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The Ohio State University, Ph.D., 1977
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EFFECT OF COMMUNICATOR PHYSICAL ATTRACTIVENESS AND EXPERTNESS ON OPINION CHANGE AND INFORMATION PROCESSING

DISSER TAT ION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

By

Wendell Benoy Joseph, B.S., M.B.A.

* * * * *

The Ohio State University 1977

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Faculty of Marketing
To my wife Suzanne and my son Rajiv
ACKNOWLEDGEMENTS

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CHAPTER I
INTRODUCTION

Advertisers are known regularly to invest large sums of money in advertisements that employ a variety of communicators to promote and recommend their products. The popular belief underlying this practice is that the right communicator or source—whether portrayed visually (as in television and print advertisements) or aurally (as in radio commercials)—can facilitate persuasion by contributing to the achievement of such communication goals as comprehension and retention of the message content or changes in attitude and behavior. Indeed, research in communication has shown support for this contention with findings that have demonstrated repeatedly how variations in source characteristics have led to differences in a communication's impact on receivers.

Communicators are sometimes selected because they are well-known or well-liked by members of a prospective

---

1 The term "product" is used in a generic sense to include goods as well as services and ideas (Enis, 1974, p. 7).

2 For a review of this research, see Sternthal (1972) or McGuire (1969).
audience, both being qualities that are believed to enhance a communicator's credibility (McCroskey, Larson, & Knapp, 1971). Occasionally, communicators may be selected also because they are recognized as expert or knowledgeable about a given area, or because audiences trust them, or identify with them as a result of some perceived similarity. The persuasive advantages of using sources who are expert or trustworthy or similar to their audiences have been documented extensively in the literature of attitude change (e.g., Andersen & Clevenger, 1963; Simons, 1973). The accumulated evidence in these areas can serve, consequently, as a potentially valuable theoretical foundation for advertising decisions involving model selection.

However, little is known about the rationale, scientific or otherwise, that advertisers use when selecting professional models who are unknown. Presumably, acting ability and voice quality might be important considerations in actor selection if the communicator is to appear in a speaking and acting part; obviously, in the case of print advertisements, neither of these attributes may be considered relevant. But regardless of the medium under consideration if a communicator is to be portrayed

---

3 Communicator credibility is defined as the attitude of the receiver toward the source of the communication.
visually to an audience, then the one characteristic which must prevail as an important criterion for actor selection is the communicator's physical attractiveness. Indeed, few other source characteristics are more immediately apparent in a visual communication than physical attractiveness.

Although the influence of nonverbal cues on receiver response is widely recognized (Bettinghaus, 1973; Warr & Knapper, 1971), the individual effects of specific source-oriented nonverbal cues—such as sex (Whittaker & Meade, 1967) and race (Aronson & Golden, 1962)—on persuasion and person perception are only just beginning to be investigated (Wackman, 1973). Communicator physical attractiveness may be considered as being one of many such nonverbal cues that are available to the receiver of visual communication. Findings from a handful of recent studies have suggested that source physical attractiveness may be a persuasive asset. Yet, the evidence on this overt and most ubiquitous of source cues remains regrettably meager—and in the special case of female communicators, too equivocal—to permit any useful generalizations to be drawn.

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4Experimental evidence on the effect of communicator physical attractiveness on persuasion is reviewed in Chapter II of this dissertation.
In the absence of reliable empirical evidence on the effects of source physical attractiveness on persuasion, the advertising decision maker might conceivably be forced to rely exclusively on subjective judgment in selecting what he hopes will be the right communicator for his product and market. Although it has been said that all policies, ultimately, are made on the basis of judgments (Enthoven, 1965); "... the question is whether those judgments have to be made in the fog of inadequate and inaccurate data, unclear and undefined issues, and a welter of conflicting personal opinions, or whether they can be made on the basis of adequate, reliable information . . ." (p. 189).

The merits of this statement are illustrated pertinently in the present issue of communicator physical attractiveness. Subjective judgment might suggest, for example, that it is better to use a highly attractive communicator because he will be more liked by his audience, hence, more persuasive, than communicators who are less attractive. But subjective judgment might also be used to argue, legitimately, that a model of medium physical attractiveness would be preferable to one who is either very high or very low in physical attractiveness because the medium attractive model could evoke, in his audience, feelings of similarity and identification with him because
he looks just like them. The issue is problematic and, from a decision maker's viewpoint, inescapably risk-ridden if such decisions were to be made on subjective judgments alone.

With the large financial investments that, typically, are required to support mass communication campaigns today, the communication that is designed ineffectively can often result in serious setbacks for the sponsor, sometimes even economic disaster. The need, therefore, becomes imperative for reliable, empirically-based information that can assist the advertising decision maker in his task of selecting the proper configurations of source, message, and channel variables that will most effectively promote his product to a given audience.

**Research Problem**

The relation of source physical attractiveness to persuasion is unclear. Is a physically attractive model more persuasive than one who is merely average in physical attractiveness? How does a model of average physical attractiveness compare in persuasiveness with a model who is ugly? What effects does a communicator's physical attractiveness have on receiver information processing (i.e., the receiver's ability to attend to the communication, to comprehend its meaning, to recall the contents
of its message, and to form impressions about the source and the source's suggestions)? These were among the principal issues to which this research project was addressed.

A second concern of this research was the problem of elucidating the effects of communicator physical attractiveness on persuasion when the expertness of the communicator also was varied. If a communicator is not particularly knowledgeable about the product he or she is endorsing—and professional actors are seldom presumed to be—will the communicator's physical attractiveness enhance or undermine the effectiveness of the overall communication? Can physical attractiveness compensate for lack of expertness? On the other hand, can the communicator's homeliness be overlooked if he or she is expert? The research was designed to seek answers to these questions.

Some cultural stereotypes die hard, including ones that might be inaccurate. One stereotype, parodied often in American television situation comedies and motion pictures is that of the female who is beautiful but brainless, on the one hand, or brainy but plain on the other. The accuracy or "ecological validity" (Brunswik, 1956) of this stereotype has not been verified. Intriguing and ripe for investigation though this subject might be, the focus of most of the recent research in person perception
has been, not on the accuracy with which people perceive others, but on what is perceived, how information about another is processed, and what types of impressions are formed (Wackman, 1973; Hastorf, Schneider, & Polefka, 1970). The approach that was used in the present investigation to study physical attractiveness stereotypes followed these latter trends.

**Research Objectives**

The research was designed and executed to meet the following specific objectives:

1. To investigate the relation between communicator physical attractiveness and persuasive effects.

2. To test the nature of the interaction between communicator physical attractiveness and communicator expertness in effecting attitude and behavior change in the receiver.

3. To explore the effects of source physical attractiveness and source expertness cues on selected information processing "mediators" of opinion change (McGuire, 1969) such as attention, comprehension, and retention, and liking for the source.

4. To investigate the differences in source perception and evaluation between groups exposed to different levels of source physical attractiveness and source expertness.

To achieve these objectives, a laboratory experiment was conducted using female communicators who varied in physical attractiveness and expertness (the two major
independent variables that were manipulated experimentally in this study). The attitudinal responses of subjects to a recorded opinion and their perceptions of the source constituted the major dependent variables of the study.

**Justification of the Study**

Marketing researchers have begun, recently, to focus on interpersonal persuasive processes. The dyadic interaction between salesman and customer is one area that has generated a wave of recent interest (e.g., Sheth, 1976; Holbrook & O'Shaughnessy, 1976; Olshavsky, 1976). However, with the exception of a handful of studies, the subject of communicator effects within the context of persuasive mass communication has been largely neglected by researchers in marketing.

Although many similarities may exist in the persuasive processes found in personal selling and mass communication, the differences between the two modes of influence are too serious to permit generalizations to be drawn from one area to the other. For example, personal selling is a two-way interaction between the source and receiver which allows for quick feedback from the receiver.

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5 Some recent examples of marketing research on the effects of source characteristics on persuasion in mass communication are Kaigler-Evans (1975), Alpert and Anderson (1973), Dholakia and Sternthal (1977), and Tamilia (1977).
to the source. Communication in the mass media is usually characterized by exposure to many receivers at once, but at the expense of delayed feedback, inflexibility in message design, and greater probability of selective processing by the receivers (Engel, Kollat, & Blackwell, 1973, p. 313). Consequently, the need for research that will help to guide decision makers in designing more effective persuasive communication for the mass media becomes self-evident. The present study was an attempt at responding to this need. The experiment was performed also with the purpose of advancing the current state of understanding of the theory or theories that might help explain the effects of physical attractiveness on source credibility and opinion change. The alternative explanations tested included ones that were based on arousal (the physically attractive source is more arousing, hence more persuasive), perceived credibility (the attractive source being perceived as more expert, trustworthy or dynamic than the unattractive source), liking, and perceived similarity.

Ray (1973) has advocated linking "microtheoretical notions" of the behavioral sciences to the solving of problems in advertising and marketing. This approach contends that it is necessary to first understand the nature and relationships of the smaller components of a problem before the larger problem can be understood or solved.
The philosophy underlying the present study is consistent with Ray's view: Before any attempt can be made to determine the optimal combination of decision variables that will maximize the effectiveness of a communication (the macro effect), several microtheoretical communication effects need to first be studied, including the effect of specific source characteristics—such as physical attractiveness and expertness—on information processing and opinion change.

Plan of the Dissertation

The dissertation is organized into five chapters. Chapter I, the introductory chapter, describes the problem area and spells out the scope, objectives, and justification of the study. Chapter II reviews relevant literature on the influence of communicator characteristics on credibility and attitude change with special attention being given to previous research on the role of communicator physical attractiveness in interpersonal influence. Chapter III provides a detailed description of the methodology that was employed for the study, including sampling procedures, development of instruments, preliminary and actual testing procedures, experimental manipulations, and the research hypotheses that were tested. Chapter IV presents and discusses the results of the
study, and Chapter V, the concluding chapter, summarizes the study and its contributions and limitations, and draws implications for future research and for managerial and social policy.

**Summary**

This chapter described the general problem area that led to the present investigation and spelled out the research objectives, and the scope and justification of the study. The broad problem area of the study was defined in terms of the uncertainties and risks that advertisers face in selecting a communicator whose physical attractiveness might have unpredictable—or especially negative—consequences for a communication's effectiveness. The present study was conceived and implemented as a preliminary step toward advancing scientific knowledge about the persuasive effects of this nonverbal source cue.

Whereas the persuasive effects of communicator physical attractiveness remained the study's primary concern, the research was designed to also investigate, experimentally, the interactive effects of source physical attractiveness and source expertness on opinion change, information processing, and source perception. From a theoretical perspective, the study was intended also to examine, empirically, alternative explanations of the
physical attractiveness-persuasiveness effect, including explanations based on arousal, perceived credibility, liking, and perceived similarity. The chapter concluded with a brief section outlining the general plan of the dissertation.
CHAPTER II
A REVIEW OF THE LITERATURE

This chapter presents a review of research on the persuasive effects of source physical attractiveness, expertness, and other selected source characteristics in communications. The chapter begins with a general discussion of the nature of interpersonal communications and the components of the communication process, which is followed by a brief recapitulation of the relevant research on source effects. Source characteristics and their status in the literature of attitude change and persuasive communications are reviewed within Andersen and Clevenger's (1963) paradigm of extrinsic and intrinsic ethos.¹ A general discussion follows of what the physical attractiveness variable is, what it consists of, how it is measured, its influence on perception and its foundations in theory. The chapter concludes with a detailed and critical review of the literature relating source

¹The term "ethos" is reported to have originated in Aristotle's Rhetoric (Cooper, 1932) where it was used to denote the character or image of the speaker as perceived by the listener (pp. 8-9). In the communication literature, ethos is used interchangeably with the term "source credibility."
physical attractiveness and persuasion.

The Communication Process

Communication takes place when a message is transmitted by a source and the intended meaning is grasped by the receiver. The word communication is derived from the Latin word *communis*, which translated means "common."

Thus, communication can be described as the process of establishing a commonness or oneness of thought between a sender and a receiver (Schramm, 1955, p. 3).

In its simplest form, the communication process can be modeled as a relation between four components: the source, the message, the medium, and the receiver (Shannon & Weaver, 1949; Berlo, 1960; Engel, Wales, & Warshaw, 1971). This elementary model has also been expressed in the form of a classic question: *Who says what to whom through what channels and with what effects?* (Lasswell, 1948). Purposeful communication is designed to achieve certain effects in the minds of receivers, effects which are believed to be determined, to a large degree, by the interaction of source, message, channel, and receiver characteristics that comprise the communication process (Robertson, 1971).

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2Research findings on the various effects of communication variables on persuasion are reviewed in McGroskey et al. (1971), Bettinghaus (1973), McGuire (1969), and Sternthal (1972).
The Source

Although the term "source" is a singular noun, suggesting that most sources are individuals, the source can also be a collective entity, such as a corporation (e.g., Levitt, 1967). McCroskey, Larson, and Knapp (1971) have noted a subtle distinction between the "source" as the originator of a communication and the "sender" (or spokesman for the source) who transmits the message to the receiver. The distinction is a useful one particularly within the context of marketing communications where many communicators who appear in advertisements are merely hired spokesmen for the firms whose products they are instructed to promote. Frequently, of course, the sender is also the source of the communication. Hence, the distinction between the two terms is seldom noted in the extant literature on source effects. Of singular importance, however, is the way the receiver identifies and perceives the source, for the success or failure of a communication may well be determined by the receiver's perception of who the source is and what his attitudes toward this source are. From the receiver's or "consumer's" viewpoint, then, the source may be defined as "that person or agent who validates the message" (Robertson, 1971, p. 137).
Source Credibility

The attitude of the receiver toward the source is termed "source credibility" (McCroskey et al., 1971, p. 81), a multidimensional construct which has been defined traditionally as consisting of two dimensions: expertness and trustworthiness (Hovland, Janis, & Kelley, 1953). Although expertness and trustworthiness are two of the most consistent dimensions to emerge in various factor analytic studies of source credibility, researchers have identified other dimensions as well, some of which were discovered empirically.

For example, McCroskey et al. (1971) have defined credibility in terms of competence, character, intention, personality, and dynamism; Bauer (1964) has proposed four dimensions (competence, truthfulness, power, and likability); Rarick (1963) has suggested that source credibility consists of a cognitive component (characterized by power, prestige, and competence) and an affective component (composed of trustworthiness and likability); Berlo, Lemert, and Mertz (1969-70) have identified three basic factors which receivers use to evaluate source credibility: safety, qualification, and dynamism (the first two

\[3\text{A comprehensive review of the factor analytic studies in source credibility is provided by Giffin (1967).}\]
dimensions being equivalent to Hovland's trust and expertness, respectively, and the last dimension representing the energetic, aggressive, and forceful qualities of the source).

In their summary of research on the effects of source characteristics on persuasion, Andersen and Clevenger (1963) have identified two broad research paradigms, one dealing with "extrinsic ethos" and the other with "intrinsic ethos" (p. 69).

**Extrinsic Ethos.** Extrinsic ethos is defined as the image of the speaker as it exists prior to a given speech. Extrinsic ethos is manipulated usually by varying the verbal description of the speaker's background which establishes his or her credibility. Source expertness and trustworthiness are examples of extrinsic ethos, since both are manipulated usually with verbal cues that are presented before or after the speech but which are extrinsic to the speech or message. As dimensions of extrinsic ethos, expertness and trust have been investigated in scores of studies. In some studies, only expertness was manipulated (e.g., Mausner & Mausner, 1955; Bergin, 1962; Aronson, Turner, & Carlsmith, 1963; Johnson & Watkins, 1970) and in some, only trustworthiness (e.g., Hovland & Weiss, 1951; Kelman & Hovland, 1953; Choo, 1964; Miller & Baseheart, 1969), and in yet others, both
expertness and trustworthiness were manipulated (e.g., Aronson & Golden, 1962; Hewgill & Miller, 1965; Bochner & Insko, 1966; Brewer & Crano, 1968; Siegel, Miller & Wotring, 1969). A generalization that has emerged from the studies just cited is that opinion change in the direction intended is related positively to both the expertness and trustworthiness of the source.

Intrinsic Ethos. Andersen and Clevenger have defined intrinsic ethos as the image of the speaker which is generated during the presentation of the message. Intrinsic ethos refers to the source's credibility as it is inferred by the receiver from one or more source-related cues. Of the many cues that are generated by the source, only some cues are attended to and processed by the receiver (Deutsch & Deutsch, 1963; Treisman, 1964). The manner in which cues are processed by the receiver and integrated to form impressions of the stimulus person remains the subject of some debate in the literature on person perception, but there is little doubt that these

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4 For a summary of research on source credibility, please see McGuire (1969), and Sternthal (1972, 1974).

5 Notable exceptions to this generalization include findings from studies by Greenberg and Miller (1966), Hovland and Weiss (1951), and recently Dholakia and Sternthal (1977).

6 For detailed discussions of how individuals form impressions, see Warr and Knapper (1968), Anderson (1965, 1968), and Schneider (1973).
source cues do indeed influence the type of impressions that are formed.

Intrinsic ethos may result from dimensions such as perceived similarity to the source, or from inferences based on the source's sex, race, skin color, accent, mannerisms, clothing, physical attractiveness, and other mostly nonverbal cues. For example, clothing has been shown to influence ratings of attractiveness, personality, and success when the person is unknown or socially distant to the rater (Hoult, 1954). The race of a male communicator was found to make no difference on audience attitudes when he was portrayed as expert but when the same communicator was identified as inexpert, race made a significant difference: The black communicator produced less opinion change than the white communicator, thus demonstrating the effect of "objectively irrelevant" source characteristics on receiver response (Aronson & Golden, 1962, p. 137). In a similar vein, researchers have also demonstrated the presence of intrinsic ethos resulting from receiver reactions to a source's smile (Rosenfeld, 1966; Jacoby, Hart, Szybillo, & Busato-Schach, 1974), height (Baker & Redding, 1961; Feldman, 1971; Wilson, 1968; Koulack & Tuthill, 1972); sex (Kanungo & Pang, 1973), and accent (Lowry, 1973).
Hulbert and Capon's (1972) classification of nonverbal source characteristics, shown in Table 1, provides a useful framework for understanding the principal roles that nonverbal source cues play in interpersonal communication. The authors have classified nonverbal source (or sender) cues into four types (p. 29):

1. **Static, Uncontrollable**: A function of hereditary characteristics, conditioned by life history, and indicating, for example, sex, race, skin color, height, and apparent age.

2. **Static, Controllable**: Can be controlled by the source but is usually fixed for the duration of the interaction (e.g., clothing and facial hair).

3. **Dynamic, Low Frequency**: Produced during the interaction with low frequency of change (e.g., posture).

4. **Dynamic, High Frequency**: Produced during the interaction with high frequency of change (e.g., gestures and facial expression).

The receiver's five senses constitute the input channels although taste has been excluded due to its irrelevance to marketing communication (of either the face-to-face or mass variety).

According to Hulbert and Capon's schema, then, the physical attractiveness of the source might be classified partly as a static uncontrollable cue—to the extent that physical attractiveness is an inherited characteristic over which the source has little control—and partly as a static controllable cue, since physical attractiveness can
Table 1
A Classification Scheme for Nonverbal Source Cues in Interpersonal Communication

<table>
<thead>
<tr>
<th>Receiver Role</th>
<th>Static, Uncontrollable</th>
<th>Static, Controllable</th>
<th>Dynamic (Low Frequency)</th>
<th>Dynamic (High Frequency)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(race, sex, age, physical attractiveness, etc.)</td>
<td>(style, neatness)</td>
<td>b. Axial orientation</td>
<td>b. Facial expression</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. Physical features</td>
<td>c. Distance</td>
<td>c. Eyeline</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(hair style, facial hair)</td>
<td></td>
<td>d. Gesture</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>b. Accent</td>
<td>b. Verbal</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>c. Voice qualities</td>
<td></td>
</tr>
<tr>
<td>3. Tactile and Olfactory</td>
<td>a. Personal odor</td>
<td>a. Touching behavior</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. Thermal</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

be manipulated to some degree with clothing, cosmetics, facial expression, hairstyle, neatness, and other such strategies.

Physical attractiveness, to modify the well-worn maxim, may only be skin-deep. Indeed, Hulbert and Capon's schema suggests that physical attractiveness just may be one of many nonverbal source cues that influence a receiver's response to a communication. But it is difficult to deny that, as a dimension of a person's overall appearance, physical attractiveness is one characteristic which is obvious and immediately accessible to others in any social interaction where the source is visible to the receiver. In the context of persuasive mass communications--where the communicator is pictured (usually in a still photograph or in a motion picture medium such as videotape or film)--the physical attractiveness of the communicator can serve as a principal source of decision making information for the audience as they form impressions of the communicator and respond attitudinally and behaviorally to the views that he has advocated.

The Physical Attractiveness Variable: Selected Evidence 7

How does physical attractiveness influence person perception? Do physically attractive people enjoy a

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7A comprehensive review of psychological research
greater advantage than their less attractive counterparts in situations of social influence? Can physical attractiveness be a persuasive liability? These are intriguing questions for social scientists as well as decision makers in marketing. Yet, until recently, the answers to these questions were founded more on folk psychology and conventional wisdom than on scientific evidence. Curiously, social scientists too had shown a studied professional disinterest in these and related questions.

Many explanations have been proposed for this neglect. Aronson (1969), for example, has suggested that this neglect may have been due to an egalitarian sentiment among social scientists which might have prompted them to avoid investigating the issue lest they should find evidence indicating that beautiful people are, somehow, better liked than homely ones—a discrepancy which would somehow seem undemocratic if not unfair (p. 160). Lindzey (1965) analyzed the reasons for the neglect of "morphology," a term which he broadly defined as referring "not only to the physical, structural aspects of the organism but also to any externally observable and objectively measurable attribute of the person . . . even esthetic

on the physical attractiveness variable is provided in Berscheid and Walster (1974).
attractiveness" (p. 344). For this neglect, Lindzey blamed primarily the optimistic environmentalist philosophy of American psychology which deterred any suggestions of "genetic determinism" in the link between physical and psychological characteristics.

Whatever may have been the reasons for this past neglect, there appears to have been a recent surge of interest in the morphological variable of physical attractiveness. The ensuing discussion of selected findings concerning physical attractiveness and its various effects is presented in an attempt to build a foundation that will provide justification for the methods and the theoretical rationale of the present study.

Characteristics of the Physically Attractive

Physical attractiveness and the dimensions that characterize what is beautiful have fascinated and intrigued man through the ages. Expressing this sentiment of wonder, the American poet and philosopher George Santayana (1936) has written: "Beauty as we feel it is something indescribable: What it is or what it means can never be said." Physical attractiveness has been difficult to define also because it has been popularly believed that few could agree on what was beautiful. Darwin (1952), upon surveying the beauty standards of various tribes and societies throughout the world,
concluded: "It is certainly not true that there is in the mind of man any universal standard of beauty with respect to the human body" (p. 577).

Berscheid and Walster (1974) have suggested, however, that conclusions such as Darwin's may be less justifiable in today's emerging "global village" where the widespread adoption, worldwide, of American and Western European technology, fashions values, and lifestyles may even be producing a universal standard of beauty. But the authors lament that even with the emergence of more universal standards of physical beauty, the prospect of identifying the specific dimensions of physical attractiveness seems no brighter than it did in Darwin's time (p. 178). Indeed, any attempt at isolating the impact of individual physical characteristics such as the shape of a person's nose, eyes, forehead, arms, or legs is likely to prove difficult if not futile. In contrast, Murstein (1971) has advanced the Gestalt view that people tend to respond to the total configuration of a person rather than to individual components of their appearance. Despite the intuitive validity of this view, several researchers have tried to identify those physical components of a person's appearance which would be the most influential in person perception.
The individual characteristic of greatest interest to researchers, who have studied person perception through photographs, has been facial cues (Warr & Knapper, 1968, p. 297). For example, Munn (1961) has quoted results of an investigation in which the eye movements of 98 women were photographed as they watched a male stimulus person. The results indicated that the largest portion of total fixation time (32%) was expended on the man's face. In an earlier study, Wallace (1941) had varied the bodily proportions of a two-dimensional, schematized stimulus person and found that such variations had apparently little effect on personality judgments when the stimulus person's face was kept constant. Investigating the effect of height on employment practices for male graduates, Feldman (1971) found that the short man is penalized along economic dimensions. Tall males were offered higher average starting salaries by employers than short males; also, in a hypothetical hiring situation, a significant majority (72 percent) of job recruiters chose the taller of two equally qualified applicants, 27 percent expressed no preference, and only one percent preferred the shorter applicant.

Results from several experimental studies have seemed to bear out the generally positive sentiments people share about tallness in men: Wilson (1968) found
that people tended to increase their estimate of a man's height as his status rose; Koulack and Tuthill (1972) found that as social distance between the subject and the stimulus person decreased, perceived height increased.

While the question as to which physical attribute is more important in determining an individual's overall physical attractiveness remains unresolved, the problem has not deterred researchers in person perception from defining the construct operationally or from investigating its various effects on interpersonal interaction. Physical attractiveness can be determined empirically, according to these researchers, by instructing a representative panel of judges (selected usually from the population that is to be studied eventually) to rate the stimulus person's physical attractiveness, thus arriving at truth by consensus.8

Measuring Physical Attractiveness by Consensus of Judges

In the truth-by-consensus method of rating physical attractiveness, if a significant number of "judges" or raters designated a stimulus person as physically attractive, then, for the purposes and context of the

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8This method of classifying individuals on the basis of their rated physical attractiveness was adopted in the present study and is described in Chapter III, the methodology section of this dissertation.
investigation, that stimulus person will be defined as being physically attractive. Whether the deciding factor in the judges' decision is a person's hair color or the shape of his nose is not usually a matter of concern.

Most of the studies involving ratings of people by judges have used photographs or other facsimiles of the stimulus person's face alone. In one variation of this method the judges (usually male and female) are asked to view pictures of different stimulus persons and to rate each picture on the dimension of physical attractiveness from extremely attractive to extremely unattractive. Mean ratings are then computed for the stimulus persons and the pictures with the highest and lowest ratings are selected to represent the extreme levels of physical attractiveness. If a medium level is desired, the picture with a rating nearest the sample median would be chosen. A statistical procedure, such as the t test (Kerlinger, 1964), is usually then performed to confirm that the levels of attractiveness are significantly different from each other.

In another variation of the method of judging by consensus, the judges are asked to sort a pile of photographs into a forced normal distribution along the attractiveness continuum (e.g., Byrne et al., 1968). In the selection of representative stimuli, both the mean and the
standard deviation for each photograph may be considered and those stimuli to which judges exhibit the most consistent responses may be selected. In some studies (e.g., Dion et al., 1972), the criteria—in addition to high interjudge agreement—may also stipulate that the selection of attractive and unattractive stimuli not be made from the extreme ends of attractiveness.

Evidence on Method Validity. The evidence to date appears to support the validity of the method of judging by consensus: Despite the common belief about the impossibility of categorizing people along an abstract dimension such as beauty, there appears to be a good deal of agreement among judges of both sexes as to who is physically attractive. For example, Kopera, Maier, and Johnson (1971) demonstrated that there were no significant differences between males and females on the ratings they gave to the same facial photographs of Caucasian female collegians, a finding which seemed also to disprove the popular belief that men and women never agree as to who is sexually or esthetically attractive.

Other investigators (e.g., Berscheid et al., 1971; Murstein, 1972) have also reported fairly high reliability and the absence of sex effects among judges in the evaluation of physical attractiveness. Interjudge reliability has also been established across age groups in studies by
Cavior and Dokecki (1971), who used panels of fifth and eleventh grade boys and girls in peer attractiveness rankings, and by Cross and Cross (1971), who examined the effect of age, sex, and race on the perception of facial beauty.

In a majority of the studies, the judges selected were usually of approximately the same age, education, and socioeconomic status as the persons being judged. The Cross and Cross (1971) study and an earlier investigation by Iliffe (1960) are notable exceptions. Conducted in Great Britain, Iliffe's study obtained, from several thousand readers of a national newspaper, rankings for "prettiness" of twelve photographs of women's faces which were selected "to provide as great a range as possible of types (i.e., in shape of face, colouring, slope of eyes, etc.)" (p. 268). Iliffe found remarkably consistent ratings on attractiveness, regardless of the age, geographical region, or the socioeconomic class of the respondent.

In the Cross and Cross (1971) study, black and white judges of both sexes and of four different age levels evaluated facial photographs of persons in similar categories of age, sex, and race. Findings showed no effects due to the age of the judge, nor any interactions between the age of the judge and any of the other independent variables. However, the study did find sex differences
and race differences, and interactions between these two variables, in the perception of beauty. Females appeared to rate all but adult male faces higher than did males; blacks gave higher ratings than whites, with white males comparatively downrating females and white females downrating males. Female faces were found more attractive than male and white faces more attractive than black. Overall, female faces and adolescent faces received higher ratings than the other sex and age groups, confirming the popular notion that Western culture at the very least tends to be one that is female- and youth-oriented in its perception of physical beauty (Berscheid & Walster, 1974).

**Intrinsic Ethos and Physical Attractiveness Stereotypes**

Physiognomic theories of folk psychology have long maintained that a person's character and personality can be reliably inferred from knowledge of his outward appearance. If this theory is valid, the communicator who is physically attractive may well enjoy greater credibility with his audience than one who is not physically attractive. And if this advantage is real, the advertiser's model-selection process would clearly favor those actors who are physically attractive. In recent years, several investigators have attempted to determine if the physical attractiveness stereotype exists and what the contents of
this stereotype might be.

Dion, Berscheid, and Walster (1972) hypothesized that physically attractive stimulus persons, both male and female, will be more likely to possess socially desirable personality traits and will be expected to lead more successful lives than unattractive persons. To test these hypotheses, men and women were asked to examine three photographs and rate them along a number of dimensions. The researchers found that the expectations of men and women concerning the personality characteristics possessed by physically attractive people were virtually identical. Moreover, the content of the physical attractiveness stereotype did not appear to differ by sex of the stimulus person. Physically attractive people of both sexes were expected by the subjects to be more likely to possess almost every personality trait which had been determined to be socially desirable in a preliminary study. For example, physically attractive people were perceived as more likely to be sexually warm and responsive, sensitive, kind, interesting, strong, poised, modest, sociable, and outgoing and to have "better character" than persons of lesser physical attractiveness.

When asked to report what they believed fate held in store for each of the stimulus persons depicted, the subjects predicted that, as well as possessing attractive
personalities, the occupations of physically attractive individuals would be more prestigious, as husbands and wives they would be more competent, they would have happier marriages and better prospects for happy social and professional lives, and they would be expected to lead more fulfilling lives in general than the unattractive individuals.

The results of the Dion et al. study corroborate findings obtained by Miller (1970a), who noted significant effects for physical attractiveness on fifteen of the seventeen dimensions of the Jackson and Minton (1963) Adjective Preference Scale of personality assessment. Miller concluded:

A consistent pattern emerges, that of the unattractive person being associated with the negative or undesirable pole of the adjective scales and the highly attractive person being judged significantly more positively (p. 242).

Miller also found that the physical attractiveness of the stimulus person interacted with the sex of the stimulus person in affecting how he or she was perceived on a number of dimensions, although no attempt was made by Miller to ascertain whether the interactions reflected a change in form or degree of the physical attractiveness stereotype. Byrne, London, and Reeves (1968) showed that attributed intelligence and morality decreased as a function of physical attractiveness in the case of male
stimuli while it increased for female stimuli, thus demonstrating a change in form in the direction of sex-specific stereotypes.

In discussing the nature of these interactions, Miller (1970a) has speculated that "as one departs from high physical attractiveness, the stimulus person's sex becomes the more influential impression determinant" (p. 242). Therefore, suggests Miller, as the level of attractiveness decreases, the number and strength of inferences that are typically made from a person's appearance may also decrease, and other factors—such as the stimulus person's sex or behavior—may play a larger role. This explanation suggests that physical attractiveness may operate as a dominant due in person perception only when it is at an extreme level (usually high attractiveness). This compelling hypothesis is discussed in terms of other research in the last section of this chapter (which deals with theory).

Miller (1970b) also found in a separate study that persons low in physical attractiveness were perceived to be more "external" along Rotter's (1966) internal-external control dimension than those either high or moderately attractive in appearance. Based on this finding, Miller suggested that physically attractive individuals are likely to be perceived as "masters of their fate," as individuals
who behave with a sense of purpose and out of their own volition, whereas unattractive individuals are more likely to be seen as "coerced and generally influenced by others or by environmental conditions" (p. 108). The implications of these findings in terms of the intrinsic ethos of physically attractive sources becomes self-evident.

The validity of the physical attractiveness stereotype has been affirmed in several developmental studies showing the effect of morphological characteristics upon peer acceptance among children. Studies have demonstrated, for example, that children of kindergarten age can distinguish differences along at least one dimension of physical attractiveness: body build; also at this age, they have begun to express an aversion for certain body types, particularly those characterized by chubbiness (e.g., Gellert, Gigrus & Cohen, 1971; Lerner & Gellert, 1969). That certain appearance factors begin to have fundamentally evaluative connotations even at the preschool level is evidence of a budding physical attractiveness stereotype that is manifested at an early stage in the development of social interaction and social relationships among people.

In examining sociometric data, obtained from nursery school children, to see if, at this point in his life, a child's physical attractiveness already bears relationship to his social standing among his peers, Dion and Berscheid
(1972) found direct evidence that a child's physical attractiveness is associated with his popularity. The children believed, for example, that aggressive, antisocial behavior was more characteristic of the unattractive boys than the attractive; and the unattractive male nursery school children were perceived as being ill-tempered and quarrelsome. Attractive children, regardless of sex, were perceived to be more independent, more likely to enjoy doing things alone, more self-sufficient, and more capable of accomplishing what they wanted than unattractive children.

Dion and Berscheid's results suggest that the physical attractiveness level of an individual becomes an important factor in social perception long before adolescence occurs. Regardless of whether children perceive true behavior differences in peers who differ in attractiveness, the evidence indicates that they act clearly on the basis of their perceptions.

The hypothesis that adults hold a physical attractiveness stereotype for children very similar to that which they hold for other adults, and that they display differential treatment toward attractive and unattractive children even in circumstances in which their behavior is identical, was investigated in an educational setting (Clifford & Walster, 1973). When school teachers were asked to evaluate attractive and unattractive boys and girls, the
researchers found that the child's attractiveness level had a strong impact on teacher expectations of the child's intellectual potential despite the fact that all teachers had received the same information regarding the child's past accomplishments. Specifically, the attractive child was assumed to have a higher I.Q., attain more education, have more concerned parents, and enjoy better social relationships with his peers than the unattractive child.

Results of a recent experiment by Landy and Sigall (1974) appears to have corroborated and extended Clifford and Walster's findings. Male college students evaluated the quality of an essay, written supposedly by an attractive or unattractive female coed; others evaluated the essay without knowledge of the author's appearance. The "objective" quality of the essay was also varied. The results indicated that the writer's ability and her work were evaluated most favorably when she was attractive, intermediately when her appearance was unknown, and least favorably when she was unattractive. Furthermore, the impact of the writer's attractiveness was most pronounced when the quality of her work was objectively poor. "Thus," concluded the authors, "physical appearance not only affects the way in which others react to a person, it also affects the way in which they react to that person's accomplishments" (p. 304).
In sum, the hypotheses that physically attractive people are stereotyped as being happier and more competent and as possessing "better character" and more desirable personality traits (Dion et al., 1972), as being more intelligent (Byrne, London, & Reeves, 1968), and more talented (Landy & Sigall, 1974) than unattractive people have been supported, empirically, in several investigations. That adults display differential treatment toward attractive and unattractive children even in circumstances in which their behavior is identical has also been verified in different contexts (Clifford & Walster, 1973; Dion, 1972) as further proof, not only of the reality of the stereotype vis a vis perception, but also of its impact on human behavior and decision making. It has been also demonstrated repeatedly (e.g., Byrne et al., 1968; Dion et al., 1972; Sigall & Landy, 1973; Walster et al., 1966) that both men and women are rather susceptible to having their judgments influenced by the physical attractiveness of others.

Based upon such evidence of the social advantages that physical attractiveness ostensibly confers on those who are physically attractive, it seems only logical to pose the question: Are those who are physically attractive also more persuasive than those who are not.
Physical Attractiveness and Persuasion: Extant Findings

With the exception of a mere handful of studies (Mills & Aronson, 1965; Snyder & Rothbart, 1971; Blass, Alperstein, & Block, 1974; Horai, Naccari, & Fatoullah, 1974), the relation between physical attractiveness and persuasion has been largely neglected in the literature on source effects. Indeed, one of the earliest known investigations of the attractiveness-persuasion relationship was conducted as recently as 1965 by Mills and Aronson. These researchers examined, critically, the findings of previous studies on communicator effects (Hovland, Janis, & Kelley, 1953; Walster & Festinger, 1962) which had suggested that the influence of a communicator will be reduced when his audience becomes aware of his desire to influence them. Based upon these findings, Mills and Aronson drew a distinction between a covert and overt expression of the desire by the communicator to influence.

Specifically, the authors hypothesized that an overt, frankly stated desire to influence will actually enhance the effectiveness of a communicator who is physically attractive, whereas in the case of an unattractive communicator, a stated desire to influence would be of no advantage, and might, indeed, even decrease the effectiveness of the communication. The authors speculated that
members of the audience would tend to like the attractive communicator, and this liking would motivate them to comply with the views advocated. The liking effect was not expected to operate in the unattractive condition.

In two experiments, which differed only slightly in procedure, the opinions of college males were measured after they received a communication from a female communicator (who was made up to look physically attractive or unattractive) under four conditions: attractive persuade, attractive nonpersuade, unattractive persuade, and unattractive nonpersuade. In the persuade condition, the communicator, who was seated among the subjects, volunteered to give her opinion and declared beforehand that she would like very much to influence the views of others. In the nonpersuade condition, she was picked by the experimenter to give her views, which she did with a show of great reluctance. The communicator advocated the value of a general education over one that was specialized. Following the experimental manipulation, the subjects were asked to rate the communicator on a number of different personality characteristics, although no measure of perceived credibility was obtained.

From the combined results of the two experiments, Mills and Aronson found consistent, if statistically marginal, support for the first hypothesis: An overt desire
to persuade will actually increase the effectiveness of a communication when the communicator is physically attractive. The second hypothesis was not supported by the evidence. Instead, it was found that when the communicator was unattractive, a desire to influence appeared to be neither an asset nor a liability. A curious (if statistically nonsignificant) effect was also reported by the authors but was not discussed by them: The data indicated that, under the nonpersuade condition, greater agreement with her suggestions was evinced when the communicator was unattractive than when she was attractive. Although any implications of this finding should be drawn only with great caution, the suggestion that an unattractive communicator may, under some conditions, be more effective than an attractive communicator is counterintuitive and points to the presence of unexpected relationships between communicator physical attractiveness and persuasiveness.

The persuasive effects of source physical attractiveness, demonstrated with live communicators by Mills and Aronson (1965), were investigated in subsequent studies with communicators who were pictured in either still photographs or on videotape.

Snyder and Rothbart (1971) attempted to test if an attractive male communicator was more persuasive than an unattractive one with an audience that was composed of
college males and females. The study was designed also to test for rival explanations of the physical attractiveness effect based on distraction theory, perceived credibility, contiguous pleasure, and liking. Experimental subjects listened to a tape-recorded persuasive communication which was accompanied by a slide projection of a middle-aged male who was rated previously in an independent session as either physically attractive or unattractive. The speaker (in a one-sided, five-minute talk) advocated lower speed limits on highways, a position to which the students reportedly were initially opposed. The researchers found that opinion change was greater under the attractive condition than under the unattractive and unpictured (control) conditions.

Upon examining these and ancillary findings, Snyder and Rothbart concluded that the attractiveness effect was best explained by a liking hypothesis: Physically attractive communicators were more effective because they were liked more than the unattractive communicators. The researchers speculated that liking for physically attractive people could be attributed to the subjects' prior socialization where differential values become associated with attractive and unattractive models, and that message acceptance occurs because of a "tendency to model the attitude and opinion statements of those whom we like"
(p. 386). Contrary to what might have been expected, Snyder and Rothbart found no evidence confirming the attractiveness stereotype: No significant differences were found between the ratings of the attractive and unattractive speakers on such personality attributes as honesty, competence, dominance, personal effectiveness, and personal success. Also, no between-group differences in recall of factual material were found. Lastly, the physically attractive and unattractive communicators were not perceived as differing in their expertise, thus suggesting that attractiveness and expertise may be orthogonal.

In a test of the effects of communicator race and physical attractiveness on attitude change (Blass, Alperstein, & Block, 1974), a black and a white female college student were portrayed as communicators in both the attractive and the unattractive conditions. The physical attractiveness of the speaker was manipulated by varying the posture, dress, and hair style of each speaker. In the experimental sessions, white male undergraduates viewed the speaker on videotape while a female voice—supposed to be the speaker's but which was common for all of the experimental conditions—argued in favor of naming various campus buildings and roads after the officers and members of the board of regents of the university, a position to which a majority of the students were
allegedly opposed. Blass and his colleagues found no main effects for physical attractiveness or for race of source as might have been expected. Instead, the researchers found an attractiveness X race interaction: The white communicator was more effective when she was physically attractive but the black communicator was more effective when she was physically unattractive. In explaining this effect, the authors speculated that the subjects may have viewed the unattractive black girl as superior because they may have felt that anyone who must overcome the double handicap of being black as well as being unattractive must be an exceptional person.

Blass, Alperstein, and Block also investigated the moderating effect of a personality trait—"objectivity-subjectivity" or tolerance for ambiguity—on communicator effectiveness. The trait was measured with a scale that was developed by Blass (1974) and which was founded on Heider's (1958) balance theory. The researchers predicted that any differential effects of race and physical attractiveness on attitude change would be found only among receivers who were subjective and not among receivers who were objective, since subjective individuals would tend to rely more on "irrelevant" source attributes (such as race and physical attractiveness) than objective or task-relevant characteristics (such as competence) in
the evaluation of the communication. Attitude change scores for subjects scoring above and below the median of the objectivity-subjectivity scale were submitted to separate analyses of variance and the results of these analyses confirmed the predictions: A significant interaction was found for the subjective receivers but no significant effects were noted for the objective receivers.

Had appropriate ancillary evidence (such as measures of perceived credibility and liking) also been collected as empirical support for the explanations, Blass's study might have contributed much to elucidating the effects of irrelevant source characteristics on attitude change. Instead, the ex post facto explanations of the study's rather provocative findings must be considered disappointingly tentative.

In a recent study (Horai, Naccari, & Fatoullah, 1974), which appeared to pertain directly to the present investigation, the effect of source physical attractiveness and expertise on opinion agreement and liking was investigated experimentally in a 3 X 3 factorial design: Three levels of physical attractiveness (high, low, and no photograph) were crossed with three levels of expertise (high, low, and no information). The researchers predicted that the attractive and expert sources would produce more opinion agreement than the unattractive and
nonexpert sources, respectively, and that the interaction between the two factors would not be significant. In the procedure, white, ninth-grade females read an article which advocated the value of receiving a broad, general education in high school. Attached to the article was a photograph of an adult male who was rated previously by judges in an independent session as attractive or unattractive (in the pictured conditions) and who was described in the information condition as either a professor of education presently teaching at a university (high expertise) or a teacher's aide presently teaching at a high school (low expertise).

The results showed strong support for the hypotheses. In addition, the researchers found that agreement was greater under the attractive and high expert conditions than under the unpictured and no information conditions, respectively. Whereas the latter two control conditions elicited greater agreement than the unattractive and low expert conditions, respectively, the differences were not statistically significant. But for practitioners of mass communication, the belief that it is better not to show a communicator than it is to show one who is physically unattractive seemed, however marginally, to gain empirical support.
In a pattern that appeared to be consistent with previous studies, no differences were found for recall as a function of the independent variables. The researchers did find the physically attractive source to be liked more than the source who was unattractive or unpictured, but no attempt was made to explain the results in terms of a liking hypothesis.

Deficiencies of Previous Persuasion Studies

The preceding review of the literature relating source physical attractiveness and persuasion, if not all-embracing, is more than representative of the current, admittedly meager state of the published scientific evidence on communicator physical attractiveness effects. Overall, the findings seemed to indicate a general tendency for physical attractiveness to be a persuasive asset. However, this relationship was demonstrated unequivocally only in the studies that had utilized a male communicator (Snyder & Rothbart, 1971; Horai et al., 1974). In the studies involving female communicators (Mills & Aronson, 1965; Blass et al., 1974), on the other hand, the results on the effect of physical attractiveness on agreement were either weak or mixed, suggesting, in essence, that other source characteristics—such as race or persuasive motives—may gain salience when the communicator is female, thus limiting the generality of the physical
attractiveness effect.

Examined together, the four studies reveal several common characteristics that point also to their shared limitations.

Levels of Attractiveness Manipulated. In all of the previous studies cited, source physical attractiveness was manipulated with never more than two levels, termed usually "high" and "low." Consequently, the effect of intermediate levels of source physical attractiveness on attitude change has remained untested. This omission in the literature is significant because the persuasive effect of a communicator who is medium in attractiveness may conceivably be greater than that of a more attractive communicator if audiences "identify" more with the average looking communicator (Kelman, 1961) or perceive him or her to be more similar to them in appearance (e.g., Mills & Jellison, 1968; Brock, 1965; Simons, 1973). The issue of whether the relation between source physical attractiveness and attitude change is linear (as the current evidence suggests) or one that resembles an inverted U has theoretical relevance to social scientists as well as practical implications for advertisers. Hence, the need to test the effects of physical attractiveness at more than two levels becomes plain.
Uninvolving Topics. In attitude change studies, the topic of persuasion that is selected can be an important determinant of whether the null hypothesis will be accepted or rejected. If the null hypothesis is rejected, the generality of the effect will still be limited to the population of topics from which the persuasive message of the study was selected. In the studies cited on the persuasive effects of source physical attractiveness, it will be recalled that the topics ranged from advocating lower speed limits for highways (Snyder & Rothbart, 1971) and the naming of campus buildings (Blass et al., 1974) to the value of receiving a broad general education (Mills & Aronson, 1965; Horai et al., 1974). It appears that none of the topics dealt with issues about which people might hold strong convictions or feel emotionally or intellectually involved. While many advertised products do involve the consumer only minimally (and for such products, the generality of the studies cited is difficult to fault), many products are also important expressions of the consumer's self-image (Grubb & Grathwohl, 1967; Grubb & Hupp, 1968) and are representative of topics and issues that are involving or that have important personal consequences for the consumer. The external validity of the studies for this latter group of persuasive topics seems clearly to be in doubt.
Lack of Behavioral Measures. A basic theoretical proposition derived from social psychology is that attitude has a multidimensional structure which includes a behavioral or action tendency toward the attitude object (McGuire, 1969, pp. 155-7). Further, it has been suggested (Aronson & Carlsmith, 1968) that researchers should endeavor to develop meaningful behavioral dependent variables which are of importance to the respondents or require a commitment from them (p. 54). Behavioral commitment can be measured in terms of behavioral intention or overt behavior or with a "behavioroid" measure (Aronson & Carlsmith, 1968) in which verbal responses denoting behavioral commitment are collected within a realistic context. In all four of the studies just reviewed, attitudinal agreement was measured in terms of either affect or belief but no attempt was made to test the robustness of the physical attractiveness variable in terms of its effect on behavioral commitment.

Cognitive Processes Neglected. With the exception of the Snyder and Rothbart (1971) study, none of the studies cited attempted to assess, either directly or indirectly, the process or mechanism underlying the physical attractiveness effect. Understanding of the cognitive processes that mediate receiver response to communication can provide valuable directions for improving
the design and effectiveness of communications. These processes can be assessed, to some degree, by collecting ancillary data on those variables which might be expected to mediate the effect (e.g., source credibility, perceived source-receiver similarity, attention, comprehension of the message, and liking for the source).

In sum, the extant literature on the persuasive effects of source physical attractiveness reveals several important gaps that need filling, some theoretical, others methodological: The findings on female sources, when physical attractiveness and other source characteristics were tested together, have remained notably inconclusive; previous studies have also been deficient in not manipulating more than two levels of physical attractiveness; the persuasive topics selected usually lacked realism or involvement for subjects; meaningful behavioral dependent measures were never incorporated; and the cognitive processes mediating the persuasive effects of physical attractiveness, generally, were left unstudied.

The task of correcting these deficiencies in the literature has been assumed, in part, by the present investigation: By its selection of female communicators, by its induction of the physical attractiveness variable with three levels (high, medium, and low) instead of two, by its choice of a topic that appeared pertinent to
subjects, and by its use of realistic behavioral measures as well as ancillary measures that could contribute to the understanding of cognitive processes.

**Physical Attractiveness: Its Foundations in Theory**

From the survey of the physical attractiveness literature reported in this chapter, it becomes evident that the physical attractiveness variable is surprisingly robust in its ability to account for variance, particularly in certain situations of social interaction.

It has been speculated that the growing recognition of the importance of this variable may well be a product of the times:

... the apparent increase in the importance of physical attractiveness as evidenced by the proliferation of cosmetic and bodily-hygiene products, its emphasis in the media and in advertisements, is not only a result of our affluent society, but a consequence of the fact that we are all experiencing more one-time and few-time social contacts than ever before in the history of man (Berscheid & Walster, 1974, p. 206).

Indeed, employers for jobs that involve one-time or few-time contacts with people, such as receptionists and airline stewardesses, have conventionally sought applicants who are very physically attractive.

But despite the accumulating evidence attesting to the importance of the physical attractiveness variable, there appears to be, among social scientists, a nagging
doubt and an understandable cynicism about the value of this variable in its ability to contribute to the study of social interaction and person perception processes. A quick inspection of the evidence accumulated so far tends to confirm preliminary suspicions about the variable's limitations: It is believed to be highly unlikely, for example, that physical attractiveness will be found orthogonal to personality dimensions such as I.Q., socioeconomic status, and other "genetically determined behavioral predispositions" (Berscheid & Walster, 1974, p. 207). The findings from studies involving the physical attractiveness variable indicate also that the possibility of physical attractiveness being the central concept of a psychological theory that might elucidate and resolve the yet unspecified dimensions of social interaction, in general, or social influence, in particular, seems remote.

Whatever might be its limitations, theory-wise, it is difficult to deny that physical attractiveness, and repulsiveness, and other physical qualities are immediately experienced properties affecting social perception and interaction, particularly when other symbols of a person's character or ethos are not available. As a consequence of this visibility, a person's physical attractiveness may assume a more influential role in the impression that is formed of him by the other person, particularly since the
more task-relevant symbols of a person's ethos--such as his wealth, level of education, or expertise in a given area--may seldom be readily apparent in situations where the duration of the interaction is brief, and the quantity of information available to make a judgment of the other person is minimal.

Previous investigations of the relation between physical attractiveness and other variables have, almost without exception, used a "first impression" or "brief contact" setting for studying the behavior of the physical attractiveness variable under different situations of social interaction. Under conditions of brief interaction and little information, a person may understandably be pressured in to resorting to those information cues which are most conspicuous--such as the other's physical attractiveness--in lieu of more relevant but inaccessible indicators of his personal worth. Consequently, it seems reasonable to hypothesize that physical attractiveness becomes an important variable only in the initial stages of interaction. With the availability of additional information about the person, the influence of his physical attractiveness and other superficial cues on forming impressions might be expected to decrease rapidly.

However, the popular belief about the enduring nature of first impressions should not be dismissed
lightly. For example, it has been demonstrated repeatedly that an individual's first impressions of another influence his subsequent interactions with the other (e.g., Dailey, 1952; Luchins, 1957; Newcomb, 1947) and that one's expectations about the other tend to influence one's behavior towards the other (e.g., Brock, Edelman, Edwards & Schuck, 1965; Dailey, 1952; Zajonc & Brickman, 1969).

**Dominant Cue Hypothesis**

Although there appears to be no published evidence on how the physical attractiveness stereotype—a product usually of first impressions—stands up against inconsistent information that is also provided about the source (e.g., a beautiful girl who is described as ignorant), a compelling hypothesis emerges that merits discussion. This hypothesis, which may be termed as the dominant cue hypothesis, contends that a cue (such as physical attractiveness), which is available immediately to the perceiver, will serve as a dominant information cue in forming judgments about the source if it is at an extreme level (either very high or very low); as a simplifying strategy, other less easily accessible but, perhaps, more objectively-relevant cues (such as a source's competence) may be temporarily ignored by the perceiver.

This hypothesis not only has intuitive appeal but also enjoys a modicum of indirect empirical support from
previous studies of the physical attractiveness variable (e.g., Miller, 1970a; Landy & Sigall, 1974; Mills & Aronson, 1965). For example, Landy and Sigall found that whereas a well-written essay was evaluated about equally by subjects when it was attributed to a writer who was either physically attractive or unattractive, a poorly-written essay was evaluated more favorably when the writer was physically attractive (the physical attractiveness of the writer thus operating as a dominant cue in the high attractive condition). In a persuasion context, Mills and Aronson found that when a source expressed an overt desire to influence her audience, her manipulative motives did not undermine her persuasiveness when she was attractive but did when she was unattractive. From his study of the impressions formed by subjects of male and female stimulus persons who were physically attractive or unattractive, Miller concluded that physical attractiveness was an influential determinant of impressions (a dominant cue) only when it was high; as the level of attractiveness decreased, other cues (such as sex or behaviors) became important. In the light of this indirect evidence, the merits of the dominant cue hypothesis as a general explanation of physical attractiveness effects within situations of brief interaction become more defensible. Only further tests (including the one that was
incorporated into the present study) will prove its ultimate validity.

**Summary**

In this chapter, previous research on the persuasive effects of source physical attractiveness was reviewed within the general context of source effects in persuasive communications. First, the communication process was modeled analytically as the relation between four components: source, message, channel, and receiver. Focusing on the source of the communication, the literature relating the effects of "intrinsic" and "extrinsic" ethos (Andersen & Clevenger, 1963) to attitude change were reviewed briefly. Extrinsic ethos is the image of the speaker that is manipulated with information (usually verbal cues) before or after the speech (e.g., source expertness which is induced with a description of the speaker's qualifications). Intrinsic ethos is the credibility of the speaker that is inferred by the receiver from cues (mostly nonverbal) that are available to him while the speech is being presented. Physical attractiveness and other nonverbal cues that influence intrinsic ethos were examined briefly with in the context of Hulbert and Capon's (1972) classification of nonverbal communication variables.
The physical attractiveness variable, it was noted, has become, belatedly, the subject of much researcher interest in its influence on person perception, interpersonal attraction, and to a lesser degree, interpersonal influence. The background of this variable as a unit of study and the current conventions that researchers use to measure it and define it operationally were discussed with references to selected previous studies. It was noted that the problem of defining who are physically attractive and who are not has been resolved, for research purposes, by resorting to the collective opinions of a panel of judges, selected usually from the population to be studied. This method of arriving at truth through consensus has found wide acceptance among researchers who have studied the physical attractiveness variable.

The tendency of people to stereotype others on the basis of their physical attractiveness has been demonstrated repeatedly in the literature. Selected studies from this literature were reviewed in this chapter because of their relevance to the notion of intrinsic ethos. The findings showed that physically attractive people are perceived, consistently, to possess more favorable traits and abilities than people who are not physically attractive. However, in reviewing the evidence relating physical attractiveness to persuasion, it was shown that the
positive relation between physical attractiveness and attitude change was equivocal, particularly for female communicators (Mills & Aronson, 1965; Blass et al., 1974). The review also pointed out various conceptual and methodological deficiencies of previous studies, which underscored the need for further research and provided further justification for the present study.

The chapter concluded with a largely speculative discussion of the theoretical roots of physical attractiveness: It was concluded that a general psychological theory, where physical attractiveness would be the central concept, was unlikely to emerge from what is presently known about the variable. However, it was recognized that the influence of the physical attractiveness variable in shaping interpersonal responses is considerable, particularly when the interaction is brief or when objectively-relevant information about a source is not available. The section concluded with a discussion of the dominant cue hypothesis, which proposed a theoretical explanation of the effects of physical attractiveness cues on perception when other cues are also present.
CHAPTER III

METHODOLOGY

This chapter describes the methods that were used to accomplish the objectives of this study. The methodology is discussed under the following sections: experimental design; procedure; independent variables; dependent variables; ancillary measures; hypotheses.

Experimental Design

Three levels (high, medium and low) of communicator physical attractiveness were crossed with two levels (high and low) of communicator expertness in a 3 x 2 factorial experimental design, represented schematically in Table 2.

Table 2

Experimental Design

<table>
<thead>
<tr>
<th>Expertness Level</th>
<th>Physical Attractiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>High, Medium, Low</td>
</tr>
<tr>
<td>Low</td>
<td></td>
</tr>
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</table>

In addition to the six experimental groups, a control group was also tested to obtain a normative measure
of existing attitude toward the topic of persuasion. The control group was not exposed to any of the experimental treatments. To eliminate the effect of a sensitizing pre-test, a posttest-only design (Campbell & Stanley, 1963, pp. 25-34) was employed.

**Procedure**

**Recruiting of Subjects**

Subjects were recruited in the second week of a new academic quarter from a large section of an introductory marketing course at The Ohio State University. Additional course credit in the form of bonus points was offered as an incentive to participate. Students were told that the study would deal with marketing communications. While participation in the study was encouraged by the instructor, the decision to participate remained voluntary. Interested students were asked to check, in a sign-up sheet, all alternative one-hour time slots over a four-day period when they would be available to participate in the study. A copy of the recruiting form is shown in Appendix A.

**Assignment of Subjects to Experimental Treatments**

A total of 307 students volunteered to participate in the study. Each subject was assigned to one of thirteen sessions that were scheduled over four weekdays.
Since more than 80 percent of the student subjects had indicated their availability to participate at several time slots, random assignment of subjects to the thirteen sessions was found possible for approximately 75 percent of the volunteers. Less than ten percent of the students wanting to participate in the study indicated absolute inflexibility in available free time. Students with inflexible schedules were assigned to the time slots that they preferred most.

After the subjects were assigned to the thirteen sessions, an attempt was made to make the attendance at each session approximately of equal size. This step was undertaken for two reasons. One, it would contribute to the creation of approximately equal cell sizes in the factorial design, a criterion that is highly desirable "for comparable precision in the evaluation of each treatment effect. . . ." (Winer, 1971, p. 210). Two, since the testing room could accommodate not more than thirty subjects at a time, the researcher was forced to reassign subjects with flexible schedules from larger sessions to smaller ones.

Following the assignment of subjects to the thirteen sessions, one session was designated as a control condition and the 12 remaining sessions were assigned to the six experimental conditions (two sessions to a
condition). This procedure was performed with a table of random numbers (Andreas, 1960, pp. 78-80).

**Sample Size**

Of the 307 students who had volunteered to participate in the study in exchange for course credit, 249 actually participated in the sessions. Of this group, four subjects were eliminated because their responses to a post experimental questionnaire indicated a suspicion of the study's method or purpose. To facilitate subsequent analysis of the data within the constraints and limitations of available statistical packaged programs,¹ cases with missing data for any of the items in the questionnaire were removed. Twenty-three cases were eliminated, leaving a sample of 226 complete cases. No meaningful differences were found in subject attrition between treatments.

To ensure equal cell size² among the six experimental groups in the factorial design, nine cases were randomly eliminated from various cells, using a table of random numbers. This procedure, which is consistent with

¹For example, the program MANOVA (Clyde, 1969)—which was used extensively to analyze the data from this study—rejects automatically cases with missing data that are pertinent to the analysis being performed.

²Equal cell size makes all factor effects orthogonal, and interaction effects orthogonal to the main effects (Edwards, 1972).
the method of arriving at equal cell size suggested by Edwards (1972, p. 216), resulted in a final sample size of 32 subjects per cell or a total of 192 experimental subjects. The control group consisted of 25 subjects.

Composition of Sample

Of the 217 subjects (including the 25 control subjects) used in the final analysis, 207 (95.8%) were classified white, four (1.8%) Black and five (2.3%) other, by the experimenter. A majority (76 percent) of the sample was male. Subjects ranged in age from 19 to 36 years; the mean age was 21.9 years. Nearly 85 percent of the subjects were university juniors or seniors and a majority (77 percent) were enrolled in the university's College of Administrative Science.

Testing Room and Laboratory Equipment

A conference room in the university's student union was reserved for four weekdays during which the sessions were conducted. The room was large enough to accommodate up to 30 subjects. Large tables, with chairs on both sides, were arranged in a U-shape to face a portable screen. The room was also equipped with a carrousel-type slide projector and a portable sound cassette tape recorder. A layout of the testing room is illustrated in Appendix B.
**Questionnaire Preparation**

The main questionnaire was printed on yellow stock to distinguish it in appearance from three subsequent questionnaires that were designed to seem unrelated to the research proper. The yellow questionnaires were collated in two parts with Part I distributed before the experimental induction and Part II, after. Questionnaires were stamped with a unique, three-digit identification number which corresponded with the identification number of each subject, by session.

The three additional questionnaires which were also prepared for the study consisted of: a behavioral intention measure disguised as a departmental survey, a postexperimental questionnaire, and a delayed measure of preference and actual choice which was administered to subjects in a setting unrelated to the experiment, approximately a week after the experimental sessions. In order to make the three questionnaires appear unrelated to the experiment, they were typed in a style different from the yellow questionnaire, and were mimeographed to resemble typical departmental memoranda, quizzes, and course syllabi that subjects were accustomed to receiving in courses.

\[3\]For a copy of the original questionnaires, see Appendix C.
**Experimental Sessions**

Sessions were scheduled between the hours of 9 a.m. and 5 p.m. over four weekdays. The subjects were tested in groups of 15 to 25. As subjects entered the testing room, their names were checked off on a roster to ensure that the promised extra course credit was awarded to each participant. Subjects were asked to sit at tables in full view of a screen.

The experimenter had memorized a script in order to standardize the sequence of procedures and the instructions for the sessions. The script included a standard introduction and an explanation of the ostensible purpose of the study. Included also in the script were: verbal instructions on what was required of participants during the session; a verbal experimental manipulation; and concluding remarks following the completion of the dependent measures.

When all of the subjects were seated, the experimenter introduced himself as being "with the Business School," then said:

> First of all, I would like to thank all of you for agreeing to participate in this study which deals with mass communications. I will tell you more about the objectives of our study after you complete the first part of this questionnaire. The information you give in this questionnaire is completely confidential. It will be used mainly for sampling purposes, so that we might
know if our sample truly represents the general student body.

Remember, there are no right or wrong answers. Please read the instructions to each question carefully. And answer the questions as honestly as you can. Please do not leave any question unanswered. It is very important that you answer all items.

I have one more request to make of you. For the remainder of this session, please do not talk with any person around you. If you have any questions, please raise your hand and I will try to help you. When you're finished, please remain seated.

The experimenter then distributed Part I of the yellow questionnaire by calling out the names of the subjects checked in his roster and giving each subject a questionnaire with a number that corresponded with the subject's identification number.

Part I of the questionnaire consisted of a cover letter which, in essence, introduced the subject to the study and summarized many of the instructions that the experimenter had already provided orally. Part I also requested information about the respondent's age, sex, academic status, television viewing habits, and various personality traits.

When all of the subjects had completed Part I of the questionnaire, the experimenter said:

Let me tell you more about this study.

Since all of you are marketing students, you probably know that before an ad appears in
print or on TV, it is usually pretested extensively by having different types of consumers view the ad while it is still being made and give their reactions to it. TV commercials are usually pretested with still photographs of different scenes from a commercial which are arranged in what's called a storyboard--and selected groups of consumers view it and give their reactions to it. By analyzing their reactions, the agency can determine if the commercial will work as intended or whether some changes must be made.

Our present study is somewhat along these same lines except that instead of TV commercials, we are interested in pretesting a short segment of a public relations film being produced by WOSU-TV [the University-affiliated television station].

The film deals with campus life at Ohio State University in the seventies and treats a variety of issues that concern OSU students. The film is still in the process of being edited. It will be shown ultimately to various organizations within the state, including civic groups, alumni chapters, and high school students. We know that a well-made film can win new friends and supporters for OSU as well as donors of money. It can also help in recruiting good high school graduates.

Now, the university would like a film that portrays life on campus accurately. But we would like to pretest how different people will react to different portions of the film before it is finally put together through skillful editing. Therefore, we are having different types of audiences view the film, including college students like yourself.

It is customary in such pretests to show only brief scenes from the film in the form of slides; this improves our control over the pretesting procedure.

What I'm about to show you is a brief segment from the film; it should last only a few minutes.
The experimenter then turned off the lights, turned on the cassette tape recorder and the slide projector, and changed slides with a manual remote control switch at predetermined stages of a three-minute, 20-second audio message. The presentation was intended to convey to the audience the impression of viewing and listening to a synchronized audiovisual communication.

**Audiovisual Communication.** The presentation began with light recorded music and innocuous color slides of students on the Ohio State University campus. The music faded into the background as a male announcer's voice intoned the following words (which were kept constant for all of the experimental treatments):

The college student of the seventies is different from his counterpart of the sixties. Some say that he is more practical; others, that he is less involved with popular social causes than his recent predecessor. Yet, there is an unmistakable sense of commitment that is evident in today's undergraduate: He is deeply concerned about events that affect him in his immediate workaday world. And the quality of the education that he is receiving is clearly of principal concern to him. It is, indeed, safe to say that today's undergraduate seldom takes his college education for granted.

This new type of involvement is very much in evidence at the Ohio State University. It's seen in the outspoken opinions of both university men and women when they talk about the issues that affect them in different ways from day to day. Examinations are a typical example. We talked with students on campus about several issues, including how they felt about examinations.
Until this point, the experimenter had shown 13 color slides of students at various campus locations, including outdoors, at a library, and at a bookstore. The pictures selected showed no closeups of any individuals.

When the female source was about to be introduced by the announcer under the guise of an on-campus interview, the experimenter projected a color slide of one of six college women who had been rated previously by a panel of 36 male and female judges as being high, medium, or low in physical attractiveness. Of these six pictures, two were rated high, two medium, and two low in physical attractiveness. Each picture was assigned to two of 12 experimental sessions where it was paired with a source who was described as being either high or low in expertness. The picture of the female communicator was left on the screen for the remainder of the recorded message. This procedure constituted the physical attractiveness manipulation.

In the high expert conditions, the male announcer described the source as follows:

This is Jennifer Holland, a senior in business administration. Jennifer is employed part-time as a statistician in the university's Educational Testing Service. With almost four years of experience in taking college exams, and with her exposure, at work, to how students perform on tests, Jennifer can speak with considerable authority on the subject of examinations.
In the low expert conditions, the male announcer described the source as follows:

This is Jennifer Holland, a freshman who expects to major in business administration. Jennifer is employed part-time as a secretary in the university's Athletic Department. By her own admission, Jennifer's experience with college examinations is limited, although she does have strong feelings about them.

Following the expertness induction, the female source gave the following opinion (which was also kept constant for all of the experimental treatments):

As for exams, well, I think I've taken enough tests in college to form a pretty good opinion about them. Now, by tests, I'm talking mainly about the kind we usually get, namely, essay and multiple choice tests.

I know, I'd much rather prefer essay tests. Because with essay questions, you get at least a fair chance to show the professor that you've understood the material. And you don't have to memorize definitions and things. You just explain in your own words what you've learned.

In multiple choice tests, if you happen to misread a question, there just isn't any way you're going to get partial credit for it even if your answer is partly right. That's the problem, I think; and multiple choice questions can be ambiguous and open to interpretation. And, if you ask me, some questions can be downright deceptive. I can't think of a single course so far where students didn't end up complaining about the wording on multiple choice questions ... those long-winded questions that take up half a page ... and then you're asked: Which of the following are not true? And you have to choose between A and B; or A and C; or All of the Above; or None of the Above. Boy! you know, with questions like
these, I'd rather take my chances with essay exams.

Now, I'm not saying essay tests are perfect. I know they do take longer to grade. But, I think it's nice to know that your exam is being graded by a person, and not some computer. So, if you happened to misinterpret a question, well, you can always explain why you answered the way you did. And maybe even get at least part credit. And there's also less risk of flunking on essay tests. And I really think, that on the whole, you can do much better on them. That's why, if the university ever gave us a choice, which I think they should, I'd choose essay every time.

When the presentation had ended, the experimenter turned on the lights and moved to the front of the room with Part II of the questionnaire. In a casual tone of voice, the experimenter then made the following remark about the communicator who was seen and heard in the presentation. This ostensibly casual remark was, in fact, a deliberate act that was intended to strengthen the recorded manipulation of the communicator's expertness. In the high expertness condition, the experimenter said:

Incidentally, it might interest you to know that the girl who was interviewed in the film was a student last quarter in BA 650, when this film was being shot. Anyway, let's get on with our study.

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4 This procedure was necessitated following evidence from pretests that showed the recorded manipulation of expertness to be not strong enough. The researcher opted for a supplementary induction rather than a new recording due to economic and time constraints.

5 BA 650 was the course number for basic marketing, the course from which all of the subjects were recruited.
In the low expertness condition, the experimenter said:

Incidentally, it might interest you to know that the girl who was interviewed in the film explained in a later portion of this interview that, being a freshman, her only college experience with essay exams was in a freshman course in English composition. Anyway, let's get on with our study.

The experimenter then distributed Part II of the questionnaire. Part II required the subjects to respond to the audiovisual communication in the following areas: overall impression of slide presentation and its attention-value, attitude to essay and multiple choice examinations, aided and unaided recall of message content, liking for the source, and evaluation of the source along various source credibility dimensions. When the subjects had completed Part II, the experimenter thanked them for participating in the study and asked them to leave both parts of the questionnaire on the table in front of them. He then said:

This concludes our session on mass communication. But before you leave, there is just one other quick survey that I would like you to complete. This is a one-pager and the survey is being conducted by Professor Leavitt of our marketing faculty, who is involved in improving the quality and content of the marketing courses that are now offered. He has asked me to pass out this very short survey which deals with examinations in different business courses. Professor Leavitt would appreciate it if you would please answer it as honestly as you can.
The one-page "personal opinion survey" consisted of preference measures for essay tests versus multiple choice tests in two different marketing courses and attempted to measure the subject's past experiences with taking essay and multiple choice tests. These attitudinal items were intermixed with filler items asking about the subject's academic background in order to strengthen the credibility of the cover story.

When the subjects had completed the one-page "survey," the experimenter distributed a postexperimental questionnaire which asked the subjects for their comments and reactions to the entire session. The postexperimental questionnaire was designed to identify, and remove from the analysis, those subjects who knew the students pictured as communicators in the slide presentation or who indicated a suspicion of the study's method and purpose.

Following the completion of the postexperimental questionnaire, the subjects were partially debriefed, thanked, and requested not to discuss the session and its events with classmates for the remainder of the week, before they were dismissed.

Debriefing. In the debriefing session, the experimenter disclosed the reasons for the deception and explained, contritely, why the cover story was necessary.
He confessed that the "film documentary" was non-existent and that the real purpose was to study how people react to opinions given by different communicators portrayed in the mass media.

As a precaution against the possibility that subjects might disclose to participants of subsequent sessions the purpose behind the two experimental manipulations, the experimenter made no mention of the fact that source physical attractiveness and expertness were the characteristics being manipulated. This omission was intentional also because it minimized the chances of receivers responding with suspicion to the delayed preference measure, which would be likely if the debriefing were to reveal all.

**Delayed Measures of Preference and Behavior.** Five days after the last scheduled session, a delayed preference measure and a behavioral measure were taken by the instructor of the class from which the subjects were recruited. The delayed measures were taken under realistic and, presumably to the subjects, highly involving conditions: For the following midterm examination, subjects were given a real choice between taking an all-essay test or an all-multiple choice test. The subjects indicated their choice on a mimeographed form that was distributed during class by the instructor. The experimenter did not
participate in the administration of the delayed measures of choice, thus again minimizing the possibility of subjects suspecting a connection between the delayed measures and the experiment proper.

Since the subjects had to commit themselves to choosing one of the two testing methods for the impending midterm examination and then to return the form to the instructor with their signature and social security number, the behavioral measure was collected under conditions of exceptional realism. The signatures on the forms allowed the experimenter to match the delayed responses of each subject with his or her responses to the original questionnaire with a minimum of difficulty.

Because of the realism of the context in which the behavioral and delayed preference measures were taken, and the period of time that had transpired between the experimental sessions and the administration of the in-class survey, the postexperimental debriefings were not expected to significantly bias the in-class responses.

**Running of Control Subjects.** In the control condition, 25 subjects were exposed to the same instructions as the experimental subjects, but with the following exceptions. Subjects were exposed to the audiovisual presentation which contained the announcer's commentary and the
slides of the campus. But at the point in the presentation when the announcer was about to introduce the female speaker, the tape recorder and slide projector were turned off. In effect, the control group was exposed only to a neutral portion of the slide and sound presentation which made no mention of the female source or her background or her opinions about examinations. The truncated slide presentation was used instead of no presentation in order to remain consistent with the general cover story of studying the effects of mass communications which was used originally to recruit the subjects.

Control subjects completed Part I and an abbreviated version of Part II in the original questionnaire: The only sections that were presented to subjects in the control version of Part II were the measures of attention and attitude. At the end of the session, the control subjects completed the test preference measures in the "personal opinion survey" as well as the postexperimental questionnaire before they were debriefed, thanked, and dismissed.

Control subjects also completed the measures of delayed preference and behavior during their regularly scheduled class approximately one week after the session.

**Independent Variables**

Two independent variables were manipulated in the study: source physical attractiveness and source
expertness. A description of the manipulated variables and how each was operationalized in the experimental procedure follows.

Source Physical Attractiveness

Thirty color slides of Caucasian female university students were selected randomly from a larger pool of 46 slides. The slides portrayed candid snapshots of female students on campus from the waist up. None of the women were shown wearing glasses, since the wearing of spectacles tends to connote intelligence (Brunswik, 1939; Thornton, 1943, 1944), and is believed (in the case of women in western society) to occasionally detract from their physical attractiveness (Berscheid & Walster, 1974). The students were dressed in casual clothes and were photographed on the Ohio State University campus by the researcher over three consecutive school days. To minimize the influence of distracting environmental cues, only neutral backgrounds—such as bushes or the walls of university buildings—were used.

Rating and Selection of Pictured Stimuli. To determine the relative attractiveness of the 30 pictures, selected from the original stimulus pool, the method of ratings by judges was selected because of its reportedly

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6 For a more detailed discussion of this method, please see "Characteristics of the Physically Attractive" in Chapter II of this dissertation.
high interjudge reliability across age groups (Cavior & Dokecki, 1971) and across age, sex, and race (Cross & Cross, 1971; Berscheid, Dion, Walster, & Walster, 1971; Murstein, 1972).

A sample of 22 male and 14 female judges were recruited from two undergraduate business courses at the Ohio State University. Thus, both the raters as well as the subjects of the main experiment were obtained from the same population of undergraduate students enrolled in business courses. None of the raters participated in the main experiment.

The judges were instructed to view each slide as it was projected on a screen, and then to rate each pictured stimulus person on an 11-point scale of physical attractiveness, ranging from very attractive (11) to very unattractive (1). To minimize "anchoring effects" (Andreas, 1960, p. 154), two methodological procedures were used.

One, the judges were recruited in two separate sessions: One group of 21 raters viewed and rated the 30 slides in one specific, randomly-determined sequence, 

7"Anchoring effect" is the tendency of judges, as they rate the first few items in a sequential presentation of stimuli, to employ a certain part of the rating scale. These early judgments may exert an anchoring effect for any similar stimuli judged later in the series, thus distorting the assigned ratings from what they might have been if a different, and perhaps more representative, set of items had been experienced early in the task.
while the other group of 15 viewed and rated the same 30 slides but in a different sequence which was, again, determined randomly.

Two, before the ratings were made, the 30 slides were screened twice for each group of judges. This technique gave judges a preliminary acquaintance with the stimuli to be judged, thus offsetting the development of an anchoring effect. With the first screening it was expected that the judges would become familiar with the range of physical attractiveness represented in the stimulus sample. The actual ratings were made with the second screening: As each slide was projected, the judges were asked to view it and immediately rate the pictured female on the 11-point physical attractiveness scale. For each picture, the judges were also asked to indicate if they knew the person pictured.

Physical attractiveness was defined in the instructions to the judges as "a person's facial beauty and overall physical appearance." This definition, which focuses on overall appearance, is consistent with Murstein's (1971) Gestalt view that people respond to the total configuration of a person rather than to his individual characteristics, such as the shape of his nose or mouth.

In summary, each judge rated 30 pictures. In the case where a judge indicated on the rating sheet that he
or she knew a particular stimulus person, the judge's rating for that specific picture was eliminated from the analysis in order to maintain a degree of uniformity in the stranger-rater dyad. Ratings for a known stimulus person were removed from the analysis also because it has been found (e.g., Cavior, 1970) that a stimulus person tends to be rated more favorably by judges who know him than by judges who do not know him.

From the combined ratings of the 36 male and female judges, mean scores for physical attractiveness were computed for the 30 pictures. Interrater reliability for the 36 judges over 30 pictures was .97 (.98 when adjusted for mean differences). Average correlation between pairs of judges was .57, and the estimate of reliability based on a single measurement was .55 (adjusted).

The following procedure was used in choosing communicators for the high, medium, and low physical attractiveness conditions. Two pictures with the lowest mean scores and two with the highest mean scores were selected to represent the low and high physical attractiveness conditions, respectively. Mean scores for the original sample ranged from 2.72 to 8.69. The sample mean was 5.67 and the median was 5.71. Two pictures with mean ratings closest to the median were selected to represent the medium level of physical attractiveness. This method
of stimulus selection is consistent with that of similar previous studies (e.g., Horai et al., 1974; Landy & Sigall, 1974). The means and standard deviations of the six pictures selected from the sample for the experiment are presented in Table 3.

**Table 3**

Means and Standard Deviations of Pictures Selected as Experimental Stimuli

<table>
<thead>
<tr>
<th>Physical Attractiveness Level</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Slide H1 8.69</td>
<td>1.39</td>
</tr>
<tr>
<td></td>
<td>Slide H2 8.64</td>
<td>1.17</td>
</tr>
<tr>
<td>Medium</td>
<td>Slide M1 5.77</td>
<td>1.49</td>
</tr>
<tr>
<td></td>
<td>Slide M2 5.69</td>
<td>1.85</td>
</tr>
<tr>
<td>Low</td>
<td>Slide L1 2.75</td>
<td>1.40</td>
</tr>
<tr>
<td></td>
<td>Slide L2 2.72</td>
<td>1.73</td>
</tr>
</tbody>
</table>

The process of selecting stimulus persons was subjected to two additional criteria: One, the means of the two pictures selected to represent the same level of physical attractiveness could not differ significantly from each other (at $p = .05$); two, the mean ratings of the low, medium, and high attractiveness pictures had to differ significantly from each other (at $p = .01$). Paired comparisons of the means using the $t$ test (Kerlinger, 1964, p. 179), indicated that the six pictures clearly met both
selection criteria.

The rationale behind the selection of two pictures per attractiveness level was twofold: One, to improve the representativeness of the independent variables; two, to reduce the effect on dependent variables of such idiosyncratic cues as unusual hair color or specific items of clothing that might disproportionately influence receiver perceptions. Since pictures within a condition shared a common level of physical attractiveness and the differences between groups was attributable to the different levels of physical attractiveness, any significant differences in subject responses between conditions and any similarities within a condition could be attributed with greater confidence to the presence of equal or differing levels of source physical attractiveness, respectively.

Source Expertness

Source expertness was manipulated in two ways: By varying the description of the speaker's background within the recorded message, and by varying the additional information about the speaker's background in a verbal manipulation which immediately followed the recorded message.

In the context of the experiment's cover story, source expertness was conceptualized as follows. A high expert source, discussing the merits of essay versus multiple choice tests in college, should have more than
an average amount of experience with, and exposure to, both types of exams than the typical undergraduate.

With this conceptualization in mind, high source expertness was manipulated in the recording by describing the speaker as a senior in business administration who was also employed part-time as a statistician in the university's Educational Testing Service. This background, suggested the recording, gave the source "considerable authority" and "experience" to speak on the subject of examinations. In the additional manipulation by the experimenter, which was designed to strengthen the original recorded manipulation, the subjects were told that the source had been enrolled in the same type of course as the one in which they were currently enrolled (i.e., introductory marketing) when she was interviewed for the publicity film.

In the low expertness conditions, the same source was described in the recorded introduction as a freshman who was expecting to major in business administration, and who was employed part-time as a secretary in the university's Athletic Department. In the supplementary manipulation, her lack of expertness was emphasized further when the experimenter said that the speaker had admitted in a later portion of the interview that, since she was a freshman, her only experience with essay tests in college
happened to be for a course in English composition.

**Dependent Variables**

The effect of source physical attractiveness and source expertness was measured on the following dependent variables: attention value, attitude to multiple choice and essay tests, test preference, delayed preference, behavioral measure, attitude to a secondary issue, comprehension and recall of message content, attraction of receiver to the source, receiver's estimate of source's grade point average, receiver's perceived similarity to source, evaluation of source's credibility, and general stereotype attributions. For the remainder of this section, the definition, purpose, and operationalization of each of the dependent variables will be discussed.

In the area of mass communications and attitude change, McGuire (1969) has advanced the view of man as "an information-processing machine who, presented with some new information, tries to absorb and deal with it as effectively as possible and alter his behavior accordingly" (p. 3). McGuire contended that a communication's effectiveness is determined by a sequence of six behavioral steps, each probabilistically linked to the preceding one, through which the individual must pass if he is to be effectively persuaded: The individual must first be exposed to a communication before he can attend to it; he must attend to
it before he can comprehend it; and in this sequence, he must comprehend the intended meaning of the communication before he can yield to the position being advocated, before he can retain the content and meaning in memory, and before he can act, or make a decision based on his changed attitude. This information-processing sequence is illustrated in Figure 1.

![Diagram](image)

**Figure 1.** Information processing steps in the response to a communication (McGuire, 1969).

Probability of attitude change = $P(p) \cdot P(a) \cdot P(c) \cdot P(y)$

Probability of desired behavior = $P(p) \cdot P(a) \cdot P(c) \cdot P(y) \cdot P(r) \cdot P(b)$
In the present study, exposure of subjects to the communication was ensured by their voluntary physical presence in the laboratory. However, since a variety of sources were to be presented in the different experimental sessions, the attention values of different types of sources were expected to vary. Depending on the type of communicator being portrayed, subjects could possibly perceive the same communication as more interesting and stimulating under some experimental conditions than under others.

**Attention Value**

In the experimental session, attention was measured in Part II of the questionnaire immediately following the experimental inductions. A paper-pencil, self-report measure was used instead of the more conventional physiological measures such as galvanic skin response, pupil dilation, or changes in blood pressure and pulse rate, among others (see Hansen, 1972, pp. 67-68). Although physiological measures have good internal validity, they are cumbersome to administer. And the presence of complicated-looking apparatus in the testing room might sensitize the subject to respond in artificial ways to subsequent paper-pencil tests.

Although a handful of paper-pencil scales have been developed to test the attention value of commercials
(e.g., Leavitt, 1975) as well as situations in general (e.g., Mehrabian & Russell, 1974), none seemed appropriate for the present study. Consequently, an intuitive approach was utilized by the researcher in generating eight statements that purported to measure attention. From the eight statements, four were selected based on the expert opinions of three individuals who were familiar with research on attitude change.

The four statements designed to measure attention were as follows:

1. The presentation held my interest.
2. The tape-recorded portion of the presentation was easy to follow.
3. The student interviewed in the film was interesting to listen to.
4. Overall, the presentation maintained a lively pace.

The four above items were intermixed with four filler items ostensibly to measure the subjects' overall impressions of the "unedited film." For example, one filler item read: "The scenes shown of the Ohio State University campus were appropriate for the commentary." This procedure was used to maintain the cover story of subjects participating in the pretest of a university publicity film.
Subjects were instructed to respond to each item on a 5-point "fits" scale (Leavitt & Walton, 1974, pp. 64-66). The "fits" scale, used throughout this research, was selected over the more popular Likert-type and semantic differential scales for reasons that are explained in some detail in the Note on the Response Format of the Fits Scale, included in Appendix D.

The "fits" scale instructs the respondent to indicate how well a statement fits with his own view or impression or attitude or perception of a topic. The respondent is instructed to circle the number 5 on the scale if the statement fits with his view extremely well; 4 if it fits very well; 3 if it fits fairly well; 2 if it fits not well; 1 if it fits not well at all.

Attention value was measured by summing the scores for the four items. Scores could range, theoretically, from 4 to 20; the higher the score, the more effective was the source in gaining or holding the subject's attention.

Attitude to Multiple Choice and Essay Tests

The principal topic of persuasion (why essay tests are preferable over multiple-choice tests) was presented by the speaker more in the form of an opinion and a statement of personal preference rather than as a message designed to overtly persuade her listeners.
In the academic quarter preceding the one in which the present experiment was performed, a survey was conducted of 407 students, enrolled in a large section of a course in basic marketing. The survey, which asked the students to indicate their preference for multiple choice versus essay examinations, also invited them to write—in free-response protocols—what they thought and what they liked most and least about both of these testing methods.

The free-response protocols, numbering close to 200 different items, were tabulated in the form of original words, phrases, expressions, and sentences, and classified as protocols pertaining to either multiple-choice tests or essay tests. The protocols collectively represented an item pool or "universe of content" (Ostrom, 1971-72) from which the most frequently mentioned or eloquently stated items were chosen to form a smaller item pool (approximately 50 items). This pool was utilized, subsequently, for two purposes: to design the persuasive message, and to develop attitude scales.

For the present study, attitudes were viewed as possessing three components: affect, belief, and behavioral tendency (Krech, Crutchfield, & Ballachey, 1962; Triandis, 1971). From the smaller item pool, seventeen representative items were selected by the researcher that best represented, in his judgment, the three attitude components.
Where an item consisted of only a word or phrase, the researcher used his judgment to construct a complete sentence with that word or phrase.

In this sample of statements, four were classified as affect, ten as beliefs, and three as behavioral tendencies, or intentions. The unbalanced proportions in the number of statements representing the three attitude components merely reflected the proportions of the type of attitudes that were represented in the original item pool.

The seventeen items were examined by three expert judges and by the researcher with two objectives: To arrive at an equal number of statements for each of the three attitude components; and to select items that appeared to be the most representative of the domain of possible responses.

Six attitude statements were selected by the researcher, based on the ratings and subjective evaluations of the three judges. Each of the three components of attitude was represented with two statements. To counteract the response bias of acquiescence or yea-saying (Kerlinger, 1964, p. 571), each pair of statements per attitudinal component was balanced: One statement was constructed to favor essay tests and the other to favor multiple choice tests.
Affect was measured with the following statements:
1. On the whole, I like multiple choice tests.
2. I feel safe with essay exams.

Belief was measured with the following statements:
1. Essay exams allow you to demonstrate how well you've understood the material.
2. You can usually score high on a multiple choice test than you can on an essay test.

Behavioral tendency was measured with the following statements:
1. For an important examination, I would prefer essay questions over multiple choice questions.
2. In general, I prefer multiple choice exams.

Responses to the six attitude items were measured, once again, with the 5-point "fits" scale.

Attitude scores were computed by first inverting the score on items that were unfavorable to essay tests or favorable to multiple choice tests. Following the inversion of negative items, attitudes were assessed for each of the three attitudinal components by summing the scores for each pair of items within a component. An individual's overall attitude score was computed by summing his scores on the affective, cognitive, and behavioral tendency scales. Attitude scores on each component could range, theoretically, from 2 to 10; for an individual's overall attitude, the summated score could range from 6 to 30. The higher the score, the more favorable was the individual's
attitude to essay tests.

Test Preference

Subjects' preference for the type of test in a familiar course—such as basic marketing—was measured at the end of the experimental session with a one-page "personal opinion survey." Two independent measures of preference were collected, one for a hypothetical "new marketing course such as sales management," and the other for an "established marketing course like B.A. 650 [basic marketing]."

Test preference was measured by asking the subjects to check the type of test they would most prefer for a midterm or final examination from the following 5-point scale:

1. All multiple choice questions.
2. Mostly multiple choice and some essay questions.
3. About half multiple choice and half essay questions.
4. Mostly essay and some multiple choice questions.
5. All essay questions.

Responses were coded with a 1 for "all multiple choice questions" to a 5 for "all essay questions."

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8 At the time that this experiment was conducted, sales management was not offered as part of the business curriculum at Ohio State.
Delayed Preference

The persistence of source effects over time was tested with a delayed measure of test preference which was collected approximately one week after the last experimental session. To facilitate comparison of the delayed preference measure with the measure that was taken immediately following the manipulation, the delayed measure was scaled, worded, and coded identically to the first measure.

Behavioral Measure

It has been suggested (e.g., Aronson & Carlsmith, 1968) that researchers should endeavor to develop behavioral dependent variables which are of importance to or require a commitment by the respondent (p. 54).

The present study required subjects to choose between an all-essay or an all-multiple choice test for a real midterm examination in the course from which they were recruited. The behavioral measure was obtained with the cooperation of the instructor of the course who obliged by actually making up two types of examinations, one with all essay questions and the other with all multiple choice questions.

Subjects (as well as non-subjects who were enrolled in the course) were asked to commit themselves to one or the other form of the test and sign their name to the sheet as further evidence of commitment. The truly
behavioral nature of this measure was confirmed by subsequently checking the instructor's records to verify if the subjects had, indeed, followed through with their stated choice by taking the type of test that they had said they would.

**Attitude Toward a Secondary Issue**

While throughout her message the speaker had talked about why she preferred essay tests and disliked multiple choice tests, in the last sentence of her recorded opinion, she gave her view about a second, largely unrelated topic, when she said: "That's why, if the university ever gave us a choice, which I think they should, I'd choose essay [tests] every time."

Agreement with this issue was measured with the 5-point "fits" scale by asking the subjects how well the following statement fit their view:

I believe that students should be given the freedom to choose the type of test that they want to take.

**Comprehension of Message Content**

As a test of whether the subjects had understood what was communicated in the audiovisual presentation, eight items were developed, based on the information that was presented in the communication. The eight items are reproduced in Table 4.
Table 4
Comprehension Scale Consisting of Items Testing for Aided and Unaided Recall

The following statements or questions relate directly to the slide presentation that you saw a few minutes ago. Please answer each question using only the information that was provided in the presentation.

Please put an "X" in the box next to the alternative that best corresponds to the information contained in the presentation.

1. According to the male announcer, how does today's undergraduate differ from his counterpart of the sixties?
   - □ Today's undergraduate is more politically conservative.
   - □ He is less likely to take his college education for granted.
   - □ He is better informed.
   - □ There are no fundamental differences, according to the announcer.

2. In what year of college is the female student who is seen in the presentation?
   - □ Freshman
   - □ Sophomore
   - □ Junior
   - □ Senior
   - □ Graduate Student
   - □ I cannot recall

3. The female student argues that with multiple choice tests:
   - □ You can get partial credit for answers that are partly right.
   - □ You can usually guess the right answer.
   - □ The wording can be ambiguous.
   - □ It's easier to give the instructor what he wants.
   - □ I cannot recall the student's argument.
4. According to the female student, one disadvantage of essay tests is that:
   - They can be confusing and ambiguous.
   - They don't really test you on what you know.
   - You either get full credit or you get nothing at all.
   - They take longer to grade.
   - No disadvantage is mentioned.

5. According to the announcer, the female student in the film is employed part-time as a
   - waitress
   - keypunch operator
   - statistician
   - secretary
   - social worker
   - I cannot recall

6. What is the name of the student?

<table>
<thead>
<tr>
<th>First name</th>
<th>Last name</th>
<th>I cannot recall</th>
</tr>
</thead>
</table>

7. The student describes one type of test question that she really dislikes. Can you recall, from the film, what her description of this question is? Briefly reproduce as many of her exact statements as you can recall.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

8. According to the student, what kind of test are you less likely to flunk? What specific reasons does she give to support her view?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Aided recall of the source's occupation and year in college and her opinions on essay and multiple choice tests was tested in four multiple choice questions. A fifth multiple choice question—which appeared as the first question in this section—was a filler which tested the subjects' recall of an inconsequential detail in the opening paragraph of the male announcer's commentary. The subjects were instructed to check the correct answer from between four to six alternatives per question.

Unaided recall was measured with three essay-type questions requiring short specific answers: One question asked subjects to recall the first and last names of the female speaker; the second question asked the subjects to recall the type of test question that the speaker had said she really disliked, and to reproduce as many of her exact statements as possible; the last question tested recall of the kind of test that the student speaker had said one was "less likely to flunk" and the specific reasons that she had given to support her view.

The following scoring procedure was used to tabulate each subject's comprehension score. A correct answer checked for each of the five aided recall items earned two points per item, giving a total of 10 points for perfect aided recall. The ability to recall the student's first and last names earned one point per name. The two unaided
recall items, requiring the subject to reproduce the speaker's opinions and key arguments, were valued at a possible 5 points each; points were deducted for answers that did not reproduce all of the expected arguments. With unaided recall valued at a maximum of 12 points, a total comprehension score could vary from zero to 22.

Responses to the comprehension items were scored and coded manually by an assistant who was naive about the hypotheses that were being tested. The assistant was instructed to score the responses using criteria that were strictly defined. This double blind method was used to improve the overall objectivity of the scoring procedure.

Liking for the Source

Results from several studies (e.g., Triandis, 1961; Kiesler & Goldberg, 1968) have seemed to indicate that interpersonal attraction is a multidimensional construct which is composed of at least three dimensions: a **social** or liking dimension, a **task** or respect dimension, and a **physical** or appearance dimension (McCroskey & McCain, 1974, p. 262).

Beginning with this three-dimensional definition of the construct of attraction, McCroskey and McCain (1974) and their colleagues generated a pool of Likert-type items for each of the three dimensions. Following the use of this item pool in a series of communications studies
(Quiggens, 1972; McCain & Repensky, 1972; Wakshlag, 1973), and a replication of the original study (McCroskey & Weiner, 1973), factor analyses of the data indicated the presence of the same three dimensions of response with loadings essentially the same as those observed in the initial study (McCroskey & McCain, 1974, pp. 265-6). The authors developed the Interpersonal Attraction Scale by selecting the five highest-loading items under each of the three factors of physical, task, and social attraction. Internal reliability estimates of the five items loading highly on each dimension were .86 for physical attraction, .81 for task attraction, and .84 for social attraction.

McCroskey and McCain's (1974) 15-item scale was utilized in the present investigation to measure subjects' liking for the source. The only departure from the original form of the scale was the change in the response format from the 7-point, Likert-style agree-disagree to the 5-point "fits" scale (discussed earlier in this chapter). A copy of this scale is shown in Table 5.

A subject's liking score was computed by inverting the scores on the eight negative items of the scale, then summing the scores on all of the fifteen items. Liking scores could range, theoretically, from 15 to 75; the higher the score, the more the subject liked the source.
Table 5
Interpersonal Attraction Scale*

<table>
<thead>
<tr>
<th>I. Social Attraction</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I think she could be a friend of mine.</td>
<td></td>
</tr>
<tr>
<td>2. It would be difficult to meet and talk with her.</td>
<td></td>
</tr>
<tr>
<td>3. She just wouldn't fit into my circle of friends.</td>
<td></td>
</tr>
<tr>
<td>4. We could never establish a personal friendship with each other.</td>
<td></td>
</tr>
<tr>
<td>5. I would like to have a friendly chat with her.</td>
<td></td>
</tr>
</tbody>
</table>

II. Physical Attraction**

| 1. I think she is quite pretty. |                                                                 |
| 2. She is very sexy looking.    |                                                                 |
| 3. I find her very attractive physically. |                                                                 |
| 4. I don't like the way she looks. |                                                                 |
| 5. She is somewhat ugly.        |                                                                 |

III. Task Attraction

| 1. She is a typical goof-off when assigned a job to do. |                                                                 |
| 2. I have confidence in her ability to get the job done. |                                                                 |
| 3. If I wanted to get things done, I could probably depend on her. |                                                                 |
| 4. I couldn't get anything accomplished with her. |                                                                 |
| 5. She would be a poor problem solver. |                                                                 |

♦McCroskey and McCain, 1974.

**Sum of scores on this dimension constituted a manipulation check for physical attractiveness.

To obtain more information on the construct of interpersonal attraction, scores were also computed for each of the three dimensions of attraction. Group mean scores on the "physical attraction" dimension constituted a manipulation check on source physical attractiveness.
Perceived Similarity to the Source

Do subjects perceive themselves to be more similar to a speaker who is highly attractive, physically, than they do to speakers who are medium or low in physical attractiveness? To answer this question, two items were designed that would provide a global measure of perceived similarity to the source. To counter the response bias of acquiescence, one item was worded positively and the other was worded negatively. The two items were as follows:

1. She and I seem to have much in common.
2. Overall, she seems more dissimilar to me than similar.

The two items were intermixed with the 15 items from the Interpersonal Attraction Scale (McCroskey & McCain, 1974) and three filler items, all designed, purportedly, to capture the subject's overall impressions of the speaker. The 5-point fits scale was again used as the response format.

To compute a subject's perceived similarity to the source, his score on the negative item was inverted and added to his score on the positive item. Scores on this scale could range, theoretically, from 2 to 10; the higher the score, the more similar to the source the subject perceived himself to be.
Source's Estimated Grade Point Average

Are physically attractive people perceived differently than unattractive or average looking people in their academic ability? To answer this question, the subjects were given the following instructions in the questionnaire:

We are interested in the degree of accuracy with which you can estimate the female student's academic ability.

In my estimate, the student's cumulative grade point average (out of a possible 4.0) is ______________.

Source Credibility

Source credibility represents the attitude of the receiver toward the source: It is not what the source is, but what the receiver perceives the source to be. In two factor-analytic studies, involving responses on 83 source-evaluative, bipolar adjectives that were collected in a variety of communications contexts and situations, Berlo, Lemert, and Mertz (1969-70) found three "meaningful and statistically independent dimensions" for the construct of source credibility: safety, qualification, and dynamism.

Safety, while analogous in some respects with Hovland's concept of trustworthiness, was interpreted by the authors as having a broader meaning which included a "general evaluation of the affiliative relationship between source and receiver, as perceived by the receiver" (p. 574).
Qualification was found to equate with Hovland's "expertise" dimension when the source's topic of persuasion was known, although this dimension was found to elicit ratings even in topic-free situations.

Dynamism was defined with scales indicating it to be a combination of the potency and activity factors of general connotation (See Osgood, Suci, & Tannenbaum, 1957). Berlo and his colleagues have described dynamism as, among other things, the "disposable energy" that is available to the source which can be used to "emphasize, augment, and implement his suggestions" (p. 575).

Although Berlo et al. had suggested the use of bipolar adjectives to evaluate source credibility, the commitment made in the present research to the "fits" scale over the more popular Likert-type and semantic differential scales directed the researcher to choose a representative sample of single adjectives that loaded under each of the three evaluative factors.

Six adjectives were selected for each dimension from a ranking of scales within a factor which was based on a "factor purity index" (Berlo et al., 1969-70, p. 567). This index was determined by subtracting the scale's absolute loadings on the other three factors from its

---

9The reasons for this decision are explained in Appendix D.
loading on the principal factor. Adjectives for the source credibility scale were selected by the researcher if the adjective had a positive factor purity index. Of the qualifying items, those which lacked face validity were excluded from the scale.

In measuring the dimension of Safety, the subjects were asked to indicate, on the 5-point fits scale, how well each of the following words described the female speaker: closed-minded, honest, insincere, irrational, believable, and friendly. Similarly, Qualification was measured with the following words: experienced, uninformed, knowledgeable, unqualified, authoritative, and ignorant; and Dynamism with the words: aggressive, hesitant, timid, active, energetic, and reserved. An equal number of positive and negative adjectives were included for each dimension, thus assuring a balanced scale.

By inverting the scores on the negative items, an individual's scores on the 18 items could be summed to produce his scores on each of the three dimensions as well as on the general construct of source credibility.

The summated score on the Qualification dimension was intended to also serve as a manipulation check for the source expertness induction.

**General Stereotype Attributions**

Several studies (e.g., Dion et al., 1972; Miller, 1970a,b) have demonstrated the existence of a physical
attractiveness stereotype, evidenced particularly as a tendency among people to attribute more positive traits and qualities to individuals who are physically attractive than to those who are unattractive. As a further test of this stereotype, 22 adjectives were generated, some from informal surveys of past studies on person perception, and others from discussions with interested advisers and colleagues.

The 22 adjectives, some identified by their most recent published sources, are presented in Table 6. Subjects were instructed to show, on a 5-point fits scale, how each of the 22 adjectives fit the speaker by writing the number 5 next to each adjective if it fit extremely well; 4, if it fit very well; 3, if it fit fairly well; 2, if it fit not well; and 1, if it fit not well at all. The scale was balanced by including an equal number of positive as well as negative (or less desirable) traits. As they appeared in the questionnaire, the 22 adjectives were intermixed randomly with the 18-item source credibility scale.

By inverting the scores on the negative items and summing the scores for the 22 adjectives, an index of desirable traits could be computed for the different communicators who were portrayed in the experiment.
Table 6
Adjectives Selected to Test Physical Attractiveness Stereotypes

A. Positive Traits
1. popular (Dion & Berscheid, 1972)
2. happy (Berscheid, Walster & Campbell, 1972)
3. sexually warm (Dion, Berscheid & Walster, 1972)
4. intelligent (Clifford & Walster, 1973)
5. successful (Dion et al., 1972)
6. poised (Dion et al., 1972)
7. talented (Landy & Sigall, 1974)
8. outgoing (Dion et al., 1972)
9. good looking
10. self-confident (Sigall & Landy, 1973)
11. forceful

B. Negative or Less Desirable Traits
1. uninteresting
2. unsophisticated (Kaigler-Evans, 1974)
3. wishy-washy
4. snobbish
5. shy
6. unfashionable
7. dull
8. cold
9. unattractive
10. unresponsive
11. irritating

Ancillary Measures
In order to better understand the nature of the physical attractiveness effect and the type of receiver characteristics or individual differences that might mediate the individual's response to the communication, the following ancillary measures were also collected during
the experimental session: respondent's sex, age, year in college, departmental affiliation, grade point average, hours of television viewed on a weekday and on a weekend, ratings on three personality traits, and two questions which attempted to scale the subject's past experiences with essay and multiple-choice tests.

**Individual Differences**

Paper-pencil self-report measures were collected on the psychological trait of open processing (Leavitt & Walton, 1976) as well as two other traits. Open processing refers to the "intelligent, creative, selective use of communication for solving problems . . ." (Leavitt & Walton, 1976, p. 3). An individual high on this trait has been described by the authors as one who is:

open to new experiences and often goes out of his way to experience different and novel stimuli of a meaningful sort (not just thrill-seeking). Most important, he tends to make constructive use of information received whether sought or accidentally encountered. He has a low threshold for recognizing the potential application of ideas he gets from others but does not apply suggestions mechanically. Rather, he has the ability to transform information for his own use. His involvement in his own enterprises is such that he looks for ways to change and improve

---

10The two other traits measured were political control and personal internal-external control, both adapted from Rotter's (1966) scale of internal-external locus of control. The findings concerning these two traits are not reported in this dissertation.
them. Above all, he is responsive to communication in a selective, constructive way when the message has a valid relevance to his activities. He is objective in his evaluation although occasionally naive (p. 4).

The open processing scale consisted of 30 items: 12 items measured a subtrait labeled "openness," 12 items measured "cautiousness," and six items, extracted from Crowne and Marlowe's (1964) social desirability scale, were designated by the authors as fillers. An individual's open processing score was computed by subtracting his summated score on the cautiousness component from his summated score on the openness component. Responses were measured on the 5-point fits scale.

**Previous Experience with Tests**

Since previous experience with essay and multiple choice tests would be expected to influence a subject's attitude to and preference for essay examinations, two covariate measures were collected as part of the one-page "personal opinion survey" which was administered at the end of the session. The subjects were asked to respond to the following two items:

1. Based on my experience with college examinations, I've generally found it to be more

---

11 The items comprising openness and cautiousness are reproduced in Appendix E.
difficult to perform well in:

- essay exams
- multiple choice exams
- I've found no difference between the two types of exams

2. In business courses, when both essay and multiple choice tests were given, I generally performed better in exams that had:

- only essay questions
- only multiple choice questions
- both essay and multiple choice questions
- I found no differences between the two

Hypotheses

This section describes the ten hypotheses that were tested in the research and the rationale behind each prediction.

Hypothesis 1

Source physical attractiveness will be related positively to opinion change.12

This hypothesis constituted a further test of the direct causal relationship between communicator physical attractiveness and attitude change that has been demonstrated in previous attitude change studies involving male sources portrayed in print media (Horai et al., 1974),

12 In the present research, the term "opinion change" refers to subject responses on the following dependent measures: attitude to essay tests, test preference in a real as well as hypothetical business course, and attitude on a secondary issue.
and male sources pictured on a screen (Synder & Rothbart, 1971). However, the strength of this prediction could be questioned in the light of the findings of at least two studies involving female sources. One study (Mills & Aronson, 1965) found no significant main effect for physical attractiveness in an experiment where the source was physically present, while the other study (Blass, Alperstein, & Block, 1974) found source physical attractiveness effective in changing attitudes only when the source was white; in the case of black sources, the less attractive source was found to be more effective.

However, the weight of the evidence seemed to justify the prediction made in Hypothesis 1.

**Hypothesis 2**

A high expert source will produce more opinion change than a low expert source.

This prediction is supported by the findings of at least one study (Horai et al., 1974) which crossed source physical attractiveness and expertness, and by a multitude of studies on source credibility that have shown expert sources to be able to produce more immediate attitude change than non-expert sources (e.g., Hovland & Weiss, 1951; Johnson, Torcivia, & Poprick, 1968; Whittaker & Meade, 1967).

**Hypothesis 3**

When source expertness is high, no significant differences in opinion change will be
found between subjects exposed to a high, medium, or low level of physical attractiveness.

Hypothesis 4

When source expertness is low, opinion change will be greater under the conditions of high source physical attractiveness than under the conditions of medium or low source physical attractiveness.

Hypotheses 3 and 4 were based on the "dominant cue" hypothesis, described in Chapter II, which contended that source physical attractiveness cues are important (or dominant) in determining receiver reactions to a communication only when they are at an extreme level (either very high or very low). As attractiveness levels become moderate, other cues (such as source expertness) become salient. Although the present study manipulated physical attractiveness at three levels (low, medium, and high), the low level of attractiveness was not intended to represent persons who were extremely ugly in the absolute sense (e.g., persons with physical deformities), but, rather, only those who were moderately unattractive. Consequently, it was predicted in hypotheses 3 and 4 that physical attractiveness will operate as a dominant cue in influencing opinion change only when the source was high in physical attractiveness.

Hypothesis 5

Attention value of the communication will be related positively to the physical attractiveness of its source.
Folk expression has labeled physically attractive people as "lookers," the implication being that good-looking people tend to draw more attention and stares than plain-looking folk. This informal observation is not inconsistent with the findings of more scientifically developed theories which suggest that man needs—indeed seeks—novel, stimulating experiences (Berlyne, 1958; Hansen, 1972; Fiske & Maddi, 1961).

Extending this somewhat general set of conclusions to the specific case of the physically attractive source provided the logic for the prediction made in Hypothesis 5.

**Hypothesis 6**

Recall of message content will be lower under conditions of high source attractiveness than under conditions of medium or low source attractiveness.

The rationale for this hypothesis emerged from the findings on distraction theory which suggest that a distraction—in the present case, a highly attractive young female—while facilitating opinion change, is likely to also interfere with and impede learning or retention of the message (Haaland & Venkatesan, 1968; Regan & Cheng, 1973). Therefore, it was predicted that in the high attractiveness condition, subjects will be distracted from concentrating on the audio message by the picture of a highly
attractive source. As a result, the subjects in the high attractiveness condition will comprehend and recall less of the message content than the subjects in the medium and low attractiveness conditions.

**Hypothesis 7**

Liking for a source will be related positively to the level of physical attractiveness of the source.

That the physically attractive are liked more than those who are unattractive has been demonstrated in repeated studies and across a variety of interpersonal interaction situations (e.g., Berscheid et al., 1971; Brislin & Lewis, 1968; Byrne, London, & Reeves, 1968; Dion & Berscheid, 1972; Snyder & Rothbart, 1971). There is also evidence to suggest that liking for a source may be an important mediator of opinion change (Simons, 1973). Hypothesis 7 was formulated based on these findings.

**Hypothesis 8**

Communicators who are high in physical attractiveness will be rated higher on source credibility than communicators who are medium or low in physical attractiveness.

This hypothesis was formulated on the basis of the general evidence, demonstrating the presence of the physical attractiveness stereotype, which has shown physically attractive people to be perceived as being more talented (Landy & Sigall, 1974), as possessing more socially
desirable traits such as sensitivity, strength and modesty (Dion, Berscheid, & Walster, 1972), as being more likable (Snyder & Rothbart, 1971), and as being more credible on the dimensions of competence, character, and dynamism (Widgery & Webster, 1969).

Hypothesis 9

Perceived source-receiver similarity will be greater under conditions of high source attractiveness than under conditions of medium or low source attractiveness.

While hard evidence to defend this prediction was, once again, scant if not nonexistent, the hypothesis that people will perceive as having more things in common with an attractive stranger than with an unattractive stranger had intuitive appeal, and a tangential link with Kelman's (1958) notion of identification where the power of the influencing agent is based on his attractiveness to the individual. The source-receiver relationship, as perceived by the receiver, "may take the form of classical identification in which the individual takes over the role of the other . . ." (Kelman, 1958, p. 53).

Hypothesis 10

No significant source effects will be noted on the measures of delayed preference and behavior.

This prediction is consistent with the principal findings on the "sleeper effect" (Hovland & Weiss, 1953) which show that the persuasive effects attributable to a
source's credibility become nonsignificant over time (Weiss, 1951; Kelman & Hovland, 1953; Johnson & Watkins, 1970). In addition to testing the persistence of source effects over time, this hypothesis involved measures of behavioral intention as well as overt behavior, thus providing a stringent test of the persuasive effects of source physical attractiveness.

Summary

This chapter described the methodology that was employed for the present research. The methodology was organized under the following sections: experimental design, data collection procedures, independent variables, dependent variables, ancillary variables, and research hypotheses.

The experiment crossed three levels of source physical attractiveness with two levels of communicator expertise in a posttest-only, factorial design. University males and females (32 per cell) were recruited from an introductory marketing course, ostensibly, to preview a publicity film about the university. Subjects, tested in groups of approximately 15, were asked to listen to a tape-recorded opinion about the benefits of essay tests while viewing a picture of a college female (described as the speaker) which was projected on a screen. The picture
was one of 12 experimental pictures, representing high, medium, and low levels of physical attractiveness, that were selected from a pool of 30 slides, rated earlier on physical attractiveness by a panel of 36 male and female raters. Subjects then completed the following dependent measures: attitude, attention value of the communication, recall, source credibility, liking for the source, perceived similarity to the source, general source evaluative scales, and behavioral intention. Delayed measures of attitude and overt behavior were also collected under naturalistic conditions approximately one week after the sessions.

Source expertness was manipulated by varying the verbal descriptions of the source's experience and background. The verbal descriptions were provided within the context of the recorded message and supplemented with additional information by the experimenter immediately after the communication was presented.

Ten research hypotheses were formulated. Four hypotheses made predictions about the effects of source physical attractiveness and expertness on opinion change. The principal prediction was that physical attractiveness would operate as a dominant cue in influencing the opinions of receivers when source attractiveness was high.
Two hypotheses dealt with the cognitive mediators of attention and comprehension: The first predicted a positive relation between the physical attractiveness of the source and the communication's attention value; the second (basing its prediction on distraction theory) hypothesized lower recall of message content when the source was physically attractive.

That physically attractive sources will be more likeable, more credible, and be perceived by receivers to be more similar to them were predicted in three hypotheses that focused on source evaluation. The tenth and last hypothesis, dealing with the "sleeper effect" (Hovland & Weiss, 1953) and the persistence of source effects over time, predicted that the delayed measure of compliance would show no differences between experimental treatments.
CHAPTER IV
RESULTS AND DISCUSSION

This chapter contains descriptions of the analysis, the results, and the discussion of the results of this study. The results and the accompanying discussions are organized under three major sections: One section presents and discusses the results in terms of the hypotheses that were tested; another section presents and discusses ancillary findings; and in a final section, the results pertaining to the effects of physical attractiveness and expertness on opinion change are examined critically for rival explanations.

Data Analysis

As described in the preceding chapter, two pictures were selected to represent each level of source physical attractiveness, each picture being paired with either a high or a low level of source expertness in one of the 12 experimental sessions. To increase the representativeness of each attractiveness level and to minimize the influence of such idiosyncratic cues as clothing or hair color, the scores on each dependent variable for the two pictures at each level of attractiveness were combined. Any variation
resulting from accidental differences between the pictures was disregarded in the analysis of variance model and was, instead, treated as part of the experimental error, a procedure which has been widely applied in recent investigations of the physical attractiveness variable with pictured stimuli (e.g., Miller, 1970a; Clifford & Walster, 1973; Stroebe et al., 1971; Dion et al., 1972). This procedure has found additional support from Winer (1971):

Decisions about what terms should appear in the model and what terms should be omitted are generally based upon experience in an experimental area and knowledge about what are reasonable expectations with respect to underlying sources of variation—in short, subject-matter information (p. 378).

As a further test of whether the two pictures within each level of attractiveness were perceived by experimental subjects to be comparable in physical attractiveness, their mean scores on the variables that constituted the physical attractiveness manipulation check were compared and found not to differ significantly.

Upon the completion of this procedure, and after cell sizes were made equal \( (n = 32) \), the data in the resulting 3 x 2 factorial design was submitted to a series of multivariate and univariate statistical analyses to test the hypotheses and to explore the results for alternate explanations. The bulk of the computer analyses was performed with the aid of two statistical packages: MANOVA
(Clyde, 1969), which performs univariate and multivariate analyses of variance; and the Statistical Package for the Social Sciences (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975).

Manipulation Checks

The experimental design required the establishment of six experimental conditions involving high, medium, and low levels of source physical attractiveness, and high and low levels of source expertness. The issue of internal validity (Campbell and Stanley, 1966, p. 5) required that these independent variables be analyzed to ascertain if the manipulations were effective and whether the treatment conditions were established during the experimental sessions.

Physical Attractiveness Manipulation Check. The "physical attraction" component of the Interpersonal Attraction Scale (McCroskey & McCain, 1974) required the subjects to indicate, on a 5-point scale, how well the following statements fit the female communicator: I think she is quite pretty; she is very sexy looking; I find her very attractive physically; I don't like the way she looks; she is somewhat ugly. Following the inversion of the scores on the negative items, the scores for the five items were summed. A test for internal consistency (Nunnally, 1967) showed that these items were highly reliable,
The mean individual score for the high physical attractiveness condition was 19.44; for the medium attractiveness condition, 16.25; and for the low physical attractiveness condition, 12.86. Results from the analysis of variance of the summated scores indicated a strong significant main effect for physical attractiveness, $F(2, 186) = 76.9, p < .001$. The conservative Scheffe procedure for a posteriori comparisons of the means (Winer, 1971) confirmed the differences between the three attractiveness levels to be statistically significant at the .01 level.

**Expertness Manipulation Check.** Source expertness was assessed with responses to the following six items which comprised the "qualification" dimension of the source credibility scale (Berlo et al., 1969-70): experienced, uninformed, knowledgeable, unqualified, authoritative, and ignorant. Internal consistency of the items was found to be .79. The results showed the expertness induction to be highly effective. The mean scores for the groups exposed to the high expert source and to the low expert source were 22.42 and 17.74, respectively, with a significant main effect for expertness, $F(1, 186) = 118.98, p < .001$.

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The formula used to compute this statistic is described in Appendix F.
In summary, the checks on the experimental manipulations for the two independent variables—source physical attractiveness and source expertness—showed that the treatments for each experimental condition were perceived by the subjects as they were intended.

Test of Hypotheses

The results pertaining to the test of the ten hypotheses are organized under four subheads: Opinion Change, Information Processing Mediators, Source Evaluation, and Delayed Compliance. The results pertaining to the tests of hypotheses 1 through 4 are reported under Opinion Change; the results for hypotheses 5 and 6 are treated under Information Processing Mediators; hypotheses 7, 8, and 9 are covered under Source Evaluation; and hypothesis 10 is examined under Delayed Compliance. The first four hypotheses made predictions about the main and interactive effects of source physical attractiveness and expertness on opinion change; hypotheses 5 and 6 dealt with attractiveness effects on attention and comprehension, respectively; hypotheses 7, 8, and 9 involved source evaluations on the dimensions of interpersonal attraction, credibility, and perceived similarity, respectively; and hypothesis 10 tested the persistence of source effects over time.
Opinion Change

Opinion change was measured multivariately with responses on four sets of dependent measures: (1) a summed, six-item attitude to tests scale which tapped affective, cognitive, and conative attitudes toward essay and multiple choice tests; (2) a single-item index of attitude to a secondary topic ("... students should be given the freedom to choose the type of test that they want to take"); (3) test preference in an unknown course; and (4) test preference in a known course (the course from which subjects were recruited for the study).

The following four hypotheses were tested:

Hypothesis 1. Source physical attractiveness will be related positively to opinion change.

Hypothesis 2. A high expert source will produce more opinion change than a low expert source.

Hypothesis 3. When source expertness is high, no significant differences in opinion change will be found between subjects exposed to a high, medium, or low level of physical attractiveness.

Hypothesis 4. When source expertness is low, opinion change will be greater under the condition of high source physical attractiveness than under the conditions of medium or low source physical attractiveness.

\[ \text{2Internal consistency of the scale was .88.} \]
As a test of these four hypotheses, the scores on the four dependent measures were submitted to a multivariate analysis of variance (Cooley & Lohnes, 1971; Winer, 1971; Timm, 1975). Multivariate analysis of variance is a generalization of the classical univariate analysis of variance model to cases where more than one dependent variable is involved. It allows the researcher to test for differences involving multiple response variables between two or more groups. Tests of significance for a main or interaction effect on the multiple dependent measures, treated multivariately, are obtained with multivariate F ratios. Contribution of each dependent variable to the multivariate F can be assessed by examining the univariate F ratios and standard discriminant function coefficients which usually are produced automatically by most multivariate analysis of variance programs (e.g., Clyde MANOVA or BMD-X69).

As a necessary condition, support for hypotheses 1 and 2 would call for significant multivariate F's for the physical attractiveness and expertness main effects, respectively, whereas support for hypotheses 3 and 4 would require, at the very least, a significant multivariate

---

attractiveness X expertness interaction. Table 7 reports the mean scores on the four sets of dependent variables, categorized by the two experimental factors, and Table 8 summarizes the results of the analysis.

Inspection of the multivariate Fs in Table 8 for the main effects and interactions indicated that the predicted source effects on opinion change, proposed in hypotheses 1 through 4, did not materialize.

However, an inspection in Table 8 of the univariate F ratios for the individual opinion change variables uncovered a significant physical attractiveness main effect for agreement on the secondary topic, $F(2, 186) = 3.2, p < .04$. The mean agreement scores for the three attractiveness conditions, illustrated graphically in Figure 2, were 3.18 for the low, 4.27 for the medium, and 4.03 for the high attractiveness conditions, the higher score indicating greater agreement. Student-Newman-Keuls (SNK) a posteriori contrasts of the means (Winer, 1971, p. 191) revealed a significant difference at the .05 level $^4$ between the low and medium attractiveness levels, but showed no differences between the low and high levels or between the medium and high levels. A test for trend (Table 9) indicated a

$^4$The .05 level of statistical significance has been used in the remainder of this report for all a posteriori contrasts, except as noted.
Table 7

Means (M) and Standard Deviations (SD) for Opinion Change Measures
Categorized by Treatment Group
(n = 32 for all cells)

<table>
<thead>
<tr>
<th>Expertness</th>
<th>Dependent Variable</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Attitude to Tests Scale</td>
<td>17.469</td>
<td>16.406</td>
<td>17.188</td>
</tr>
<tr>
<td></td>
<td>- Affect</td>
<td>5.531</td>
<td>5.156</td>
<td>5.344</td>
</tr>
<tr>
<td></td>
<td>- Belief</td>
<td>6.469</td>
<td>6.188</td>
<td>6.406</td>
</tr>
<tr>
<td></td>
<td>- Behavioral Intention</td>
<td>5.469</td>
<td>5.063</td>
<td>5.438</td>
</tr>
<tr>
<td>High</td>
<td>Attitude to Secondary Issue</td>
<td>3.625</td>
<td>4.156</td>
<td>4.063</td>
</tr>
<tr>
<td></td>
<td>Test Preference (Unknown Course)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.656</td>
<td>2.500</td>
<td>2.469</td>
</tr>
<tr>
<td></td>
<td>Test Preference (Known Course)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.500</td>
<td>2.156</td>
<td>2.125</td>
</tr>
<tr>
<td>Low</td>
<td>Attitude to Tests Scale</td>
<td>16.094</td>
<td>16.844</td>
<td>18.344</td>
</tr>
<tr>
<td></td>
<td>- Affect</td>
<td>4.906</td>
<td>5.219</td>
<td>5.719</td>
</tr>
<tr>
<td></td>
<td>- Belief</td>
<td>6.063</td>
<td>6.188</td>
<td>6.750</td>
</tr>
<tr>
<td></td>
<td>- Behavioral Intention</td>
<td>5.125</td>
<td>5.438</td>
<td>5.875</td>
</tr>
<tr>
<td>Low</td>
<td>Attitude to Secondary Issue</td>
<td>4.000</td>
<td>4.375</td>
<td>4.000</td>
</tr>
<tr>
<td></td>
<td>Test Preference (Unknown Course)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.563</td>
<td>2.375</td>
<td>2.938</td>
</tr>
<tr>
<td></td>
<td>Test Preference (Known Course)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.188</td>
<td>2.063</td>
<td>2.688</td>
</tr>
</tbody>
</table>

Note. The higher the score, the greater the opinion change.
Table 8
Univariate and Multivariate Analysis of Variance on Opinion Change Variables

<table>
<thead>
<tr>
<th>Physical Attractiveness (A)</th>
<th>Expertness (B)</th>
<th>A X B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multivariate $F$</td>
<td>.555</td>
<td>1.005</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>df</th>
<th>Univ.</th>
<th>2, 186</th>
<th>1, 186</th>
<th>2, 186</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude to Tests</td>
<td>MS</td>
<td>24.474</td>
<td>.255</td>
<td>27.224</td>
<td></td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>1.066</td>
<td>.011</td>
<td>1.186</td>
<td></td>
</tr>
<tr>
<td>Affect</td>
<td>MS</td>
<td>2.312</td>
<td>.187</td>
<td>4.188</td>
<td></td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>.853</td>
<td>.069</td>
<td>1.545</td>
<td></td>
</tr>
<tr>
<td>Belief</td>
<td>MS</td>
<td>2.734</td>
<td>.021</td>
<td>2.255</td>
<td></td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>1.190</td>
<td>.009</td>
<td>.982</td>
<td></td>
</tr>
<tr>
<td>Behavioral Intention</td>
<td>MS</td>
<td>3.161</td>
<td>1.172</td>
<td>3.016</td>
<td></td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>.706</td>
<td>.262</td>
<td>.674</td>
<td></td>
</tr>
<tr>
<td>Secondary Topic</td>
<td>MS</td>
<td>3.286</td>
<td>1.505</td>
<td>.786</td>
<td></td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>3.199</td>
<td>1.465</td>
<td>.765</td>
<td></td>
</tr>
<tr>
<td>Test Preference</td>
<td>MS</td>
<td>1.161</td>
<td>.333</td>
<td>1.786</td>
<td></td>
</tr>
<tr>
<td>Unknown Course</td>
<td>F</td>
<td>1.211</td>
<td>.347</td>
<td>1.862</td>
<td></td>
</tr>
<tr>
<td>Test Preference</td>
<td>MS</td>
<td>1.568</td>
<td>.130</td>
<td>3.318</td>
<td></td>
</tr>
<tr>
<td>Known Course</td>
<td>F</td>
<td>1.406</td>
<td>.117</td>
<td>2.976</td>
<td></td>
</tr>
</tbody>
</table>

* $a_p < .05$. 
Figure 2. A graphic representation of the relation between source physical attractiveness and opinion change on the secondary topic.

Figure 3. The interactive effect of source physical attractiveness and expertness on test preference in a known course.
significant deviation from linearity, $F(1, 189) = 4.91$, $p < .03$, suggesting in effect that the physical attractiveness-opinion change relationship may, in some cases, resemble an inverted U: A communicator who is medium in physical attractiveness might be more effective than one who is either low or high in physical attractiveness.

Table 9

Test of Trend for Agreement Scores on Secondary Topic for High, Medium, and Low Physical Attractiveness Conditions

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>3.2866</td>
<td>3.199$^a$</td>
</tr>
<tr>
<td>Linear Term</td>
<td>1</td>
<td>1.5313</td>
<td>1.460</td>
</tr>
<tr>
<td>Deviation from Linear</td>
<td>1</td>
<td>5.0420</td>
<td>4.908$^a$</td>
</tr>
<tr>
<td>Within Groups</td>
<td>189</td>
<td>1.0274</td>
<td></td>
</tr>
</tbody>
</table>

$^a p < .05$.

That the inverted U-shaped relationship between physical attractiveness and persuasion is topic-bound--possibly to just those topics which are low in involvement--is supported by the absence of such an effect for the main issue of persuasion which advocated essay tests over multiple choice tests. The contrasting pattern of mean agreement...
scores by level of attractiveness is presented in Table 10. It should be noted that even though the differences between the means for the three levels of attractiveness are trivial and statistically nonsignificant, the direction of the scores across the three attractiveness levels suggests that when the issue is important and involving to the subjects, agreement appears to be slightly greater in the high attractiveness condition than in the medium or low attractiveness conditions.

Table 10
Mean Effects of Source Physical Attractiveness on Opinion Change Variables (Collapsing Expertness) (n = 64 for all collapsed cells)

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Physical attractiveness level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
</tr>
<tr>
<td>1. Affect</td>
<td>5.22</td>
</tr>
<tr>
<td>2. Belief</td>
<td>6.266</td>
</tr>
<tr>
<td>3. Intention</td>
<td>5.298</td>
</tr>
<tr>
<td>4. Attitude Scale</td>
<td>16.776</td>
</tr>
<tr>
<td>(Summed)</td>
<td></td>
</tr>
<tr>
<td>5. Attitude to Secondary Issue</td>
<td>3.813</td>
</tr>
<tr>
<td>6. Preference (Unknown Course)</td>
<td>2.610</td>
</tr>
<tr>
<td>7. Preference (Known Course)</td>
<td>2.344</td>
</tr>
</tbody>
</table>

Note. The higher the score, the greater the opinion change.
Inspection of the univariate Fs, in Table 8, for the A x B interactions on the four opinion change measures indicated the presence of a significant interaction on the measure of test preference in a known course, $F(2, 186) = 2.976, p < .05$, representing evidence of partial support for the predictions of interaction that were proposed in hypotheses 3 and 4. The two-factor interaction is represented graphically in Figure 3, and the means and standard deviations of scores for each of the six experimental groups are reported in Table 7. SNK a posteriori contrasts of the means showed that, of the six cell means, the only difference that was statistically significant was between the largest and the smallest means: The score for the low expert-high attractiveness cell ($M = 2.688$) was found to be significantly greater than the score for the low expert-medium attractiveness cell ($M = 2.063$).

Although none of the remaining comparisons revealed any differences that were statistically significant, an examination of the mean scores, by treatment, for the measure of test preference in a known course (Table 7 and Figure 3) indicated a pattern of interaction between source attractiveness and expertness that appeared to substantiate, albeit marginally, the predictions made by hypotheses 3 and 4. Additional support for these two hypotheses was found in the weak but remarkably consistent
Figure 4. Effect of source physical attractiveness and expertness on summated attitude to tests.

Figure 5. Effect of source physical attractiveness and expertness on Affective component of attitude to tests.
Figure 6. Effect of source physical attractiveness and expertness on Belief component of attitude to tests.

Figure 7. Effect of source physical attractiveness and expertness on Intention component of attitude to tests.
Figure 8. Effect of source physical attractiveness and expertness on test preference in an unknown course.

Figure 9. Effect of source physical attractiveness and expertness on agreement with the secondary topic.
pattern of interactions between attractiveness and expertness that were noted for the mean responses on the remaining opinion change measures, a notable exception being the responses to attitude on the secondary topic. The cell means for the summated attitude scale, for its components of affect, belief, and intention, for test preference in an unknown course, and for attitude on the secondary topic were plotted as functions of the two independent variables, and appear in Figures 4 through 9, respectively, as graphic representations of the interactions that were found.

**Further Analysis.** Since the four hypotheses, relating source physical attractiveness and expertness with opinion change, were not supported by the data, further analyses were conducted to search for alternate explanations of the experimental results.

First, it was reasoned that since more than 80 percent of the subjects were college juniors or seniors with two or more years of experience in taking essay and multiple choice examinations at the university level, each subject's attitude to essay and multiple choice tests would tend to be influenced strongly by his or her personal experiences with each type of examination. If a subject had usually performed more poorly in essay tests than in multiple choice tests, his attitude to essay tests, as expressed in his responses on the opinion change
measures, might consequently be expected to remain negative regardless of the communicator's credentials. This rationale was tested by dividing the sample on the basis of each subject's past experience with essay and multiple-choice tests, and comparing the responses of the groups along various attitudinal criteria.

The item which scaled past experience read: "Based on my experience with college examinations, I've generally found it to be more difficult to perform well in (1) essay exams; (2) multiple choice exams; (3) I've found no difference between the two types of exams." It was expected that the subjects, when classified according to their responses to the three categories of experiences described in the above item, would differ in their attitude to tests but not in their perceptions of the source.

The results of the comparisons, summarized in Table 11, completely supported this expectation: The three groups differed significantly (at $p < .001$) in their attitudes and preferences regarding essay and multiple choice tests, and less significantly ($p < .075$) in their attitude to the secondary topic, but no significant differences were noted between the groups on how they evaluated the source on her physical attractiveness, expertness, likeability, and credibility. In sum, the results of this analysis confirmed the speculation that past experiences with taking
Table 11

Comparison of Mean Responses on Opinion Change and Source Evaluation Variables for the item:
"Based on my experience with college examinations, I've generally found it to be more
difficult to perform well in (1) essay exams; (2) multiple choice exams; (3) I've
found no difference between the two types of exams."

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>(1) Essay</th>
<th>(2) Multiple Choice</th>
<th>(3) No Difference</th>
<th>F Ratio df = 2, 189</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Opinion Change:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Attitude to Tests</td>
<td>13.7805</td>
<td>21.8704</td>
<td>17.2143</td>
<td>89.994&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>2. Secondary Topic</td>
<td>4.0122</td>
<td>4.2778</td>
<td>3.8393</td>
<td>2.597&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>3. Test Preference</td>
<td>1.6707</td>
<td>3.2037</td>
<td>2.3036</td>
<td>40.315&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>(Known Course)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Test Preference</td>
<td>2.0366</td>
<td>3.3333</td>
<td>2.6607</td>
<td>51.402&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>(Unknown Course)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>II. Source Evaluation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Physical Attractiveness&lt;sup&gt;d&lt;/sup&gt;</td>
<td>16.0488</td>
<td>16.5000</td>
<td>16.0714</td>
<td>.230&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>2. Expertness</td>
<td>19.4643</td>
<td>20.4444</td>
<td>20.2561</td>
<td>1.060&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>3. Interpersonal Attraction Scale</td>
<td>50.8929</td>
<td>52.2592</td>
<td>51.2317</td>
<td>.523&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>4. Source Credibility Scale</td>
<td>61.1429</td>
<td>62.9444</td>
<td>61.8171</td>
<td>.721&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<sup>a</sup> P < .001.

<sup>b</sup> P < .07.

<sup>c</sup> not significant.

<sup>d</sup> manipulation checks.
essay and multiple choice tests may have resulted in attitudes toward tests that had high "centrality" (Ostrom and Upshaw, 1968; Sherif, Sherif, and Nebergall, 1961) or importance for the subjects, thus making them insensitive to suggestion even when the source was perceived by them as the experimenter had intended.

As a further test of this rationale, the treatment mean scores for the four opinion change variables (Table 7) were compared with the scores of the control group, using Dunnett's procedure for the two-tail test (Winer, 1971, pp. 201-204). Control mean scores are reported in Table 12. The results of the comparison confirmed the validity of the rationale: None of the treatment mean scores were found to differ significantly from the control mean scores for any of the opinion change variables, in effect, suggesting that subjects' attitudes and preferences regarding examinations were left largely uninfluenced by the experimental inductions.

Based on this reasoning, it was next hypothesized that if the influence of past experience and past beliefs were removed from the analysis of attitudes to examinations, the source effects that were predicted originally in hypotheses 1 through 4 might materialize. As a test of this prediction, an analysis of variance was performed on a subset of the sample consisting of subjects who had
Table 12

Means (M) and Standard Deviations (SD) for Control Group Responses on Opinion Change Variables (n = 25)

<table>
<thead>
<tr>
<th>Variables</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Attitude to Tests</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Affect</td>
<td>5.12</td>
<td>1.3746</td>
</tr>
<tr>
<td>- Belief</td>
<td>6.04</td>
<td>1.088</td>
</tr>
<tr>
<td>- Behavioral Intention</td>
<td>5.48</td>
<td>1.555</td>
</tr>
<tr>
<td>2. Attitude to Secondary Topic</td>
<td>3.800</td>
<td>1.000</td>
</tr>
<tr>
<td>3. Test Preference (Unknown Course)</td>
<td>2.400</td>
<td>1.190</td>
</tr>
<tr>
<td>4. Test Preference (Known Course)</td>
<td>2.160</td>
<td>1.143</td>
</tr>
</tbody>
</table>

indicated that, when both essay and multiple choice tests were given, they generally had performed better in tests that had both types of questions, or that they had found no differences between the two types of tests. Responses of the subjects who had indicated as having, in the past, performed better in tests that had only essay or only multiple choice questions were removed from the sample, the resulting subset being composed of subjects who had relatively neutral feelings toward both types of tests.  

5A statistical method of controlling for such factors—such as an analysis of covariance—was ruled out in the present situation since the variables that measured past experience were nominal rather than interval scaled.
The original random assignment of subjects was retained for this analysis.

Multivariate analysis of variance of the opinion change scores of the neutral subjects, summarized in Table 13, showed no multivariate main or interaction effects for physical attractiveness and expertness, as was specified in the original criteria for testing the opinion change hypotheses. However, the univariate $F$ ratios revealed marginally significant physical attractiveness main effects on the summated attitude scale, $F(2, 132) = 2.94$, $p < .06$; on agreement on the secondary topic, $F(2, 132) = 2.76$, $p < .07$; and on test preference in the known course, $F(2, 132) = 2.14$, $p < .12$. Analyses of variance, performed on the three attitudinal dimensions, showed main effects for physical attractiveness that were significant on the belief dimension, $F(2, 132) = 3.23$, $p < .04$, and marginally significant on the dimension of behavioral intention, $F(2, 132) = 2.51$, $p < .08$.

The mean opinion change scores for the neutral subjects, by treatment group, are summarized in Table 14, and the mean effects of physical attractiveness on the opinion change variables for the same subjects are reported in Table 15 and represented graphically in Figures 10 through 13.
Table 13
Multivariate and Univariate Analysis of Variance on Opinion Change Variables for Subjects Who Indicated as Having Had Neutral Experiences with Essay and Multiple Choice Tests

<table>
<thead>
<tr>
<th>Physical Attractiveness (A)</th>
<th>Expertness (B)</th>
<th>A X B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Multivariate F</strong></td>
<td>.858</td>
<td>.394</td>
</tr>
<tr>
<td><strong>Dependent Variable</strong></td>
<td><strong>df</strong></td>
<td><strong>2, 132</strong></td>
</tr>
<tr>
<td>Attitude to Tests</td>
<td>MS</td>
<td>53.483</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>2.943</td>
</tr>
<tr>
<td>Affect</td>
<td>MS</td>
<td>3.542</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>1.538</td>
</tr>
<tr>
<td>Belief</td>
<td>MS</td>
<td>5.890</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>3.228a</td>
</tr>
<tr>
<td>Behavioral Intention</td>
<td>MS</td>
<td>9.562</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>2.513c</td>
</tr>
<tr>
<td>Secondary Topic</td>
<td>MS</td>
<td>2.996</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>2.756c</td>
</tr>
<tr>
<td>Test Preference Known Course</td>
<td>MS</td>
<td>1.048</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>1.320</td>
</tr>
<tr>
<td>Test Preference Unknown Course</td>
<td>MS</td>
<td>1.958</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>2.143d</td>
</tr>
</tbody>
</table>

a $p < .05$.
b $p < .055$.
c $p < .10$.
d $p < .12$. 
Table 14
Mean Opinion Change Scores by Treatment Group for Subjects Who Had Had Neutral Experiences With Essay and Multiple Choice Tests

<table>
<thead>
<tr>
<th>Expertness</th>
<th>Dependent Variable</th>
<th>Physical Attractiveness</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Low (n = 23)</td>
<td>Medium (n = 22)</td>
<td>High (n = 22)</td>
</tr>
<tr>
<td></td>
<td>Attitude to Tests (Summated Scale)</td>
<td>16.650</td>
<td>17.319</td>
<td>19.000</td>
</tr>
<tr>
<td></td>
<td>- Affect</td>
<td>5.304</td>
<td>5.455</td>
<td>5.818</td>
</tr>
<tr>
<td></td>
<td>- Belief</td>
<td>6.304</td>
<td>6.455</td>
<td>7.000</td>
</tr>
<tr>
<td></td>
<td>- Behavioral Intention</td>
<td>5.043</td>
<td>5.409</td>
<td>6.182</td>
</tr>
<tr>
<td></td>
<td></td>
<td>High (n = 25)</td>
<td>n = 21</td>
<td>n = 25</td>
</tr>
<tr>
<td></td>
<td>Attitude to Secondary Issue</td>
<td>3.609</td>
<td>4.136</td>
<td>3.909</td>
</tr>
<tr>
<td></td>
<td>Test Preference (Unknown Course)</td>
<td>2.435</td>
<td>2.682</td>
<td>2.727</td>
</tr>
<tr>
<td></td>
<td>Test Preference (Known Course)</td>
<td>2.217</td>
<td>2.364</td>
<td>2.500</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low (n = 25)</td>
<td>n = 21</td>
<td>n = 25</td>
</tr>
<tr>
<td></td>
<td>Attitude to Tests</td>
<td>17.080</td>
<td>18.333</td>
<td>19.000</td>
</tr>
<tr>
<td></td>
<td>- Affect</td>
<td>5.200</td>
<td>5.762</td>
<td>5.760</td>
</tr>
<tr>
<td></td>
<td>- Belief</td>
<td>6.320</td>
<td>6.571</td>
<td>7.000</td>
</tr>
<tr>
<td></td>
<td>- Behavioral Intention</td>
<td>5.560</td>
<td>6.000</td>
<td>6.240</td>
</tr>
<tr>
<td></td>
<td>Attitude to Secondary Issue</td>
<td>3.880</td>
<td>4.381</td>
<td>4.000</td>
</tr>
<tr>
<td></td>
<td>Test Preference (Unknown Course)</td>
<td>2.720</td>
<td>2.619</td>
<td>3.000</td>
</tr>
<tr>
<td></td>
<td>Test Preference (Known Course)</td>
<td>2.320</td>
<td>2.333</td>
<td>2.800</td>
</tr>
</tbody>
</table>
Table 15

Mean Opinion Change Scores by Physical Attractiveness Level for Subjects Indicating Neutral Experiences With Essay and Multiple Choice Tests

<table>
<thead>
<tr>
<th>Physical Attractiveness</th>
<th>Low (n = 48)</th>
<th>Medium (n = 43)</th>
<th>High (n = 47)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent Variable</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Attitude to Tests</td>
<td>16.875</td>
<td>17.813</td>
<td>19.000</td>
</tr>
<tr>
<td>- Affect</td>
<td>5.250</td>
<td>5.604</td>
<td>5.787</td>
</tr>
<tr>
<td>- Belief</td>
<td>6.312</td>
<td>6.511</td>
<td>7.000</td>
</tr>
<tr>
<td>- Behavioral Intention</td>
<td>5.312</td>
<td>5.697</td>
<td>6.212</td>
</tr>
<tr>
<td>3. Test Preference (Unknown Course)</td>
<td>2.583</td>
<td>2.651</td>
<td>2.872</td>
</tr>
<tr>
<td>4. Test Preference (Known Course)</td>
<td>2.270</td>
<td>2.348</td>
<td>2.659</td>
</tr>
</tbody>
</table>

SNK contrasts of the mean scores on the summated attitude scale for the three levels of attractiveness revealed differences between the high attractiveness condition \((M = 19.00)\) and the low attractiveness condition \((M = 16.88)\) that were statistically significant at \(p < .05\). Medium source attractiveness evinced an intermediate level of agreement \((M = 17.81)\) although it was found not to differ significantly from agreement scores for either the high or low attractiveness conditions. A test for
Figure 10. Effect of source physical attractiveness on summated attitude to tests for neutral subjects.

Figure 11. Effect of source physical attractiveness on agreement with the secondary topic for neutral subjects.
Figure 12. Effect of source physical attractiveness on test preference in an unknown course for neutral subjects.

Figure 13. Effect of source physical attractiveness on test preference in a known course for neutral subjects.
trend indicated the presence of a significant linear component in the physical attractiveness main effect, $F(1, 135) = 6.00, p < .02$, thus demonstrating, at the very least, partial support for hypothesis 1 which had predicted a positive relationship between physical attractiveness and persuasion.

Pearson product moment correlation coefficients (Harnett, 1970) were computed for the neutral subjects ($N = 138$) among their scores on the summated attitude scale, perceived physical attractiveness of the source (the score used for the manipulation check), liking, perceived similarity and perceived source credibility. The simple correlation coefficients are reported in Table 16.

An analysis of partial correlations (Table 17) indicated that the correlation between attitude and physical attractiveness with the effects of credibility removed was still significant, $r = .20; p < .01$ (one-tailed test), and with the effects of liking removed, the correlation between the same pair of variables remained marginally significant, $r = .12; p < .08$ (one-tailed test). However, the correlation between physical attractiveness and attitude with the effects of similarity removed was not significant, $r = .07$.

Discussion. Cardinal among the many issues investigated in this portion of the study was the question: Are
Table 16

Pearson Product Moment Correlation Coefficients Among Summated Attitude to Test Score, Perceived Physical Attractiveness, Liking, Perceived Similarity, and Perceived Credibility for Neutral Subjects
(N = 138)

<table>
<thead>
<tr>
<th>Physical Attractiveness</th>
<th>Liking</th>
<th>Similarity</th>
<th>Credibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude to Tests</td>
<td>.20(^b)</td>
<td>.16(^c)</td>
<td>.32(^a)</td>
</tr>
<tr>
<td>Physical Attractiveness</td>
<td>.85(^a)</td>
<td>.43(^a)</td>
<td>.41(^a)</td>
</tr>
<tr>
<td>Liking</td>
<td>.59(^a)</td>
<td>.64(^a)</td>
<td></td>
</tr>
<tr>
<td>Similarity</td>
<td></td>
<td></td>
<td>.40(^a)</td>
</tr>
</tbody>
</table>

\(^a\) \(p < .001\).
\(^b\) \(p < .01\).
\(^c\) \(p < .05\).

Table 17

Partial Correlation Coefficients Between Perceived Physical Attractiveness and Attitude to Tests (for Neutral Subjects) With the Effects of Liking, Similarity, and Credibility Removed, Respectively
(N = 138)

<table>
<thead>
<tr>
<th>Control Variable</th>
<th>Partial r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liking</td>
<td>.12(^a)</td>
</tr>
<tr>
<td>Similarity</td>
<td>.07(^c)</td>
</tr>
<tr>
<td>Credibility</td>
<td>.20(^c)</td>
</tr>
</tbody>
</table>

\(^a\) \(p < .08\).
\(^b\) \(p < .01\).
\(^c\) not significant.
physically attractive females, regardless of their level of expertise, more effective communicators than females who are physically less attractive?

Under the original and stricter criterion of requiring statistical significance at the multivariate $F$ for the tests of the opinion change hypotheses, no support was found for the independent and interactive source effects that had been predicted for physical attractiveness and expertness. In addition, since two of the four individual opinion change measures also had evinced no significant $F$ ratios, a strong case could be made for accepting the null hypothesis. Support for this argument comes, additionally, from a careful reexamination of the results of previous studies that had investigated the relation between physical attractiveness and persuasion.

Of the four studies discussed elsewhere in this paper that had investigated the effect of source physical attractiveness on persuasion, only two had utilized female communicators. One study (Mills & Aronson, 1965) had crossed source physical attractiveness with overt and covert intentions on the part of the source to persuade while the other study (Blass et al., 1974) had crossed physical attractiveness with race of source. Curiously, in neither study was a significant main effect for physical attractiveness found, although both studies found
significant interaction effects.

The results of the study by Blass et al. indicated that, with white and black communicators, the attractive white was more persuasive than the unattractive white. However, the unattractive black communicator was found to be more persuasive than attractive communicators of either race, although the authors did not discuss this effect.

The suggestion that physical attractiveness in female sources may not be always an asset—and in some situations might even be a liability—was supported also in the study by Mills and Aronson. While the physically attractive source was found to be more effective when she expressed an overt rather than a covert intention to persuade, she was found to be no more effective than the unattractive communicator when the intention to persuade was covert or subtle.

While this phenomenon was not explained by the authors, the findings offer, nonetheless, a compelling basis for explaining the apparent absence of source effects that were noted in the present study. The explanation is as follows. It will be recalled that the persuasive message that was used in the present study was delivered under the guise of a candid interview in which the speaker, by design, had given her opinion about examinations without expressing any overt desire to persuade or influence her
listeners. In the light of the evidence from the Mills and Aronson (1965) study, the low-key qualities of the message in the present study seem clearly to have paralleled the nonpersuade or covert condition of the earlier study, thus leading one to speculate that subtlety, in contrast with an overt intention to persuade, tends, perhaps, to lose its overall impact on an audience when the source is physically attractive. Since the audience may already be predisposed favorably to the attractive source, a lack of forcefulness on the part of the source in making her point may possibly leave the audience uncertain about the source's intentions, thus resulting in less attitude change.

Although this line of reasoning has its merit, a closer examination of the pattern of the mean opinion change scores by treatment group in Table 7 indicates that source effects were operating discernibly, although not always in the ways they were predicted. Furthermore, the great consistency of the data argues strongly against the acceptance of the null hypothesis, even if the data did not, in some cases, reach conventional levels of statistical significance.

If a lenient interpretation of the results were allowed, as will be presumed in subsequent portions of this discussion, the question still remains as to why the
source effects that emerged were so weak. The answer to
this question lies, most probably, in the type of topic
that was selected for this study. It will be recalled
that the major topic of persuasion had consisted of a mes­sage in which the source had presented several arguments
favoring essay examinations and disparaging multiple
choice examinations, a position to which more than two­
thirds of the business students surveyed earlier were
opposed.

The data had indicated that current attitudes to
essay and multiple choice tests were related strongly to
previous experiences with each kind of examination. And
since the subjects (predominantly juniors and seniors) may
have plausibly acquired strong likes and dislikes for one
or the other kind of test on the basis of their individual
experiences with each, it is not surprising that the
source effects noted were weak.

This explanation seems consistent with Sherif and
Hovland's (1961) social judgment theory which has contended
that when persuasive attempts fall within a receiver's
"latitude of rejection" (the range of positions which he
judges to be intolerable or unacceptable), he will not
change his initial opinion. The theory further states
that for communications which advocate positions within
the latitude of rejection— as the present message favoring
essay tests over multiple choice tests apparently did—increased discrepancy produces less opinion change. The highly significant differences in attitudes and preferences between the subjects who had had negative experiences with one or the other type of test and subjects who had found no difference between the two (Table 11) attest to the general validity of this explanation.

The results on the effects of physical attractiveness and expertness on opinion change revealed three distinct but qualified source effects: A monotonic main effect for physical attractiveness when initial position of the audience was neutral, a physical attractiveness-expertness interaction effect, and a nonmonotonic main effect for physical attractiveness when the topic was unimportant.

The monotonic main effect, although it was discovered as a result of post hoc data analysis, attests to the reality of the positive relationship between physical attractiveness and opinion change that has been found in previous studies (Snyder & Rothbart, 1971; Horai et al., 1974). However, this result also extends previous findings by limiting the generality of the physical attractiveness effect to audiences with initially neutral attitudes to the topic being advocated.

When initial attitudes to the topic were disregarded and subjects with extreme attitudes—both favorable and
unfavorable to essay tests—were included in the analysis along with the subjects who had relatively neutral attitudes, the opinions were found to be influenced by both physical attractiveness and expertness cues, with the physical attractiveness cues becoming dominant when expertness was low. This interaction effect, which may be termed the "dominant cue" phenomenon, showed that when the source was expert, her physical attractiveness made apparently little difference in the level of attitudinal agreement among receivers; however, when she was inexpert, it helped if she was physically attractive. Contrary to expectations, no main effect was evinced for the task-relevant characteristic of expertness.

A curious but consistent finding that emerged—and which is discussed in a subsequent section of this chapter—was the tendency for the high attractive source to elicit slightly greater agreement when she was inexpert than when she was expert, a result, possibly, of the cultural stereotypes which are attached to competent females (see Spence & Helmreich, 1972; Deux, 1972; O'Leary & Depner, 1975).

A third but unexpected source effect that was found in the present study was a nonmonotonic main effect for physical attractiveness which appeared as an inverted U-shaped relationship between source physical attractiveness and agreement on the secondary issue. The evidence
appeared to suggest that, contrary to the linear effect that was implied in the first hypothesis, the relation between physical attractiveness and opinion change may be curvilinear, with communicator effectiveness being lowest under the condition of low source attractiveness and highest under the condition of medium rather than high physical attractiveness.

The issue of whether this nonmonotonic effect was genuine or merely an experimental artifact has been deferred to the last section of this chapter along with rival explanations of the two source effects already noted. This format was adopted because it permits the presentation, first, of relevant ancillary evidence on how subjects processed information and how they perceived and evaluated the source—evidence that could provide the empirical basis for assessing the merits of rival explanations.

**Information Processing Mediators**

**Hypothesis 5.** Attention value of the communication will be related positively to the physical attractiveness of its source.

**Hypothesis 6.** Recall of message content will be lower under conditions of high source attractiveness than under conditions of medium or low source attractiveness.

**Attention.** The effect of source physical attractiveness on the attention value of the communication was tested
by submitting the summed scores on the 4-item attention scale to an analysis of variance. The internal consistency of the items was .80. The results, summarized in Table 18, showed no support for the prediction that attractive communicators will evince more attention than unattractive communicators. Mean attention scores, by treatment group, are displayed in Table 19.

The data in Table 18 revealed one unexpected result: High expert communicators elicited greater attention to the communication than did low expert communicators, although the difference between the mean attention scores for the high ($M = 11.74$) and the low ($M = 10.99$) expert conditions proved only marginally significant, $F(1, 186) = 2.96, p < .09$.

Hypothesis 5 was postulated on the assumption that the high level of attention elicited by viewing a physically attractive communicator will be generalized to the evaluation of the total communication, and conversely, that the communications with sources of medium or low attractiveness would be found less arousing due to the lower attention-arousing qualities of their respective sources.

While no significant physical attractiveness main effects were found on the attention value of the communication, the issue of whether the physically attractive communicators were seen as more arousing than their less attractive counterparts was tested by analyzing the
### Table 18

Analysis of Variance on Attention Scores

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Attractiveness (A)</td>
<td>2</td>
<td>4.74</td>
<td>0.052</td>
</tr>
<tr>
<td>Expertness (B)</td>
<td>1</td>
<td>27.000</td>
<td>2.955a</td>
</tr>
<tr>
<td>A x B</td>
<td>2</td>
<td>14.453</td>
<td>1.582</td>
</tr>
<tr>
<td>Error</td>
<td>186</td>
<td>9.137</td>
<td></td>
</tr>
</tbody>
</table>

a $p < .10$.

### Table 19

Means (M) and Standard Deviations (SD) on Attention, by Treatment Group (n = 32 for all cells)

<table>
<thead>
<tr>
<th>Physical Attractiveness</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expertness</td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>High</td>
<td>11.969</td>
<td>3.095</td>
<td>11.969</td>
</tr>
<tr>
<td>Low</td>
<td>10.594</td>
<td>3.301</td>
<td>10.750</td>
</tr>
</tbody>
</table>
summated scores on the "dynamism" component of the source credibility scale (adapted from Berlo et al., 1969-70).

Researchers have equated dynamism with arousal (Mehrabian and Russell, 1974) and with potency, energy, and activity (Osgood, Suci, & Tannenbaum, 1957). In the present study, dynamism was measured with responses, on the 5-point "fits" scale, to the following adjectives: aggressive, hesitant, timid, active, energetic, and reserved.

An analysis of variance of source ratings on dynamism (Table 20) appeared to support the original hypothesis that physically attractive sources possess more attention-arousing qualities: A highly significant physical attractiveness main effect, $F(2, 186) = 9.92, p < .001$, was

Table 20

Analysis of Variance on the Dynamism Component of the Source Credibility Scale

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>$F$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Attractiveness (A)</td>
<td>2</td>
<td>2.876</td>
<td>9.922$^b$</td>
</tr>
<tr>
<td>Expertness (B)</td>
<td>1</td>
<td>.220</td>
<td>.759</td>
</tr>
<tr>
<td>A x B</td>
<td>2</td>
<td>.899</td>
<td>3.101$^a$</td>
</tr>
<tr>
<td>Error</td>
<td>186</td>
<td>.289</td>
<td></td>
</tr>
</tbody>
</table>

$^a_{p} < .05$.

$^b_{p} < .001$. 


found. The high attractiveness source (M = 21.16) was rated significantly higher on dynamism, p < .01, than the medium (M = 18.69) or the low (M = 19.39) attractiveness sources. Dynamism ratings for the medium and low attractiveness sources were found to not differ significantly from each other.

**Comprehension.** Of the 8 items that tested receiver comprehension of the communication's contents, five items tested aided recall and three items tested unaided recall. Summated scores for aided recall (0-10 points), unaided recall (0-12 points), and a combination of both (0-22 points) were submitted to univariate analyses of variance. The results, presented in Table 21, showed no main effects for physical attractiveness on overall recall or its two components that were statistically significant or meaningful, thus disconfirming hypothesis 6. An inspection of the mean recall scores, presented in Table 22, indicated that the absence of significant differences between groups was not due to a ceiling effect.

**Discussion of Information Processing Mediators.** Within the limitations that come with using paper-pencil self reports as measures of attention, the data indicated that communicator physical attractiveness appears to have had little or no effect on the attention value of the communication. It was expected that the receivers would be
Table 21
Analysis of Variance of Scores on Recall, Aided Recall, and Unaided Recall

<table>
<thead>
<tr>
<th>Physical Attractiveness (A)</th>
<th>Expertness (B)</th>
<th>A X B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent Variable</strong></td>
<td><strong>df</strong></td>
<td><strong>2, 186</strong></td>
</tr>
<tr>
<td>Recall (combined score)</td>
<td><strong>MS</strong></td>
<td>5.068</td>
</tr>
<tr>
<td></td>
<td><strong>F</strong></td>
<td>.618</td>
</tr>
<tr>
<td>Aided Recall</td>
<td><strong>MS</strong></td>
<td>3.562</td>
</tr>
<tr>
<td></td>
<td><strong>F</strong></td>
<td>1.538</td>
</tr>
<tr>
<td>Unaided Recall</td>
<td><strong>MS</strong></td>
<td>.161</td>
</tr>
<tr>
<td></td>
<td><strong>F</strong></td>
<td>.037</td>
</tr>
</tbody>
</table>

*Note. No significant F ratio was found.*
<table>
<thead>
<tr>
<th>Expertness</th>
<th>Dependent Variable</th>
<th>Physical Attractiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Low</td>
</tr>
<tr>
<td>Low</td>
<td>Aided Recall</td>
<td>M</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>1.693</td>
</tr>
<tr>
<td>Low</td>
<td>Unaided Recall</td>
<td>M</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>2.109</td>
</tr>
<tr>
<td>Low</td>
<td>Combined Recall</td>
<td>M</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>3.077</td>
</tr>
<tr>
<td>High</td>
<td>Aided Recall</td>
<td>M</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>1.476</td>
</tr>
<tr>
<td>High</td>
<td>Unaided Recall</td>
<td>M</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>2.140</td>
</tr>
<tr>
<td>High</td>
<td>Combined Recall</td>
<td>M</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>3.266</td>
</tr>
</tbody>
</table>

*Note. Aided recall scores ranged from 0 to 10; unaided recall, from 0 to 12; and combined recall, from 0 to 22.*
aroused by a physically attractive source, and would, consequently, pay more attention to a communication with a highly attractive source than they would to one with a medium or low attractive source. This hypothesis was not borne out by the results even though the sources who were high in physical attractiveness were perceived as being more dynamic--hence, possibly more arousing--than sources who were medium or low in physical attractiveness.

The argument that the instrument for measuring attention was not sensitive enough to evince subtle differences in reported arousal would ordinarily be legitimate, but is less defensible since marginally significant differences in attention value were noted with the same scale between the expert and inexpert conditions.

An alternate explanation of why no significant differences were found on attention emerges from the characteristics that were peculiar to the present experiment. Since subjects were required to listen to more than two minutes of a three-and-a-half-minute message while viewing a single picture of the female communicator, any differences in arousal that they initially may have experienced might have attenuated as a result of familiarity with or boredom from listening to a message that was described by many subjects, during the debriefing, as being "too long . . . " or needing "editing."
The lack of any between-treatment differences in recall appears to have disconfirmed the hypothesis, based on distraction theory (Haaland & Venkatesan, 1968; Regan & Cheng, 1973), which had predicted less learning or comprehension under the presumably more distracting condition of high source physical attractiveness than under the conditions of medium or low source physical attractiveness.

Although the conclusion, that source physical attractiveness neither facilitates nor hinders comprehension, goes contrary to the effect that was predicted, its validity is confirmed by findings of comparable previous studies (Snyder & Rothbart, 1971; Horai et al., 1974; Blass et al., 1974) which consistently have showed no significant differences in retention that were attributable to the physical attractiveness of the source.

Source Evaluation

Subjects evaluated the source on three major dimensions: Liking, credibility, and perceived similarity to themselves.

The following predictions pertaining to source evaluation were made.

Hypothesis 7. Liking for a source will be related positively to the level of physical attractiveness of the source.
Hypothesis 8. Communicators who are high in physical attractiveness will be rated more credible than communicators who are medium or low in physical attractiveness.

Hypothesis 9. Perceived source-receiver similarity will be greater under conditions of high source physical attractiveness than under conditions of medium or low physical attractiveness.

Liking. As a test of hypothesis 7, individual summed scores on the 15-item Interpersonal Attraction Scale (McCroskey & McCain, 1974) were submitted to an analysis of variance. The results, summarized in Table 23, indicated a highly significant physical attractiveness main effect, $F(2, 186) = 26.49, p < .001$. The conservative Scheffe' procedure (Winer, 1971) for a posteriori contrasts of the mean liking scores (reported in Table 24 by treatment group and in Table 25 by level of source physical attractiveness) appeared to confirm a portion of the prediction made in hypothesis 7: Mean liking was found to be greater for the high attractive source ($M = 55.42$) than for the medium attractive source ($M = 51.58$), which was, in turn, greater than the mean liking for the low attractive source ($M = 47.27$), the differences between all three of the means being significant at $p < .05$. A test for trend identified the presence of a significant linear component, $F(2, 189) = 24.78, p < .001$. In sum, the data
Table 23

Analysis of Variance of Scores on the Source Evaluation Scales of Liking, Source Credibility, and Perceived Similarity

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>df</th>
<th>2, 186</th>
<th>1, 186</th>
<th>2, 186</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liking</td>
<td>MS</td>
<td>4.736</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>26.494</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source</td>
<td>MS</td>
<td>.961</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Credibility</td>
<td>F</td>
<td>6.191</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived</td>
<td>MS</td>
<td>8.641</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Similarity</td>
<td>F</td>
<td>4.149</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.435</td>
<td>8.029</td>
<td>4.030</td>
</tr>
<tr>
<td></td>
<td>5.113</td>
<td>32.933</td>
<td>3.981</td>
</tr>
<tr>
<td></td>
<td>7.130</td>
<td>4.099</td>
<td>1.968</td>
</tr>
</tbody>
</table>

\[ a_p < .05. \]
\[ b_p < .005. \]
\[ c_p < .001. \]
Table 24

Means (M) and Standard Deviations (SD) for Source Evaluation Variables by Treatment Group
(n = 32 for all cells)

<table>
<thead>
<tr>
<th>Expertness</th>
<th>Dependent Variable</th>
<th>Low M</th>
<th>Low SD</th>
<th>Medium M</th>
<th>Medium SD</th>
<th>High M</th>
<th>High SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Liking</td>
<td>50.340</td>
<td>6.090</td>
<td>52.380</td>
<td>7.500</td>
<td>55.440</td>
<td>5.715</td>
</tr>
<tr>
<td></td>
<td>Source Credibility</td>
<td>65.466</td>
<td>6.840</td>
<td>63.432</td>
<td>8.442</td>
<td>65.718</td>
<td>5.526</td>
</tr>
<tr>
<td></td>
<td>Perceived Similarity</td>
<td>5.750</td>
<td>1.136</td>
<td>5.404</td>
<td>1.583</td>
<td>5.969</td>
<td>1.356</td>
</tr>
<tr>
<td>Low</td>
<td>Liking</td>
<td>44.190</td>
<td>6.420</td>
<td>50.775</td>
<td>6.645</td>
<td>55.410</td>
<td>5.505</td>
</tr>
<tr>
<td></td>
<td>Source Credibility</td>
<td>55.944</td>
<td>7.398</td>
<td>57.816</td>
<td>6.408</td>
<td>63.252</td>
<td>7.560</td>
</tr>
<tr>
<td></td>
<td>Perceived Similarity</td>
<td>4.781</td>
<td>1.289</td>
<td>5.281</td>
<td>1.397</td>
<td>5.906</td>
<td>1.802</td>
</tr>
</tbody>
</table>
showed unequivocal support for hypothesis 7.

It is worth noting, however, that while physical attractiveness yielded a highly significant main effect on liking for the source, the analysis (Table 23) also showed a highly significant main effect for expertness, $F(1, 186) = 8.03, p < .005$, and a significant attractiveness-by-expertness interaction, $F(2, 186) = 4.03, p < .02$.

Table 25
Mean Effects of Source Physical Attractiveness on Liking (Collapsing Source Expertness) ($n = 64$ for all collapsed cells)

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Physical attractiveness level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
</tr>
<tr>
<td>Interpersonal Attraction (Liking)</td>
<td>47.265</td>
</tr>
<tr>
<td>Physical</td>
<td>12.860</td>
</tr>
<tr>
<td>Social</td>
<td>16.780</td>
</tr>
<tr>
<td>Task</td>
<td>17.625</td>
</tr>
</tbody>
</table>

Note. The 15-item Interpersonal Attraction Scale (McCroskey & McCain, 1974) is composed of three dimensions: physical attraction, social attraction and task attraction. Each dimension is measured with 5 items.

To examine further the effects of physical attractiveness and expertness on liking, separate analyses of variance were performed on the physical, social, and task
dimensions of interpersonal attraction. The results of the analyses and the cell means for the three dimensions of attraction are reported in Tables 26 and 27, respectively.

Inspection of the results in Table 26 disclosed that liking for attractive communicators was largely the result of a strong physical attraction, $F(2, 186) = 76.01$, $p < .001$. Source physical attractiveness had only a marginally significant effect on social attraction, $F(2, 186) = 2.635$, $p < .07$, and no effect of any consequence on task attraction. On the other hand, the data indicated that subjects were attracted more to the expert source than to the inexpert source on the dimensions of physical attraction, $F(1, 186) = .992$, $p < .10$, and social attraction, $F(1, 186) = .775$, $p < .10$, and predictably, were attracted significantly more to the expert source ($M = 18.51$) than to the inexpert source ($M = 17.27$) on the task attraction dimension, $F(1, 186) = 15.23$, $p < .001$.

Finally, the data in Table 26 showed that both physical attractiveness and expertness appear to have had a significant interactive effect on social attraction, $F(2, 186) = 3.17$, $p < .04$, and on task attraction, $F(2, 186) = 3.531$, $p < .03$. The two interactions (plotted in Figures 14 and 15, respectively) indicate that physical attractiveness seemed to make little difference on the dimensions of social and task attraction when source
### Table 26

**Analysis of Variance of Scores on Physical Attraction, Social Attraction, and Task Attraction Dimensions of Liking**

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Physical Attractiveness (A)</th>
<th>Expertness (B)</th>
<th>A X B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>df</td>
<td>2, 186</td>
<td>1, 186</td>
</tr>
<tr>
<td>Physical Attraction</td>
<td>MS</td>
<td>27.702</td>
<td>.992</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>76.008c</td>
<td>2.721a</td>
</tr>
<tr>
<td>Social Attraction</td>
<td>MS</td>
<td>.750</td>
<td>.775</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>2.635a</td>
<td>2.723a</td>
</tr>
<tr>
<td>Task Attraction</td>
<td>MS</td>
<td>.162</td>
<td>2.950c</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>.836</td>
<td>15.232c</td>
</tr>
</tbody>
</table>

a \( p < .10 \).
b \( p < .05 \).
c \( p < .001 \).

### Table 27

**Mean Scores by Treatment Group for the Dimensions of Physical Attraction, Social Attraction, and Task Attraction**

(n = 32 for all cells)

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Expertness</th>
<th>Physical Attractiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td>Physical Attraction</td>
<td>High</td>
<td>13.780</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>11.935</td>
</tr>
<tr>
<td>Social Attraction</td>
<td>High</td>
<td>17.780</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>15.780</td>
</tr>
<tr>
<td>Task Attraction</td>
<td>High</td>
<td>18.780</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>16.470</td>
</tr>
</tbody>
</table>
Figure 14. Effect of source physical attractiveness and expertness on the social attraction dimension of liking.

Figure 15. Effect of source physical attractiveness and expertness on the task attraction dimension of liking.
expertness was high. However, when source expertness was low, physical attractiveness was found to relate positively to both of these dimensions of liking.

**Source Credibility.** To test the proposition that physically attractive communicators are perceived by receivers to be more credible than their less physically attractive counterparts, the summated scores on the 18-item source credibility scale (adapted from Berlo et al., 1969-70) were subjected to an analysis of variance. Internal consistency of the items was .84. The results, summarized in Table 23, revealed a significant physical attractiveness main effect on source credibility, $F(2, 186) = 6.19$, $p < .005$.

SNK contrasts of the mean effects of physical attractiveness on source credibility (Table 28) confirmed the prediction of hypothesis 8: The high attractiveness source was rated higher in credibility ($M = 64.48$) than either the medium attractiveness source ($M = 60.63$) or the low attractiveness source ($M = 60.70$), the differences being statistically significant at $p < .05$. No significant differences were found between the credibility ratings for the low and medium levels of attractiveness.

In order to gain further insight into the types of perceptions that may have contributed to the overall impressions of source credibility, the mean scores on the three source credibility dimensions of safety,
Table 28
Mean Effects of Source Physical Attractiveness on Perceived Source Credibility (Collapsing Expertness)
(n = 64 for all collapsed cells)

<table>
<thead>
<tr>
<th>Physical Attractiveness</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source Credibility</td>
<td>60.703</td>
<td>60.625</td>
<td>64.484</td>
</tr>
<tr>
<td>Safety</td>
<td>21.660</td>
<td>22.080</td>
<td>22.614</td>
</tr>
<tr>
<td>Qualification</td>
<td>19.656</td>
<td>19.860</td>
<td>20.724</td>
</tr>
<tr>
<td>Dynamism</td>
<td>19.391</td>
<td>18.687</td>
<td>21.156</td>
</tr>
</tbody>
</table>

Table 29
Analysis of Variance of the Scores on Source Credibility and Its Dimensions of Safety, Qualification, and Dynamism

<table>
<thead>
<tr>
<th>Source</th>
<th>Physical Attractiveness (A)</th>
<th>Expertness (B)</th>
<th>A X B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>df</td>
<td>2,186</td>
<td>1,186</td>
</tr>
<tr>
<td>Source</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Credibility</td>
<td>MS</td>
<td>.961^p</td>
<td>5.113</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>6.191</td>
<td>23.933^c</td>
</tr>
<tr>
<td>Safety</td>
<td>MS</td>
<td>.406</td>
<td>.836</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>1.799</td>
<td>3.706</td>
</tr>
<tr>
<td>Qualification</td>
<td>MS</td>
<td>.566</td>
<td>29.167</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>2.307</td>
<td>118.979^c</td>
</tr>
<tr>
<td>Dynamism</td>
<td>MS</td>
<td>2.876</td>
<td>.220</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>9.922^c</td>
<td>.759</td>
</tr>
</tbody>
</table>

^ap < .05.
^bp < .005.
^cp < .001.
qualification, and dynamism were submitted to analyses of variance. The results, reported in Table 29, indicated that the higher credibility attributed to attractive sources may have been due principally to the higher ratings that attractive sources received on the dimension of dynamism, $F(2, 186) = 9.92, p < .001$, than to the ratings that they received on safety, $F(2, 186) = 1.80, p < .17$, or qualification, $F(2, 186) = 2.31, p < .10$.

The results also showed a significant interaction between physical attractiveness and expertness on qualification, $F(2, 186) = 3.15, p < .05$, and on dynamism, $F(2, 186) = 3.10, p < .05$. The mean scores, by treatment group, for the three dimensions of source credibility, are reported in Table 30 and the effects are portrayed graphically in Figures 16, 17, 18, and 19.

In summary, the evidence provided strong support for the prediction that sources high in physical attractiveness are perceived to be more credible than sources who are medium or low in physical attractiveness. Further analyses revealed that attractive sources were viewed by subjects as being more credible than their less attractive counterparts largely because of their strength on the dimension of dynamism. High attractive sources were seen as being no different than medium or low attractive sources on the dimensions of safety and qualification,
Figure 16. Source effects on perceived source credibility (summed).

Figure 17. Source effects on perceived safety dimension of source credibility scale.

Figure 18. Source effects on perceived qualification dimension of source credibility scale.

Figure 19. Source effects on perceived dynamism dimension of source credibility scale.
Table 30
Mean Scores, by Treatment Group, for the Source Credibility Dimensions of Safety, Qualification, and Dynamism (n = 32 for all cells)

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Expertness</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td>High</td>
<td>22.470</td>
<td>22.440</td>
<td>22.626</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>20.844</td>
<td>21.720</td>
<td>22.596</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>22.688</td>
<td>22.218</td>
<td>22.44</td>
</tr>
<tr>
<td>Qualification</td>
<td>Low</td>
<td>16.626</td>
<td>17.592</td>
<td>19.002</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>20.310</td>
<td>18.876</td>
<td>20.658</td>
</tr>
<tr>
<td>Dynamism</td>
<td>Low</td>
<td>18.468</td>
<td>18.498</td>
<td>21.654</td>
</tr>
</tbody>
</table>

hence indicating the absence of a halo effect (Thorndike, 1920) in the evaluative responses.

Perceived Source-Receiver Similarity. Hypothesis 9 predicted that perceived similarity would be greater under conditions of high source attractiveness than under conditions of medium or low source attractiveness. As a test of this hypothesis, an analysis of variance was performed on the sum of the scores of two items which purportedly tapped the receiver's overall perceptions of similarity with the source. Inter-item correlation was .40.
The results, shown in Table 23, showed a significant main effect for physical attractiveness, \( F(2, 186) = 4.15, p < .05 \). The mean similarity scores, by cell, and the mean effects of source physical attractiveness on perceived similarity (with expertness collapsed) are reported in Table 24 and Table 31, respectively.

### Table 31

Mean Effects of Source Physical Attractiveness on Perceived Similarity (Collapsing Expertness)  
(n = 64 for all cells)

<table>
<thead>
<tr>
<th>Physical attractiveness level</th>
<th>Mean similarity score</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>5.938</td>
</tr>
<tr>
<td>Medium</td>
<td>5.346</td>
</tr>
<tr>
<td>Low</td>
<td>5.266</td>
</tr>
</tbody>
</table>

**Note.** The similarity score was computed by summing the scores on two 5-point scales. The higher the score, the greater the perceived similarity to the source.

SNK multiple comparisons of the mean effects of physical attractiveness on perceived similarity revealed significant differences, \( p < .05 \), between the high attractiveness condition \( (M = 5.94) \) and the medium \( (M = 5.35) \) and the low \( (M = 5.27) \) attractiveness conditions. No differences were noted between the medium and the low attractiveness conditions. A test of trend revealed a significant
linear component in the data, \( F(1, 189) = 6.77, p < .01. \)

The interrelations of physical attractiveness, liking, and perceived similarity were further examined by computing the correlations between these variables for all experimental subjects \((N = 192)\). The scores on the manipulation check served as the scores for physical attractiveness. The correlations, reported in Table 32, showed a strong interrelationship between the variables. An analysis of partial correlations indicated that the correlation between physical attractiveness and liking with the effects of similarity removed, \( r = .83 \), was virtually unchanged from the simple \( r \) of .85. However, the analysis showed that, whereas the simple correlation between physical attractiveness and similarity was .40, their partial correlation with the effect of liking removed was .25. The implications of these effects are discussed in the section that follows.

In summary, the results appeared to support the prediction that receivers tend to see greater similarities between themselves and communicators who are high in physical attractiveness than they do with communicators who are medium or low in physical attractiveness.

**Discussion of Source Evaluation Findings.** As predicted, the results on source evaluation showed that communicators who were high in physical attractiveness were
Table 32
Pearson Product Moment Correlations Between Physical Attractiveness, Liking, and Perceived Similarity

<table>
<thead>
<tr>
<th>Physical Attractiveness</th>
<th>Liking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Similarity</td>
<td>.40&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Liking</td>
<td>.856&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

*p < .001.

liked more, were believed to be more credible, and were perceived by the receivers to be more similar to them than communicators who were medium or low in physical attractiveness. However, the analysis revealed several unexpected dimensions of source evaluation which could contribute to a better general understanding of the physical attractiveness effect.

In their factor-analytic investigations of the dimensions of interpersonal attraction, McCroskey and McCain (1974) found that the dimension of physical attraction accounted for the largest proportion of the variance. The present evidence showed that receivers were attracted most to communicators who were physically attractive, this attraction being primarily physical in nature.
On the dimensions of social and task attraction, physical attractiveness was found to interact with expertness in a pattern that was reminiscent of the "dominant cue" phenomenon that was found earlier for opinion change on the primary topic: The interactions (portrayed in Figures 14 and 15) reflected the tendency among receivers to disregard source physical attractiveness cues when expertness was high, and to resort to physical attractiveness cues when expertness was low. Under the second condition, the physical attractiveness of the source was found to relate positively to social and task attraction.

Whether these results can be generalized to male communicators remains to be seen, but the evidence on female communicators seems unequivocal: When it comes to being liked—and liking is believed to be a powerful antecedent of interpersonal influence (French and Raven, 1959; Hovland et al., 1953; Byrne, 1971)—physical attractiveness is neither a liability nor an asset if the communicator is expert; however, if the communicator is not expert, it helps for her to be physically attractive.

The evidence, that physically attractive communicators, regardless of their level of expertise, were perceived to be more credible than communicators who were less attractive, extended the findings of previous studies on the positive stereotyping of physically attractive
strangers (e.g., Widgery & Webster, 1969; Landy & Sigall, 1974; Dion et al., 1972) by providing a test of this effect when both positive cues (high expertise) as well as negative cues (low expertise) were introduced. However, the evidence on how the communicators were rated on the three credibility dimensions of safety, qualification, and dynamism (Berlo et al., 1969-70) was most revealing of the perceptual dimensions along which physically attractive communicators are judged.

Physically attractive communicators were found to be more dynamic than communicators who were less attractive, the concept of dynamism being interpreted as the energy and forcefulness with which the source can "emphasize, augment, and implement his suggestions" (Berlo et al., 1969-70, p. 575). However, it appears that physical attractiveness made little difference on perceptions of safety and qualification, attributes that are loosely analogous to Hovland's trustworthiness and expertise, respectively (Hovland et al., 1953).

The significant interaction effects on the dimensions of qualification and dynamism demonstrated, once again, the unexpected but very logical ways in which task-relevant cues (such as expertness) and task-irrelevant cues (such as physical attractiveness) interact in influencing judgments. Expert sources received predictably
higher ratings on qualification than inexpert sources (Figure 18), but inexpert sources who were physically attractive received moderately higher ratings on qualification than inexpert sources who were less attractive. In the effects on dynamism (Figure 19), on the other hand, high attractive communicators were rated more dynamic than medium or low attractive communicators, but when the communicator was low in attractiveness, the expert communicator was rated moderately more dynamic than the inexpert communicator.

In sum, the evidence suggested that physical attractiveness can enhance the perceived credibility of female communicators. Contrary to the expectations consistent with the positive stereotyping of physically attractive strangers, physically attractive communicators were perceived, in general, to be no more qualified or trustworthy than unattractive communicators. In evidence that appeared to be congruent with previous stereotypes of attractive people as being more talented (Landy & Sigall, 1974), outgoing (Dion et al., 1972), intelligent (Byrne et al., 1968), poised, and successful (Dion et al., 1972), physically attractive sources were rated more dynamic—hence, more forceful, energetic, and capable of actively persuading others—than sources who were physically less attractive.
Although the theory underlying it is unclear, the finding on source attractiveness-induced perceptions of similarity appeared to confirm the results of a handful of previous studies (Cavior & Dokecki, 1971; Sappenfield & Balogh, 1970) which had found physical attractiveness to be a causal antecedent of perceived similarity. But the confusion regarding the direction of this influence emerges from a set of converse findings (e.g., Walster, 1971) which have shown that a person is likely to be rated more physically attractive if he is perceived to be similar. The mixed nature of these findings, notwithstanding, the present results serve as a further test of the positive—even affiliative—tendencies that are evoked among receivers by source physical attractiveness cues.

Curiously, no expertness main effect was found on perceived similarity. With the expert source described as a senior in business administration, in contrast to the inexpert source who was described as a freshman, the subjects (mostly juniors and seniors) might have been expected to perceive greater similarity with the expert source than with the inexpert source. The results did not support this expectation, but they did prove, in the process, that the expertness manipulation was not confounded by the effects of perceived group membership similarity.
Were the ratings of perceived similarity influenced by the physical attractiveness of the receiver? Since no independent measures were taken of the physical attractiveness of receivers, an empirically-based reply to this question is not possible. However, it is reasonable to assume that physical attractiveness, like a myriad other traits, is distributed normally among the members of any population, with a minority of this population being either high or low in physical attractiveness and a majority being usually medium or average in physical attractiveness. Given this premise, and the evidence that the high attractiveness source was perceived to be more similar than either the medium or low attractiveness source, it appears unlikely that similarity in physical appearance mediated the perception of overall similarity.

Was perceived similarity with the attractive source a result of liking? The results of the correlational analysis showed that the association between physical attractiveness and similarity was much smaller when the effects of liking were removed. This suggests that perceived similarity to the attractive communicator can be attributed, at least partly, to liking for the communicator—a conclusion that is consistent with recent theorizing on the relation between similarity and attitude change (Byrne, 1971; Simons, 1973). In sum, the evidence
suggested that if source-receiver similarity is desired as a communication objective, the probability of this objective being met will be greater with a communicator who is high in physical attractiveness than with one who is medium or low in physical attractiveness.

Delayed Compliance

The persistence of source effects over time was tested with the following hypothesis:

**Hypothesis 10.** No significant source effects will be noted on the measures of delayed preference and behavior.

Delayed measures of compliance with the source's suggestion that essay tests are preferable over multiple choice tests were collected with two scales. The first scale tapped test preference in a familiar course along a 5-point scale which ranged from preference for a test with all multiple choice questions (1), and mostly multiple choice and some essay (2), to about half multiple choice and half essay (3), mostly essay and some multiple choice (4), and all essay questions (5). The second scale consisted of a behavioral measure which involved a dichotomous choice between taking a real examination with all essay questions or all multiple choice questions. The 5-point delayed test preference scale was designed identically to the measure of test preference in a known course which was administered during the main experimental session.
It will be recalled that a statistically significant source physical attractiveness-expertness interaction had been found on the first measure of test preference (which was collected at the experimental session). For hypothesis 10 to be supported, the significant source effect, noted on the first measure of test preference, would be found to have dissipated over time, resulting in no main or interaction effects for physical attractiveness or expertness on the comparably-scaled, delayed measure of test preference.

Results of an analysis of variance that was performed on the scores of the delayed test preference measure (Table 33) confirmed the validity of the prediction made in hypothesis 10: No significant main effects or interactions were found for source physical attractiveness or expertness when test preference was surveyed approximately one week after the subjects had been exposed to the communication.

However, an inspection of the cell means for the delayed measure of test preference (Table 34) suggested that while the source interactions found were no longer statistically significant, the pattern of the interaction effect on the means (Figure 20) resembled closely the pattern of the interaction that was found for the original measure of test preference.
Table 33

Analysis of Variance on Delayed Measure of Test Preference in a Known Course

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Attractiveness (A)</td>
<td>2</td>
<td>1.083</td>
<td>1.487&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Expertness (B)</td>
<td>1</td>
<td>.521</td>
<td>.715&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>A x B</td>
<td>2</td>
<td>.646</td>
<td>.887&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Error</td>
<td>186</td>
<td>.7283</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> = not significant

Table 34

Means (M) and Standard Deviations (SD), by Cell, for the Delayed Measure of Test Preference (n = 32 for all experimental cells)

<table>
<thead>
<tr>
<th>Expertness</th>
<th>Physical attractiveness</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>M</td>
<td>2.344</td>
<td>2.063</td>
<td>2.094</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>0.937</td>
<td>0.801</td>
<td>0.818</td>
</tr>
<tr>
<td>Low</td>
<td>M</td>
<td>2.094</td>
<td>1.875</td>
<td>2.219</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>0.963</td>
<td>0.751</td>
<td>0.832</td>
</tr>
</tbody>
</table>

Control Group (n = 18): M = 1.944  
SD = .938

Note. Preference was measured on a 5-point scale. The higher the score, the more favorable was the attitude to essay tests.
Figure 20. Effect of physical attractiveness and expertness on delayed test preference (compared with the immediate measure of test preference) in a known course.
Due to the nominal nature of the dichotomous responses on the behavioral measure, the relation between source attributes and test choice was analyzed with a chi-square ($X^2$) nonparametric test of association (Siegel, 1956). The frequencies and percentages, by cell, based on the number of subjects who had chosen the multiple choice examination over the essay examination, are reported in Table 35. The results, once again, supported the prediction that was hypothesized: No significant differences were found between the six experimental groups in their choice of test, $X^2(2) = .297, p < .90$, indicating, in essence, that the effect of neither source physical attractiveness nor expertness was able to persist in its influence over receivers when measured after a period of time.

**Discussion.** The finding that the source effects, noted immediately following the exposure to the communication, tended to weaken or disappear after a period of time (approximately one week, in the present case) is consistent with the general findings of previous studies (e.g., Hovland & Weiss, 1951; Kelman & Hovland, 1953; Weiss, 1953) that have investigated the persistence of source credibility effects. However, it should be noted that the so-called "sleeper effect"—the tendency over time, for receivers to agree more with the low credibility
Table 35
Frequencies (Fre) and Percentages (%), by Cell, of the Subjects Who Chose the Multiple Choice Examination Over the Essay Examination in the Measure of Behavioral Compliance
(Based on n = 32 for all cells)

<table>
<thead>
<tr>
<th>Expertness</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Fre</td>
<td>27</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>84.38</td>
<td>93.75</td>
</tr>
<tr>
<td>Low</td>
<td>Fre</td>
<td>28</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>87.50</td>
<td>96.87</td>
</tr>
</tbody>
</table>

Source and to agree less with the high credibility source—was not found in the present study. The data indicated, instead, a consistent and almost proportional decrease in agreement over time for all six of the experimental conditions with the largest decreases in agreement being found for those conditions (high attractive-low expert and the low attractive-high expert) that had evinced the greatest initial agreement with the source.

The importance of taking meaningful behavioral measures has been emphasized in the literature in consumer behavior (Engel et al., 1973) as well as in psychology (Aronson and Carlsmith, 1968). In the spirit of these suggestions, the present behavioral measure was developed
as a critical test of the persistence of source effects under conditions that were exceptionally real to the subjects—a choice between an all-essay and an all-multiple choice test for an examination that was actually scheduled by the instructor of the course from which subjects were recruited. As the measure was taken approximately one week after the experimental sessions, the outcome of no significant persistence in source effects was expected.

Due to the highly central topic of persuasion that was used in this study, and the weak though occasionally significant source effects on opinion change that were found even for the measures that were collected immediately following the experimental induction, the argument can be raised, quite legitimately, that the present evidence on the persistence of source effects is unreliable. On the other hand, the legitimacy of the evidence in terms of its overall congruence with extant findings of previous studies must not be dismissed: Source effects do tend to deteriorate over time.

Based on the evidence of this study, the conclusion can be tentatively drawn that the advantages of using attractive or expert communicators to facilitate opinion change are short-lived. Receivers probably respond to source cues as long as the cues remain fresh in their minds. If either attitudinal or behavioral responses to
the communication are collected after a period of time (even as brief as a week), the positive or negative effects of source cues are very likely to dissipate.

**Other Findings: Results and Discussion**

**Test of a Physical Attractiveness Stereotype**

Twenty-two adjectives, composed of 11 positive traits and 11 negative traits, were treated as individual scales in testing for the presence of a physical attractiveness stereotype which has been demonstrated repeatedly in previous studies involving physically attractive and unattractive strangers (e.g., Dion et al., 1972; Miller, 1970 a,b). Although no specific outcomes were formally hypothesized for each adjective, the test was performed with the implicit expectation that attractive sources would be rated higher on positive traits and lower on negative traits than their less attractive counterparts.

To test for the presence of a general physical attractiveness stereotype, a multivariate analysis of variance was performed on the scores of the 22 adjectives, the means for which are reported in Table 36. The results of the analysis (summarized in Table 37) revealed a significant multivariate main effect for physical attractiveness, multivariate $F(44, 330) = 4.644, p < .001$, hence confirming that physically attractive women are perceived differently, at the very least, than women who are less attractive.
Table 36

Mean Scores by Cell for 22 Stereotype Attributes
(n = 32 for all cells)

<table>
<thead>
<tr>
<th>Physical Attractiveness</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
<th>Low</th>
<th>High</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expertness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>2.094</td>
<td>2.469</td>
<td>2.031</td>
<td>2.281</td>
<td>1.906</td>
<td>1.938</td>
</tr>
<tr>
<td>Low</td>
<td>3.281</td>
<td>2.844</td>
<td>3.188</td>
<td>3.063</td>
<td>3.344</td>
<td>3.719</td>
</tr>
<tr>
<td>Medium</td>
<td>2.813</td>
<td>2.688</td>
<td>3.219</td>
<td>3.000</td>
<td>3.625</td>
<td>3.781</td>
</tr>
<tr>
<td>High</td>
<td>2.469</td>
<td>2.688</td>
<td>2.375</td>
<td>2.688</td>
<td>2.188</td>
<td>2.125</td>
</tr>
<tr>
<td>Low</td>
<td>2.219</td>
<td>2.406</td>
<td>2.344</td>
<td>2.563</td>
<td>2.219</td>
<td>2.219</td>
</tr>
</tbody>
</table>

TRAITS:

<table>
<thead>
<tr>
<th>Traits</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
<th>Low</th>
<th>High</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irritating</td>
<td>1.844</td>
<td>2.188</td>
<td>1.906</td>
<td>2.250</td>
<td>2.281</td>
<td>2.250</td>
</tr>
<tr>
<td>Outgoing</td>
<td>2.250</td>
<td>2.500</td>
<td>2.531</td>
<td>2.406</td>
<td>1.844</td>
<td>1.844</td>
</tr>
<tr>
<td>Popular</td>
<td>2.469</td>
<td>2.094</td>
<td>3.125</td>
<td>2.938</td>
<td>3.906</td>
<td>3.781</td>
</tr>
<tr>
<td>Unsophisticated</td>
<td>2.406</td>
<td>2.063</td>
<td>2.813</td>
<td>2.313</td>
<td>3.406</td>
<td>3.438</td>
</tr>
<tr>
<td>Happy</td>
<td>2.188</td>
<td>2.813</td>
<td>2.313</td>
<td>2.375</td>
<td>2.313</td>
<td>2.188</td>
</tr>
<tr>
<td>Snobbish</td>
<td>3.500</td>
<td>2.875</td>
<td>3.531</td>
<td>3.188</td>
<td>3.375</td>
<td>3.094</td>
</tr>
<tr>
<td>Shy</td>
<td>3.281</td>
<td>2.781</td>
<td>3.438</td>
<td>2.938</td>
<td>3.313</td>
<td>3.344</td>
</tr>
<tr>
<td>Good-Looking</td>
<td>2.750</td>
<td>2.875</td>
<td>3.344</td>
<td>3.094</td>
<td>3.625</td>
<td>1.688</td>
</tr>
<tr>
<td>Sexually Warm</td>
<td>2.000</td>
<td>2.156</td>
<td>2.031</td>
<td>1.906</td>
<td>1.938</td>
<td>1.906</td>
</tr>
<tr>
<td>Uninteresting</td>
<td>2.219</td>
<td>2.438</td>
<td>3.094</td>
<td>2.688</td>
<td>3.094</td>
<td>3.000</td>
</tr>
<tr>
<td>Intelligient</td>
<td>1.813</td>
<td>2.250</td>
<td>1.875</td>
<td>2.094</td>
<td>2.031</td>
<td>1.781</td>
</tr>
<tr>
<td>Successful</td>
<td>3.094</td>
<td>2.563</td>
<td>3.031</td>
<td>2.781</td>
<td>3.250</td>
<td>3.250</td>
</tr>
<tr>
<td>Unfashionable</td>
<td>2.438</td>
<td>3.063</td>
<td>2.063</td>
<td>1.969</td>
<td>1.500</td>
<td>1.469</td>
</tr>
<tr>
<td>Poised</td>
<td>3.000</td>
<td>2.156</td>
<td>2.031</td>
<td>1.906</td>
<td>1.938</td>
<td>1.906</td>
</tr>
<tr>
<td>Dull</td>
<td>2.531</td>
<td>2.094</td>
<td>1.938</td>
<td>2.250</td>
<td>2.500</td>
<td>2.625</td>
</tr>
<tr>
<td>Talented</td>
<td>2.750</td>
<td>2.875</td>
<td>3.344</td>
<td>3.094</td>
<td>3.625</td>
<td>1.688</td>
</tr>
<tr>
<td>Cold</td>
<td>2.000</td>
<td>2.156</td>
<td>2.031</td>
<td>1.906</td>
<td>1.938</td>
<td>1.906</td>
</tr>
<tr>
<td>Self-Confident</td>
<td>2.000</td>
<td>2.156</td>
<td>2.031</td>
<td>1.906</td>
<td>1.938</td>
<td>1.906</td>
</tr>
<tr>
<td>Unattractive</td>
<td>2.219</td>
<td>2.438</td>
<td>3.094</td>
<td>2.688</td>
<td>3.094</td>
<td>3.000</td>
</tr>
<tr>
<td>Unresponsive</td>
<td>1.813</td>
<td>2.250</td>
<td>1.875</td>
<td>2.094</td>
<td>2.031</td>
<td>1.781</td>
</tr>
<tr>
<td>Forceful</td>
<td>3.250</td>
<td>2.719</td>
<td>3.156</td>
<td>3.000</td>
<td>3.500</td>
<td>3.500</td>
</tr>
</tbody>
</table>

Summated Score for 22 traits*  
74.719 | 66.156 | 75.750 | 72.500 | 80.469 | 81.844

*Higher score indicates more favorable attributions.
Table 37
Univariate and Multivariate Analysis of Variance of 22 Stereotype Adjectives

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Physical Attractiveness</th>
<th>Exportness</th>
<th>A X B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(A)</td>
<td>(B)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2, 186</td>
<td>1, 186</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>(p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Irritating</td>
<td>MS</td>
<td>2.130</td>
<td>2.297</td>
<td>.484</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>2.816</td>
<td>3.036</td>
<td>.640</td>
</tr>
<tr>
<td>2. Outgoing</td>
<td>MS</td>
<td>4.146</td>
<td>1.187</td>
<td>2.608</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>8.652a</td>
<td>.391</td>
<td>5.609</td>
</tr>
<tr>
<td>3. Popular</td>
<td>MS</td>
<td>14.628</td>
<td>1.187</td>
<td>.609</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>30.581c</td>
<td>.397</td>
<td>1.257</td>
</tr>
<tr>
<td>4. Unsophisticated</td>
<td>MS</td>
<td>3.422</td>
<td>1.172</td>
<td>.609</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>4.432</td>
<td>1.518</td>
<td>.789</td>
</tr>
<tr>
<td>5. Wishy-washy</td>
<td>MS</td>
<td>.891</td>
<td>.880</td>
<td>.224</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>1.054</td>
<td>1.041</td>
<td>.265</td>
</tr>
<tr>
<td>6. Happy</td>
<td>MS</td>
<td>2.099</td>
<td>0.000</td>
<td>.091</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>5.371b</td>
<td>0.000</td>
<td>2.279</td>
</tr>
<tr>
<td>7. Snobbish</td>
<td>MS</td>
<td>1.083</td>
<td>2.297</td>
<td>.250</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>1.696</td>
<td>4.020a</td>
<td>1.313</td>
</tr>
<tr>
<td>8. Shy</td>
<td>MS</td>
<td>7.271</td>
<td>.083</td>
<td>.583</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>12.743c</td>
<td>.146</td>
<td>1.022</td>
</tr>
<tr>
<td>9. Good looking</td>
<td>MS</td>
<td>39.083</td>
<td>2.521</td>
<td>.271</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>68.418c</td>
<td>4.413a</td>
<td>.474</td>
</tr>
<tr>
<td>10. Sexually warm</td>
<td>MS</td>
<td>24.068</td>
<td>3.521</td>
<td>1.193</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>35.266c</td>
<td>5.159a</td>
<td>1.748</td>
</tr>
<tr>
<td>11. Uninteresting</td>
<td>MS</td>
<td>1.021</td>
<td>1.687</td>
<td>2.436</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>1.418</td>
<td>2.345</td>
<td>3.387a</td>
</tr>
<tr>
<td>12. Intelligent</td>
<td>MS</td>
<td>505</td>
<td>8.333</td>
<td>.536</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>1.260</td>
<td>20.786c</td>
<td>1.338</td>
</tr>
<tr>
<td>13. Successful</td>
<td>MS</td>
<td>1.411</td>
<td>5.005</td>
<td>1.505</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>3.375a</td>
<td>11.969c</td>
<td>3.600a</td>
</tr>
<tr>
<td>14. Unfashionable</td>
<td>MS</td>
<td>14.193</td>
<td>.880</td>
<td>1.005</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>22.307c</td>
<td>1.383</td>
<td>1.580</td>
</tr>
<tr>
<td>15. Poised</td>
<td>MS</td>
<td>3.224</td>
<td>3.255</td>
<td>1.130</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>5.603</td>
<td>5.557a</td>
<td>1.964</td>
</tr>
<tr>
<td>16. Dull</td>
<td>MS</td>
<td>3.250</td>
<td>1.021</td>
<td>1.521</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>4.023a</td>
<td>1.264</td>
<td>1.883</td>
</tr>
<tr>
<td>17. Talented</td>
<td>MS</td>
<td>1.724</td>
<td>6.021</td>
<td>.911</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>4.209a</td>
<td>14.695c</td>
<td>2.225</td>
</tr>
<tr>
<td>18. Cold</td>
<td>MS</td>
<td>.255</td>
<td>.880</td>
<td>1.974</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>.487</td>
<td>1.679</td>
<td>3.764a</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>7.320c</td>
<td>3.822</td>
<td>1.808</td>
</tr>
<tr>
<td>20. Unattractive</td>
<td>MS</td>
<td>25.849</td>
<td>1.333</td>
<td>2.536</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>42.713c</td>
<td>2.203</td>
<td>4.191a</td>
</tr>
<tr>
<td>21. Unresponsive</td>
<td>MS</td>
<td>.411</td>
<td>0.000</td>
<td>.328</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>1.000</td>
<td>0.000</td>
<td>.798</td>
</tr>
<tr>
<td>22. Forceful</td>
<td>MS</td>
<td>3.521</td>
<td>0.000</td>
<td>2.437</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>4.959b</td>
<td>0.000</td>
<td>3.433a</td>
</tr>
</tbody>
</table>

Multivariate \(F\) = 4.644c, 2.739c, 1.196

\(df = 44/330\)  \(df = 22/330\)  \(df = 44/330\)

*E < .05
bE < .01
°E < .001
SNK a posteriori comparisons were performed between treatment means for traits that had a significant univariate $F$ ratio. The results of the analysis suggested that a female source, high in physical attractiveness, was perceived by subjects to be more outgoing, popular, and happy and less unsophisticated and shy than her less attractive counterparts. The attractive source was also rated more sexually warm, successful, talented, poised, and forceful, and less unfashionable, unattractive and dull than sources who were medium or low in physical attractiveness.

Whereas the expertness factor had some predictable main effects with the expert source being rated more intelligent, successful, and talented, all at $p < .001$, and more poised and self-confident, both at $p < .05$, than the inexpert source, the data revealed that the expert source tended also to be perceived as less snobbish, more good-looking, and more sexually warm than the inexpert source, all at $p < .05$.

The results on stereotyping also showed the interactive effects of physical attractiveness and expertness cues on the ratings of sources on the following six variables: outgoing, successful, uninteresting, cold, unattractive, and forceful. Inspections of the cell means in Table 36 and the graphic representations of each of the interactions in Figure 21 showed a consistent pattern
Figure 21. Interaction effects, $p < .05$, of source physical attractiveness and expertness on six traits: (a) Outgoing, (b) Uninteresting, (c) Successful, (d) Cold, (e) Unattractive, and (f) Forceful.
of interaction which seemed, in general, to suggest that differences in ratings tend to be most pronounced at medium or low levels of source physical attractiveness with expert sources receiving more positive attributions than inexpert sources; however, when physical attractiveness of the source was high, the differences in ratings that were evinced at lower levels of source attractiveness seemed to attenuate for four of the six variables. But more notably, the pattern of the interactions for all six traits seemed to correspond, once again, with the "dominant cue" explanation of the interactions that were found in the earlier analyses pertaining to hypotheses testing. Briefly, the dominant cue explanation contended: When the source is competent, her physical attractiveness will be ignored by the receiver in his judgments of her, but when the source is not competent, her physical attractiveness becomes a dominant cue, eliciting more favorable trait attributions when she is high in physical attractiveness than when she is medium or low in physical attractiveness.

Overall, were physically attractive sources rated more favorably than sources who were physically less attractive? To answer this fundamental question, individual scores on the 11 negative traits were inverted and added to the scores on the 11 positive items to obtain a summed index of source perception. An analysis of variance
of the summated scores confirmed the hypothesis that physically attractive sources are perceived more favorably than their less attractive counterparts: Physical attractiveness yielded a significant main effect on the summated perception score, $F(2, 186) = 26.23$, $p < .001$, and the SNK comparisons of the means showed the ratings for the high attractiveness source ($M = 81.16$) to be more favorable than the ratings for the medium ($M = 74.13$) or the low ($M = 70.44$) attractiveness source, these differences being statistically significant at $p < .01$. The difference in summated ratings between the medium and the low attractiveness conditions was not significant.

In sum, the evidence on the stereotyping of physically attractive communicators seemed to support the conclusions of previous investigations which showed that even brief interactions can produce a wide range of impressions (Hastorf, Schneider, & Polefka, 1970) and that positive impressions are more likely to result if the person being perceived is physically attractive.

Openness and Cautiousness as Moderators of Opinion Change

The role of individual differences as moderators of behavior has been extensively documented (e.g., Saunders, 1956; Ghiselli, 1960; Engel et al., 1973, pp. 299-300). In the present study, the traits of openness and cautiousness (in the general sense of innovativeness) were measured
with the recently developed "open processing" scale (Leavitt & Walton, 1976).

In the spirit of exploration, it was hypothesized that open individuals will respond to source cues differently than cautious individuals. General findings on the correlates of innovative behavior (Robertson, 1971) have shown innovative (open) individuals to be more open to sources of information as well as more prone to seek novelty and stimulation than noninnovators. Consistent with these findings, it was further predicted that not only would open individuals respond differently to communication and source cues but they would be also more susceptible to source cues than their cautious counterparts.

To test these informal predictions, the sample was split into two groups at the median on the distribution of scores on the open processing scale. Opinion change scores for the high scorers (open) and low scorers (cautious) were submitted to separate analyses of variance. It should be noted that the original random assignment of subjects to treatments was retained for this analysis.

As predicted, the results of the analysis for the cautious subset revealed no significant source main effects or interactions on the opinion change scores. However, for the open subset, the results (Table 38) revealed a marginally significant attractiveness X expertness
Table 38

Analysis of Variance on Opinion Change Scores for "Open" Subjects

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>df</th>
<th>Physical Attractiveness (A)</th>
<th>Expertness (B)</th>
<th>A X B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multivariate F</td>
<td></td>
<td>.397</td>
<td>1.242</td>
<td>1.007</td>
</tr>
<tr>
<td>1. Attitude to Tests</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Affect</td>
<td>MS</td>
<td>40.326</td>
<td>49.035</td>
<td>66.017</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>1.803</td>
<td>2.193</td>
<td>2.952</td>
</tr>
<tr>
<td>b. Belief</td>
<td>MS</td>
<td>4.181</td>
<td>8.776</td>
<td>6.074</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>1.460</td>
<td>3.064</td>
<td>2.120</td>
</tr>
<tr>
<td>c. Behavioral Intention</td>
<td>MS</td>
<td>2.420</td>
<td>7.967</td>
<td>5.755</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>1.215</td>
<td>4.000</td>
<td>2.889</td>
</tr>
<tr>
<td>2. Attitude to Secondary</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Topic</td>
<td>MS</td>
<td>5.818</td>
<td>1.482</td>
<td>10.646</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>1.296</td>
<td>.330</td>
<td>2.371</td>
</tr>
<tr>
<td>3. Test Preference (Unknown Course)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MS</td>
<td>1.421</td>
<td>.714</td>
<td>2.604</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>1.373</td>
<td>.690</td>
<td>2.517</td>
</tr>
<tr>
<td>4. Test Preference (Known Course)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MS</td>
<td>1.015</td>
<td>.141</td>
<td>2.194</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>.841</td>
<td>.116</td>
<td>1.818</td>
</tr>
</tbody>
</table>

Note. Subjects scoring above the sample median on the "Open Processing" scale (Leavitt & Walton, 1976) were classified as open individuals.

\[ a_p < .10. \]
\[ b_p < .055. \]
\[ c_p < .05. \]
interaction on the attitude to tests scale, $F(2, 98) = 2.95, p < .06$. Expertness main effects were also found on two dimensions of the attitude scale: The expert source evinced more agreement on the affective dimension ($M = 5.77$) than the inexpert source ($M = 5.25$), $F(1, 98) = 3.06, p < .08$, and the expert source also obtained more agreement on the belief component ($M = 6.69$) than the inexpert source ($M = 6.17$), $F(1, 98) = 4.00, p < .05$.

To illustrate the differences in responses between the open and cautious subjects, the mean effects of physical attractiveness and expertness on opinion change are reported for both subsets of the sample in Table 39, and the mean responses to the attitude scale for both groups are portrayed graphically in Figure 22.

Although the reasons why the open and cautiousness subjects responded the way they did could justifiably serve as the basis for an interesting discussion, such a discussion is not within the scope of the present study. The issue of interest to this portion of the study was based on the more limited hypothesis that open subjects would respond differently to source cues than cautious subjects. The results, dramatized in Figure 22, support this hypothesis and confirm the findings of a multitude of previous studies that have shown innovative people as possessing different behavioral characteristics than
<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Expertness</th>
<th>Open Subjects</th>
<th></th>
<th>Cautious Subjects</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Physical Attractiveness</td>
<td></td>
<td>Physical Attractiveness</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Attitude to Tests Scale</td>
<td>High</td>
<td>18.800</td>
<td>17.737</td>
<td>18.077</td>
<td>15.250</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>14.533</td>
<td>16.750</td>
<td>19.529</td>
<td>17.471</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>4.267</td>
<td>4.550</td>
<td>4.000</td>
<td>3.765</td>
</tr>
<tr>
<td>Test Preference (Unknown Course)</td>
<td>High</td>
<td>2.850</td>
<td>2.684</td>
<td>2.769</td>
<td>2.333</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>2.333</td>
<td>2.550</td>
<td>3.176</td>
<td>2.765</td>
</tr>
<tr>
<td>Test Preference (Known Course)</td>
<td>High</td>
<td>2.600</td>
<td>2.316</td>
<td>2.308</td>
<td>2.333</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>2.067</td>
<td>2.200</td>
<td>2.824</td>
<td>2.294</td>
</tr>
<tr>
<td>Subjects per cell (N)</td>
<td>High</td>
<td>20</td>
<td>19</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>15</td>
<td>20</td>
<td>17</td>
<td>17</td>
</tr>
</tbody>
</table>
Figure 22. Effect of source physical attractiveness and expertness on the summated attitude to tests scale for Open and Cautious subjects.
noninnovative people (e.g., Bell, 1963, pp. 85-95; Rogers & Stanfield, 1966; Robertson, 1971; Kegerreis, Engel, & Blackwell, 1970, pp. 671-689).

Explaining the Effects of Communicator Physical Attractiveness and Expertness on Opinion Change

It will be recalled that three different source effects for physical attractiveness on opinion change were found: (1) a direct, monotonic main effect was found for a subset of subjects with neutral initial attitudes; (2) an interaction effect with expertness was noted for the total sample as was predicted; and (3) an inverted U-shaped relation was found between source physical attractiveness and agreement on a secondary issue. The last effect was unexpected.

In explaining the unexpected outcome first, the question arises as to whether this inverted U-shaped effect was genuine or merely an experimental artifact. A close inspection of the results indicated that although the medium attractive source had evinced greater agreement than either the low or high attractive sources, the only significant difference found was between the medium and the low attractiveness conditions. Yet, the trend was found to be significantly nonlinear. Since no previous theoretically-based predictions had been made that could explain this effect, some possible rival explanations of
the outcome were explored.

One explanation which appeared promising was based on the speculation that the medium attractive source, with her supposedly average looks, was more persuasive than her more and less attractive counterparts because she was perceived by receivers to be more similar to them than the sources who were either very attractive or very unattractive.

The literature on source-receiver similarity effects has repeatedly demonstrated a positive linear relation between similarity and attitude change (Mills & Jellison, 1969; Simons, 1973). In contrast, recent evidence has shown the effect of source-receiver similarity on attitude change to be curvilinear, with a medium level of similarity evincing maximum agreement (Alpert and Anderson, 1973; Kaigler-Evans, 1975). Therefore, if the similarity rating for the medium attractive source was either intermediate or very high, the similarity hypothesis would seem to adequately explain the results.

However, the findings on the effects of source attractiveness on perceived similarity (Table 31) showed that the medium attractive source received a rating that was neither the highest nor was it significantly greater than the lowest rating to qualify as an intermediate score, thus ruling out both of the explanations based on the similarity hypothesis. Similarly, the hypothesis that
a medium attractive source may have been more persuasive because she was liked more than a high or low attractive source also remained unsupported by the results (Table 25) which, instead, showed liking for the source to be related positively to the source's physical attractiveness.

Considering the apparent lack of theoretical support, the conclusion gains credence that what had appeared as an inverted U-shaped effect was probably no more than an experimental artifact; the nonsignificant difference in the mean effects between the medium and high attractiveness conditions provided further proof that the moderate decline in agreement at the high attractiveness conditions was probably a random effect. Of course, before a definitive explanation of this effect can be proposed, more explicit further tests will be needed, preferably with different types of messages and with three or more levels of source physical attractiveness.

The second effect that was observed consisted of a positive, linear main effect for physical attractiveness which was found on responses to the attitude scale and, less strongly, on responses to the remaining opinion change measures. This effect was predicted for the responses of the original sample, but was found significant only for a subset of the original sample which consisted of subjects whose previous attitudes to essay or multiple
choice examinations were neither extremely favorable nor extremely unfavorable. In explaining this effect, three hypotheses were considered, based on the following rival propositions: Physically attractive communicators are effective because they are liked more, are perceived to be more credible, and are perceived to be more similar, respectively, than communicators who are physically less attractive.

In the sparse literature on communicator physical attractiveness effects, few attempts have been made to explain the facilitating effects of source physical attractiveness on opinion change. One notable exception was the Snyder and Rothbart (1971) study which, after considering several rival explanations, concluded that physically attractive males were more effective as communicators because they were liked more than the male communicators who were physically unattractive. Based on this admittedly narrow precedent, could the liking hypothesis be generalized to also explain the attractiveness effect when the communicator was female?

The analysis of partial correlations, reported earlier in this chapter, had indicated that the correlations between perceived physical attractiveness and attitudinal agreement remained significant when the effects of liking and credibility were controlled but the correlation
became nonsignificant when the effect of perceived similarity was controlled. This evidence, therefore, seemed to suggest that perceived similarity to physically attractive female communicators—more than liking or attractiveness-induced perceptions of credibility—may have mediated the attractiveness-opinion change effect that was found for the neutral subjects. It should be noted that the present evidence is not wholly inconsistent with the conclusions of Snyder and Rothbart's study. In the present study, the partial correlation between physical attractiveness and attitudinal agreement with the effect of liking removed, though marginally significant, was quite small, \( r = .12, p < .08 \), thus providing moderate support for the liking hypothesis as well. Further, since no measure of perceived similarity was taken in the Snyder and Rothbart study, its role as a possible mediator of the physical attractiveness effect that was found in the study remained untested, hence undiscussed.

The last and, perhaps, principal of the three communicator effects found was the interactive effect of physical attractiveness and expertness on opinions pertaining to the primary topic of test preference, a result that emerged from the original analysis of the entire sample. The interaction indicated that when the source was expert, her physical attractiveness appeared to make
a negligible difference in agreement, but when the source was inexpert, her physical attractiveness tended to become a dominant cue in influencing receiver attitudes and preferences, with the high attractiveness source evincing more agreement than either the medium or the low attractiveness source.

This finding is remarkably consistent with previous evidence on the positive and negative effects of "irrelevant" characteristics on the perception and evaluation of stimulus persons. For example, Rosenblatt (1967) found that in major league baseball, black players were not discriminated against much, relative to white players, if they were good hitters; however, among players of both races whose performances were relatively poor, whites were given greater opportunity than blacks. In a further demonstration of this interaction between relevant and irrelevant cues, Landy and Sigall (1974) found that whereas a well-written essay was evaluated about equally by subjects when it was attributed to a writer who was either physically attractive or unattractive, a poorly-written essay was evaluated more favorably when the writer was physically attractive.

The obvious generalization that emerges from the interaction noted in the present study is that if a communicator is competent, her looks will probably neither
help nor hinder her persuasiveness; however, if the communicator is not competent, good looks can be a persuasive asset. Whether this generalization can be applied to male communicators remains to be seen. Nonetheless, the implication of this finding for decision makers and researchers in mass communications promises to be significant—an issue that will be discussed in more detail in the concluding chapter of this dissertation.

A more immediate issue that needs to be addressed concerns the attractiveness X expertness interaction and the question of why the interaction effect occurred as it did.

The evidence on source perceptions had indicated that expert sources, besides being seen as more qualified, were also perceived to be less snobbish and more credible, successful, poised, talented, self-confident, good-looking, and sexually warm than inexpert sources—a stereotype that connotes an image that is clearly positive and attractive. Although the subjects did not view the expert source as being significantly more trustworthy than the inexpert source, they did perceive her to be more credible, overall, than the inexpert source. Lastly, the communication was rated as having greater attention value when the source was expert than when she was inexpert, suggesting that subjects were more receptive to the source who was
experienced with taking college examinations than they were to the source who was not experienced.

Apparently, subjects were more favorably predisposed to attend to the message when they knew that the source was an experienced college senior than when she was an inexperienced college freshman, even though differences in comprehension were not evinced, due probably to familiarity with the arguments presented. That the expert source was described also as a statistician who was employed in the university's testing service may have further enhanced her credibility in the eyes of her audience. Evidently, the positive impressions that were formed of the expert source, together with the tendency to comply, perhaps temporarily, with a source who was clearly competent, may have led the subjects to base their responses exclusively on the source's expertness.

However, when the source was inexpert, subjects were willing to disregard her lack of experience only if she was physically highly attractive. This simple effect could be explained, probably, by the data on perceived dynamism which showed the high attractive source to be more dynamic and arousing than the medium or low attractive source. This finding suggests that whereas subjects may resort to a variety of source, message, and situational cues in the process of responding to a communicator's
suggestion, the communicator's physical attractiveness is likely to become a salient cue only if it has the potential to arouse the audience. In the present study, the physical attractiveness of the source was evidently found to be arousing, hence salient, only when it was at an extreme (high) level. Although one might have expected the attractiveness cue to also be arousing and salient under the condition of low physical attractiveness, the present evidence did not confirm this expectation. One possible reason why the differences in responses to the medium and low attractive sources were not significant might be because the low attractive sources, selected for this study, were not extreme enough in their unattractiveness to elicit special attention from the audience, particularly when the more conspicuously-manipulated expertness cues were also present. This might not have been the case had a communicator been chosen who was strikingly ugly.

A Postscript. A nonsignificant but remarkably consistent simple effect that was observed, and which deserves special comment, was the tendency for subjects under the high attractiveness condition to agree more with the low expert source than with the high expert source. While the evidence that was collected in this study appeared to offer no clues as to the explanation of this effect, at least one explanation—although based largely on speculation and informal
evidence—deserves mention.

The stereotype in Western culture of the beautiful but dull-witted female has been nourished over the years in countless motion pictures, television shows, magazines and novels. Several well-known actresses—popularly labeled as "sex symbols"—have built careers by their consistent portrayals of dumb but beautiful secretaries, movie stars, housewives, mistresses, chorus girls and the like. Perhaps, this portrayal of women as beautiful but dumb was a comfortable stereotype for many males as well as females.

That this stereotype may be changing is evident from a recent study on stereotyping among college males and females (O'Leary and Depner, 1975) which showed that males perceived their "ideal" female to be more competent than themselves. However, this study also showed that college males perceived themselves neither to be as bright as females nor did they feel as superior as the females indicated they felt. This finding suggests that competent and capable females are a recognized fact of life on today's college campuses, but a fact about which many college males may also feel resentful and threatened. The evidence in the present study that sources who were both expert and highly attractive were perceived to be more cold than the inexpert-attractive source appears, partly, to support
this argument.

The advent of the feminist movement on college campuses may have had a lot to do with the changing female stereotype, but at least one study has shown that the image of the articulate, aggressive, feminist, committed presumably to the destruction of old stereotypes, is not entirely an attractive one. Goldberg, Gottesdiener, and Abramson (1975) had photographs of supporters and non-supporters of the feminist movement rated for physical attractiveness, for which no differences between the two groups were found. However, male and female subjects, when asked to identify the women who supported the women's liberation movement, significantly chose the photographs of the less attractive women, irrespective of their own professed attitudes toward the feminist movement. The implication that intelligent and outspoken women must not be physically attractive relates broadly to the simple effect that was found in the present study.

In partially confirming this speculation, the present study showed that the high expert-high attractive source was perceived to be more cold and less outgoing than the low expert-high attractive source. But the lack of statistical significance in the differences in communicator effectiveness between these conditions, and the largely speculative nature of the explanation just given, suggest
that any generalities that one might be tempted to draw about the effectiveness of incompetent but attractive females, relative to females who are attractive and competent, must be labeled as provocative but highly tentative.

Summary

The effects of source physical attractiveness and expertness on opinion change, information processing, source evaluations, and delayed compliance were tested with ten hypotheses. Unequivocal support in the data was evinced only for the source evaluation and delayed compliance hypotheses.

Prior to the tests of hypotheses, tests were conducted to check for the effectiveness of the physical attractiveness and expertness manipulations. The tests indicated that the experimental manipulations were highly effective.

The four opinion change hypotheses predicted main and interaction effects for physical attractiveness and expertness on four measures of opinion change that were analyzed with multivariate and univariate analyses of variance. While none of the predictions were supported at the multivariate level, a consistent pattern of interactions (one of them statistically significant) was found at the univariate level on attitudes and preferences.
regarding essay and multiple choice tests (the primary topic of persuasion).

The interaction showed that when the source was expert, her physical attractiveness made a negligible difference on attitudinal responses; however, when the source was not expert, physical attractiveness became a dominant cue, evincing greater agreement from receivers when the source was high in physical attractiveness than when she was medium or low in physical attractiveness. This effect was subsequently explained in terms of an arousal hypothesis: Receivers paid little attention to the source’s physical attributes when she was medium or low in attractiveness, but resorted, instead, to the more conspicuous expertness cues by agreeing more with the expert source and agreeing less with the inexpert source; however, when the source was physically highly attractive, her physical appearance became a salient cue for receivers who were willing to overlook her lack of expertise and to give her the benefit of the largely favorable stereotypes that are normally attached to people who are highly attractive.

An unexpected inverted U-shaped main effect for physical attractiveness was found on agreement on a secondary issue; subsequent discussion of this effect led to the conclusion that the inverted-U part of the effect was artifactual.
The weak source effects noted led to the argument that a good number of subjects may have resisted changing their views simply because of very favorable or unfavorable past experiences with essay or multiple choice tests. Subjects with relatively neutral previous experiences with both types of tests were analyzed separately (N = 138). Analysis of variance on the neutral subjects showed a positive, linear main effect for physical attractiveness on the attitude to tests scale and similar but nonsignificant main effects on the remaining opinion change variables that pertained to the primary topic. Analysis of partial correlations of physical attractiveness and attitude, controlling separately for liking, credibility, and perceived similarity, indicated that the positive effect was best explained by perceptions of similarity with the high attractiveness source.

The two information processing hypotheses predicted more attention value for the communication and less comprehension (recall) of communication content under the condition of high attractiveness than under the conditions of medium and low attractiveness. Neither hypothesis was supported. However, significantly more attention was evinced with the high expert source than with the low expert source.
In the three source evaluation hypotheses, it was predicted that the high attractiveness source would be more liked, would be perceived to be more credible, and would be perceived by receivers to be more similar to them than sources who were medium or low in physical attractiveness. Strong support was found in the data for all three hypotheses.

Lastly, in the delayed compliance hypotheses, the persistence of source effects over time was tested. The prediction that source effects, noted immediately following exposure to the communication, will dissipate after a period of time was supported by the data.

Ancillary evidence on the physical attractiveness stereotype was analyzed although no explicit outcomes were hypothesized. The evidence was consistent with the findings of past studies which showed that people generally tend to attach more positive traits to strangers who are physically attractive than they will to strangers who are physically unattractive.

In an exploratory vein, the moderating effects of receiver personality traits on the source-receiver relationship was investigated. High and low scorers on the "open processing" scale (Leavitt & Walton, 1976) were analyzed separately to study the effects of the manipulated source characteristics on opinion change. It was expected
that high scorers (subjects who are open to receiving information) would not only respond differently to source cues than the low scorers (cautious subjects) but they would also be more sensitive to source-oriented cues. The results supported these expectations: Significant univariate source effects on opinion change were found for the open subjects but no significant effects were noted for the cautious subjects.
CHAPTER V
CONCLUSION

This chapter briefly summarizes the study, its principal findings, contributions, and general implications, and its major limitations. New directions and implications for future research are also proposed. The chapter concludes with an examination of the broad implications of the findings for marketing management and social policy.

Summary of the Research

Method

This study investigated the effects of source physical attractiveness and expertness on opinion change and on various cognitive mediators of opinion change. Justification for the study was based on the meager state of the extant literature on the persuasive effects of source physical attractiveness—particularly in the case of female communicators—which argued the need for more research of the type that was performed in this study. The study was justified also from an advertising perspective since it was expected to provide much needed, if preliminary, empirical evidence on specific source effects that could contribute to
more scientific decision making by advertisers in selecting professional communicators who varied in physical attractiveness and other attributes.

The laboratory experiment crossed three levels of source physical attractiveness (low, medium, and high) with two levels of communicator expertness (low and high) in a posttest-only, factorial design. Subjects were 192 university males and females (32 per cell) who were recruited from a large introductory marketing class and tested in groups of approximately 15. Subjects listened to a tape-recorded opinion about the benefits of essay tests as they viewed, on a screen, the picture of a female "communicator" who was rated previously in an independent session as high, medium, or low in physical attractiveness. The speaker was described in half of the experimental sessions as expert and in the remaining sessions as not expert. Subjects then completed dependent measures of attitude, attention value of the communication, aided and unaided recall, source credibility, liking for the source, perceived similarity to the source, general source evaluation, and behavioral intention. Delayed measures of attitude and overt behavior were also collected under naturalistic conditions approximately one week after the sessions.

**Major Findings**

Among the major hypotheses tested were predictions regarding the main and interactive effects of the two
source characteristics on attitude change. The hypothesis that physical attractiveness would be related positively to opinion change was supported only for a subset of the original sample consisting of those subjects who had expressed neutral initial attitudes toward essay and objective tests, thus suggesting that source effects (of the types investigated in this study) represent a persuasive asset only when receivers have no strong previous convictions about the product or issue that is being promoted. It was also predicted that physical attractiveness would operate as a dominant cue in influencing opinions only when the level of attractiveness was high, whereas at medium or low levels of attractiveness, the expertness cues would become salient in determining opinions. This hypothesis received also only qualified support from the data although the predicted interaction was noted too consistently in the results to warrant unconditional acceptance of the null hypothesis.

Among the study's other major findings, sources high in physical attractiveness were found to be more liked, more credible, and more similar to receivers than sources who were medium or low in physical attractiveness. It was further found that the credibility which was attributed to attractive sources was based evidently on their possessing greater "dynamism" than less attractive sources rather than
greater expertise or trustworthiness. Delayed measures of attitude indicated that the source effects which were noted immediately following the inductions had attenuated further, as was predicted.

Contributions and General Implications of the Study

In Chapter I, several questions were posed regarding the characteristics and effects of source physical attractiveness. Based on the study's findings, several conclusions can be drawn which suggest answers to those questions, and which help to underscore the study's principal contributions.

One group of questions raised the issue as to whether source physical attractiveness was indeed a persuasive asset. The findings showed that sources who are high in physical attractiveness may enjoy, overall, a slight persuasive advantage over sources of both medium and low attractiveness levels although the advantage might shrink if the issue being advocated is one about which audiences already have strong convictions, formed possibly by previous experiences.

Focusing on the more interesting issue of physical attractiveness-expertness interaction effects, the question was posed: Could a communicator's physical attractiveness compensate for her lack of expertise? In a previous study (Horai et al., 1974), it had been demonstrated with male
communicators that attractiveness and expertness do not interact; rather, each is related positively, and independently, to opinion change. The present study's finding on female communicators leads, however, to a different conclusion: If a source is not very attractive, she is likely to be evaluated by her audience on the basis of her qualifications and other task-related attributes, but if a source is extremely attractive, physically, then the inexpert source will be no less persuasive than the expert source. The dominant cue explanation of this phenomenon that was proposed represents a theoretical contribution to the literature of source physical attractiveness effects, and particularly towards an understanding of how receivers utilize relevant and irrelevant source credibility cues within a communication.

On the issue of information processing, the study showed that source physical attractiveness may not be capable of influencing (one way or the other) an audience's level of comprehension or recall of the message, nor would it be able to enhance a communication's attention value. However, it should be noted that the second conclusion is less definitive since it was also found that highly attractive sources were perceived to possess more dynamism, a quality which is broadly related to the concept of arousal and attention which are considered to be mediators of opinion
change (McGuire, 1969).

The study's strongest contributions lie in the area of person perception where support was found for many of the stereotypes of the physically attractive, demonstrated in countless earlier studies (e.g., Dion et al., 1972; Miller, 1970a). But, more importantly, the study makes its most notable contributions in the disconfirmation of certain popular stereotypes and expectations regarding the attractive and the not so attractive: Sources who are physically attractive, the evidence indicated, are not perceived to be any more expert or trustworthy than unattractive sources (although they enjoy, evidently, higher credibility ratings, overall, partly because they are perceived to be more dynamic than their less attractive counterparts). The finding on perceived similarity was also unusual in that it seemed to disconfirm the logic of the popular notion that audiences (with their presumably average looks) will tend to see more in common with communicators who are also of average or medium physical attractiveness than with those who are very attractive. The implications of this finding for advertisers, attempting to capitalize on the similarity-influence relationship (e.g., Simons, 1973; Mills & Jellison, 1969), are discussed in a subsequent section of this chapter.
In sum, the study investigated the persuasive and perceptual effects of source physical attractiveness and expertness and found small but consistent between-group differences in opinion change, no differences in attention and message comprehension, and strong physical attractiveness effects on liking, perceived similarity, perceived credibility, and general trait attributions. The study contributed to the understanding of the physical attractiveness effect with an explanation that was based on arousal and which was termed the dominant cue hypothesis. The source perceptions noted concerning credibility, similarity, and liking contributed important new evidence on the information processing activities that mediate opinion change.

Limitations of the Study

When assessing the value of a research, it is necessary to recognize and take into account those limitations that might jeopardize its validity. Several limitations, mostly of a methodological nature, characterize the present study. This section recognizes and discusses the more serious of those limitations.

Whereas the laboratory setting of the present study could be lauded for its strong internal validity, laboratory experiments are noted for their weak external validity when compared to field experiments (Kerlinger, 1964).
Therefore, any generalizations from the experimental findings of this study to real situations, such as advertising campaigns, must be drawn only with extreme caution. The findings should be treated as preliminary evidence until their reliability is established through replications.

The appropriateness of using students as subjects in behavioral research has produced considerable concern among researchers in the social sciences and in the business disciplines. The concern voiced has been not about the use of college students per se but the effect this type of respondent may have on external validity. In the present case, legitimate questions may be raised as to whether the reactions of the college student subjects to various sources were representative of the kind of reactions that people in general would make. However, Oakes (1972) has provided an intriguing argument concerning the validity of using students as subjects:

... research with college students as subjects is just as valid as research drawing on any other subject population. A behavioral phenomenon reliably exhibited is a genuine phenomenon, no matter what population is sampled in the research in which it is demonstrated. ... No matter what population a researcher samples, whether it be psychology students, real-people volunteers, public

---

1For a recent discussion of this issue, see Permut, Michel, and Joseph (1976).
school students, or whatever, there are probably some behavioral phenomena that would be manifested differently in that population due to an interaction effect of the particular characteristic of that subject population.

This suggests, then, that the generalizability of the results of behavioral research is not a function of the population sampled, but rather that the external validity of the research depends on the interaction of subject characteristics and the particular behavioral phenomenon with which one is concerned (pp. 961-962).

In the light of Oakes's comments, it appears that the present study's choice of students for subjects may not be a serious limitation after all.

A final set of limitations concerns the topic of persuasion that was selected. The issue of test preference was selected originally as the topic for the persuasive communication because it seemed, at that time, to be representative of issues that would pertain directly to the common experiences of college students and would also lend itself admirably to an unobtrusive, behavioral measure of choice. The issue proved, however, to be less than ideal for an adequate demonstration of source effects in persuasive communication due to the strong preferences that already existed among the students for one or the other type of test. In retrospect, this limitation might have been avoided had a topic been selected (following more careful pretests) which was not only pertinent to the student
subjects but was also not in conflict with their existing set of convictions and stable attitudes.

Since the topic of persuasion was not an advertisement about a commercial product, the external validity of the findings to advertising situations could be open to serious question. This objection seems valid to the extent that consumer choices involving conventional products appear to have very little in common with a choice concerning the type of test for a college examination, especially in terms of consumer "decision processes" (Engel et al., 1973). But even though many products require only a "routine response behavior" on the consumer's part, several products require "limited" as well as "extended problem solving" behaviors (Howard & Sheth, 1969, p. 188). It was to this latter universe of behaviors that the topic of test preference was addressed. It was also reasoned that the generic issue of choice—be it brand choice or test choice—can be investigated from a variety of perspectives without compromising the external validity of the results.

Implications for Future Research

Although the persuasive effects of source physical attractiveness have been tested in the present study and in at least four previous studies, the attractiveness-persuasiveness relationship, particularly with female communicators, demands further tests in the laboratory as
as well as in the field. Source physical attractiveness effects need to be tested with manipulations of attractiveness at more than three levels, and with persuasive messages dealing with a variety of issues (including real advertisements for conventional products), before their generality can be extended to practical advertising applications with any degree of confidence.

Research is also needed to test the effects of source physical attractiveness when the product or issue being advocated is either relevant or irrelevant to the source's physical attractiveness. For example, an attractive communicator might be expected to be more effective than one who is not attractive when the product is, itself, aimed at enhancing the attractiveness of the user (e.g., eye makeup or clothing). But would this relationship hold for products that are clearly attractiveness-unrelated, such as bathroom cleansers or cake mixes? Convincing answers to this question can be obtained only with further experimental tests in the laboratory and the field.

The mechanisms underlying receiver responses to communicators who are physically attractive or unattractive need to be elucidated with research designs that will permit more explicit measurement of such intervening variables as arousal or liking. Testing for these effects with physiological measures such as galvanic skin response
or pupil dilation is one approach that researchers could pursue. The mediating effects of receiver characteristics (such as personality or ethnic origin) on reactions to attractive and unattractive communicators also warrants further study, particularly within the advertising context.

Under the general topic of interpersonal relations in business, several areas look promising in terms of needed research. From what is already known about the physical attractiveness stereotype and the persuasive advantages that good looks confer on communicators, the generality of these effects could be tested within the context of face-to-face interactions (e.g., customer-salesman or interviewer-job applicant dyads) or in communications showing pictured stimulus persons (as in print advertisements, direct-mail appeals, or resumes of job applicants). The findings from studies such as these could provide the foundation for important changes in management practices and public policy, as the following section suggests.

Managerial and Social Policy - Implications

Admittedly, only cautious generalizations are permissible from laboratory studies including the present one. However, several broad implications can be drawn, without
undue risk, which point out potential opportunities as well as problem areas that the physical attractiveness variable poses, particularly in the hiring and management of people in advertising as well as other areas.

Many advertisers use average- or even homely-looking models as communicators. The popular assumption is that the ordinary consumer—who is also, presumably, only modestly endowed, physically—will find more things in common with the plain-looking communicator than with a communicator who is physically very attractive. This reasoning has been legitimized with recent scientific evidence (e.g., Simons, 1973; Brock, 1965) which has shown source-receiver similarity to be an effective antecedent of persuasion. But the findings from the present study suggest that the strategy of using average-looking models to capitalize on the similarity-persuasion relationship may be a serious mistake because audience members (regardless of their physical attractiveness) perceive greater similarity with communicators who are beautiful than they do with communicators who are not. This evidence would suggest, then, that if the goal of a communication is to induce perceptions of similarity and identification with the source (as is, presumably, the case with many "slice-of-life" advertisements), the source should be one who is physically attractive.
The findings of this study and previous studies have indicated that the physically attractive are generally perceived in more favorable terms and even tend to be slightly more persuasive than the physically unattractive, especially when their extrinsic credibility is low. Hence, the tendency—for advertisers who hire models and actors, for sales managers who hire salespeople, for office managers who hire receptionists, and for employment officers who interview job applicants (to cite obvious examples)—would be, logically, to prefer only those candidates who are physically attractive especially if other pertinent credentials are equal or not easily assessable.

If the research cited is valid, then, the organization that hires only physically attractive people for positions requiring visible interaction with its various publics might be expected, at least in the short run, to enjoy a competitive advantage—in terms of favorable consumer attitudes, high expectations, greater confidence in the firm, repeat patronage, and even, perhaps, increased sales—over organizations that do not use this hiring criterion. However, the economic and behavioral advantages of such a hiring policy may be short-lived, and its legal and ethical ramifications grave, especially if the policy becomes public knowledge.
The practice of discriminating between job applicants on the basis of their physical attractiveness is suspected to be more widespread than one might expect, but the practice appears to be under attack. Recent news reports have drawn attention to an organization called Uglies Unlimited (Peterson, 1976), an association of men and women who have embarked on a campaign to fight discrimination in employment practices that penalize unattractive people. Another group, the National Association to Aid Fat Americans, with chapters in nine cities from New York to Los Angeles, has begun an educational program to convince the public that "fat is beautiful" ("Now, a Drive to End Discrimination," 1976). Pressure, in the form of threatened court actions and the picketing of businesses accused of discrimination against the unattractive, is cited for having forced some companies to reassess their

2In an interview with U.S. News & World Report ("Now, a Drive to End Discrimination," 1976), Uglies Unlimited's founder Danny Lee McCoy cited the following recent incidents as typical of the antiugly bias in employment practices: An applicant for a bus driver's job in Detroit was disqualified because of too many freckles; women employees of a nightclub were discharged because they were in their late 20s and their "figures drooped;" until recently, candidates for the service academies were rejected for "extreme ugliness," a disqualification which has been reworded and is now considered a medical matter (p. 50).
Although there is no Federal law covering discrimination against the ugly, the barriers that are imposed on the physically unattractive may be no less unjust than the barriers that still exist (but which are being gradually dismantled by legislation) for racial and ethnic minorities, for women, and for the handicapped. Indeed, the stigma of physical unattractiveness may well extend to the members of minority groups of all kinds whose looks deviate from a society's norms and standards of physical attractiveness. Thus, in a white society, blacks may be viewed as unattractive just as will be persons who are physically handicapped.

The problems inherent in this issue are easy enough to identify; finding the proper solutions, however, will remain a challenge that society must eventually face. With the growing militancy of groups such as Uglies Unlimited and the feminist movement, the pressure on employers and public policy makers to confront this issue is bound to grow.

A final implication of the findings on communicator physical attractiveness effects deals with a fundamental

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3In one case, an airline was reported to have eliminated a long-standing ban on hiring applicants with such blemishes as moles, excessive facial hair, and crooked teeth ("Now, a Drive to End Discrimination," 1976).
view of the role of marketing in society. It has been said that marketing

... is a form of adaptive behavior within the general societal environment but it is also a formative cultural influence. It is adaptive in the sense that business firms in the marketing process must be responsive to the changing wants and circumstances of dynamic markets if they are to survive and grow. Marketing is also a formative influence in culture in the sense that the aggregate impact of product offerings, marketing communications, and institutions contributes to the formulation of attitudes or values (Beckman & Davidson, 1976, p. 837).

If marketing's role is indeed a formative one, and marketing communication exerts a socializing influence on people, it behooves the socially-responsible decision maker to ponder the long-term consequences of portraying or repeating, in his advertisements, those stereotypes which may be unfair or demeaning to some segments of the population, even if the stereotypes have been proven accurate. For example, if ugly people tend to be perceived as losers and attractive people as winners, should the advertiser reflect these stereotypes in his advertising and show the attractive person succeeding with, say, the opposite sex (aided, no doubt, by the sponsor's brand of after-shave) and the unattractive person failing? Or if beautiful women are perceived in a culture as generally unintelligent, fat people as cheerful, short people as socially maladjusted, and slim, attractive and youthful
people as the norm, should the advertiser assume an adaptive stance and merely repeat these stereotypes in his advertisements or should he assume a formative stance and attempt to change them?

Answers to such questions are seldom as obvious as they might first appear. To understand the complexities of this issue, it is useful to look at how marketers have responded to the issues of sex role and racial stereotypes. For example, in a survey of magazine advertisements between 1959 and 1971, Venkatesan and Losco (1975) found that the portrayal of women as sexual objects had decreased considerably since 1961. This trend could be interpreted partly as an adaptive strategy that was taken by advertisers to reflect the real changes that were taking place in women's lives during the 1960s. But the trend could also be interpreted, one hopes, partly as a formative strategy that was intended to change especially those sex role stereotypes that were not only limiting (in their view of women's place in society) but, in some cases, also demeaning. Similarly, American advertisers in the 1960s assumed both an adaptive as well as a formative stance in the use of racially integrated scenes in advertisements when they portrayed blacks and whites interacting with each other even when such interactions were rare in real life. But taking a formative stance involves various
risks, including the risk of undermining the advertisement's credibility. For example, an early integrated advertisement for Rheingold beer showed a racially-integrated beach scene in a resort area; this scene produced wide criticism from both whites and blacks and the advertising was withdrawn (Cohen, 1970).

If advertising and other forms of mass communication have the power to shape attitudes and cultural values, as some have suggested (e.g., Galbraith, 1958; Siegel, 1971; Howard & Sheth, 1969), then, advertising that merely reflects or, worse, exploits stereotypes that are controversial or unfair risks being labeled as socially irresponsible, because the perpetuation of such stereotypes contributes eventually to the perpetuation of inequities which are inconsistent with the egalitarian values of modern society.

Summary

This chapter summarized the study, examined its contributions and limitations, and discussed implications for future research and for managerial and social policy. Among the contributions discussed were the findings which demonstrated the persuasive advantages of being physically attractive when expertness was varied, and the inability of physical attractiveness to enhance the source's
perceived expertness and trustworthiness (this finding representing a notable break in the otherwise positive stereotypes that are formed of physically attractive people). Weak external validity—a characteristic of laboratory experiments—and a questionable choice regarding the topic of persuasion were noted as among the principal limitations of the study. Suggestions were made for future investigations to test with more than three levels of physical attractiveness and with different types of persuasive topics, to measure intervening variables, and to test source effects in face-to-face and other types of communication paradigms. The chapter concluded with a discussion of the broad managerial and social policy implications of using the empirical evidence on source physical attractiveness effects as a basis for discrimination in hiring policies, and the social consequences of perpetuating unfair stereotypes in advertising.
APPENDIX A

Recruiting Form

B.A. 650 STUDENTS: EARN EXTRA COURSE CREDIT BY PARTICIPATING IN A ONE-HOUR STUDY:

If you have about one hour of spare time during the next week beginning Tuesday April 15 thru Friday April 18, you can earn 4 BONUS POINTS to your grade in B.A. 650 by participating in an important—and interesting—study dealing with mass communications.

Location: The Ohio Union, BUCKEYE Suite E

Length of Session: ONE Session of approximately 50 minutes.

When: Tuesday APRIL 15 through Friday APRIL 18
(You can choose the day and time period that's best for you)

If you are interested in participating in this study, please complete the bottom portion of this form and return it to me before you leave.

In the table below, please indicate with an "X" the time periods for EACH OF THE FOUR DAYS during which you are FREE to participate in the study. Please check the times you are available for all four days, as this will make for more flexible scheduling. Based on this information, we will assign you to a time slot that will not conflict with your other engagements.

On Wednesday, April 9, a schedule will be posted outside Prof. Blackwell's office (Nagerty 328). Please check this schedule and make a note of the session to which you have been assigned. It is extremely important that you appear for your appointed session on time.

Any questions concerning your session: Call Benoy Joseph 297-0360

------------------------------------------------------------------------
Fold and tear along line

| Name: ____________________ | Social Security #: _______ |
| Local Address: ____________ | Telephone: ____________ (home) |
| __________________________ | __________________________ |
| A.M. | P.M. |

| TUESDAY APR 15 | 10-11 | 11-12 | 12-1 | 1-2 | 2-3 | 3-4 | 4-5 | 5-6 |
| WED' DAY APR 16 |        |       |   |     |     |     |     |     |
| THURS. APR 17 |        |       |   |     |     |     |     |     |
| FRIDAY APR 18 |        |       |   |     |     |     |     |     |

240
APPENDIX B

Layout of Testing Room

Screen

Chairs

Tables

Cassette Tape Recorder

Carrousel Slide Projector
APPENDIX C

Questionnaire

THE OHIO STATE UNIVERSITY

April, 1975

Dear Participant:

Thank you for agreeing to participate in this study on mass communications.

The study is divided into two parts. The first part is the questionnaire attached to this letter which asks for information about yourself. You can be assured that in no way will your name be identified with your responses. This information is for statistical sampling purposes only.

After this questionnaire has been completed and returned, we would like you to view and evaluate a short slide presentation. Your responses will make it possible to better understand how people perceive and form impressions from what they see and hear in the mass media.

It is extremely important that you answer all the questions. But do not spend too much time on any one question. When you're not sure what to answer, select your best guess. There are no right or wrong answers to the questions.

Again, thank you for participating in this study.

Sincerely,

W. B. Joseph,
Project Director
PART I

A. The following questions ask for information about yourself. This information will help us to know if the participants in our study are representative of the students at Ohio State.

1. Sex: _____male _____female

2. What is your age? _____

3. In what year of college are you?
   _____freshman _____junior _____graduate student
   _____sophomore _____senior _____unclassified

4. What is your department or college?
   _____University College _____Arts and Sciences
   _____Administrative Science _____Social Work
   _____Agriculture _____Allied Medical
   _____Education _____Professions
   _____Home Economics _____Engineering
   _____Other: (please specify)

5. Based on a maximum possible point average of 4.0, what is your present cumulative grade point average?
   _____

6. In an average week day (Monday through Friday), approximately how many hours of television do you watch per day?
   _____none at all _____3 to 4 hours/day
   _____less than 1 hour/day _____4 to 6 hours/day
   _____1 to 2 hours/day _____6 to 8 hours/day
   _____2 to 3 hours/day _____more than 8 hours/day
7. In an average weekend, approximately how many hours of television do you watch per day?

CDF 1

20

___ none at all  ___ 3 to 4 hours/day

___ less than 1 hour/day  ___ 4 to 6 hours/day

___ 1 to 2 hours/day  ___ 6 to 8 hours/day

___ 2 to 3 hours/day  ___ more than 8 hours/day

8. Please indicate how important it is to you that a television show satisfy you on the characteristics listed below by circling the number that best corresponds to your feelings. The higher the number, the more important is the characteristic to you in what you consider to be a satisfying television show; the lower the number, the less important is the characteristic to you.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action-packed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suspenseful</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>People you can identify with</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personally involving</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educational</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Informational</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Well-produced and directed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Well-known TV personalities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humorous</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entertaining</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
B. The following statements reflect people's opinions. They are not right or wrong, but just opinions. Please show how well each of these statements of opinion fits in with your views or feelings by putting a number on the line to the left of each statement.

If the statement fits with your opinion ... 

<table>
<thead>
<tr>
<th>Statement</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>I always try to practice what I preach.</td>
<td>5</td>
</tr>
<tr>
<td>I like to take a chance.</td>
<td>4</td>
</tr>
<tr>
<td>In the long run, people are responsible for bad government on a national as well as local level.</td>
<td>3</td>
</tr>
<tr>
<td>I don't like to talk to strangers.</td>
<td>2</td>
</tr>
<tr>
<td>The unusual gift is often a waste of money.</td>
<td>1</td>
</tr>
<tr>
<td>I enjoy looking at new styles as soon as they come out.</td>
<td>5</td>
</tr>
<tr>
<td>I never resent being asked to return a favor.</td>
<td>4</td>
</tr>
<tr>
<td>People are lonely because they don't try to be friendly.</td>
<td>3</td>
</tr>
<tr>
<td>Buying a new product that has not yet been proven is usually a waste of time and money.</td>
<td>2</td>
</tr>
<tr>
<td>Often the most interesting and stimulating people are those who don't mind being original and different.</td>
<td>1</td>
</tr>
<tr>
<td>Capable people who fail to become leaders have not taken advantage of their opportunities.</td>
<td>0</td>
</tr>
<tr>
<td>I would like a job that required frequent changes from one kind of task to another.</td>
<td>0</td>
</tr>
<tr>
<td>If people would quit wasting their time experimenting, we would get more accomplished.</td>
<td>0</td>
</tr>
</tbody>
</table>
Please put a number next to each statement to show if it fits with your views.

<table>
<thead>
<tr>
<th>Extremely</th>
<th>Very</th>
<th>Fairly</th>
<th>Not</th>
<th>Not Well</th>
</tr>
</thead>
<tbody>
<tr>
<td>well 5</td>
<td>well 4</td>
<td>well 3</td>
<td>well 2</td>
<td>at all 1</td>
</tr>
</tbody>
</table>

14. ______ I have never said something to deliberately hurt someone's feelings. 44
15. ______ By taking an active part in political and social affairs, people can control world events. 45
16. ______ If I got an idea, I would give a lot of weight to what others think of it. 44
17. ______ I like to try new and different things. 43
18. ______ In hunting for the best way to do something, it is usually a good idea to try the obvious way first. 44
19. ______ I like to wait until something has been proven before I try it. 44
20. ______ My table manners at home are as good as when I eat out in a restaurant. 50
21. ______ People like me can change the course of world events. 44
22. ______ When it comes to taking chances, I would rather be safe than sorry. 45
23. ______ How many friends you have depends on how nice a person you are. 44
24. ______ I like people who are a little shocking. 55
25. ______ When I see a new brand on the shelf, I often buy it just to see what it is like. 55
26. ______ I feel that too much money is wasted on new styles. 55
27. ______ I am sometimes irritated by people who ask favors of me. 55
28. ______ I often try new brands before my friends and neighbors do. 55
29. ______ I enjoy being with people who think like I do. 55
30. ______ The average citizen can have an influence in government decisions. 60
Please put a number next to each statement to show if it fits with your views...

<table>
<thead>
<tr>
<th>extremely</th>
<th>very</th>
<th>fairly</th>
<th>not</th>
<th>not well</th>
</tr>
</thead>
<tbody>
<tr>
<td>well 5</td>
<td>well 4</td>
<td>well 3</td>
<td>well 2</td>
<td>at all 1</td>
</tr>
</tbody>
</table>

31. _____ At work, I think everyone should work on only one thing thereby becoming more of an expert.

32. _____ I like to experiment with new ways of doing things.

33. _____ I have never intensely disliked anyone.

34. _____ In the long run the usual ways of doing things are best.

35. _____ People's misfortunes result from the mistakes they make.

36. _____ Some modern art is stimulating.

37. _____ I like to fool around with new ideas even if they turn out later to be a total waste of time.

38. _____ Today is a good day to start a new project.

This completes the first part of the study. Please check over the questionnaire to be sure you have answered ALL THE QUESTIONS COMPLETELY, but please do not change any of your answers. Thank you.
PART II

The following sections are concerned with your reactions to the film excerpt. Please read all instructions carefully and answer ALL of the questions.
C. We are interested in getting your overall impression of the film excerpt that you have just seen. The following statements refer to the SLIDE PRESENTATION. Please indicate how well each statement fits with your overall impression of the presentation by circling the number that best describes your feeling. The higher the number, the more the statement fits in with your impression of the presentation. If the statement fits with your impression of the presentation:

- extremely well........circle 5
- very well...............circle 4
- fairly well.............circle 3
- not well................circle 2
- not well at all.........circle 1

1. The male announcer sounded very authoritative. 5 4 3 2 1
2. The presentation held my interest. 5 4 3 2 1
3. The announcer's commentary about today's college students is largely inaccurate. 5 4 3 2 1
4. Film that is unedited looks authentic. 5 4 3 2 1
5. The scenes shown of the Ohio State University campus were appropriate for the commentary. 5 4 3 2 1
6. The tape-recorded portion of the presentation was easy to follow. 5 4 3 2 1
7. The student interviewed in the film was interesting to listen to. 5 4 3 2 1
8. Overall, the presentation maintained a lively pace. 5 4 3 2 1
D. Now, a few questions concerning how you feel about various aspects of university life that were discussed in the film excerpt. As in the preceding section, please indicate how well each of the statements fits in with your view by circling a number from 5 (if the statement fits with your view extremely well) to 1 (if it does not fit well at all).

<table>
<thead>
<tr>
<th>The statement fits with my view: extremely</th>
<th>very</th>
<th>fairly</th>
<th>not</th>
<th>not well</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>well</td>
<td>well</td>
<td>well</td>
<td>at all</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number</th>
<th>Statement</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Today's college student is really no different from his counterpart of the sixties.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Today's university students are more serious about their studies than students were in the sixties.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Regardless of the course, I usually am concerned about performing well on a test.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>On the whole, I like multiple choice tests.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Essay exams allow you to demonstrate how well you've understood the material.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>For an important examination, I would prefer essay questions over multiple choice questions.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>You can usually score higher on a multiple choice test than you can on an essay test.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>I feel safe with essay exams.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>In general, I prefer multiple choice exams.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>I believe that students should be given the freedom to choose the type of test that they want to take.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
E. The following statements or questions relate directly to the slide presentation that you saw a few minutes ago. Please answer each question using only the information that was provided in the presentation.

Please put an "X" in the box next to the alternative that best corresponds to the information contained in the presentation.

1. According to the male announcer, how does today's undergraduate differ from his counterpart of the sixties?
   - [ ] Today's undergraduate is more politically conservative.
   - [ ] He is less likely to take his college education for granted.
   - [ ] He is better informed.
   - [ ] There are no fundamental differences, according to the announcer.

2. In what year of college is the female student who is seen in the presentation?
   - [ ] Freshman
   - [ ] Sophomore
   - [ ] Junior
   - [ ] Senior
   - [ ] Graduate Student
   - [ ] I cannot recall

3. The female student argues that with multiple choice tests:
   - [ ] You can get partial credit for answers that are partly right.
   - [ ] You can usually guess the right answer.
   - [ ] The wording can be ambiguous.
   - [ ] It's easier to give the instructor what he wants.
   - [ ] I cannot recall the student's argument.
4. According to the female student, one disadvantage of essay tests is that:
   - [ ] They can be confusing and ambiguous.
   - [ ] They don't really test you on what you know.
   - [ ] You either get full credit or you get nothing at all.
   - [ ] They take longer to grade.
   - [ ] No disadvantage is mentioned.

5. According to the announcer, the female student in the film is employed part-time as a
   - [ ] waitress
   - [ ] statistician
   - [ ] social worker
   - [ ] keypunch operator
   - [ ] secretary
   - [ ] I cannot recall

6. What is the name of the student?
   - [ ] I cannot recall
   - [ ] First name ______________________ Last name ______________________

7. The student describes one type of test question that she really dislikes. Can you recall, from the film, what her description of this question is? Briefly reproduce as many of her exact statements as you can recall.

   ______________________________________________________
   ______________________________________________________
   ______________________________________________________

8. According to the student, what kind of test are you less likely to flunk? What specific reasons does she give to support her view?

   ______________________________________________________
   ______________________________________________________
   ______________________________________________________
People tend to form impressions about other people even if they have never seen them or heard them speak. You have, both, seen and heard the female speaker as she appeared in the short excerpt from the documentary. We would like to know what your impressions of this speaker are.

The following statements consist of viewer impressions of the FEMALE COLLEGE STUDENT who was interviewed in the film clip that you have seen. Please show how well each of these statements fits in with YOUR impression of her by circling the number that best describes your feeling.

If the statement fits with your opinion:

- extremely well......circle 5
- very well...........circle 4
- fairly well.........circle 3
- not well............circle 2
- not well at all.....circle 1

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I think she is quite pretty.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2. I think she could be a friend of mine.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3. I have confidence in her ability to get the job done.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>4. She would be a poor problem solver.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>5. It would be difficult to meet and talk with her.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>6. I find her very attractive physically.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>7. She and I seem to have much in common.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>8. We could never establish a personal friendship with each other.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>9. She is a typical goof-off when assigned a job to do.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>The statement fits her:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>--------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>extremely</td>
<td>very</td>
<td>fairly</td>
<td>not</td>
<td>not well</td>
</tr>
<tr>
<td></td>
<td>well</td>
<td>well</td>
<td>well</td>
<td>well</td>
<td>at all</td>
</tr>
<tr>
<td>10.</td>
<td>She is somewhat ugly.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>11.</td>
<td>If I wanted to get things done, I could probably depend on her.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>12.</td>
<td>I don't like the way she looks.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>13.</td>
<td>Overall, she seems more dissimilar to me than similar.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>14.</td>
<td>She just wouldn't fit into my circle of friends.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>15.</td>
<td>She is very sexy looking.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>16.</td>
<td>I would like to have a friendly chat with her.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>17.</td>
<td>I couldn't get anything accomplished with her.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>18.</td>
<td>I think her opinion reflects the viewpoints of most OSU students.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>19.</td>
<td>She seems unsure of herself.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>20.</td>
<td>She looks very much the typical OSU student.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

**G.** We are interested in the degree of accuracy with which you can estimate the female student's academic ability.

In my estimate, the student's cumulative grade point average (out of a possible 4.0) is _____.
H. Please show how well each of the following words describes the FEMALE SPEAKER you have seen and heard by assigning a number (from 1 to 5) in the space to the left of each word. If you feel the word fits the speaker:

- extremely well......put a 5 in the space
- very well............put a 4 in the space
- fairly well...........put a 3 in the space
- not well................put a 2 in the space
- not well at all........put a 1 in the space

11 1. _____ closed-minded
2. _____ experienced
3. _____ aggressive
4. _____ irritating

15 5. _____ friendly
6. _____ ignorant
7. _____ hesitant
8. _____ outgoing
9. _____ knowledgeable

20 10. _____ timid
11. _____ unqualified
12. _____ honest
13. _____ irrational
14. _____ popular

25 15. _____ unsophisticated
16. _____ believable
17. _____ wishy-washy
18. _____ active
19. _____ happy

30 20. _____ snobbish

Thank you for completing this questionnaire. Please check over the questionnaire to be sure you have answered all of the questions completely, but please do not change any of your answers. Thank you.
Behavioral Intention Scale

PERSONAL OPINION SURVEY

SUBJECT: Examinations in Undergraduate Business Courses

_____ male  _____ female  Year in College: ___Frosh; ___Soph; ___Jr.; ___Sr.

What is your major in college? __________________________ Your Grade Pt. Aver? ____

Please read each of the following items and check only ONE of the alternatives that best applies to you.

1. Based on my experience with college examinations, I've generally found it to be more difficult to perform well in:

_____ essay exams  _____ multiple choice exams

_____ I've found no differences between the two types of exams.

2. In business courses, when both essay and multiple choice tests were given, I generally performed better in exams that had:

_____ only essay questions  _____ both essay and multiple choice questions

_____ only multiple choice questions  _____ I found no difference between the two types of exams.

3. For a new marketing course such as sales management, I would prefer the following type of test for a midterm or final examination:

_____ ALL multiple choice questions  _____ ALL essay questions

_____ MOSTLY multiple choice and __________ essay questions

_____ MOSTLY essay questions and some multiple choice questions

_____ about half multiple choice and half essay questions

4. For an established marketing course like B.A. 650 (basic marketing), I would prefer the following type of tests for a midterm or final examination:

_____ ALL multiple choice questions  _____ ALL essay questions

_____ MOSTLY multiple choice and __________ essay questions

_____ MOSTLY essay and some multiple choice questions

_____ about half multiple choice and half essay questions

5. Ideally, how many short quizzes should there be in a course like B.A. 650? _____

6. Ideally, how many midterm examinations should there be in a B.A. 650? _____

Thank you for participating in this survey.
Postexperimental Questionnaire

MARKETING COMMUNICATIONS STUDY

Comments & Reactions

We are interested in your comments and reactions to the mass communications study in which you have just participated. This information will help us to improve the study and check on the validity of our research procedures.

1. Do you know the female student who was interviewed in the film?
   ____ YES  ____ NO

2. Did you recognize anybody in the film strip whom you know?
   ____ YES  ____ NO

3. Briefly, how would you describe the purpose of this study to someone who is interested in knowing more about the study?

4. Please write out any thoughts, comments or suggestions that you have pertaining to any portions of the session in which you participated today. Thank you for your cooperation.
Delayed Measure of Behavior and Attitude

MIDTERM EXAMINATION

April 23, 1975

B.A. 650
Dr. Blackwell
Mr. Walton

Please check the box next to the type of midterm examination that you prefer. You may choose between an examination with all essay questions and one with all multiple choice questions. Please complete the rest of this questionnaire and be sure to sign your name to this form before you return it.

For the first midterm examination April 23, 1975, I would prefer the following type of test:

_____ ALL ESSAY QUESTIONS

_____ ALL MULTIPLE CHOICE QUESTIONS

Your Name (Please Print) __________________________

Social Security #: ______________________________

Your Signature

This portion of the questionnaire is an opinion survey only. This information will be useful in improving the organization of future courses in introductory marketing.

For a midterm or final exam, if I could choose between an essay test, multiple choice test, or a combination of both, I would choose:

_____ all multiple choice questions

_____ mostly multiple choice and some essay questions

_____ about half multiple choice and half essay questions

_____ mostly essay and some multiple choice questions

_____ all essay questions

Should team projects be introduced in B.A. 650? _____ YES _____ NO

The ideal enrollment for a section of B.A. 650 should be _____________.

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APPENDIX D

A Note on Response Format of the FIts Scale*

A common source of response error lies in the form of scale used. Personality scales conventionally use a balanced Likert agree-disagree response format while scales used in describing or rating objects vary more widely from the semantic differential bipolar format to the so-called thermometer scale using percentages.

Nunnally (1967) has reviewed the literature on this topic. In general, changes in format produce only minimal effects on internal consistency. However, it is likely that the optimum combination of several features will produce a desirable degree of robustness in the valid response variance. For this reason a scale was devised that offered a combination of design characteristics based on the following set of assumptions growing out of the wide literature on measurement.

1. The scaling procedure should not entail any more assumptions than necessary about the structure of the perceiver's world.

The word "assumption" is critical. Where the perceiver's implicit structure used for responding to aspects of situation or self being investigated is known, then building this knowledge into the response form is undoubtedly effective. But by the same token, when the operating framework is not known, a fallacious structure can be dangerously misleading.

This implies that a bipolar format should be avoided except where previous research has clearly shown that the investigator's poles

*Adapted by permission from Leavitt, C., & Walton, J. The innovative person and time of adoption. Division of Research Working Paper Series, College of Administrative Science, The Ohio State University, Columbus, Ohio, 1974, pp. 64-66.
are the same as those of the subject of investigation. The same is true for paired-comparisons where the complete set is not used. In a word, monadic scaling is desirable.

2. Some aspects of structure are universal.

These include three main things. First of all, it is desirable to label each step in a scale (Wells, 1960) and certain words seem to have satisfactorily general agreement as to intensity. Second, people can make better discriminations than they think they can and, therefore, the neutral category may add more to error than to truth (i.e., when respondents are forced by the absence of a middle category to make a discrimination of more or less, they will be right much of the time). Third, judgments are skewed toward target concepts and the negation of the scale descriptors should be less differentiated than the assertion of the descriptor (the positive end) and these scales should be unbalanced. Thus, the ideal scale would be unbalanced, lacking a middle point, and each interval would have verbal anchors.

3. An objective set is more resistant to all kinds of response bias.

One way to avoid unnecessary subjectivity is to ask respondents to characterize statements as similar or dissimilar to their own position without interposing the superfluous act of agreement or disagreement with its interpersonal implications. A statement or item can fail to fit the respondent's view without necessarily being actively disagreed with. The statement "I feel thoughtful" may be an apt description of a respondent's feelings or it may not. If not, it is not necessarily accurate to say that he disagrees with it; it may be merely irrelevant. Asking for agreement or disagreement facilitates response errors such as yea-saying and social approval.

The final form of the "fits" scale is a resultant of the considerations outlined. It is a five-step scale with the following anchors:
5 extremely well
4 very well
3 fairly well
2 not well
1 not well at all

The respondent places a number beside each statement to describe how well it fits his own views. Unpublished research by the senior author has shown that these anchors provide a good approximation to equal intervals.

Thus, the instrument scales salience within the domain rather than agreement or overall evaluation.
APPENDIX E

Open Processing Scale
(Leavitt & Walton, 1976)

Items Comprising the Open Dimension

1. I like to take a chance.
2. I enjoy looking at new styles as soon as they come out.
3. Often the most interesting and stimulating people are those who don't mind being original and different.
4. I would like a job that required frequent changes from one kind of task to another.
5. I like to try new and different things.
6. I like people who are a little shocking.
7. When I see a new brand on the shelf, I often buy it just to see what it is like.
8. I often try new brands before my friends and neighbors do.
9. I like to experiment with new ways of doing things.
10. Some modern art is stimulating.
11. I like to fool around with new ideas even if they turn out later to be a total waste of time.
12. Today is a good day to start a new project.

Items Comprising the Cautious Dimension

1. I don't like to talk to strangers.
2. The unusual gift is often a waste of money.
3. Buying a new product that has not yet been proven is usually a waste of time and money.

4. If people would quit wasting their time experimenting, we would get more accomplished.

5. If I got an idea, I would give a lot of weight to what others think of it.

6. In hunting for the best way to do something, it is usually a good idea to try the obvious way first.

7. I like to wait until something has been proven before I try it.

8. When it comes to taking chances, I would rather be safe than sorry.

9. I feel that too much money is wasted on new styles.

10. I enjoy being with people who think like I do.

11. At work, I think everyone should work on only one thing thereby becoming more of an expert.

12. In the long run the usual ways of doing things are best.
APPENDIX F

Internal Consistency of Scales

Internal consistency was computed using the Spearman-Brown Prophecy formula (Nunneley, 1967, pp. 191-194):

\[ r_{kk} = \frac{k \bar{r}}{1 + (k-1) \bar{r}} \]

where,

- \( r_{kk} \) = internal consistency or reliability
- \( \bar{r} \) = average inter-item correlations among all items in scale
- \( k \) = number of items in scale
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