.45090630	25.14	0.0001
SEX*CONCEPT	2	0.21547626	0.40	0.6688
COLOR*CONCEPT	6	0.62485572	0.39	0.8859
SEX*COLOR*CONCEPT	6	1.66192917	1.04	0.4016 — 59.84%

TESTS OF HYPOTHESES USING THE ANOVA MS FOR SUBJECT(SEX*COLOR) AS AN ERROR TERM

SOURCE	DF	ANOVA SS	F VALUE	PR > F
SEX	1	4.62483219	1.72	0.1916
COLOR	3	4.49458489	0.56	0.6446
SEX*COLOR	3	6.80510976	0.84	0.4723

ROBERT MARKS
SEX BY COLOR BY CONCEPTS - TYPE III

ANALYSIS OF VARIANCE PROCEDURE

MEANS

SEX	N	VALUE
F	357	4.71736695
M	294	4.88673469

COLOR	N	VALUE
1 RED	177	4.69774011
2 BLUE	147	4.90952381
3 GREEN	180	4.74666667
4 WHITE	147	4.85170068

SEX	COLOR	N	VALUE
F	1	108	4.53425926
F	2	69	4.74782609
F	3	99	4.73838384
F	4	81	4.90987654
M	1	69	4.95362319
M	2	78	5.05256410
M	3	81	4.75679012
M	4	66	4.78030303

CONCEPT	N	VALUE
OBJ	217	4.59723502
READ	217	4.84746544
WQ	217	4.93686636

SEX	CONCEPT	N	VALUE
F	OBJ	119	4.50504202
F	READ	119	4.76386555
F	WQ	119	4.88319328
M	OBJ	98	4.70918367
M	READ	98	4.94897959
M	WQ	98	5.00204082

COLOR	CONCEPT	N	VALUE
1	OBJ	59	4.47966102
1	READ	59	4.73898305
1	WQ	59	4.87457627
2	OBJ	49	4.73469388
2	READ	49	4.94897959
2	WQ	49	5.04489796
3	OBJ	60	4.53333333
3	READ	60	4.86000000
3	WQ	60	4.84666667
4	OBJ	49	4.67959184
4	READ	49	4.86122449
4	WQ	49	5.01428571

SEX	COLOR	CONCEPT	N	VALUE
F	1	OBJ	36	4.37222222
F	1	READ	36	4.55833333
F	1	WQ	36	4.67222222
F	2	OBJ	23	4.51739130
F	2	READ	23	4.75652174
F	2	WQ	23	4.96956522
F	3	OBJ	33	4.53030303
F	3	READ	33	4.82727273
F	3	WQ	33	4.85757576
F	4	OBJ	27	4.64074074
F	4	READ	27	4.96666667
F	4	WQ	27	5.12222222
M	1	OBJ	23	4.64782609
M	1	READ	23	5.02173913
M	1	WQ	23	5.19130435
M	2	OBJ	26	4.92692308
M	2	READ	26	5.11923077
M	2	WQ	26	5.11153846
M	3	OBJ	27	4.53703704
M	3	READ	27	4.90000000
M	3	WQ	27	4.83333333
M	4	OBJ	22	4.72727273
M	4	READ	22	4.73181818
M	4	WQ	22	4.88181818

EDUCATION BY COLOR BY CONCEPTS - TYPE III

ANALYSIS OF VARIANCE PROCEDURE

DEPENDENT VARIABLE: VALUE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	232	595.17038716	2.56538960	9.60	0.0001	0.842021	10.7817
ERROR	418	111.66503526	0.26714123		ROOT MSE		VALUE MEAN
CORRECTED TOTAL	650	706.83542243			0.51685707		4.79385561

SOURCE	DF	ANOVA SS	F VALUE	PR > F
EDUC	1	0.56532263	2.12	0.1461
COLOR	3	4.49458489	5.61	0.0009
EDUC*COLOR	3	8.06515807	10.06	0.0001
SUBJECT(EDUC*COLOR)	209	565.92369017	10.14	0.0001
CONCEPT	2	13.45090630	25.18	0.0001
EDUC*CONCEPT	2	0.51087973	0.96	0.3852
COLOR*CONCEPT	6	0.62485572	0.39	0.8855
EDUC*COLOR*CONCEPT	6	1.53498965	0.96	0.4536

-54.64%

TESTS OF HYPOTHESES USING THE ANOVA MS FOR SUBJECT(EDUC*COLOR) AS AN ERROR TERM

SOURCE	DF	ANOVA SS	F VALUE	PR > F
EDUC	1	0.56532263	0.21	0.6482
COLOR	3	4.49458489	0.55	0.6465
EDUC*COLOR	3	8.06515807	0.99	0.3971

ROBERT MARKS
EDUCATION BY COLOR BY CONCEPTS - TYPE III

ANALYSIS OF VARIANCE PROCEDURE

MEANS

EDUC	N	VALUE
H	150	4.74000000
L	501	4.80998004

COLOR	N	VALUE
1 RED	177	4.69774011
2 BLUE	147	4.90952381
3 GREEN	180	4.74666667
4 WHITE	147	4.85170068

EDUC	COLOR	N	VALUE
H	1	30	4.24333333
H	2	45	4.85111111
H	3	51	4.80980392
H	4	24	5.00416667
L	1	147	4.79047619
L	2	102	4.93529412
L	3	129	4.72170543
L	4	123	4.82195122

CONCEPT	N	VALUE
OBJ	217	4.59723502
READ	217	4.84746544
WQ	217	4.93686636

EDUC	CONCEPT	N	VALUE
H	OBJ	50	4.50600000
H	READ	50	4.86600000
H	WQ	50	4.84800000
L	OBJ	167	4.62455090
L	READ	167	4.84191617
L	WQ	167	4.96347305

COLOR	CONCEPT	N	VALUE
1	OBJ	59	4.47966102
1	READ	59	4.73898305
1	WQ	59	4.87457627
2	OBJ	49	4.73469388
2	READ	49	4.94897959
2	WQ	49	5.04489796
3	OBJ	60	4.53333333
3	READ	60	4.86000000
3	WQ	60	4.84666667
4	OBJ	49	4.67959184
4	READ	49	4.86122449
4	WQ	49	5.01428571

EDUC	COLOR	CONCEPT	N	VALUE
H	1	OBJ	10	3.82000000
H	1	READ	10	4.34000000
H	1	WQ	10	4.57000000
H	2	OBJ	15	4.69333333
H	2	READ	15	4.94000000
H	2	WQ	15	4.92000000
H	3	OBJ	17	4.67058824
H	3	READ	17	4.98235294
H	3	WQ	17	4.77647059
H	4	OBJ	8	4.66250000
H	4	READ	8	5.13750000
H	4	WQ	8	5.21250000
L	1	OBJ	49	4.61428571
L	1	READ	49	4.82040816
L	1	WQ	49	4.93673469
L	2	OBJ	34	4.75294118
L	2	READ	34	4.95294118
L	2	WQ	34	5.10000000
L	3	OBJ	43	4.47906977
L	3	READ	43	4.81162791
L	3	WQ	43	4.87441860
L	4	OBJ	41	4.68292683
L	4	READ	41	4.80731707
L	4	WQ	41	4.97560976

INCOME BY COLOR BY CONCEPTS - TYPE III

ANALYSIS OF VARIANCE PROCEDURE

DEPENDENT VARIABLE: VALUE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	231	590.74270034	2.55732771	9.50	0.0001	0.840705	10.8324
ERROR	416	111.93279348	0.26906922		ROOT MSE		VALUE MEAN
CORRECTED TOTAL	647	702.67549383			0.51871882		4.78858025

SOURCE	DF	ANOVA SS	F VALUE	PR > F
INCOME	1	1.92268720	7.15	0.0078
COLOR	3	5.24036153	6.49	0.0003
INCOME*COLOR	3	2.82530647	3.50	0.0156
SUBJEC(INCOME*COLOR)	208	565.14713863	10.10	0.0001
CONCEPT	2	13.70466049	25.47	0.0001
INCOME*CONCEPT	2	0.62046977	1.15	0.3167
COLOR*CONCEPT	6	0.65991703	0.41	0.8732
INCOME*COLOR*CONCEP	6	0.62215922	0.39	0.8884 – 11.16%

TESTS OF HYPOTHESES USING THE ANOVA MS FOR SUBJEC(INCOME*COLOR) AS AN ERROR TERM

SOURCE	DF	ANOVA SS	F VALUE	PR > F
INCOME	1	1.92268720	0.71	0.4012
COLOR	3	5.24036153	0.64	0.5882
INCOME*COLOR	3	2.82530647	0.35	0.7916

ROBERT MARKS
INCOME BY COLOR BY CONCEPTS - TYPE III

ANALYSIS OF VARIANCE PROCEDURE

MEANS

INCOME	N	VALUE
H	465	4.75440860
L	183	4.87540984

COLOR	N	VALUE
1 RED	174	4.67643678
2 BLUE	147	4.90952381
3 GREEN	180	4.74666667
4 WHITE	147	4.85170068

INCOME	COLOR	N	VALUE
H	1	141	4.59787234
H	2	111	4.89099099
H	3	129	4.74728682
H	4	84	4.84761905
L	1	33	5.01212121
L	2	36	4.96666667
L	3	51	4.74509804
L	4	63	4.85714286

CONCEPT	N	VALUE
OBJ	216	4.58935185
READ	216	4.84398148
WQ	216	4.93240741

INCOME	CONCEPT	N	VALUE
H	OBJ	155	4.52838710
H	READ	155	4.82838710
H	WQ	155	4.90645161
L	OBJ	61	4.74426230
L	READ	61	4.88360656
L	WQ	61	4.99836066

COLOR	CONCEPT	N	VALUE
1	OBJ	58	4.44827586
1	READ	58	4.72413793
1	WQ	58	4.85689655
2	OBJ	49	4.73469388
2	READ	49	4.94897959
2	WQ	49	5.04489796
3	OBJ	60	4.53333333
3	READ	60	4.86000000
3	WQ	60	4.84666667
4	OBJ	49	4.67959184
4	READ	49	4.86122449
4	WQ	49	5.01428571

INCOME	COLOR	CONCEPT	N	VALUE
H	1	OBJ	47	4.37659574
H	1	READ	47	4.63191489
H	1	WQ	47	4.78510638
H	2	OBJ	37	4.68918919
H	2	READ	37	4.95405405
H	2	WQ	37	5.02972973
H	3	OBJ	43	4.47209302
H	3	READ	43	4.89534884
H	3	WQ	43	4.87441860
H	4	OBJ	28	4.65714286
H	4	READ	28	4.88928571
H	4	WQ	28	4.99642857
L	1	OBJ	11	4.75454545
L	1	READ	11	5.11818182
L	1	WQ	11	5.16363636
L	2	OBJ	12	4.87500000
L	2	READ	12	4.93333333
L	2	WQ	12	5.09166667
L	3	OBJ	17	4.68823529
L	3	READ	17	4.77058824
L	3	WQ	17	4.77647059
L	4	OBJ	21	4.70952381
L	4	READ	21	4.82380952
L	4	WQ	21	5.03809524

SEX BY EDUCATION BY CONCEPTS - TYPE III

ANALYSIS OF VARIANCE PROCEDURE

DEPENDENT VARIABLE: VALUE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	224	593.77829551	2.65079596	9.99	0.0001	0.840052	10.7463
ERROR	426	113.05712692	0.26539232		ROOT MSE		VALUE MEAN
CORRECTED TOTAL	650	706.83542243			0.51516242		4.79385561

SOURCE	DF	ANOVA SS	F VALUE	PR > F
SEX	1	4.62483219	17.43	0.0001
EDUC	1	0.56532263	2.13	0.1452
SEX*EDUC	1	0.00000000	0.00	1.0000
SUBJECT(SEX*EDUC)	213	574.10612693	10.16	0.0001
CONCEPT	2	13.45090630	25.34	0.0001
SEX*CONCEPT	2	0.21547626	0.41	0.6666
EDUC*CONCEPT	2	0.51087973	0.96	0.3828
SEX*EDUC*CONCEPT	2	0.55227747	1.04	0.3542 – 64.58%

TESTS OF HYPOTHESES USING THE ANOVA MS FOR SUBJECT(SEX*EDUC) AS AN ERROR TERM

SOURCE	DF	ANOVA SS	F VALUE	PR > F
SEX	1	4.62483219	1.72	0.1916
EDUC	1	0.56532263	0.21	0.6474
SEX*EDUC	1	0.00000000	0.00	1.0000

ROBERT MARKS
SEX BY EDUCATION BY CONCEPTS - TYPE III

ANALYSIS OF VARIANCE PROCEDURE

MEANS

SEX	N	VALUE
F	357	4.71736695
M	294	4.88673469

EDUC	N	VALUE
H	150	4.74000000
L	501	4.80998004

SEX	EDUC	N	VALUE
F	H	99	4.66969697
F	L	258	4.73565891
M	H	51	4.87647059
M	L	243	4.88888889

CONCEPT	N	VALUE
OBJ	217	4.59723502
READ	217	4.84746544
WQ	217	4.93686636

SEX	CONCEPT	N	VALUE
F	OBJ	119	4.50504202
F	READ	119	4.76386555
F	WQ	119	4.88319328
M	OBJ	98	4.70918367
M	READ	98	4.94897959
M	WQ	98	5.00204082

EDUC	CONCEPT	N	VALUE
H	OBJ	50	4.50600000
H	READ	50	4.86600000
H	WQ	50	4.84800000
L	OBJ	167	4.62455090
L	READ	167	4.84191617
L	WQ	167	4.96347305

MEANS

SEX	EDUC	CONCEPT	N	VALUE
F	H	OBJ	33	4.37272727
F	H	READ	33	4.80909091
F	H	WQ	33	4.82727273
F	L	OBJ	86	4.55581395
F	L	READ	86	4.74651163
F	L	WQ	86	4.90465116
M	H	OBJ	17	4.76470588
M	H	READ	17	4.97647059
M	H	WQ	17	4.88823529
M	L	OBJ	81	4.69753086
M	L	READ	81	4.94320988
M	L	WQ	81	5.02592593

SEX BY INCOME BY CONCEPTS - TYPE III

ANALYSIS OF VARIANCE PROCEDURE

DEPENDENT VARIABLE: VALUE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	223	589.65951010	2.64421305	9.92	0.0001	0.839163	10.7815
ERROR	424	113.01598373	0.26654713		ROOT MSE		VALUE MEAN
CORRECTED TOTAL	647	702.67549383			0.51628203		4.78858025

SOURCE	DF	ANOVA SS	F VALUE	PR > F
SEX	1	4.03155378	15.13	0.0001
INCOME	1	1.92268720	7.21	0.0075
SEX*INCOME	1	0.20927014	0.79	0.3761
SUBJECT(SEX*INCOME)	212	568.97198271	10.07	0.0001
CONCEPT	2	13.70466049	25.71	0.0001
SEX*CONCEPT	2	0.19469843	0.37	0.6943
INCOME*CONCEPT	2	0.62046977	1.16	0.3133
SEX*INCOME*CONCEPT	2	0.00418758	0.01	0.9922

-.78%

TESTS OF HYPOTHESES USING THE ANOVA MS FOR SUBJECT(SEX*INCOME) AS AN ERROR TERM

SOURCE	DF	ANOVA SS	F VALUE	PR > F
SEX	1	4.03155378	1.50	0.2217
INCOME	1	1.92268720	0.72	0.3983
SEX*INCOME	1	0.20927014	0.08	0.7803

ROBERT MARKS
SEX BY INCOME BY CONCEPTS - TYPE III

ANALYSIS OF VARIANCE PROCEDURE

MEANS

SEX	N	VALUE
F	357	4.71736695
M	291	4.87594502

INCOME	N	VALUE
H	465	4.75440860
L	183	4.87540984

SEX	INCOME	N	VALUE
F	H	270	4.70925926
F	L	87	4.74252874
M	H	195	4.81692308
M	L	96	4.99583333

CONCEPT	N	VALUE
OBJ	216	4.58935185
READ	216	4.84398148
WQ	216	4.93240741

SEX	CONCEPT	N	VALUE
F	OBJ	119	4.50504202
F	READ	119	4.76386555
F	WQ	119	4.88319328
M	OBJ	97	4.69278351
M	READ	97	4.94226804
M	WQ	97	4.99278351

INCOME	CONCEPT	N	VALUE
H	OBJ	155	4.52838710
H	READ	155	4.82838710
H	WQ	155	4.90645161
L	OBJ	61	4.74426230
L	READ	61	4.88360656
L	WQ	61	4.99836066

MEANS

SEX	INCOME	CONCEPT	N	VALUE
F	H	OBJ	90	4.47222222
F	H	READ	90	4.77000000
F	H	WQ	90	4.88555556
F	L	OBJ	29	4.60689655
F	L	READ	29	4.74482759
F	L	WQ	29	4.87586207
M	H	OBJ	65	4.60615385
M	H	READ	65	4.90923077
M	H	WQ	65	4.93538462
M	L	OBJ	32	4.86875000
M	L	READ	32	5.00937500
M	L	WQ	32	5.10937500

ANALYSIS OF VARIANCE PROCEDURE

DEPENDENT VARIABLE: VALUE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	223	590.08529474	2.64612240	9.96	0.0001	0.839769	10.7612
ERROR	424	112.59019909	0.26554292		ROOT MSE		VALUE MEAN
CORRECTED TOTAL	647	702.67549383			0.51530857		4.78858025

SOURCE	DF	ANOVA SS	F VALUE	PR > F
EDUC	1	0.46063439	1.73	0.1895
INCOME	1	1.92268720	7.24	0.0074
EDUC*INCOME	1	0.15352955	0.58	0.4475
SUBJECT(EDUC*INCOME)	212	572.59864268	10.17	0.0001
CONCEPT	2	13.70466049	25.80	0.0001
EDUC*CONCEPT	2	0.48644473	0.92	0.4009
INCOME*CONCEPT	2	0.62046977	1.17	0.3119
EDUC*INCOME*CONCEPT	2	0.13822592	0.26	0.7710 — 22.9%

TESTS OF HYPOTHESES USING THE ANOVA MS FOR SUBJECT(EDUC*INCOME) AS AN ERROR TERM

SOURCE	DF	ANOVA SS	F VALUE	PR > F
EDUC	1	0.46063439	0.17	0.6800
INCOME	1	1.92268720	0.71	0.3998
EDUC*INCOME	1	0.15352955	0.06	0.8118

ROBERT MARKS
EDUCATION BY INCOME BY CONCEPTS - TYPE III

ANALYSIS OF VARIANCE PROCEDURE

MEANS

EDUC	N	VALUE
H	150	4.74000000
L	498	4.80321285

INCOME	N	VALUE
H	465	4.75440860
L	183	4.87540984

EDUC	INCOME	N	VALUE
H	H	102	4.68823529
H	L	48	4.85000000
L	H	363	4.77300275
L	L	135	4.88444444

CONCEPT	N	VALUE
OBJ	216	4.58935185
READ	216	4.84398148
WQ	216	4.93240741

EDUC	CONCEPT	N	VALUE
H	OBJ	50	4.50600000
H	READ	50	4.86600000
H	WQ	50	4.84800000
L	OBJ	166	4.61445783
L	READ	166	4.83734940
L	WQ	166	4.95783133

INCOME	CONCEPT	N	VALUE
H	OBJ	155	4.52838710
H	READ	155	4.82838710
H	WQ	155	4.90645161
L	OBJ	61	4.74426230
L	READ	61	4.88360656
L	WQ	61	4.99836066

MEANS

EDUC	INCOME	CONCEPT	N	VALUE
H	H	OBJ	34	4.43529412
H	H	READ	34	4.81470588
H	H	WQ	34	4.81470588
H	L	OBJ	16	4.65625000
H	L	READ	16	4.97500000
H	L	WQ	16	4.91875000
L	H	OBJ	121	4.55454545
L	H	READ	121	4.83223140
L	H	WQ	121	4.93223140
L	L	OBJ	45	4.77555556
L	L	READ	45	4.85111111
L	L	WQ	45	5.02666667

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VITA

Robert Lynn Marks

Candidate for the Degree of

Master of Science

Thesis: A COMPARISON OF READER EVALUATIONS OF IDENTICAL NEWS STORIES PRINTED ON GREEN, WHITE, RED AND BLUE BACKGROUNDS

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