

The Cultivation of Social Perceptions of Latinos: A Mental Models Approach

Dana Mastro, Elizabeth Behm-Morawitz, and Michelle Ortiz
University of Arizona

This survey investigates the relationship between exposure to television portrayals of Latinos and real world perceptions of Latinos in the U.S. To aid in this assessment, contributions from the research on mental models were incorporated into a cultivation framework. From this mental models-based cultivation perspective, it was expected that amount of television exposure and existing cognitions regarding representations of Latinos in the media would interact in predicting real world perceptions of Latinos. Additionally, the amount of real world interracial contact with Latinos was predicted to moderate these effects. Findings provide support for the proposed relationships, indicating that as television consumption rates increase, extant cognitions regarding media depictions of Latinos and real world contact guide subsequent evaluations of Latinos.

Researchers interested in the effects of television exposure on viewers' attitudes and social perceptions have long relied on cultivation theory as a framework for examining this relationship (see Gerbner, Gross, Morgan, Signorielli, & Shanahan, 2002, for review). Despite its extensive application, however, the theory has been heavily criticized for its lack of specificity in terms of how these cultivation effects occur (Hawkins & Pingree, 1981, 1990; Potter, 1991a; Shapiro, 1991; Shrum, 1996; Shrum & O'Guinn, 1993). Notably, such criticisms have given rise to valuable research aimed specifically at explicating this process (Hawkins & Pingree, 1982; Potter, 1991a; Shapiro, 1991; Shrum, 1996; Shrum & O'Guinn, 1993). However, although these studies advance researchers' insights into the subprocesses involved in learning from television (Hawkins & Pingree, 1982; Potter, 1991a,b) and the mechanisms associated with the activation of this information (Shrum, 1996, 1999; Shrum & O'Guinn, 1993), the manner in which television

images are acquired and represented in memory has received little empirical attention. By incorporating the research on mental models and their use in message comprehension, into a cultivation framework (see Roskos-Ewoldsen, Davies, & Roskos-Ewoldsen, 2004, for review), this study undertakes this endeavor. Specifically, this mental models-based cultivation approach is conceptualized to elucidate the relationship between exposure to television images of Latinos and real world evaluations of Latinos in the United States.

Research indicates that portrayals of Latinos on primetime television are infrequent and, at times, unfavorable (Greenberg, Mastro, & Brand, 2002). As the largest racial and ethnic minority group in the United States, Latinos constitute 12.5% of the U.S. population (U.S. Census, 2000), yet content analytic evidence suggests that Latinos are dramatically underrepresented on television, typically comprising about 3% of the primetime television population (Greenberg et al., 2002; Mastro & Behm-Morawitz, 2005). Moreover, the nature of these portrayals is oftentimes stereotypical; consistently confining Latinos to a narrow set of roles, such as that of the Latin lover, buffoon, and criminal (Greenberg et al., 2002; Mastro & Greenberg, 2000). To help shed light on the effects of exposure to these portrayals on individuals' real world attitudes toward and perceptions of Latinos, this study takes a mental models based cultivation approach. The flexibility of mental models to integrate information from a variety of sources into a single, interpretive knowledge structure (Zwaan & Radvansky, 1998) makes them uniquely appropriate to this application.

THE CULTIVATION APPROACH

Gerbner's cultivation framework posits that over time, exposure to the consistent and persistent messages on television moves viewers to adopt the television version of reality, irrespective of its veracity (Gerbner, Gross, Morgan, & Signorielli, 1994; Gerbner et al., 2002). The theory specifically proposes that heavy viewers of television are more likely than light viewers to conceptualize reality in a manner consistent with the television world (as opposed to the real world). Thus, television is identified as a primary socializing force in society, providing knowledge about the social world (Shrum & Bischak, 2001; Signorielli & Morgan, 1990) and contributing to cultural constructions (Gerbner et al., 2002; Signorielli & Morgan, 1990). Although cultivation research has traditionally examined the influence of exposure to thematic messages that exist across program type and time of day (such as violence and sex), by specifying the cognitive mechanisms that contribute to cultivation effects the framework can be applied more effectively to understanding the impact of exposure to a greater variety messages, including infrequent images of race and ethnicity. In other words, by more clearly illuminating the cognitive processes that facilitate the cultivation process, its application can be

broadened to shed light on the impact of exposure to more discrete and even implicit messages (such as racial and ethnic stereotypes).

It is important to note that although thematic television content is given primacy within the cultivation framework, cultivation researchers acknowledge that there are contingencies to such cultivation effects (Hawkins & Pingree, 1981; Potter, 1991a). First, the type of learning that may result from exposure to television content has been found to vary based on the level of abstraction of the information. Hawkins and Pingree (1982) identify this distinction, noting two types of cultivation indicators: first order and second order. First order indicators are described as the concrete features of television content, such as demographics, crime rates, etc. Alternatively, second order indicators represent the implied content in the pattern of television messages, for example, fear of victimization or other values that must be inferred from the programming by individual viewers (Shrum, 2004), including perceptions of racial and ethnic minorities. Generally speaking, research reveals more consistent cultivation effects for first order indicators, however, studies have found modest evidence of cultivation effects for second order indicators (Hawkins & Pingree, 1982; Potter, 1991b).

Cultivation theorists additionally contend that although cultivation effects are universal (Gerbner, Gross, Morgan, & Signorelli, 1986), individual differences in consumers such as real world experiences (i.e., resonance) are likely to create a second contingency to this relationship (Potter, 1991a,b). As Hawkins and Pingree (1990) noted, exposure to television messages will be most influential when they do not “compete with” real world knowledge (p. 39). In examining the impact of exposure on subsequent racial and ethnic stereotyping, it would be expected that less interracial contact would enhance cultivation. Thus, little real world contact with Latinos would likely produce a stronger cultivation effect associated with evaluations of Latinos. Notably, although research suggests that viewers with limited contact with Latinos would rely more heavily on televised portrayals of Latinos for information, few studies have examined what information viewers acquire and retain from these limited and often stereotypical television messages (Ramírez Berg, 1990) and how the information from the implied content is integrated into a viewer’s cognitive framework for future evaluative use in real world settings.

When assessing cultivation effects stemming from exposure to the implied content on television, it seems logical, then, to consider the information that is extrapolated and stored from television exposure, rather than relying solely on findings from content analyses (Hawkins & Pingree, 1990), as is traditionally the case in cultivation studies. Although content analyses offer important insights into the overarching substance of television programming, objective assessments of television content are less likely to provide insights into the influence of exposure on subsequent attitudes and perceptions than are measures of what consumers actually retain (see Shapiro, 1991). This notwithstanding, findings from content ana-

lytic examinations are meaningful, as they speak to the information that may be gleaned from exposure to television representation of Latinos.

Results from content analyses of television programming have consistently found that among the infrequent representations of racial and ethnic minorities on television, a limited and oftentimes negative set of images tends to predominate (see Greenberg et al., 2002, for review). Television's presentation of this restricted but relatively stable imagery means that the possible real world inferences made about these groups as a result of exposure are derived from a narrow assortment of historically unfavorable messages. Representations of Latinos are no exception, commonly including characterizations as criminal, unintelligent or undereducated, as well as lazy and unmotivated (Dixon & Linz, 2000; Greenberg et al., 2002; Mastro & Greenberg, 2000). To illustrate, a recent examination of primetime entertainment programming found Latinos to be depicted as less intelligent and less articulate than their on-air counterparts, and more often in roles associated with criminality (i.e., criminals & law enforcers) than either Black or White characters (Mastro & Behm-Morowitz, 2005). The latter finding is consistent with results from Dixon and Linz's (2000) research revealing that Latinos were more likely than Whites to be portrayed as perpetrators (with similar results revealed for African Americans).

From a cultivation perspective, these television images of Latinos likely have implications for real world perceptions of Latinos. However, the cultivation model fails to elucidate the underlying processes by which such changes in viewer's attitudes and perceptions might take place. Unlike thematic messages about violence or sex on television, representations of minority characters are neither pervasive nor genre specific. Nevertheless, the nature of this imagery suggests that these depictions lend themselves to be equally influential on consumers' social perceptions. The research on mental models addresses this issue. The dynamic nature of mental models is uniquely suited to elaborating on the mechanisms at play when exposed to such content. Unlike the cultivation assumptions alone, mental models take into consideration what it is that people perceive and retain when attending to messages in their environment. Such an understanding is essential, as these mental representations drive subsequent judgments and social perceptions.

A MENTAL MODELS APPROACH TO CULTIVATION

Mental models are cognitive devices that allow people to construct unique, individualized, and malleable versions of knowledge, incorporating subjective and objective components into a unified mental representation (Johnson-Laird, 1983; Radavansky & Zacks, 1997; van Dijk, 1998; Zwann & Radavansky, 1998). Unlike schema that represent knowledge of more general phenomenon, mental models represent knowledge about specific situations, events, or objects that can be

mapped onto new situations and the like, to guide interpretations (Roskos-Ewoldsen et al., 2004). In other words, mental models represent the general idea of a specific phenomenon, as understood by the individual—thus, vulnerable to inaccuracies and/or error (Norman, 1983). They enable people to unite information from a variety of sources into a single mental representation, including information about time, space, cause, motivation, and characters (Roskos-Ewoldsen et al., 2004; Zwaan & Radvansky, 1998).

In application to television consumption, mental models allow viewers to comprehend the content of television programming by integrating the constant stream of information provided both verbally and pictorially (conceivably across a variety of programs) into an intelligible knowledge structure. In fact, Wyer and Radvansky (1999) specifically isolated television as a major source for the creation of mental models. They proposed that when watching television, viewers typically are not likely to engage in careful evaluations of the images they consume; instead, they are more likely to process information thoughtlessly and construct mental models from fictitious situations that are stored and recalled in the same manner as models developed from real events. Accordingly, the more the features of television content are perceived to overlap with viewers' everyday lives, the less likely they are to trigger scrutiny; thus enhancing their influence on social perceptions (Roskos-Ewoldsen et al., 2004) as additionally specified by resonance within the cultivation framework. As a result, television representations and individual reality can become, to a degree, intertwined as information sources used in the adoption of cognitive constructs are forgotten or become indistinguishable (Mares, 1996). In constructing these models, then, individuals amalgamate their own personal interpretations of the numerous, related scenes (occurring across time) into one dynamic, mental model. To illustrate, based on content analytic findings, a model of Latino work ethic on television could be composed of information from (a) the explicit dialogue and visual imagery contained in entertainment television programming, such as depictions of Latinos in low-status or subservient positions; (b) the implicit messages relayed by that television content, for example representations as lazy or unmotivated; (c) the coverage of events and issues on television news such as stories problematizing Latinos' use of social services; and (d) any other real world general knowledge that might be drawn upon to solidify this model in memory. Further, the greater the television exposure, the more likely the consumer will have a diversified repertoire of mental models related to Latino work ethic that can be applied to a wide variety of situations (Roskos-Ewoldsen et al., 2004).

Once constructed, mental models can be used to formulate judgments and guide decision making when relevant and salient (Radvansky & Zacks, 1997). Thus, a mental model impacts on perceptions when available in working memory (Radvansky & Zacks, 1997; Zwaan & Radvansky, 1998), such as when activated through a media prime. Indeed, research suggests that television's inherent vividness increases the probability of recalling constructs that were formed through expo-

sure to its messages (Shrum, 1996; Shrum & O'Guinn, 1993). Heavy exposure, therefore, would be expected to contribute to both the formation of mental models and the ease with which they are activated (O'Guinn & Shrum, 1997; Roskos-Ewoldsen et al., 2004; Shrum, 1996). More specifically, upon exposure to television, mental models pertaining to the images presented are activated and updated (Shrum, 1999; Wyer & Radvansky, 1999). The more frequently these models are retrieved, the stronger they become, increasing their availability and accessibility when making future inferences (Roskos-Ewoldsen et al., 2004; Rothman & Hardin, 1997). Put differently, mental models influence the interpretation of novel information and the creation of new mental models (Radavansky & Zacks, 1997). Consequently, heavy exposure to television should lead to the development of more numerous (and accessible) models, as viewers are constantly in the process of activating, updating, and recreating these abstract mental representations for a wide variety of applications (Busselle, 2001; Busselle & Shrum, 2003; Roskos-Ewoldsen, Roskos-Ewoldsen, & Dillman Carpentier, 2002; Shrum, 1999).

Although little empirical attention has been paid to the role of television in constructing mental models, it is important to note that valuable advances have been made with regard to the influence of TV exposure on the activation of constructs from memory (Shrum, 1996; Shrum & O'Guinn, 1993). This research indicates that increased exposure is associated with increased construct accessibility (Shrum, 1996; Shrum & O'Guinn, 1993), which in turn, has been revealed to influence the ease of retrieval of mental constructs (Rothman & Hardin, 1997), impacting on subsequent judgments (Shrum & O'Guinn, 1993). Here again, the frequency of television consumption becomes critical as the more accessible a given mental construct, the greater its influence (Schwarz, 1998; Schwarz & Vaughn, 2002; Schwarz & Wänke, 2002; Shrum, 1996; Shrum & O'Guinn, 1993). In the case of perceptions of Latinos, then, television exposure is significant both in terms of the creation (Wyer & Radvansky, 1999) and the activation (Shrum, 1996) of mental models for use in evaluative judgments.

Taken together, this research adds to our understanding of the cultivation process by specifying the mechanisms that link exposure to depictions of race and ethnicity with racially and ethnically based cognitions. In particular, the rate of exposure would be expected to contribute to the construction of mental models that guide later judgments and reasoning (Wyer & Radvansky, 1999). As such, the quality of portrayals of Latinos (and all racial and ethnic minorities) gains increased consequence as such images inform viewer's mental constructions, ultimately influencing subsequent inferences. The following hypothesis was framed around this proposition and findings from content analytic research examining representations of Latinos on television:

- H1: Perceptions of television portrayals of Latinos and rate of TV consumption will interact in predicting real world evaluations of Latinos such that the in-

fluence of perceptions of television portrayals of Latinos on real world evaluations will increase as television consumption rates rise.

In other words, a two-way interaction is expected. Specifically, it is hypothesized that television consumption will moderate the relationship between an individual's perceptions of television portrayals of Latinos and their real world evaluations of Latinos. In accordance with cultivation theory, it would be expected that the relationship between one's perceptions of portrayals of Latinos and one's real world evaluations of Latinos will be stronger for heavier viewers than for light viewers. Thus, it is predicted that as TV consumption increases the influence of individuals' perceptions of TV portrayals of Latinos on individuals' real world evaluations of Latinos (in terms of criminality, intelligence, and work ethic) will be greater.

However, the influence of media images on the construction of real world stereotypes is not to be overstated. When considering both that the construction of mental models is influenced by individual perceptions of the world (Garnham, 1997; vanDijk, 1998) and that cultivation effects are moderated by personal experiences (Hawkins & Pingree, 1990), it would be expected that viewers with less closeness in their real world contact with Latinos might be particularly vulnerable to media messages regarding race and ethnicity. Research on intergroup contact supports this contention, revealing that, under certain conditions, contact can reduce the bias and prejudice that people have toward other groups, regardless of whether they are majority or minority group members (Dovidio, Gaertner, & Kawakami, 2003). When contact is favorable, these interactions may allow for the discovery of similarities between groups, and thus allow people to witness individual characteristics that do not conform to the stereotype; thereby lessening the tendency to unfavorably stereotype (Masson & Verkuyten, 1993; Pettigrew, 1997, 1998). Moreover, contact provides the opportunity to build new associations with outgroup members; reducing the likelihood that stereotypes will be utilized (Kawakami, Dovidio, Moll, Hermsen, & Russin, 2000). These intergroup findings are consistent with research investigating contact effects in mediated settings, revealing the effects of exposure to stereotypical depictions of race to be stronger among individuals with less interracial contact (Armstrong, Neuendorf, & Brentar, 1992; Fujioka, 1999). Among individuals with lower levels of closeness of real world contact, then, heavy exposure to television is likely to result in greater reliance on media images of race and ethnicity in the construction of racially and ethnically based mental models and, in turn, result in stronger cultivation effects. The following hypothesis was formulated based on this contention:

- H2: A three-way interaction will emerge between perceptions of depictions of Latinos, rate of TV consumption, and real world interracial contact in predicting real world evaluations of Latinos. Specifically, contact will moder-

ate the two-way interaction proposed in Hypothesis 1, such that the effects of TV perceptions and consumption on evaluations of real world Latino criminality, intelligence, and work ethic will be greater among viewers with lower levels of close contact.

Put differently, the two-way interaction posited in Hypothesis 1 will be qualified by real world interracial contact. Consistent with the literature on contact, it is expected that less closeness of contact will result in a stronger relationship between perceptions of TV portrayals, rate of TV consumption, and evaluations of Latinos in the real world. Thus, when interracial contact is less close, the relationship posited in Hypothesis 1 will be stronger.

METHOD

To investigate the extent to which perceptions of Latinos in U.S. society are influenced by television portrayals of Latinos, TV consumption rates, and interracial contact, this two-part survey was conducted.

Participants

A total of 362 undergraduate communication majors from a midsize, eastern university took part in this study on a voluntary and confidential basis. Because the purpose of the survey was to assess the impact of television exposure, TV depictions of Latinos, and interracial contact, on real world perceptions of Latinos, only responses from White students were included in analyses. Although the posited relationship would be expected to persist across cultures, an insufficient number of any single other racial and ethnic group precluded them from consideration. As a result, responses from 20 Asian American, 11 Black, 21 Latino, 1 Native American, and 26 "other race" students were excluded. The final total of White participants involved in the survey was 275. Among these, 66.9% were women ($n = 184$) and 33.1% were men ($n = 91$). Ages ranged from 17 to 22, with the average age between 19 and 20.

Procedure

The study was conducted in two ostensibly unrelated sessions. In the first phase, the survey assessed (a) media consumption, (b) perceptions of portrayals of Latinos on television, and (c) demographics (i.e., sex, age, and race). Participants were informed that the objective of the questionnaire was to determine the characterizations of different groups on television. Before distributing the survey, students

were clearly notified that their participation was completely voluntary and confidential.

The second phase of the study was conducted 4 weeks after the first survey. This portion of the study measured (a) perceptions of Latinos in the United States, (b) interracial contact, and (c) demographics. During this part of the study, participants were informed that the aim of the project was to get a better understanding of how people perceive themselves and others in society. After completion, participants were made aware that this study was being conducted in conjunction with the previous survey from 1 month earlier. The participants were not advised of this association until the conclusion of the second study. The differing objectives of the two studies and the nature of research participation at the university helped to ensure that participants did not make a connection between the two projects. Consequently, we are confident that the participants did not recognize that the two studies were related until after the surveys were completed. The participants were informed that their responses to each survey would be matched using their student identification numbers (which they reported on each survey) and that once the surveys had been matched, this number would be removed to secure confidentiality.

Independent Variables

Independent variables included perceptions of television portrayals of Latinos, amount of television consumption, and interracial contact. Confirmatory factor analysis including tests of internal consistency and parallelism were conducted, when appropriate. Reliability was reported as standardized item alpha.

Findings from existing content analytic examinations of representations of Latinos on television informed the measures used to investigate perceptions of Latino portrayals. The most commonly identified depictions (those pertaining to criminality, intelligence/education, and motivation/work-ethic) were included (Dixon & Linz, 2000; Greenberg et al., 2002; Mastro & Greenberg, 2000). Instructions for the evaluation of Latino characteristics on television read, "Please think of the 'typical' depiction of Latinos on TV. Check the space between each of the adjectives below to indicate how you would describe the typical Latino depiction for each attribute."

Criminality on TV. To assess the extent to which Latinos were depicted as unlawful and deviant on television, a criminality measure was constructed ($\alpha = .80$, $M = 3.36$, $SD = 1.00$). Four bipolar adjectives on a 7-point scale were used in the creation of this measure; 7 was the most unfavorable score, and 1 represented the most favorable designation. The adjectives included violent–not violent, likely to commit a crime–not likely to commit a crime, drug user–nonuser, and drug-dealer–nondealer.

Intelligence on TV. Two pairs of bipolar adjectives were used to determine perceptions of Latino intelligence on television ($r = .60$, $M = 3.73$, $SD = 1.12$). They were intelligent–unintelligent and educated–uneducated. Consistent with the items used for the measure of criminality, response options ranged from 1 to 7, with the high end of the scale indicating the most unfavorable embodiment of the trait.

Work ethic on TV. A single, bipolar adjective was used to create the measure of television representations of Latino work ethic, where 7 = *lazy* and 1 = *hard-working* ($M = 3.63$, $SD = 1.14$).

Television exposure. Amount of daily television exposure was assessed in the following manner. First, responses to the following three questions were summed: “Think back to last night, how many hours of TV did you watch?” “Think back to yesterday afternoon, how many hours of TV did you watch?” and “Think back to yesterday morning, how many hours of TV did you watch?” Next, this score was added to responses to the question: “On average, how many hours of TV do you watch in a day?” Finally, this score was divided in half to create the measure of daily viewing. On average, these participants reported viewed 1.75 hr of television per day ($SD = 1.96$).

Interracial contact. Because intergroup contact has been found to impact on both real world evaluations of racial minorities (Masson & Verkuyten, 1993) and on interpretations of media depictions of race (Armstrong et al., 1992; Fujioka, 1999; Mastro & Tropp, 2004), contact was expected to influence the relationship between television exposure, perceptions of TV portrayals, and real world evaluations of Latinos. Research in this area notes that the nature of the contact is important. Instead of the mere number of outgroup contacts, studies suggest that interracial contact is most influential when it involves close, favorable ties with outgroup members (Pettigrew, 1997). As such, a 2-item measure of intergroup closeness was employed as an indicator of contact ($r = .35$, $M = 2.75$, $SD = 0.52$). Specifically, participants were asked to (a) state how close they feel to the one Latino person with whom they have had the closest relationship, and (b) identify how pleasant, in general, their contact has been with Latinos. Response options ranged from 1 (*not close/pleasant*) to 5 (*very close/pleasant*).

Dependent Variables

The dependent variables assessed real world perceptions of Latino criminality, intelligence, and work ethic in United States society. Again, whenever possible confirmatory factor analysis was used, including assessments of internal validity and parallelism. All dependent variables were measured on a 7-point scale with a score

of 1 indicating the most favorable response option and 7 the least favorable response option. Instructions read, "Please think of Latinos in the United States today. Check a space between each of the adjectives below to indicate how you would describe Latinos in general."

Criminality. The same four bipolar adjectives used to assess criminality on TV were used in the construction of the measure of criminal and deviant behavior in the real world ($\alpha = .75$, $M = 3.43$, $SD = .73$). They were violent–not violent, likely to commit a crime–not likely to commit a crime, drug user–nonuser, and drug-dealer–nondealer.

Intelligence. The two pairs of bipolar adjectives utilized in the creation of the TV intelligence measure also were used to determine of perceptions of Latino intelligence in the real world ($r = .38$, $M = 3.83$, $SD = .94$). The adjectives were intelligent–unintelligent and educated–uneducated.

Work ethic. A measure of Latino work ethic was created using the same 7-point bipolar adjective (lazy–hard-working) employed to evaluate TV work ethic ($M = 3.68$, $SD = .89$).

RESULTS

In examining the hypothesized influence of perceptions of television content, TV consumption rates, and interracial contact, on real world evaluations of Latinos, multiple regression analyses were performed.

Hypothesis 1

Hypothesis 1 postulated that perceptions of TV portrayals of Latinos and television consumption rates would interact in predicting real world evaluations of Latinos in U.S. society. This relationship was tested using centered interaction terms in the regression analyses. The predicted interaction was revealed to be statistically significant for all three stereotypes examined: criminality ($\Delta R^2 = .03$, $\Delta F = 6.08$, $p < .025$), intelligence ($\Delta R^2 = .02$, $\Delta F = 4.56$, $p < .05$), and work ethic ($\Delta R^2 = .02$, $\Delta F = 6.26$, $p < .01$). Specifically, results demonstrate that the influence of perceptions of television portrayals of Latinos on real world evaluations of Latinos increases as rates of television consumption rise. In other words, the relationship between the perceptions of television portrayals of Latinos and real world evaluations of Latinos is stronger for heavier viewers. This pattern emerged consistently across all stereotypic evaluations.

For illustrative purposes alone, these significant two-way interactions are graphically depicted in Figures 1–3. To create these representations, a median split on television consumption was created. Next, unstandardized regression coefficients for perceptions of TV portrayals were plotted at heavy and light viewing for each of the dependent variables (i.e., real world evaluations of Latino criminality, intelligence, & work ethic). This presentation offers a more straightforward demonstration of the specific nature of the interactions; however, these figures are pro-

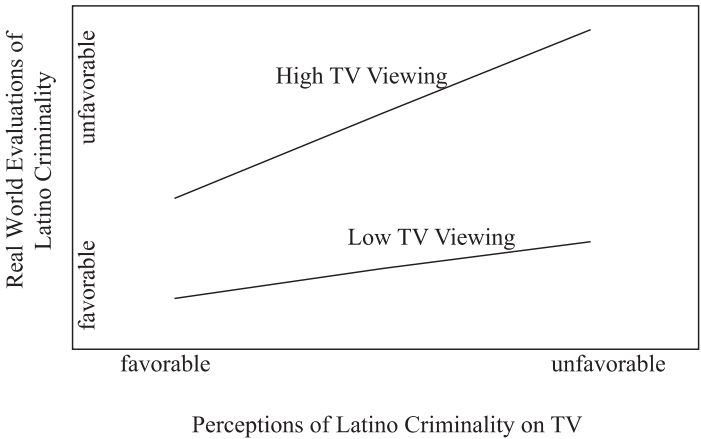


FIGURE 1 Regression lines for median split of TV viewing on criminality.

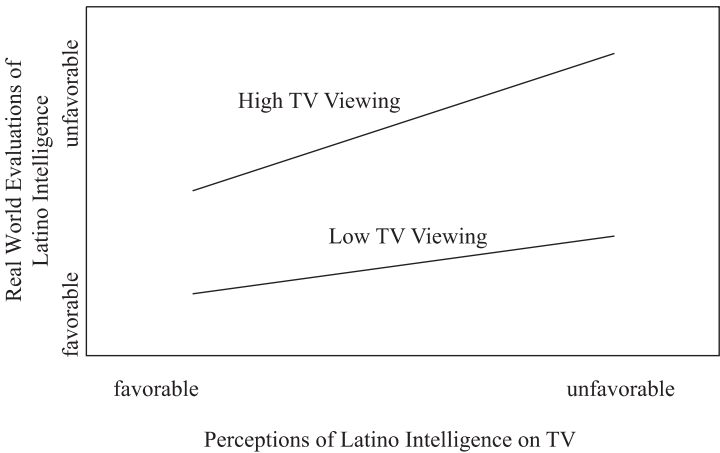


FIGURE 2 Regression lines for median split of TV viewing on intelligence.

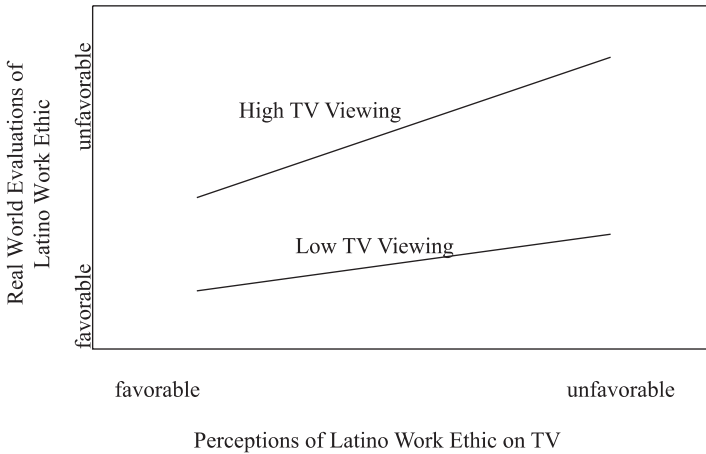


FIGURE 3 Regression lines for median split of TV viewing on work ethic.

vided solely for illustration and do not take the place of the reported regression results.

Although qualified by the significant interaction effects, direct effects did emerge for perceptions of TV content across all three stereotypes. Perceptions of Latino TV criminality were significantly and positively associated with evaluations of Latino criminality in society ($\beta = .20, t = 3.94, p < .01$). Evaluations of Latino intelligence on television also were significantly and positively associated with real world evaluations of Latino intelligence ($\beta = .40, t = 7.88, p < .01$). Last, perceptions of work ethic among Latino characters on TV were found to be significantly and positively associated with evaluations of Latino work ethic in the U.S. ($\beta = .31, t = 6.20, p < .01$). No significant, direct effects for television exposure were revealed.

Hypothesis 2

Hypothesis 2 proposed a three-way interaction between perceptions of television depictions of Latinos, rate of TV consumption, and interracial contact in predicting evaluations of real world Latino criminality, intelligence, and work ethic. Specifically, interracial contact with Latinos was posited to moderate the two-way interaction between TV portrayals and consumption rates on evaluations of Latinos in society (identified in Hypothesis 1). Accordingly, the effects of TV perceptions and consumption on real world evaluations of Latinos were predicted to emerge more so among those with lower levels of close contact.

To examine this relationship, separate regressions assessing the two-way interaction postulated in Hypothesis 1 (using mean centered interaction terms) were

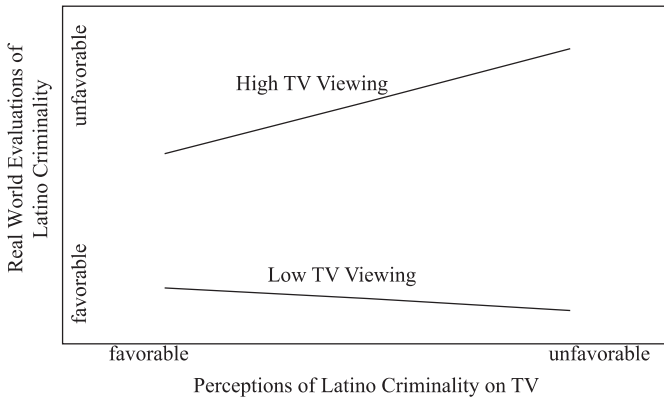
conducted at high and low levels of quality of contact. Then, *t*-tests were used to compare the regression coefficients for these two-way interactions at high and low quality of contact. To this end, a median split on contact was created. The mean for high quality of contact was 3.56 (*SD* = .52) and the mean for low quality of contact was 1.93 (*SD* = .51). These two groups were found to be significantly different by *t*-tests ($t = 25.95, df = 265, p < .01$).

Regressions conducted separately at high and low quality contact revealed some support for Hypothesis 2. Among those with less close contact (i.e., low quality), the predicted interaction between perceptions of TV depictions of Latinos and television consumption was revealed across all three stereotypes. Specifically, a statistically significant interaction between perceptions of Latinos on television and television usage rates emerged for those with low quality contact for the criminality ($\Delta R^2 = .13, \Delta F = 14.68, p < .01$), intelligence ($\Delta R^2 = .03, \Delta F = 4.46, p < .05$), and the work ethic stereotypes ($\Delta R^2 = .08, \Delta F = 9.84, p < .01$). As further predicted, across all three stereotypes, this interaction term failed to reach significance for those with closer, high quality contact: criminality ($\Delta R^2 = .00, \Delta F = .13, p = .72$), intelligence ($\Delta R^2 = .01, \Delta F = 1.46, p = .23$), and work ethic ($\Delta R^2 = .01, \Delta F = .61, p = .44$). However, *t*-tests comparing regression coefficients for the interaction terms at high and low quality of contact only reached significance for the criminality stereotype ($t = 2.9, df = 204, p < .01$). Figure 4 provides a graphical representation of this significant three-way interaction. Statistically significant differences between the high and low contact groups were not revealed for either intelligence ($t = 0.05, df = 203, p > .05$) or work ethic ($t = 1.46, df = 203, p > .05$).

DISCUSSION

Cultivation scholars have long remarked that television messages "...legitimate a certain social order" (Gerbner et al., 2002, p. 44) by providing consumers with a steady diet of similar messages across a wide variety of television programming that ultimately serve as one of the primary socializing agent in individuals' lives (Signorielli & Morgan, 1990). Although such cultivation effects have typically met with support in studies of explicit, first order outcomes such as estimates of crime and violence, this relationship has been less consistent with regard to more implicit, second order outcomes such as racial and ethnic stereotyping (Hawkins & Pingree, 1982; Potter, 1991b). The findings from our study speak to this inconsistency by lending support for the mental models approach to understanding this relationship. Specifically, results yield preliminary empirical support for a mental-models based cultivation perspective that considers both amount of television consumption and perceptions regarding the content in the examination of cultivation effects.

Low Contact



High Contact

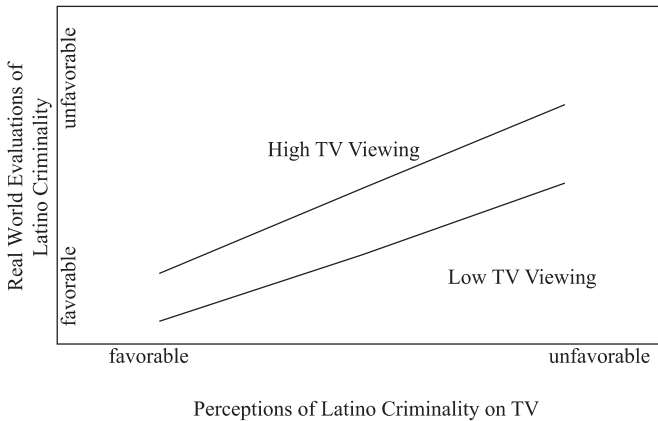


FIGURE 4 Regression lines for median split of TV viewing on criminality at low and high quality of contact.

Beyond providing substantiation for the application of a mental models cultivation approach, this study's findings are meaningful for two additional reasons. First, these results indicate that factors beyond the overt content features of television programming must be taken into account when considering the impact of exposure to television messages on outcomes such as racial and ethnic stereotyping. Second, these data underscore the influence of real world contact in moderating the effects of exposure to stereotypical television content.

Despite assumptions that cultivation effects result primarily from viewing television's explicit, thematic messages, the results found here establish a link between real world perceptions and exposure to less consistent messages that rely on drawing inferences from the depicted content. Thus, these data extend the parameters of cultivation, by considering what it is that consumers actually perceive and retain when viewing television fare. Through the incorporation of research on mental modeling, the theory becomes more capable of identifying the cognitive processes at play when judgments and perceptions are impacted by exposure to a greater variety of television messages. Although only preliminary, these data suggest that viewers may, indeed, use mental models as a way to make sense of the ongoing influx of television messages and, moreover, utilize these knowledge structures when making judgments about the social world. As such, one can begin to better understand particular aspects of the process of learning from the media by applying this enhanced framework to a broader range of cultivation effects.

Because mental models are individualized dynamic knowledge structures that correspond with but do not necessarily precisely, or even accurately, reflect the phenomenon of interest (Roskos-Ewoldsen et al., 2004), they are well-suited to understanding the complex relationship between exposure to portrayals of race and ethnicity in the media and real world racial and ethnic perceptions. Both by recognizing that knowledge gleaned from these messages is likely to vary across consumers and by acknowledging that it is the specialized features of these abstract constructs that guides subsequent judgments, this elaborated cultivation framework gains increased utility.

For Latinos, these findings are additionally consequential as they highlight the long-identified importance of affirmative media representations. It would appear that exposure to even the limited number of television representations of Latinos—approximately 3% of the TV population (Mastro & Behm-Morowitz, 2005; Mastro & Greenberg, 2000)—can be linked to real world perceptions among Whites. As this study's results indicate, increases in television consumption strengthened the influence of TV representations of Latinos, particularly when viewers had less closeness in their real world contact with Latinos. Across all three stereotypes examined, the more television White viewers consumed, the more their evaluations of Latinos reflected their TV characterization—markedly so when viewers' real world contact with Latinos was not close, resulting in a greater reliance on televised images in decision making.

Consequently, in addition to stressing the need for improvements in the quality and quantity of television portrayals of Latinos, these results also exemplify the role of interracial contact in moderating the effects of exposure to stereotypical portrayals on real world perceptions of Latinos. Consistent with the present application of the contact hypothesis (Pettigrew, 1997; 1998), individuals with lower levels of close interracial contact demonstrated more pronounced cultivation effects.

Limitations and Considerations for Future Research

Although this theoretical elaboration was largely able to explain our results, it does not fully clarify how this process occurs. Further research in this area would be well-served by focusing attention on the specific development of media-based mental models (as well as their particular characteristics), the interconnections among cognitive representations, and their specific contextualizations, as each would lend unique insights into understanding this elaborated cultivation process. In other words, although this study provides valuable support for the application of a mental models cultivation approach to the study of media effects, it does not provide a direct test of mental models. As such, studies specifically aimed at elucidating how mental models function in the context of understanding individuals' comprehension of media stimuli would provide the necessary next-step in this line of research inquiry. Moreover, this study focused solely on mental models, rather than situation models, which may offer more specificity than the general and abstract cognitive structures of mental models discussed in this study (see Radvansky & Zacks, 1997, for overview). Future studies may want to examine the role of situation models in individual's interpretation of media messages and the subsequent effects of media exposure.

Last, although the use of a college sample, admittedly, limits the generalizability of these data, we argue that the theoretically-driven variables of interest in this study require the unique features of such a sample. Because interracial contact is a key predictor in this design, the heightened opportunity for interracial and interethnic contact afforded college students makes them distinctively appropriate for tests of the theoretical model proposed here. So, although this preliminary test of the theoretically driven model examined here was well suited to a college sample, further studies will want to examine this relationship among more generalizable samples.

REFERENCES

- Armstrong, B., Neuendorf, K., & Brentar, J. (1992). TV entertainment, news, and racial perceptions of college students. *Journal of Communication, 42*, 153-175.
- Busselle, R. W. (2001). Television exposure, perceived realism, and exemplar accessibility in the social judgment process. *Media Psychology, 3*, 43-67.
- Busselle, R. W., & Shrum, L. J. (2003). Media exposure and exemplar accessibility. *Media Psychology, 5*, 255-282.
- Dixon, T. & Linz, D. (2000). Overrepresentation and underrepresentation of African Americans and Latinos as lawbreakers on television news. *Journal of Communication, 50*, 131-154.
- Dovidio, J. F., Gaertner, S. L., & Kawakami, K. (2003). Intergroup contact: The past, present, and the future. *Group Processes & Intergroup Relations, 6*, 5-21.
- Fujioka, Y. (1999). Television portrayals and African-American stereotypes: Examination of television effects when direct contact is lacking. *Journalism and Mass Communication Quarterly, 76*, 52-75.

- Garnham, A. (1997). Representing information in mental models. In M. A. Conway (Ed.), *Cognitive models of memory* (pp. 149–172). Cambridge, MA: MIT Press.
- Gerbner, G., Gross, L., Morgan, M., & Signorielli, N. (1986). Living with television: The dynamics of the cultivation process. In J. Bryant & D. Zillmann (Eds.), *Perspectives on media effects* (pp. 17–40). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Gerbner, G., Gross, L., Morgan, M., & Signorielli, N. (1994). Growing up with television: The cultivation perspective. In J. Bryant & D. Zillmann (Eds.), *Media effects: Advances in theory and research* (pp. 17–41). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Gerbner, G., Gross, L., Morgan, M., Signorielli, N., & Shanahan, J. (2002). Growing up with television: Cultivation processes. In J. Bryant & D. Zillman (Eds.), *Media effects: Advances in theory and research* (2nd ed., pp. 43–67). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Greenberg, B., Mastro, D., & Brand, J. (2002). Minorities and the mass media: Television into the 21st century. In J. Bryant & D. Zillmann (Eds.), *Media effects: Advances in theory and research* (pp. 333–351). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Hawkins, R., & Pingree, S. (1981). Using television to construct social reality. *Journal of Broadcasting*, 25, 347–364.
- Hawkins, R., & Pingree, S. (1982). Television's influence on constructions of social reality. In D. Pearl, L. Bouthilet, & J. Lazar (Eds.), *Television and behavior: Ten years of scientific progress and implications for the eighties* (Vol. 2, pp. 224–247). Washington, DC: Government Printing Office.
- Hawkins, R., & Pingree, S. (1990). Divergent psychological processes in constructing social reality from mass media content. In N. Signorielli & M. Morgan (Eds.), *Cultivation analysis: New directions in media effects research* (pp. 35–50). Newbury Park, CA: Sage.
- Johnson-Laird, P. N. (1983). *Mental models: Towards a cognitive science of language, inference, and consciousness*. Cambridge, MA: Harvard University Press.
- Kawakami, K., Dovidio, J. F., Moll, J., Hermsen, S., & Russin, A. (2000). Just say no (to stereotyping): Effects of training in trait negation on stereotype activation. *Journal of Personality & Social Psychology*, 78, 871–888.
- Mares, M. L. (1996). The role of source confusions in television's cultivation of social reality judgments. *Human Communication Research*, 32, 278–297.
- Masson, C., & Verkuyten, M. (1993). Prejudice, ethnic identity, contact and ethnic group preferences among Dutch young adolescents. *Journal of Applied Social Psychology*, 23, 156–168.
- Mastro, D., & Behm-Morawitz, E. (2005). Latino representation on primetime television: A content analysis. *Journalism & Mass Communication Quarterly*, 82, 110–130.
- Mastro, D., & Greenberg, B. (2000). The portrayal of racial minorities on prime time television. *Journal of Broadcasting and Electronic Media*, 44, 690–703.
- Mastro, D., & Tropp, L. (2004). The effects of interracial contact, attitudes, and stereotypical portrayals on evaluations of Black television sitcom characters. *Communication Research Reports*, 21, 119–129.
- Norman, D. (1983). Some observations on mental models. In D. Gentner & A. Stevens (Eds.), *Mental models* (pp. 299–324). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- O'Guinn, T., & Shrum, L. J. (1997). The role of television in the construction of consumer reality. *Journal of Consumer Research*, 23, 278–294.
- Pettigrew, T. (1997). Generalized intergroup contact effects on prejudice. *Personality and Social Psychology Bulletin*, 23, 174–185.
- Pettigrew, T. (1998). Intergroup contact theory. *Annual Review of Psychology*, 49, 65–85.
- Potter, W. J. (1991a). Examining cultivation from a psychological perspective. *Communication Research*, 18, 77–102.
- Potter, W. J. (1991b). The relationship between first- and second-order measures of cultivation. *Human Communication Research*, 18, 92–113.
- Radvansky, G. A., & Zacks, R. T. (1997). The retrieval of situation-specific information. In M. Conway (Ed.), *Cognitive models of memory* (pp. 173–213). Cambridge, MA: MIT Press.

- Ramírez Berg, C. (1990). Stereotyping in films in general and of the Hispanic in particular. *The Howard Journal of Communication*, 2, 286–300.
- Roskos-Ewoldsen, B., Davies, J., & Roskos-Ewoldsen, D. (2004). Implications of the mental models approach for cultivation theory. *Communications*, 29, 345–363.
- Roskos-Ewoldsen, D. R., Roskos-Ewoldsen, B., & Dillman Carpentier, F. R. (2002). Media priming: A synthesis. In B. Jennings & Zillman, D. (Eds.), *Media effects: Advances in theory and research* (2nd ed., pp. 97–120). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Rothman, A. J., & Hardin, C. D. (1997). Differential use of the availability heuristic in social judgment. *Personality and Social Psychology Bulletin*, 23, 123–138.
- Schwarz, N. (1998). Accessible content and accessibility experiences: The interplay of declarative and experiential information in judgment. *Personality and Social Psychology Review*, 2, 87–99.
- Schwarz, N., & Vaughn, L. A. (2002). The availability heuristic revisited: Ease of recall and content of recall as distinct sources of information. In T. Gilovich, D. Griffin, & D. Kahneman (Eds.), *Heuristics and biases: The psychology of intuitive judgment* (pp. 103–119). Cambridge, XX: Cambridge University Press.
- Schwarz, N., & Wänke, M. (2002). Experiential and contextual heuristics in frequency judgment: ease of recall and response scales. In P. Sedlmeier & T. Betsch (Eds.), *Etc. frequency processing and cognition* (pp. 89–119). New York: Oxford University Press.
- Shapiro, M. (1991). Memory and decision processes in the construction of social reality. *Communication Research*, 18, 3–24.
- Shrum, L. J. (1996). Psychological processes underlying cultivation effects: Further tests of construct accessibility. *Human Communication Research*, 22, 482–509.
- Shrum, L. J. (1999). The relationship of television viewing with attitude strength and extremity: Implications for the cultivation effect. *Media Psychology*, 1, 3–25.
- Shrum, L. J. (2004). The cognitive processes underlying cultivation effects are a function of whether the judgments are on-line or memory-based. *Communications*, 29, 327–344.
- Shrum, L., & Bischak, V. (2001). Mainstreaming, resonance, and impersonal impact: Testing moderators of the cultivation effect. *Human Communication Research*, 27, 187–215.
- Shrum, L. J., & O'Guinn, T. C. (1993). Processes and effects in the construction of social reality: Construct accessibility as an explanatory variable. *Communication Research*, 20, 436–471.
- Signorielli, N., & Morgan, M. (1990). Cultivation analysis: Conceptualization and methodology. In N. Signorielli and M. Morgan (Eds.), *Cultivation analysis: New directions in media effects research* (pp. 13–34). Newbury Park, CA: Sage.
- U.S. Census. (2000). Retrieved August 5, 2004 from <http://www.census.gov/population/pop-profile/2000/chap02.pdf>
- van Dijk, T. A. (1998). *Ideology: A multidisciplinary approach*. London: Sage.
- Wyer, R. S., & Radvansky, G. A. (1999). The comprehension and validation of social information. *Psychological Review*, 106, 89–118.
- Zwaan, R. A., & Radvansky, G. A. (1998) Situation models in language comprehension and memory. *Psychological Bulletin*, 123, 162–185.