

RACE AND GENDER EFFECTS ON CONSUMER IDENTIFICATION OF PRODUCTS WITH CELEBRITY ENDORSERS

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This study attempts to measure the influence of race and gender on respondent's abilities to correctly identify celebrities and the products they endorse. This study differs from previous research in that it considers the race and gender of both endorsers and respondents. Students at two universities, one predominantly white and the other predominantly black, were shown pictures of twenty-four celebrities and asked to identify the celebrity and a product he or she endorsed. Loglinear models were fitted to each of the seventeen data sets for which at least ten percent of the respondents correctly associated the endorsers with their endorsed product. Analysis of these data show race and gender are almost always inconsequential in terms of predicting the ability of respondents to recall the association between product and endorser. There is, however, a positive relationship between knowledge of the endorser's name and association of the endorser with the product he (she) endorses. In some cases race and sex do affect the proportion of respondents who know the celebrity by name. Here, the racial "in-group" effect appears to be more frequent and somewhat stronger than the corresponding gender "in-group" effect.

INTRODUCTION

In 1996 a twenty-year old multi-racial golfer, who had not yet earned one dollar in professional tournaments, signed five-year endorsement contracts for sixty million dollars (Smith 1996). The "Coming of the Tiger" emphasizes the growing incidence of celebrity endorsements in general, and those of sports figures in particular. The tremendous success of Tiger Woods, as evidenced by the estimated \$75 million he earned in 2001 endorsement income (Green 2001), along with the continued popularity of Michael Jordan, would indicate that companies such as Nike have made sound decisions by investing in the celebrity of these sports stars. At the same time, however, we observe commercials featuring lesser known celebrities and must question their value as endorsers. That is, do the consumers know who these

people are and do they associate the brands with the endorsers?

In recent years academic researchers have focused a considerable amount of attention on three topics related to advertising. These are the effects of race, gender, and celebrity spokespersons on consumers' perceptions of advertisements. This study attempts to integrate these three areas by investigating the effects of the race and gender of endorsers and respondents on the ability of respondents to correctly identify and associate celebrity endorsers with the products they endorse.

As our following review of the literature illustrates, there is a very large number of possible questions of interest which can be legitimately raised in connection with the use of celebrity endorsers. The nature of the product and the perceived relationship between the product and celebrity endorser are important. Similarly, the relationship, if any, between the formation of an intent to purchase (or actual purchase) and the endorsement by a celebrity may be

the object of study. Here, our objectives are more modest. One probable indication of a link between the celebrity endorsement and a subsequent purchasing decision regarding a product is the ability of the consumer to associate the product with the celebrity endorser. Of course, it is possible that attention is drawn to a product by the presence of the celebrity in an advertisement, but only the product information contained in the ad is retained and used in subsequent decisions, while the product-celebrity linkage is forgotten. It is equally true that recall of the celebrity-product association may *adversely* affect the later purchase decisions. But by and large, it seems clear that the ability of potential consumers to recall the association between the celebrity endorser and the brand endorsed would be regarded as a positive signal regarding the effectiveness of the celebrity endorsement. In this study, our interest is limited to testing whether this type of product/celebrity recall is affected by the race and/or the gender of the endorser. One contribution of this study is to conduct this test for the effects of race and gender *simultaneously*. A second contribution relates to the inclusion of a third, and possible intervening variable or path between race or gender and product/celebrity association. Presumably, the desired "celebrity" effect of an endorsement cannot be obtained if the celebrity-endorser is not known to the viewer of the advertisement. In this study, the celebrity is identified to the test subject through a photograph. If the subject can associate the photograph with the celebrity's name, then at least some knowledge of the celebrity status can be assumed. It seems important to try to separate the direct effects which race and gender may have on product/celebrity recall from any indirect effects which result simply from awareness of the celebrity status.

LITERATURE REVIEW

Race Effects

Blacks were seldom used in advertisements prior to the 1960s. In fact, from 1946 to 1965 less than one-third of one percent of some 150,000 magazine ads analyzed contained blacks (Kassarjian 1969). In the

period from 1970 to 1985, the portrayal of blacks in magazine ads increased from 4 percent to 8.6 percent (Stevenson 1989). As for television commercials, Wilkes and Valencia (1989) found an incidence of 26 percent for black models in major network prime time television commercials for a selected time period in 1984.

Possible differences between consumer perceptions of black versus white models in ads have been analyzed by researchers. Some studies have found that white respondents more favorably evaluate ads with white models than ads with black models (Kerin 1979; Cagley and Cordozo 1970) and that black respondents more favorably evaluate ads with black models than ads with white models (Kerin 1979; Schlinger and Plummer 1972). Yet other researchers have failed to find support for these differences (Bush, Gwinner and Solomon 1974).

More recently, Whittler (1989) found that not only did blacks favorably evaluate ads with black actors, but that black models also enhanced the likelihood of purchase intent among the black respondents. Just as significantly, Whittler found that while whites reacted more favorably to ads with white models, they did not react negatively to ads with black models. This conclusion was supported by previous research (Bush, Hair and Solomon 1979 and Schlinger and Plummer 1972). However, in a subsequent study Wittler and DiMeo (1991) obtained conflicting results. Here their findings indicated that whites had less favorable attitudes towards products and their advertisements if the ad featured black actors.

The differences between blacks and white responses to ad appeals with black and white models were also examined by Qualls and Moore (1990). Their study results supported In-Group bias theory which states that "stereotypical categorizations in which In-Group/Out-Group membership is based on race lead to evaluation in which In-Group members are perceived more favorably than out-group members" (p. 136).

Using ads with black celebrities, Williams and Qualls (1989) examined differences in responses to ads of

black respondents and white respondents based on socioeconomic status. Middle-class black respondents' (buppies) ad evaluations were not significantly different from those of yuppies. The researcher noted that the lack of significant difference in response between the yuppie and buppy groups does not suggest a decline in the ethnic identification of buppies. Deshpande and Stayman (1994) used distinctiveness theory to analyze strength of ethnic identification and the perceived trustworthiness of advertising spokespersons. Comparing the responses of Anglos and Hispanics in two cities, they found that members of minority groups believed ad spokespersons from their ethnic group to be more trustworthy than spokespersons from the ethnic majority. More recently, Kim and Kang (2001) identified significant differences between blacks, whites, and Hispanics in the influence of media and reference groups on their purchase decisions.

These research studies on black and white perceptual differences and In-Group bias theory suggest that black respondents would be more likely to recall products endorsed by black models, and white respondents would be more likely to recall products endorsed by white models. Although not tested, In-Group bias theory may also apply to gender differences. Females may be more likely to recall products endorsed by females and males may be more likely to recall products endorsed by males.

Gender Differences

A review of the literature dealing with gender differences in advertising reveals that the majority of these studies have analyzed the manner in which women and men have been depicted in advertisements. The general consensus of the several content analyses of magazine and TV ads is that women were being stereotyped as either sex objects or dutiful housewives (Courtney and Lockeretz 1971; Sexton and Haberman 1974; Vendatesan and Losco 1975; Courtney and Whipple 1983; Ferguson, Kreshel and Tinkham 1990). A recent study of gender roles in childrens' advertisements in the United States and Australia showed males as being more

knowledgeable, active, and aggressive than females (Browne 1998).

There is evidence, however, that today's major advertising agencies are making a conscious effort to project an image more in touch with the contemporary woman. The abandonment of the old stereotype has been heralded in trade and general interest publications (Sanderson 1990; Solomon 1992; Miller 1992; Fawcett 1993a, 1993b; Weir 1993; Leo 1993; Serafin 1994). Further evidence of this trend is offered by Klassen, Jasper and Schwartz (1993), whose study reported a decreasing incidence of the "traditional" portrayal of women in advertisements as does a study of gender roles in Japanese magazine advertisements (Ford *et al.* 1998).

There have been a variety of studies investigating the effect of gender and role portrayal on advertising effectiveness. Kenton (1989) concluded that respondents perceive men and women differently on factors such as fairness, prestige, and expertise, even when there is no objective difference in such factors as experience, intelligence, or rank. Likewise, Freiden (1984) found that male endorsers were rated more favorably than females on knowledgeable and informative factors. He suggests, "When in doubt, use a male endorser" (p. 40). In a related study, Debevec and Iyer (1986) concluded that the gender of the spokesperson was effective in altering the gender image of traditionally masculine and feminine products, but not for neutral products.

Several studies have compared the effectiveness of the old stereotype female portrayal with that of the modern woman (Leigh, Rethans and Whitney 1987; Jaffe and Berger 1988; Jaffe 1991). For the most part, these studies have concluded that the modern portrayal is most effective. Jaffe and Berger (1994) also analyzed the effectiveness of the two most prominent modern female role portrayals -- "Superwoman" v. the egalitarian image. Their study indicated that the egalitarian image, where husband and wife share household chores, is more effective.

While these studies of gender differences in advertising have covered a variety of topics, it

appears that none have been specifically devoted to a determination of the effect of gender on the ability of respondents to correctly associate brands with their celebrity endorsers. This topic is addressed in the study described below.

Celebrity Endorsers

The economic impact of celebrity endorsements has not been extensively studied. Agrawal and Kamakura (1995) utilized event study methodology to measure the economic impact of 110 celebrity endorsements. They found that the announcement of contracts with celebrity endorsers created excess returns of .44 percent for the sponsoring firms. Using similar methodology, Knowles, Mathur and Rangan (1997) estimated that Michael Jordan's return to the Chicago Bulls resulted in almost a two percent increase in the market value of the firms whose products he endorses.

On the down side, the trade press has chronicled the potential risk of using celebrities who have fallen from public grace (Miller 1991; Armstrong 1994; Fizdale 1997; Lipstye 1997). Further, an article in *Advertising Age*, reports the findings of a proprietary study of 5000 commercials that concludes "celebrity presenters have little positive impact on the persuasiveness of TV commercials" (Hume 1992, p. 20). In a more academic setting, Till and Shimp (1998) used an experimental design to measure the effects of negative information about fictitious and actual celebrities on attitude toward the endorsed brand. They found the negative information caused a decline in the attitude for the endorsed brand with the fictitious celebrity, but did not produce a significant decline in the case of the actual celebrity.

The majority of the academic research on celebrity endorsers has focused on brand recall, attitude toward the brand, and intent to purchase. (For a comprehensive review of this literature, see Erdogan 1999). Friedman and Friedman (1979) examined the effectiveness of endorser type -- celebrity, expert, or typical consumer -- in promoting three different types of products. The study found that the effectiveness of the endorser type depended on the product category. Specifically, the researchers concluded that celebrity

endorsers are most effective when there is a high degree of psychological or social risk associated with the product and when brand name recall is important.

Atkin and Block (1983) also found that celebrities were effective as endorsers. Their study indicated that celebrity endorsement created a more favorable product image and a greater intent to purchase the product than did ads with unknown endorsers. Furthermore, consumers identified the celebrity characters as "significantly more trustworthy and competent, and slightly more attractive" than non-celebrity endorsers (p. 60).

The effects on consumers of physical attractiveness of celebrity endorsers has also been examined (Kahle and Homer 1985). This study found that brand and product recall were higher for participants exposed to an attractive celebrity than when exposed to an unattractive celebrity. The data also revealed that women were able to recall more brands and more products than were men.

Endorser effectiveness was also examined by Burroughs and Feinberg (1987). These researchers studied the strength of memory linkage between products and endorser to assess spokesperson effectiveness. They discovered that products were more quickly identified as real products when a spokesperson's name was used as a prime or stimulus.

Several studies involving celebrity endorsers have been conducted by Michael A. Kamins. His 1990 article detailed the results of a study designed to test the effects of celebrity endorser attractiveness on selected variables such as brand attitude and purchase intent. The study found that endorser attractiveness was effective only for products that are perceived to enhance attractiveness. Kamins states that "These findings suggest that characteristics of a spokesperson interact with the nature of the product advertised..."(p. 11).

In two other related studies, Kamins also examined effects of celebrity endorsers on ad effectiveness. Kamins, *et al.* (1989) found that ads with celebrities

presenting a two-sided appeal, when negative as well as positive product attributes are mentioned, were more effective than ads with a one-sided appeal. Kamins (1989) found that not only did two-sided appeals by celebrities in ads result in enhanced customer purchase intent, but that celebrity appeal also enhanced brand attitude.

In both Kamins' articles (Kamins 1989; Kamins *et al.* 1989), celebrities were said to influence consumers through social influence. The use of celebrities as endorsers can affect two specific components of social influence: identification and internalization.

Identification occurs when an individual aspires to emulate a person or group and thus adopts the behavior of the other person or group. Individuals internalize when they "conform to the attitudes or behavior of others" (Kamins *et al.* 1989, p. 5). Consumers identify with celebrities because of the message or source. Effective ads, then, would be ones that use credible celebrities or messages.

Both Kahle and Homer (1985) and Kamins (1990) explain their study results by the "matchup" hypothesis and social adaptation theory. The matchup hypothesis suggests that "the message conveyed by the image of the celebrity and the message about the product ought to converge in effective advertisements" (Kahle and Homer 1985).

This hypothesis was tested by Misra and Beatty (1990) and Kamins and Gupta (1994). The results of their studies supported the matchup hypothesis as they found that brand effect was more favorable when there was congruence between the celebrity spokesperson and the product.

In a 1989 article, McCracken proposed a new model to explain the process of celebrity endorsement. The model contains three stages through which "meaning transfers" occur. In the first stage, the celebrity has certain characteristics or meanings associated with them from movie appearances, TV appearances, etc. The second stage occurs when the celebrity endorses a product. The characteristics or meanings associated with the celebrity are then transferred to the product

through the endorsement process. In the consumer's mind, the product is similar to the celebrity. The model is complete when the meaning is transferred from the product to the consumer by the consumer's purchase and use of the product.

The matchup hypothesis and McCracken's meaning transfer process are congruent. For McCracken, a celebrity endorsed product takes on the characteristics of the celebrity endorser in the mind of the potential consumer. If the product is not appropriately matched to the endorser, as specified by the matchup hypothesis, then the meaning of the message that is transferred to the consumer may not be effective.

Gender and race are an integral part of the consumer's perception of the celebrity. As such, they may affect the meanings transfer and matchup process, in turn, affecting the consumer's ability to associate himself with the celebrity and the product endorsed. No previous studies have been identified that examine the effects of the race and gender of the endorser and respondent on respondent recall of celebrity endorsements.

METHODOLOGY

Description of Respondents

The "respondents" providing the data for this study were undergraduate business classes at two universities. One university was predominantly black, while the other was predominantly white. The race and gender of the respondents providing 215 usable responses were as follows:

Black males	37
White males	72
Black females	59
White females	47

Demographic information on age, family income, highest educational attainment, and estimated time devoted to television watching was collected from the respondents. Due to the selection procedures, the sample is very homogeneous with respect to age (median age is 22 for all four subcategories) and

education ("some college"). Income and television consumption data are presented in Tables 1 and 2, respectively. Family incomes (not unexpectedly) differ between whites and blacks, primarily with respect to the percentage of respondents having "upper-middle class" family incomes (above \$65,000). Blacks (both male and female) report a noticeably higher number of hours devoted to television viewing each day than do their white counterparts. No attempt is made to control for such differences in the analysis.

Description of the Instrument and Dataset

After completing the demographic questionnaire, respondents were to asked to fill out a two-sided photographic instrument containing 24 small photographs of celebrity endorsers. The photographs show only the head and shoulders of the celebrity and give no information as to product (brand) endorsed. In fact, the photographs attempt to give a minimum of information on the endorsers' occupations or sources of renown. Below each photograph, the respondents were asked to indicate the celebrity's name (if known), and the product *brand* endorsed by the celebrity. The answers as to brand and celebrity name were scored as either correct or incorrect (including no answer or blank responses). Identification of the celebrity by *character portrayed* (e.g., "Kramer" for Michael Richards) was considered an incorrect answer. (Since the actual name was requested, some respondents knowing only the principal character portrayed by an actor might insert the name of the character while others with the same knowledge might leave the answer blank). Similarly, "generic" identification of branded products was considered an incorrect response. The occurrence of both these types of incorrect answers was minimal. A few endorsers were associated with more than one product in a widely disseminated advertisement, and *any* of these endorsed products identified was considered a correct answer.

From the questionnaires (including the photographic instrument) a set of data was obtained showing the counts of respondents cross-classified on four dichotomies:

1. Respondent Race (Same as Endorser, Different);
2. Respondent Gender (Same as Endorser, Different);
3. Celebrity Name (Correct, Incorrect); and
4. Product Identification (Correct, Incorrect).

Thus the full set of data consists of respondent counts in each of 16 (2^4) categories for each of 24 celebrity endorsers. The count data for Bill Cosby, for example, would include 32 black males who correctly identified both the celebrity's name and the brand endorsed, while 10 white males correctly identified the celebrity's name but not the product endorsed, and so on.

Methods of Analysis

The respondent count data was analyzed using hierarchical log-linear models. A full discussion of the philosophy and methods of log-linear analysis may be found in Bishop, Feinberg and Holland (1975). For the data analyzed in this paper, the association between race and sex is fixed by the composition of the sample. Accordingly, this association is incorporated automatically in all models examined, and has no meaningful inferential interpretation. It does, however, reduce the degrees of freedom in the analysis. For each individual set of celebrity data, there can, in theory, be three kinds or "levels" of association between variables. Two-way interaction measures the association between two specific variables. For example, it might measure the association between race and product identification, e.g., perhaps the odds of a correct answer is greater (smaller) for respondents of the same (different) race as the endorser. Three-way interaction in a hierarchical model requires prior inclusion of the two-way interactions between each two of three variables *and in addition* a further joint effect of any two of the variables on the third. The three-way interaction terms can be interpreted as deviations from the two-way effects for particular combinations of the individual variables. Finally, in the *saturated* model there would be a single four-way interaction term (which presupposes the prior inclusion of all three-way effects). Even without three-way or higher

Table 1 Family Income by Race and Sex				
Income \$(000)	White Males	Black Males	White Females	Black Females
Less than 15	21%	17%	20%	12%
15 to 25	16%	14%	9%	28%
25 to 40	16%	36%	13%	28%
40 to 65	20%	17%	24%	23%
More than 65	27%	17%	35%	9%
	100%	100%	100%	100%

Table 2 Average Hours of TV Watched per Day				
Hours	White Males	Black Males	White Females	Black Females
Less than 2	28%	19%	49%	15%
2 to 4	63%	49%	36%	44%
4 to 6	6%	30%	15%	31%
More than 6	4%	3%	0%	10%
	100%	100%	100%	100%

interactions, there are 32 models involving only two-way interactions (and the independence model). Consequently, it is impractical to state formally a long series of individual hypotheses covering all cases that might be of interest.

For each endorser, we consider first the independence case (where the probability of correct answers for both product endorsed or celebrity name is independent of both race and gender as well as mutually independent). If the independence model is rejected at a 5 percent level of significance, the most *parsimonious* (in terms of parameters) model describing the data structure which cannot be rejected at the 5 percent level of significance is sought. Significance in all cases is assessed using the log-likelihood statistic which has a Chi-square distribution with degrees of freedom appropriate for the model in question. This "selection process" among models, while perhaps not, in general, sufficiently well-defined to identify a single model for all possible sets of data, required no further refinement for any of the cases analyzed here. There were no instances of competing models with an equal

number of parameters simultaneously satisfying the significance test. All data sets are adequately modeled without three-way or higher effects.

Results of Analysis

Table 3 is a list of the celebrity endorsers and the percentage of correct answers for each individual endorser. The list is arranged in descending order of correct product identifications.

The validity of the endorser choices as *celebrities* is indicated by the high proportion of correct name identifications. All celebrities are identified by name by at least 15 percent of the respondents and 16 out of 24 are identified by name by more than 50 percent of the respondents. As might be expected, the product association is in general much lower. Endorsers who were not correctly associated with their endorsed products by at least 10 percent of the respondents were eliminated from further analysis. This eliminates seven endorsers -- two black males, two white males, two black females, and one white female. Log-linear models were fitted to the data for the

remaining seventeen endorsers. The nature of each model (along with the celebrities corresponding to that model type) is depicted graphically in Figures 1 and 2. The lines connecting the boxes representing the categorical variables show significant two-way association between these variables.

Models 1 through 4 inclusive (Figure 1) represent 13 cases (76 percent of the sample) where knowing the celebrity's name is positively associated the correct identification of the product, but no *direct* effect of either race or gender on product identification is significant. In model 1, no other significant association exists. In other words, *given the association between knowing the celebrity's name and identifying the product*, there is no significant effect of either race or gender on either name or product. More endorsers (6) fall into this category than any other. Two are black males, and two are white females. Black females and white males are represented by one endorser each. In model 2, there is no direct effect of either race or gender on product identification. There is however a positive *racial* effect between race and name (the name of the endorser was correctly identified significantly more frequently by respondents of the same race). Interestingly, all endorsers in this category are female (2 black, 1 white). In models 3 and 4, there is an association between name and sex (model 3) or both sex and race (model 4). The four endorsers in these models are all male (2 white, 2 black).

Figure 2, on the other hand, contains the four models in which there was a *direct* effect between celebrity/brand recall and either sex or race. Of these, model 5 (for Hulk Hogan) is the *only* model in which there is no separate association between correct identification of celebrity name and product brand. Male respondents are more likely to correctly identify Hogan by name as well as make the correct product association. After the fact, it is easy to ascribe this model to the limited appeal of professional wrestling to women (one is tempted to say all rational persons), but this type of ad hoc conjecture is risky at best, and perhaps better left to the reader. For model 6 (Whitney Houston), in addition to the name/product effect there is an additional racial effect on

product/celebrity recall. Model 7 (Elizabeth Taylor) is similar except that in this model the additional product association is with sex rather than race. Apparently both Elizabeth Taylor and Whitney Houston are well known to both races and sexes in contexts other than as an endorser, but the products endorsed have a differential racial or gender appeal.

Model 8 has the curious pattern in which sex is associated with correct brand identification while race is associated with correctly identifying Candice Bergen by name.

Some technical details of the models are shown in Tables 4 to 7. Table 4 reports the "goodness of fit" statistics for the fitted model as a whole. The fit of a model is assessed in terms of the log-likelihood statistic (which has a Chi-square distribution). The table shows the degrees of freedom and the associated p-value as well for the model for each celebrity endorser. A model is considered an acceptable description of the data structure if the p-value is greater than .05. Tables 5 through 7 report some of the key parameters of the models and their significance. The maximum and minimum as well as the mean for each effect *across* models is also shown. For these statistics we show the transformation of the parameter into "odds" form as a method of assessing the effect size. Table 5 shows the sixteen of the seventeen cases in which correct identification of celebrity name is positively associated with correctly identifying the brand endorsed. This might be called the "celebrity effect": if a respondent knows who the endorser is then the chances of correctly identifying the product endorsed are substantially increased. Table 6 presents the same type of information for the seven cases where respondents of the same race as the endorser are more likely to correctly identify the *name* of the celebrity from the photograph. Table 7 lists the five cases where respondents of the same sex are more likely to correctly identify the *name* of the celebrity endorser. Taken together these parameters summarize the principal findings of the study.

Figure 1
Models 1 through 4

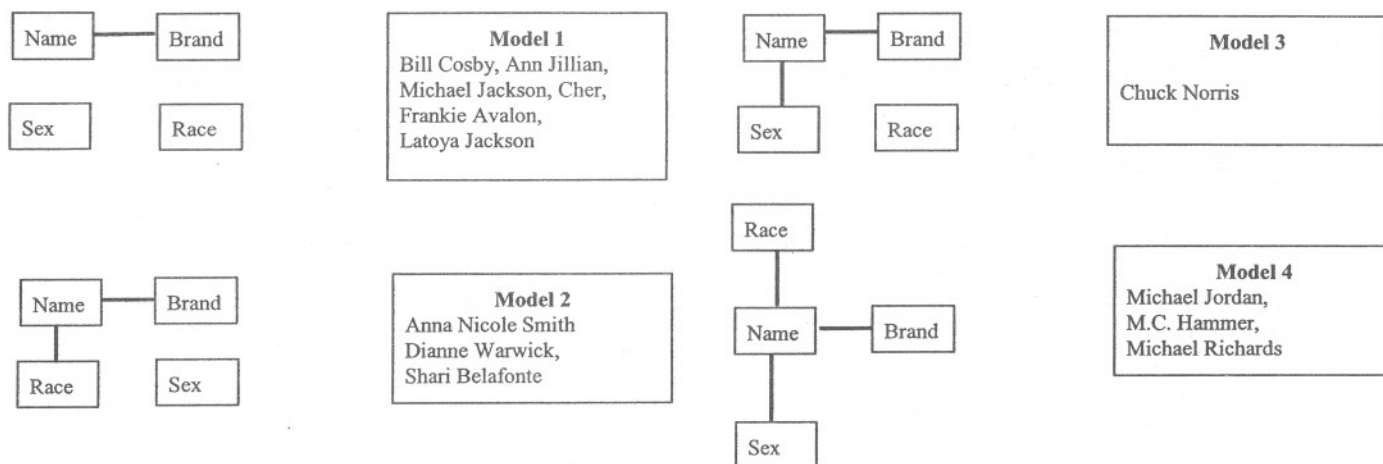


Figure 2
Models 5 through 8

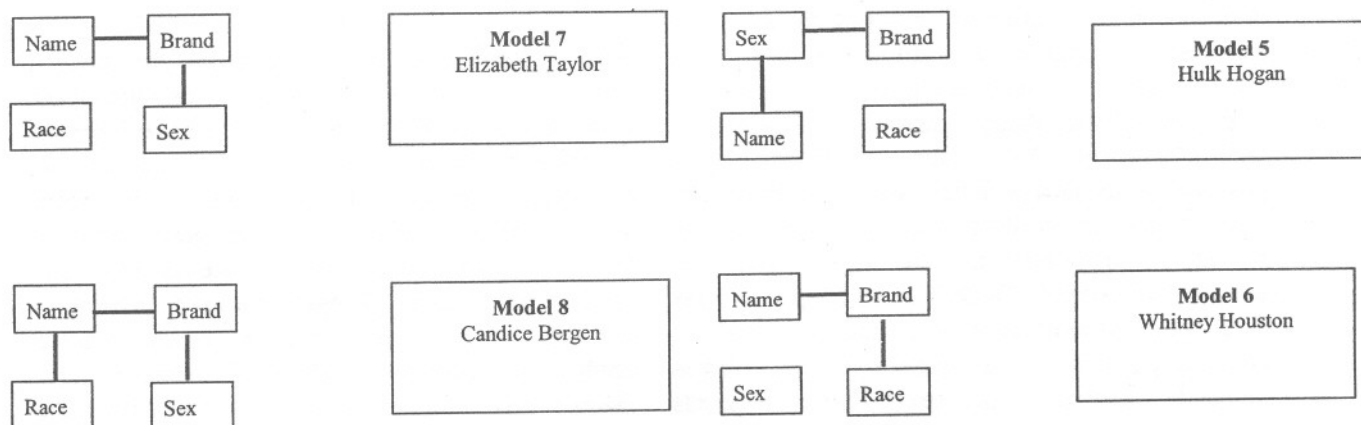


Table 3
Celebrity Endorsers with Percentage of Correct Identifications

Celebrity	Brand	Name
Bill Cosby	87%	98%
Michael Jordan	82%	92%
Michael Jackson	69%	95%
Whitney Houston	60%	90%
Dianne Warwick	53%	70%
Elizabeth Taylor	53%	74%
Candice Bergen	41%	51%
Farnkie Avalon	41%	35%
Chuck Norris	32%	73%
Shari Belafonte	32%	37%
M.C. Hammer	27%	76%
Ann Jillian	26%	31%
Anna Nicole Smith	19%	15%
Latoya Jackson	18%	68%
Cher	15%	80%
Hulk Hogan	15%	82%
Michael Richards	13%	17%
Stevie Wonder	5%	71%
Kelsey Grammer	4%	37%
Leslie Nielson	2%	31%
Vanna White	1%	84%
James Brown	1%	73%
Tina Turner	1%	66%
Dianna Ross	0%	60%

Summary and Overall Comments

It seems to us that for an extremely diverse group of endorsers (as to amount and source of celebrity), we found that race and gender are almost always inconsequential in terms of predicting the ability of consumers to recall the association between product and endorser. Knowing who the celebrity-endorser is, as evidenced by an ability to associate the endorser's picture with his (her) name, is almost always positively associated with the ability to associate the celebrity with the product endorsed. This seems to provide reinforcement for the use of celebrity-endorsers in general. Quite frequently, race and sex do affect the proportion of individuals who know the celebrity by name. In all these cases, the effect is uniformly positive in the sense that respondents correctly identify endorsers of the same race and/or gender more frequently than respondents of different races and/or genders. The racial "in-group" effect appears to be both somewhat more frequent and somewhat stronger than the corresponding gender "in-group" effect. This information would seem to be of

value in selecting celebrity endorsers for advertisements -- particularly those aimed at different audiences. It may be desirable to sample the intended audience to verify celebrity recognition prior to making major commitments of resources.

Several limitations and suggestions for further research may be noted. The most apparent limitation is the lack of diversity in age and education found in the student sample. This, however, could also be considered a strength of the study inasmuch it enables us to measure the effects of race and gender without having to control for differences in age and education of the respondents. Further research utilizing a nonstudent sample would provide opportunities to analyze any additional effects of these or other demographic variables which were not included in the present study.

Another research area that would be of interest is to focus attention on those cases where a majority of the respondents could correctly identify the celebrity but did not know the product endorsed. An understanding

Table 4
Overall Statistics for Fitted Models

Model	Celebrity	Degrees of Freedom	Likelihood Ratio	P-Value
1	Bill Cosby	9	8.36	.50
1	Michael Jackson	9	5.90	.75
1	Cher	9	15.76	.07
1	Ann Jillian	9	15.51	.08
1	Frankie Avalon	9	11.27	.26
1	Latoya Jackson	9	16.55	.06
2	Anna Nicole Smith	8	13.90	.08
2	Dianne Warwick	8	11.21	.19
2	Shari Belafonte	8	12.19	.14
3	Chuck Norris	8	13.43	.10
4	Michael Jordan	7	7.18	.41
4	M. C. Hammer	7	12.88	.08
4	Michael Richards	7	8.42	.30
5	Hulk Hogan	8	4.94	.76
6	Whitney Houston	8	11.16	.19
7	Elizabeth Taylor	8	8.55	.38
8	Candice Bergen	7	4.69	.70

Table 5
Association of Brand ID with Celebrity Name ID

Model	Celebrity	Parameter	Z - Value
1	Bill Cosby	.58	2.86
1	Michael Jackson	.60	3.24
1	Cher	.42	2.15
1	Latoya Jackson	.63	3.31
1	Frankie Avalon	1.05	8.54
1	Ann Jillian	.52	5.83
2	Anna Nicole Smith	.74	5.15
2	Dianne Warwick	.52	4.61
2	Shari Belafonte	.95	7.61
3	Chuck Norris	.71	3.33
4	Michael Jordan	.94	1.98
4	M. C. Hammer	.42	2.04
4	Michael Richards	.94	5.19
5	Hulk Hogan	.67	5.31
6	Whitney Houston	.60	3.76
7	Elizabeth Taylor	.68	5.67
8	Candice Bergen	.43	4.91
			Odds Ratio
	Maximum	1.05	8.22
	Minimum	.42	2.29
	Mean	.67	3.82
	Standard Deviation	.20	

Table 6
Association of Race with Celebrity Name ID

Model	Celebrity	Parameter	Z-Value
2	Anna Nicole Smith	.40	2.76
2	Dianne Warwick	.45	3.96
2	Shari Blafonte	.47	3.79
4	Michael Jordan	.65	1.37
4	M. C. Hammer	.48	2.34
4	Michael Richards	.45	2.51
8	Candice Bergen	.38	4.32
			Odds Ratio
	Maximum	.65	3.84
	Minimum	.38	2.93
	Mean	.47	3.20
	Standard Deviation	.09	

Table 7
Association of Sex with Celebrity Name ID

Model	Celebrity	Parameter	Z-Value
3	Chuck Norris	.47	2.19
4	Michael Jordan	.51	1.07
4	M. C. Hammer	.32	1.54
4	Michael Richards	.39	2.14
5	Hulk Hogan	.38	2.32
			Odds Ratio
	Maximum	.51	3.33
	Minimum	.32	2.75
	Mean	.41	3.02
	Standard deviation	.08	

of the factors contributing to this situation should be of utmost importance to advertisers.

One possible explanation that was not considered in this study is the "match up hypothesis" (Kahle and Homer 1985; Kamins 1990). That is, there must be congruence between the celebrity and product endorsed for the consumer to associate the product with the endorser. In many cases the congruence is obvious. The Nike commercials have been successful because consumers associate athletic shoes with athletes. It is not clear whether a similar association will be made when athletes endorse French fries, ginseng, or long distance telephone services. The methodology employed in this study could be adapted to analyze this issue as well.

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