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Dress and Human Behavior

A Review and Critique

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The purpose of this article is to present a comprehensive review and analysis of published research that investigated relationships between the dress of an individual and how that dress affected others' behavior toward the individual. Existing published research was analyzed to determine the types of behaviors investigated, the types of dress manipulations, whether dress had a significant effect, theory used to guide the research, and who the participant population was in the research. Research methods were also reviewed. Sources of data were 93 studies published from 1955 to 2004. Researchers overwhelmingly investigated helping behavior. The most frequently operationalized concepts using dress manipulations were labeled "dress," "status," and "attractiveness." Researchers using dress or attractiveness or attire as the primary dress manipulation did not necessarily control for other dress variables (e.g., makeup, hair-style) in their research. Most of this research was not guided by theory.

Keywords: *behavior; dress; method; operationalization; theory*

Damhorst (1990) identified the usefulness of assessing the progress of a field of study to plan future directions and facilitate theory building. Researchers interested in social psychological aspects of dress have published articles that analyzed research in the field (Damhorst, 1990, 1991; Davis, 1984; Hutton, 1984; Kummen & Brown, 1985; Lennon & Davis, 1989a, 1989b). In these reviews, the literature reviewed primarily focused on dress and its effect on impression formation or person perception.¹ These authors did not typically include studies that addressed the actual behavior of

wearers or observers evoked by dress, or if they did, there was no analysis of this literature (e.g., Kummen & Brown, 1985). Rather, what was reported was a summary of research findings.

Research exists demonstrating that dress affects behavioral responses. In these studies researchers typically manipulate the dress of an individual and measure the behavior or behaviors evoked in others.² For example, Nash (1977) documented that dress influences subsequent human behaviors. Observing runners' interactions, he noted that runners had a well-developed

language of clothes and body movement that resulted in a judgment concerning how to behave toward that runner (e.g., pass by, greet, or converse with). When two runners dressed alike they engaged in an extended conversation as opposed to a short nonverbal greeting that occurred among runners that dressed differently from each other. In other research, dress has been found to affect donations (Chaiken, Derlega, Yoder, & Phillips, 1974) and petition signing (Bryant, 1975; Chaiken et al., 1974). Experimenters who are formally dressed (e.g., suits) have their personal space invaded less (Fortenberry, MacLean, Morris, & O'Connell, 1978) than those who are casually dressed (e.g., jeans, T-shirts, sneakers). Geffner and Gross (1984) found experimenters were obeyed significantly more often when wearing a uniform than when not wearing a uniform. Bickman (1974) also found that when dressed in a guard's uniform, an experimenter influenced behavior of bystanders more than when dressed in conventional clothing.

The relationship between dress and subsequent behavior is often debated in the popular press. For example, articles have discussed the effects of school uniforms on student behavior (Evans, 1996; Gendron, 1996) and the effects of casual dress codes on employee behavior (Araneta, 2001; Cummins, 2004; Lazarowitz, 2004). In the absence of research evidence, people may be asked to make policy decisions based on anecdotal information or even personal biases. Although research evidence makes clear that information conveyed by dress cognitively affects observers (e.g., their impression of the wearer; Damhorst, 1990; Johnson, Schofield, & Yurchisin, 2002; Nisbett & Johnson, 1992; Workman & Johnson, 1991), there is less research evidence that dress affects observers' behaviors although such research exists (e.g., Bickman, 1974; Chaiken et al., 1974; Fortenberry et al., 1978; Kim & Lennon,

2005). In these studies, researchers have frequently used experimentation to show that dress manipulations, that is, changes in dress, affect other's behavior toward that individual. In this research, our purpose was to track, comprehensively review, and critically evaluate published research for demonstrations of the effects of dress on human behavior. Thus, we did not include research in our sample that asked respondents to retrospectively guess at the effects of their dress on how others' respond to them. In our review, we document the use of theory in this body of research, what was studied, along with how it was studied. This review is helpful to graduate students and faculty interested in pursuing research on dress and behavior, as it provides a synthesis of available research on the topic and an identification of gaps in the research.

For our purpose, dress was defined as "an assemblage of body modifications and/or supplements displayed by a person in communicating with other human beings" (Eicher & Roach-Higgins, 1991, p. 15). This definition includes any purposeful manipulation of the body including, but not limited to, the following: clothing, accessories, cosmetics, hair styling, facial hair, tattooing, and other types of additions done for many purposes including adorning or grooming the body.

Our analysis focused on research that addressed the behavioral response of one individual to the dress of another individual. We limited our study to research in which the dependent variable was some type of observable human action. Our data set did not include studies in which the dependent variable was observers' inferences concerning others' personality or attitude as a function of dress, nor did it include behavioral intent. Our data set was analyzed to determine the types of behavior or behaviors investigated, the concepts operationalized using dress, whether dress had a significant effect on

that behavior, and descriptions of the participant population. Research methods were reviewed in terms of the dress manipulations researchers used to operationalize concepts and to determine which concepts evoked what types of behavior. Furthermore, research was analyzed to determine the methods of inquiry used, whether appropriate procedures had been reported (e.g., random assignment of participants to experimental conditions), data analysis techniques employed, and whether theoretical perspectives had been presented.

Theories, Models, and Other Evidence Suggesting That Dress Affects Human Behavior

There is theoretical reasoning in addition to empirical evidence suggesting that dress influences human behavior, although we find no theory that explicitly isolates dress as a factor that affects behavior. In this section, we offer three perspectives that can be used to frame research about dress and human behavior: symbolic interaction, Livesley and Bromley's (1973) model of impression formation, and the S-O-R model (Mehrabian & Russell, 1974). In addition to these three perspectives, Nagasawa, Hutton, and Kaiser (1991) offer an overarching paradigm, the S-O-R paradigm, as a framework for generally integrating social science models used to study clothing and human behavior. As such, the S-O-R paradigm subsumes the three perspectives offered here, but does not limit its focus to behavior evoked by dress which is our focus.

Symbolic Interaction

Symbolic interaction has its roots in sociology and has been used to frame thinking about what effect dress might have on the

behavior of self and others. Interactionists believe that individuals make the experiences that they live in (Denzin, 1992), by behaving toward things in terms of the meanings these things have for them (Blumer, 1969). These meanings "come from interaction and are shaped by the self-reflections that people bring to their situations" (Denzin, p. 25). Symbolic interaction, the merger of self and social interaction, is the chief means "by which humans are able to form joint acts" and it is these behaviors that comprise "the social life of a human society" (Blumer, 1981, p. 153). These behaviors might be verbal or nonverbal. These behaviors, especially if nonverbal, might constitute observable human action which is the focus of our study.

Interested in dress and other aspects of appearance, clothing and textile researchers have sought to understand how dress serves as a communication tool and plays a role in the establishment of personal identities. Gregory Stone (1962), in a classic statement about the role of appearance in social interaction, noted that an array of information (e.g., identity, values, moods, attitudes) could be inferred from the dress of another. Using a symbolic interactionist approach, Stone argued that appearance is the "phase of the social interaction which establishes identifications of the participants" (p. 90). Appearance communicates our social identities because people have negotiated and attached meaning to dress cues such that specific cues are linked with specific identities. For example, religious identity may be inferred from a necklace with a cross or a Star of David; the gender identity of infants is often expressed in the color of their clothing (Shakin, Shakin, & Sternglanz, 1985). Stone hinted at the possibility of dress affecting perceivers' behaviors. However, he stopped short of an actual discussion of how or when dress affected the actual behaviors of either the wearer or the observer.

Impression Formation

Livesley and Bromley (1973) suggested that the dress of an individual could affect another's behavior toward that individual. These psychiatrists theorized that impression formation occurs in a temporal sequence involving four phases. During the first phase the perceiver selectively perceives information that is available about another, noticing cues that have some personal relevance or significance. For example, the perceiver may look at an individual's hair length. In the second phase the perceiver infers personal characteristics of the target person based on the cues selected. A man with long hair may be perceived as more liberal than a man with a shaved head. During the third phase the perceiver infers other attributes the person might possess. For example, a perceiver uses hair to infer an individual is liberal. For the perceiver there may be a close association between liberalness and generousness so that generousness serves as an extended inference that is attributed to the liberal individual as well. In the fourth phase, the inferred information is integrated to form a basis for responding to the other person. Livesley and Bromley did not elaborate on the type of responses that might result during this phase. We suggest "responses" could be mental (i.e., thoughts) and behavioral reactions to the person, the focus of our study.

S-O-R Model

Mehrabian and Russell's (1974) S-O-R model, based in environmental psychology, explains how environments affect behavior and can be used to explain how dress affects behavior, because dress can be construed as a micro environment for the body. According to these authors research in environmental psychology has focused on the effect of things in the physical environment

on emotions (e.g., pleasure, arousal, dominance) and on a variety of approach-avoidance behaviors. The model indicates that stimuli (S) in the environment influence the organism (O) which in turn evokes a behavioral response (R). Researchers (Eroglu, Machleit, & Davis, 2001) have modified the model to include cognition in addition to the emotional states suggested by Mehrabian and Russell as part of O. Because dress stimuli are part of our social environment, it seems plausible to adopt the S-O-R model to explain how dress stimuli affect behavior. In fact, Lennon and Davis (1989a) suggested that impressions (O) as a function of dress (S) affect behavioral responses (R) to target persons. For example, when an individual views someone in creative and pleasing dress, he or she may experience positive affective responses that, in turn, may influence approach behavior (e.g., standing close, staying around). In contrast, when a person views someone in uncreative and unpleasing dress this may evoke negative affective responses that may in turn result in avoidance behavior (e.g., stay away from the person). In sum, these perspectives only suggest that dress could affect behavior.

Other Evidence

In some situations people think that others respond to them as a function of their dress. For example, in research studying appearance-related teasing,³ the respondents are typically asked to recall the extent to which they were teased and how it affected them. Respondents often recall teasing and frequently attribute that teasing (response) to some aspect of their appearance to which others are responding (Schwartz, Phares, Tantleff-Dunn, & Thompson, 1999; Stormer & Thompson, 1996). Although this line of research certainly suggests that people are teased as a behavioral response to their

dress, because the research is retrospective, that is, people are asked to recall instances of teasing, that recall is subject to memory bias. This type of research could probably not be conducted in an experimental setting because of Institutional Review Board concerns. However, it does provide evidence that people often subjectively infer that their appearance has affected others' behaviors.

The belief that one's dress has the potential to affect the behavior of others is the basis for case law in the United States and U.S. Courts have ruled in ways that affirm this belief.⁴ One case in particular focused on appearance-related harassment without using that term. In *EEOC v. Sage Realty Corp.* (1981), a female employee was given a very revealing bicentennial ensemble to wear in her job of lobby attendant (Rothstein, Craver, Schroeder, Shoben, & VanderVelde, 1994, p. 481). When wearing the outfit, she was harassed by building visitors who made sexual propositions, gestures, and lewd comments. The court hearing the case (District Court for the Southern District of New York) held that the employer should have foreseen that the outfit would lead to sexual harassment. Thus, the teasing literature and the case law example demonstrate that people believe dress affects human behavior in a commonsense way, even when it has not been manipulated in a controlled setting. In addition, some researchers (e.g., Bickman, 1974; Nash, 1977) have demonstrated relationships between dress and human behavior.

Related Literature

Davis (1984) outlined research that she perceived to have the greatest value in the development of the area of clothing and human behavior. In her review, she drew from studies published between 1928 and 1982. Davis included research involving relationships

between clothing and impression formation, and actual behavior. Relevant to our study are her observations concerned with the effects of clothing on the physical behavior of others. Davis did not operationally define the concept of clothing, but researchers she included in her review operationalized clothing to include uniforms and specific clothing styles, such as neckties. Field experiments were the predominant research method utilized. Theoretical orientations employed included role theory, social power theory, similarity-attraction theory, and personal space. The dominant clothing stimulus was uniforms. Behaviors investigated included helping, time spent speaking, injuries, compliance, and deference (i.e., invasion of personal space) behavior.

Hutton (1984) content analyzed 300 clothing-related research articles. She did not consider research that dealt with physical attractiveness unless clothing was manipulated, nor did she include articles that focused on other types of dress manipulations, such as makeup. She classified the research by topic, one of which was impression formation. Under this category she included "studies attempting to determine how others *reacted to* [italics added] a wearer of a particular type of attire" (p. 346). This suggests that research demonstrating behavioral responses to others' clothing was included in this category. Hutton also noted that concepts manipulated by dress were not well defined; in addition, manipulations were often not clearly described. In more than half of the research, a theoretical framework was neither provided nor implied.

Kummen and Brown (1985) reviewed the research on the effects of clothing on the perception of personal attributes, the effects of clothing cues on behavior, and person-clothing interactions. In research concerned with behavior, Kummen and Brown identified four concepts that were investigated via clothing manipulations: status, deviance,

smartness and tidiness of dress, and formality. They noted “clothing can be selected to . . . influence behavior toward the wearer” (p. 143). They concluded that clothing affects “both the attributions made of individuals and the resulting behavior that is directed to them” (p. 143).

Lennon and Davis (1989a) presented theoretical perspectives from social cognition and noted connections with research in clothing and human behavior, with the goal of interpreting extant clothing and human behavior research within those perspectives. Although most of their review focused on the relationship between dress and mental activities (social perception and social cognition), Lennon and Davis acknowledged relationships between clothing and human behavior. In their discussion of object variables, a category that would subsume dress, the authors noted a group of studies that had investigated the impact of social perception as a function of dress on subsequent behavioral responses.

Method

To examine the research on dress and subsequent human behavior, we conducted a content analysis. Content analysis is a nonreactive research strategy “for making inferences by objectively and systematically identifying specified characteristics of messages” (Holsti, 1969, p. 14). According to Paoletti (1982), content analysis produces quantitative data from verbal or nonverbal communication. Using these definitions, content analysis can be applied to any type of communication and it is not unusual for researchers to assess progress in a field using a content analysis of research journals (e.g., Hutton, 1984; Lennon, Burns, & Rowold, 1995; Montgomery & Richey, 1975; Myers, Massy, & Greyser, 1980).

Sources of Data

Our data set was intended to include all published journal articles focused on human behavior and dress. The sources of data were 93 published studies published in journal articles between 1955 and 2004.⁵ Regardless of what the researcher or researchers labeled as the variable they studied (e.g., dress, clothing, attire, apparel, appearance, attractiveness, member status), in each of these articles some manipulation of dress was used to operationalize the concept under investigation. All of the dress manipulations were presented to participants on a human body.

The following indexes were searched for published research on dress and human behavior using 109 keywords: Psych Info, Expanded Academic Index, Clothing and Textile Arts Index, and World Textiles.⁶ Some appropriate studies may be missing because, as Damhorst (1990) noted, researchers using dress stimuli do not always label their variable as dress, clothing, or appearance. Thus, not all studies involving dress manipulations may appear in indexing and abstracting services. A complete list of published research used as data for our study is available from the first author.

Coding

Data were coded to determine the following: types of behavior or behaviors investigated, the concepts operationalized by dress manipulations, whether dress had a significant effect on the behavior investigated, whether dress interacted with other independent variables to have an effect on behavior, the stated theory used to guide the research, the participant population in the research, and data analysis technique. Characteristics of the research method were also coded, such as stimulus sampling.

Stimulus sampling occurs in experimental research when more than one stimulus person is used for each condition (Fontenelle, Phillips, & Lane, 1985). Other characteristics coded included randomization and manipulation checks for stimuli developed.

To meet our research objectives, we recorded each specific type of behavior under investigation (see Table 1). We coded whether dress had a significant effect on behavior as “yes” if the dress variable was significant at the $p \leq 0.05$ level of alpha. We looked for common themes across types of behavior. For example, behaviors such as giving directions, giving change, or lending money all were categorized as helping behavior (see Table 2). Concepts under investigation were identified from the labels the researchers used to describe them (see Table 3). How each concept was operationalized by dress was listed for each study (see Table 3). We coded what behaviors were investigated in relations to the dress concept (see Table 4) and whether other independent variables were under investigation in addition to those operationalized by dress (see Table 5). Theoretical perspective was coded as “present” if the authors indicated the name of a specific theory, if the authors briefly explained the theory, and if the authors used the theory either to describe the relationship between two or more variables or to predict the behavioral effects caused by the dress stimuli (see Table 6).

The participant population sampled in each study was coded along with participant sex. Methods of inquiry were recorded using categories outlined in Lennon, Johnson, and Park (2001). These categories were fieldwork, nonreactive research, survey methodology, experimentation, or a combination of any of these. Specific statistical procedures were coded according to the name of the procedure (e.g., chi-square, simple correlation).

Results

Preliminary Analysis

Although we located one study published in 1955, the largest number of studies in our data set was published during the 1970s, with 35.2% of the entire data set published between 1971 and 1975 and 24.2% published between 1976 and 1980. In the 1980s, we located an additional 33% of our data and 6.6% of the studies coded were published since 1990.

Because the topic of dress and how it affects human behavior is of importance to many clothing and textile researchers, we anticipated that we would locate some studies in journals that were closely associated with the field of clothing and textiles (e.g., *Clothing and Textiles Research Journal*, *Family and Consumer Science Research Journal*). However, the research studies we located were almost exclusively published in journals associated with the fields of psychology and sociology. The bulk of studies (51%) were published in three journals: *Psychological Reports*, *Journal of Social Psychology*, and *Journal of Applied Social Psychology*.

Research Methods Employed

Two types of research methods were used in these studies. These methods were experimental (93.4%) and fieldwork (5.6%). Generally, the approach used was to vary the dress of an individual (the perceived) and assess the subsequent impact on the behavior of others (perceivers) at a single point in time. Stimulus sampling was used in 34.4% of the studies. The majority of the studies in which stimulus sampling was used (63%) were published in the 1970s, with 28% published in the 1980s and 1% published between 1990 and 2004. Reports that participants were randomly assigned to

Table 1
Operationalization of Behavioral Variables

Type of Behavior Investigated	Actual Behavior Measured	Number of Studies
Helping	Give money to a stranger	10
	Give directions	4
	Pick up a hitchhiker	3
	Number of times help was offered	3
	Motorist yielding to allow person to cross	1
	Give money to charity	1
	Give a cigarette	1
	Help a stranger's ill friend	1
	Make change for a dime and help with a shopping cart	1
	Help with car trouble	1
	Help someone who fell	1
	Mail a letter for confederate	1
	Helped by librarian	1
	Sell product for less than full price	1
	Obedience	Sign a petition
Listen to and answer questions		4
Put dime in parking meter		4
Participate in research		3
Donate money to charity		2
Respond to request		2
Pick up a paper bag, give dime to stranger, and move away from bus stop		1
Accept a leaflet		1
Avoid crosswalk		1
Violate signal		1
Invasion of interaction territory	Assertiveness	1
	Distance away from confederate, number of looks, speed of participants	7
	Walk around or between groups of people	2
	Initial distance and number of interactions	1
	Number of touches	1
Disclosure	Length of interview and openness	4
	Anxiety level, amount of disclosure	1
	Supply name and address	1
Aggression	Patient destroying property, leaving the unit, administering self-punishments, refusing medication	2
	Delinquent behavior	2
	Verbal aggression	1
	Number of assaults and number of times arrest resisted	1
Customer service	Salesperson approaching customer	3
	Service priority given by salesperson	1
	Treatment received and receipt of a business card	1
		1
Honesty	Report crime	2
	Dime returned to phone booth	1
	Took extra candy or money	1
Gaze	Time participant looked	2
	Amount of time participant looked at slides	1
Patient behavior	Behavior of patient	1
Dating	Response to advertisement for date	1

Table 2
Type of Behavior Investigated and Effect of Dress

Behavior Investigated (Dependent Variable)	Number of Studies	Dress Had Effect	Dress Had No Effect
Helping	30	24	6
Obedience	27	20	7
Invasion of interaction territory	11	11	0
Disclosure	6	6	0
Aggression	6	5	1
Customer service	5	4	1
Honesty	4	4	0
Gaze	3	3	0
Patient behavior	1	1	0
Dating	1	1	0
Total	93	79	15

Table 3
Dress Manipulation Used to Create Dress Concept

Concept	Dress Manipulation ^a	Number of Studies
Dress	Poorly dressed and well dressed	8
	Level of formality (formal vs. casual)	6
	Well dressed vs. casually dressed	1
	Conventional dress vs. casual dress	1
	Necktie and no necktie	1
Status	Level of formality (formal vs. casual)	7
	Uniform	3
	Occupation (student, priest, or businessman)	1
	Poorly dressed and well dressed	1
Attractiveness	Conventional and nonconventional dress	1
	Attractiveness and unattractiveness	5
	Physical appearance and grooming	2
	Level of tidiness	1
Appearance	Makeup and hairstyle	1
	Height, eye color, weight, hair color	1
	Hippy and conventional	5
	Neatly vs. casually	1
	Fashionable vs. unfashionable	1
Attire	Level of formality	1
	Well dressed vs. poorly dressed	1
	Level of formality	3
	Hip vs. conventional	3
	Well dressed vs. poorly dressed	1
	Level of tidiness	1
	Manipulation of dress (with or without bra)	1

(continued)

Table 3 (continued)

Concept	Dress Manipulation ^a	Number of Studies
Similarity	Straight vs. hippie	3
	Member similarity	1
	Neat vs. sloppy	1
	Conventional vs. deviant	1
Uniform	Uniform vs. nonuniform	4
	T-shirts in different size and color	1
Clothing	Manipulate of dress	1
	Well dressed vs. poorly dressed	1
	Police uniform (style differences)	1
	Clothed vs. bathing suit	1
Authority	Use of uniform	3
	Civilian vs. guard	1
Physical deviance	Hip vs. straight	1
	Not handicapped vs. handicapped	1
Stereotype	College student, hippie, factory workers	1
	Pregnant vs. nonpregnant vs. stigmatized	1
Body type	Body build	2
Other		
Hair length	Short vs. long	1
Deindividuation	Halloween costume vs. no costume	1
Group membership	Polo vs. punk	1
Perfume	Use vs. nonuse of perfume	1
Visibility	Bright vs. dark color	1
Sex role	Masculine vs. feminine	1
Strength	Well dressed vs. casually dressed	1
Hair color	Hair color	1
Birthmark on face	With or without birthmark	1
Sex and apparel	Bathing suit vs. clothing	1
Facial disfigurement	Disfigured vs. not disfigured	1

a. Operationalization of variable by researchers.

conditions were found in only 17 experimental studies. In addition, in only four studies did researchers report they conducted manipulation checks on their operationalization of the dress variables.

In these studies data were analyzed using a variety of statistical techniques including chi-square tests, analysis of variance, *t*-tests, correlation, regression, *z*-tests, descriptive statistics, *d*-statistics, and Mann-Whitney *u*-tests among others. The most commonly used techniques were chi-square (45.3%) and analysis of variance (42.1%).

Types of Behavior Under Investigation

The one behavior that received a great deal of research attention was helping behavior (see Table 2). Helping behaviors were studied using a wide range of concepts and were present in the largest number of studies (see Table 4). Helping behavior was measured in 15 different ways (see Table 1).

Four other frequently investigated behaviors were obedience, invasion of interaction

Table 4
Types of Behavior Investigated

Concept Investigated (Independent Variable)	Type of Behavior Being Investigated (Dependent Variable)	Number of Studies
Dress	Helping behaviors	6
	Obedience	6
	Disclosure	2
	Customer service	2
	Honesty	1
Status	Interaction territory	6
	Obedience	2
	Disclosure	2
	Honesty	1
	Aggression	1
Attractiveness	Customer service	1
	Helping behavior	6
	Gazing	2
	Aggression	1
Appearance	Made a date	1
	Obedience	5
	Helping behavior	2
	Customer service	1
	Honesty	1
Attire	Obedience	5
	Helping behavior	2
	Customer service	1
	Disclosure	1
Similarity	Helping behavior	3
	Obedience	2
	Interaction territory	1
Uniform	Aggression	3
	Obedience	1
	Patient behavior	1
Clothing	Helping	2
	Aggression	1
Authority	Interaction territory	1
Physical deviance	Obedience	4
	Obedience	1
Stereotype	Disclosure	1
	Helping behavior	2
Body type	Interaction territory	2
Hair length	Helping behavior	1
Deindividuation	Honesty	1
Group membership	Obedience	1
Perfume	Helping behavior	1
Visibility	Helping	1
Sex role	Helping	1
Strength	Helping behavior	1
Hair color	Helping behavior	1
Birthmark on face	Helping behavior	1
Sex and apparel	Gazing	1
Facial disfigurement	Interaction territory	1

Table 5
Independent Variables (IVs) Under Investigation in Addition to Dress

Type of IV Under Investigation With Dress	Percentage of All Studies	IV Interact With Dress to Affect Behavior	No Impact
Sex	48.0	31	8
Race	7.4	4	2
Surveillance	1.2	0	1
Distance apart	1.2	1	0
Eye gaze	1.2	1	0
Locality	1.2	1	0
Age	7.4	6	0
Feminist orientation	1.2	1	0
Location (store or city type)	8.6	6	1
Social status (socioeconomic, religion)	6.2	4	1
Level of self-concept	1.2	1	0
In-group vs. out-group	1.2	1	0
Traffic sign	1.2	0	1
Language	1.2	1	0
Marital status	1.2	1	0
Size of group (alone vs. with group)	4.9	4	0
Type of activity	1.2	1	0
Time of the day	2.5	1	1
Total	100.0	66	15

Table 6
Theoretical Perspectives Employed in Research

Theory Referenced by Author	Author of Research Article	Date
Personal zone boundaries	Bouska and Beatty ^a	1978
	Dean, Willis, and Hewitt ^a	1975
	Fortenberry, MacLean, Morris, and O'Connell ^a	1978
	Walker and Bordon ^a	1976
Social power	Bickman ^a	1974
	Wasserman and Kassinove ^b	1976
Symbolic interaction	Kaiser, Rudy, and Byfield ^a	1985
Cognitive development	Kaiser, Rudy, and Byfield ^b	1985
Social influence	Walsh ^b	1977
Goals, GRASP theory of communication	Lennon and Davis ^a	1989b
Reinforcement	Hensley ^a	1981
Social impact	Jackson and Latané ^a	1981
Social comparison	Keasey and Tomlinson-Keasey ^a	1973

a. Theory was supported by the data.

b. Theory was not supported by the data.

territory, disclosure, and aggression. These behaviors were operationalized in a variety of ways. For example, helping behavior was operationalized frequently by having participants interact with strangers and give the strangers money or directions (see Table 1).

Dress Concepts Under Investigation

Dress had significant effects on the behavior of others in 85.3% of the studies. The most frequently investigated concepts were labeled "dress" (18.1%), "status" (13.8%), and "attractiveness" (10.6%; see Table 3). Researchers using dress or attractiveness or attire as the primary dress manipulation did not necessarily control for other dress variables (e.g., makeup, hairstyle) in their research.

Patterns emerged in the ways in which appearance was manipulated to convey the variable under investigation. For example, the dress concept was primarily operationalized by presenting a neat versus sloppy appearance or by varying the level of formality (e.g., formal vs. casual). Similarity was operationalized rather consistently by changing the appearance of a stimulus person from "straight" to "hippie" (see Table 3). In these studies similarity was operationalized as clothing similar to normative dress. As many of these studies took place in the 1970s, dissimilar in most cases meant appearing like a hippie.

Status and dress as labeled by the researchers were the concepts investigated with the widest range of behaviors. These behaviors included helping behaviors, obedience, and invasion of interaction territory. Status was used primarily to investigate invasion of interaction territory, whereas dress was used to investigate helping behaviors and obedience (see Table 4).

Participants

The majority of researchers (73.5%) used adults as participants. Of the studies with adult participants, the largest number (62.8%) reported a data collection technique consisting of approaching random people in public places (e.g., shoppers, pedestrians, sales associates). The participants were not necessarily aware until after the experiment had been completed that they had participated in a research study. This type of research would be difficult to gain approval by the institutional review board for use of human participants today. Most of these studies reflected first contact situations or anonymous encounters. College students were used in 19.1% of the studies. Adolescents and children were used infrequently (7.4%). Two of the studies involving minors also included adults as participants. Other participants were described as neighborhood residents, housewives, hospital patients, police assailants, and servicemen.

The highest percentage of researchers (64.9%) used both male and female participants for their research. Only a few researchers (8.5%) used only males or only females (6.4%). Interestingly, several researchers (20.2%) did not report the sex of their participants.

Independent Variables Under Investigation With Dress

The majority of the researchers (86%) investigated dress in combination with another variable. In the majority of these studies, the other independent variable was sex of participant. The combination of dress and sex of participant significantly interacted to affect behaviors of others in 31 studies. Other variables frequently investigated with dress were location, race, and age. In the majority of these studies, each variable in

combination with dress significantly interacted to affect behaviors (see Table 5).

Theoretical Perspectives Employed

Authors of 13 of the 93 studies reported some use of theory in conducting their research. The work in the area of dress and human behavior was not dominated by any one theoretical approach. Personal zone boundary theory was the most frequently used. Of those authors who reported their use of theory, the emphasis of the theory was to explain or predict something about behavior rather than to understand how dress evokes behavioral responses. The majority of the theories utilized were supported (see Table 6).

Discussion and Conclusions

The bulk of the published work on the topic of how dress affects human behaviors appears, at least as evidenced by where it was published and by the authors' departmental affiliation, to have been conducted by researchers outside the field of clothing and textiles. It is also possible that researchers in clothing and textiles were doing work on the topic during this time but chose not to publish their work in journals. Interest in the topic peaked during the 1970s and 1980s as evidenced by the number of publications during this time period. Because research is affected by funding, one possible explanation for why these types of studies are not being conducted now is that the topic may not be fundable through grant agencies.

Research is also affected by the social issues of the times. In the spirit of President Kennedy's "Ask not what your country can do for you" speech and the Peace Corps ethos of the 1960s and 1970s, young people in the U.S. were very altruistic. Thus, helping behaviors may have been investigated for that reason. At the same time the Civil

Rights movement in the U.S. was garnering a lot of media attention and causing people to consider whether or not they were judging others on surface level physical characteristics. Thus, documenting whether or not dress was stimulating discriminatory behaviors would have been important.

The frequently reported research method for investigating relationships between dress and behavior was quantitative using experimental designs. The research method used both enables and constrains our understanding of relationships between dress and human behavior (Burns & Lennon, 1993; Lennon et al., 1995). The study of dress and human behavior can be approached from many perspectives. Instead of relying almost exclusively on quantitative techniques, qualitative approaches to research that capture the complexities of behavior related to dress could be considered. One method that has clear application for understanding relationships between dress and human behavior is ethogenic research (Harre, 1997). This approach is concerned with interpreting not only the observed behavior of individuals, but also individuals' verbal explanations accounting for their behaviors (Burns & Lennon, 1993).

A methodological issue that deserves mentioning, especially with the apparent reliance on experiments in this body of work, is that of stimulus sampling. When research utilizes a single stimulus model or develops a single dress manipulation and measures the effects on a dependent variable, the results cannot be generalized to other stimulus models or other dress manipulations. Stimulus sampling is a way to improve the external validity of experimental research or to make it generalizable. As with other types of research we could make it generalizable by random sampling, or we could make it generalizable by using multiple instances of dress manipulations for each experimental

condition. Suppose we want to investigate the effect of uniforms on compliance with a request. This would require a uniform condition and a nonuniform (e.g., street clothes) condition. If the uniform fit the experimental confederate well, he might evoke compliance while wearing the uniform, not because of the uniform *per se*, but because of the fit of the uniform; whereas if the street clothes were large and baggy (because that is fashionable) he might not evoke compliance. In this example, the interaction between the experimental confederate and the dress manipulation might be causing the compliance, not the dress manipulation in and of itself. If there truly was an effect for wearing a uniform on compliance, the findings would be the same. In this instance, and in much of the research reviewed for this article, there is no way to tell which is causing the effect (the uniform or the interaction of the uniform with the confederate). So without using stimulus sampling, an effect for uniforms on compliance might be a function of the dress manipulation (that is what we would hope) or a function of an interaction between the dress manipulation and the specific experimental confederate.

To employ stimulus sampling we could use two different uniforms for the uniform condition (e.g., police uniform, military uniform) and two different sets of street clothes in the nonuniform condition. Ideally, experimental researchers would use both multiple instances of each dress condition and multiple experimental confederates. The use of stimulus sampling would then allow responses to be averaged over all dress manipulations within each condition. Using multiple experimental confederates, who would conduct the experiment in all dress conditions, it is possible to remove the effects of each specific confederate from the data by using confederate as a factor in the experimental design. Unfortunately, from

the design of many of the published studies used for this research it is impossible to disentangle these kinds of effects (Davis & Lennon, 1988; Fontenelle et al., 1985).⁷ As we move this research area forward, stimulus sampling is recommended for use in field and laboratory experiments.

Although numerous behaviors could have been investigated, the researchers focused primarily on helping behavior. We hypothesize that helping behavior was a frequent variable under investigation because dress is often marketed to individuals as a method to gain benefits in interactions with others in public places. Individuals are told that they can dress for success in the workplace and in social interactions with others. Therefore, it follows that there would be interest in determining whether dress helped individuals achieve certain goals in a variety of settings.

In the research process, it is necessary to link abstract concepts to the real world. The transition of a concept such as status into empirical terms is accomplished by formulating an operational definition. Operational definitions enable researchers to specify the activities involved in measuring the concepts. The end product of this process is the identification of real and observable things that give evidence of the concepts under study. No single operational definition can tap all of the diverse meanings of concepts. In other words, any concept can likely be measured in more than one way (Touliatos & Compton, 1988). Like Hutton (1984) we found that concepts were operationalized and measured in many ways. For instance, the concept of "status" was operationalized using five different types of dress manipulations. This is somewhat explainable because of the fashion element of dress. Dress is subject to change and how concepts such as status or similarity are communicated using dress during one time frame may be quite different from another.

Our analysis also revealed that sometimes among research studies two seemingly different independent concepts were operationalized the same way. For example, status and similarity as concepts were both operationalized using neat versus sloppy. This practice results in problems of construct validity. Construct validity is concerned with the degree to which an instrument measures the theoretical construct (Touliatos & Compton, 1988). To use the same operationalization to assess two different concepts limits our ability not only to build on a body of research but also to develop theory. However, dress is a complex communication system. It is quite possible and probable that any one form of dress can communicate multiple meanings. For example, a man dressed in a business suit can represent the concept of formality (vs. informality). The same suit also communicates a level of status and a level of fashionability. Perhaps the issue is whether studies using dress as a variable inherently have problems with construct validity that cannot be overcome.

Issues surrounding construct validity also illustrate the importance of pretesting stimuli to ascertain which concepts are being conveyed by experimental stimuli. Perhaps in a pretest, research participants could be asked to describe a stimulus in their own words. Little pretesting was reported in these studies. From what was reported, the researchers simply developed stimuli that they assumed were plausible manipulations of the concepts they were investigating (e.g., status or formality). Manipulation checks would also be useful in this context.

Another difficulty with building on this particular body of research is that although the aspect of dress that was frequently under investigation was clothing, manipulations were frequently confounded with other appearance variables such as makeup, hairstyle, cleanliness, facial expression, or

accessories making it difficult to determine the exact impact of the clothing variable. In addition, all too frequently researchers provided insufficient details (i.e., no photographs, no verbal descriptions) regarding the exact nature of the manipulation used to create the experimental stimuli, making replication of their research difficult if not impossible. Hutton (1984) also made these points in her analysis.

The authors of 13 of the 93 studies noted that the research they conducted was framed by, or tested, a theoretical perspective. There are some possible explanations for why authors did not indicate a theoretical foundation for their research. The first explanation is they did not have one. Perhaps their research question did not fit into any existing theoretical model they were familiar with or maybe they were focusing on developing theory rather than building on existing theory. The second explanation is that these authors used theory to guide their research but they did not share it with readers. Many of the journals that the articles were located in were applied journals. Perhaps editors and reviewers of this type of publication at this point in time did not insist that theoretical perspectives be outlined and shared.

Suggestions for Future Research

Diversity in participant populations and stimulus persons is needed when assessing the effects of dress on behavior. Research participants were mostly adults in first contact situations. We know very little about the impact of dress on behavior over time or with diverse populations and in diverse settings. Future researchers could address the impact of dress on the behavior of the wearer. For example, understanding how children's clothing affects their own behavior

and the behavior of others toward them could provide empirical evidence either in support of or opposed to the use of dress codes in public schools as a means to control student behavior.

Kaiser, Rudy, and Byfield (1985) conducted one of the few studies on the impact of dress on one's own behavior. They studied the impact of masculine (pants) versus feminine (skirts) dress on young girls' play behavior. The girls' play behavior did not vary significantly when they wore pants as opposed to skirts. Although this finding suggests that young girls' clothing does not affect their play behavior, additional research could be conducted that examines the impact of clothing on behavior with children at different ages and in academic rather than play settings.

Another potential setting for investigating the impact of dress on one's own behavior is the workplace, especially in light of the switch to wearing casual as opposed to professional clothing. Research by Adomaitis and Johnson (2005) revealed that when airline employees wore casual dress not only did the employees' behavior become casual but others' behaviors toward the employees also became casual. This change in behavior affected the job performance of these airline employees.

Of the theories that were used to frame research on dress and human behavior, the emphasis of the theory often was to explain, predict, or understand something about behavior rather than something about dress. Emphasis of these authors appears only to be on whether dress had an effect and not on how or why dress affected behavior. Additional research focusing on how or why dress affects behavior can contribute to theory development. Using the S-O-R model could make a significant contribution along these lines. In particular, it would provide a framework for determining if dress affects behavior directly

or indirectly through some internal cognitive (e.g., impression formation, assignment of meaning) or affective process.

Shortcomings in the research that formed our data set are primarily relevant for experimental research. Random assignment to treatments should be controlled and reported. When operationally defining concepts via dress manipulations, stimuli might be pretested prior to an experiment. People from the same participant population as the experiment could be asked to explain the meaning of various dress stimuli. This procedure is advisable to develop unambiguous operationalizations. Manipulation checks after the experimental treatment should be used to verify that the appropriate concepts have been conveyed. The use of stimulus sampling is also strongly suggested. Finally, a clear articulation of the theoretical framework used by future researchers would contribute to theory development in clothing research.

Notes

1. See Damhorst (1990) for a review of the literature from this perspective.
2. The individuals whose dress is manipulated are confederates of the researcher and have also been referred to as experimenters (McGovern & Holmes, 1976; Schiavo, Sherlock, & Wicklund, 1974; Suedfeld, Bochner, & Wnek, 1972).
3. See Thompson, Heinberg, Altabe, and Tantleff-Dunn (1999) for a review. In this body of literature, appearance usually means some aspect of the body but occasionally refers to clothing.
4. See Lennon, Johnson, and Schultz (1999), Lennon, Schulz, and Johnson (1999), or Maher and Slocum (1986, 1987) for additional examples of how, in courtroom situations, people believe that dress affects the behavior of others.
5. Not included in the data set were research findings published in proceedings of professional meetings, theses, dissertations, and books or book chapters.
6. Use of World Textile Abstracts provided a means to find articles in journals such as the *Clothing*

and *Textiles Research Journal* beyond the termination of the Clothing and Arts Index.

7. Replications of research using different research participants but the same stimuli would not solve this issue, although replications of research using different stimuli might help. However, because replication studies are difficult to publish as stand-alone articles, it may be wise for researchers to routinely incorporate stimulus sampling into their research.

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