Who (and Where) is Credible? Using Virtual Reality to Examine Credibility and Bias of Perceived Race/Ethnicity in Urban/Suburban Environments

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Hispanic Actor- Suburban Neighborhood

Hispanic Actor- Urban Neighborhood

Who (and Where) is Credible? Using Virtual Reality to Examine Credibility and Bias of Perceived Race/Ethnicity in Urban/Suburban Environments

Abstract

This study evaluates perceptions of race/ethnicity in connection to geography of urban/suburban neighborhoods. The study takes place in a region mostly populated by people identifying as Hispanic, which is reflected in the participant demographics. Before answering the survey questions, the study used Virtual Reality to immerse participants into the scene, and to develop a more realistic experience. Results indicated that perceptions of geography have a greater impact than perceptions of race/ethnicity in terms of assumed credibility. These results challenge stereotypes that are created and commonly perpetuated in our society.

Keywords: credibility, virtual reality, perception bias, race/ethnicity, suburban/urban, Social Identity Theory

In this study, researchers examined racial bias with a specific emphasis on perceptions of

race and geography among Hispanics and non-Hispanics in Miami-Dade County of Florida,

where 70% of the population identifies as Hispanic (U.S. Census Bureau). Our focus comes from

a need for more research on Hispanic populations (Arias & Hellmueller, 2016), particularly in

terms of relations between Hispanic and non-Hispanic populations, and in terms of perceptions

related to the types of neighborhoods in which they live. Therefore, this study attempts to further

relevant research related to bias, race, and communication (Liu, Son, Wenzel, An, Martin & Nah,

2017; Pan, Zhou & Thompson Hayes, 2017; Shulman, Collins & Clément, 2011). Research

suggests that there is a social perception connecting crime with minority groups (Chiricos,

McEntire, & Gertz, 2001) as well as with urban neighborhoods. News media in particular

perpetuate this perception, thus reinforcing stereotypes (Löwstedt & Mboti, 2017; Sui & Paul,

2017). Yet, statistically crime is more heavily connected to social-economic factors (Entman &

Gross, 2008; **Pickett, Chiricos, Golden, & Gertz, 2012;** Quillian & Pager, 2001), rather than

any racial/ethnic groups or neighborhoods populated mainly by minorities.

These false connections or stereotypes impact perceptions of credibility in different

communication contexts, from social interactions to public and political decisions (Spence,

Lachlan, Westerman, & Spates, 2013). Credibility is the perceived trustworthiness of the

communicator or information source. In this study, researchers analyzed assumptions of

credibility regarding perceptions of race/ethnicity as well as the influence of urban and suburban

neighborhoods. We conducted our study within the framework of Social Identity Theory, which

allowed us to question perceptions of race/ethnicity with a participant pool, the majority of

whom identified as Hispanic.

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To do so we utilized virtual reality, which allowed participants to interact in

environments that mimicked "real life" and which could assist in examining users' emotional

reactions, social behavior, and cognitive and affective responses to stimuli (Bargh, Chen,

&Burrows, 1996; Bishop & Rohrmann, 2003; Devlin, 2008; Friedrich, 2016; Hall, 1976; Ulrich,

1986; Salmanowitz, 2016). In this case, virtual reality provided our participants with the

opportunity to immerse themselves in the scene, and to have a more realistic experience before

answering the survey questions. Hence, we utilized virtual reality to obtain responses that portray

more accurate perceptions comparable to reality.

Social Identity Theory

Social Identity Theory, introduced by Henri Tajfel (1978, 1979, 1986), proposes that

individual social identity is shaped through group identification, a source of pride and self-

esteem which the individual uses to build a positive self-concept. In order to maintain the

positive self-image and to protect self-identity, in-group members are evaluated in a more

positive manner, as "[i]n-group members protect their own self-esteem by showing favoritism

and leniency towards other in-group members, despite their transactions" (Hawley et. al, 2014, p.

61). In-group favoritism arises as a result of members' need to distinguish themselves from out-

group individuals (Tajfel & Turner, 1979; Wang, 2016).

Discriminating and stereotyping out-group individuals are also among the realm of

strategies used to protect the self-image of in-group members. According to Tajfel (1978, 1979),

discrimination of outsiders is perpetuated through social categorization (Hawley et al, 2014;

Hogg & Terry, 2000; Tajfel, 1982). When categorizing, in-group members (us) adopt the identity

of the group and distinguish themselves from outsiders (them) through intergroup comparisons

and stereotyping. In other words, "if belonging to a certain group makes individuals feel good

about themselves, maintaining affiliation with that group and preserving its positive evaluation

compared to other groups will be very important to them" (Sinnar, 2008, p. 554). For example,

researchers found that Mexican immigrants in the United States cope with negative social

identity perceptions and negative group identification through in-group versus out-group

differentiation strategies (Brown, 2007; Sinnar, 2008).

Social Identity Theory is consistent with research on the "Black sheep effect." This

theory demonstrates that the negative behavior of in-group members is judged in a more negative

manner and receives harsher treatment than outsiders committing the same actions (Marques,

Yzerbyt, & Leyens, 1988). The difference in judgement and treatment is a response to the

perception of seeing the deviant members as violating specific norms and consequently

impacting group and individual identities (Marques et al., 1998; Marques et al., 2001). For

example, one study reported that disruptive in-group members were evaluated in a harsher

manner by their in-group peers (Marques & Paez, 1994), while another study demonstrated the

black sheep effect by showing that non-cooperative in-group members were more severely

punished than out-group individuals (Shinada Yamagishi, & Ohmura, 2004).

Thus, Social Identity Theory demonstrates a bias for the familiar, or the in-group

members, and the out-group individuals. In-group/out-group borders are determined through

cultural identifiers such as race, ethnicity, religion, regionality, and gender. Race, for example, is

a cultural identifier, which is associated with strong bias determinants.

Racial Bias and Intercultural Communication

Racial/ethnic prejudice influences communication between members belonging to

different cultural groups (Gorodzeisky & Semyonov, 2017; Ramasubramanian, 2013). Research

in this area indicates the presence of racial/ethnic bias in various aspects, from language used in

sports (Ferrucci, Tandoc, Jr., Painter, & Leshner, 2013) and bias toward and against racial groups

in politics (Gorodzeisky & Semyonov, 2017) to prejudice in everyday interactions (Meadors &

Murray, 2014). These biases are socially constructed through everyday discourse perpetuated

through the context of communication from interpersonal to mass communication, which is the

media (Löwstedt & Mboti, 2017; Sui & Paul, 2017), including new media (Shuter, 2012).

Research shows that media influences people's perceptions of each other (Gorodzeisky &

Semyonov, 2016). These perceptions lead to various presumptions, such as more positive

attributions to those they deem familiar (Zebrowitz, Bronstad, & Lee, 2007) and more negative

perceptions for those they perceive as the other (Richeson & Shelton 2005, Weaver, 2007).

Hispanics constitute the largest minority group within the United States

(pewhispanic.org). Yet the group's portrayal among the greater population is both limited and

one sided, often influenced by media and popular discourses focusing on members of the group

who may be associated with crime and other negative stereotypes. Since the media started using

the term "Hispanic" in 1994, people perceived to belong to this group have been stereotyped as

mostly newcomers, immigrants, or undocumented foreigners, and are prominently portrayed in

relation to crime or criminal activity (Arias & Hellmueller, 2016). Indeed, Arias and Hellmueller

(2016) found that the media over-represents crime related to minorities, Hispanics and African-

Americans in particular, which creates what the authors call "modern racism" (p. 11). Such

representation "contribute[s] to the social construction of threat in relation to both minorities" (p.

11). Unquestionably, familiarity impacts perceptions, and consequently plays a pillar role in

decreasing stereotyping and prejudice. As Ellison and Powers (1994) demonstrate:

> contact, particularly close and sustained contact, with members of different
> cultural groups promotes positive, tolerant attitudes. By contrast, the absence of
> such contact is believed to foster stereotyping, prejudice, and ill will toward these
> groups. (p. 385)

Furthermore, research demonstrates that these negative perceptions do not target one specific group, rather minorities as a whole (Carney & Enos, 2019), which leads to low expectations and negative presumptions varying from professional incompetence to criminal activity (Harris & Gonzalez, 2012).

The question raised in this study, therefore, is whether racial bias or prejudice toward Hispanic population fluctuates, positively or negatively, in a Hispanic-majority region of the U.S. Hence, we aim to understand to what degree the race/ethnicity of the information source, as well as the information receiver (participant) impacts the perceived credibility of the information presented. Here, however, we propose that this evaluation of information is not just built on the perceived race of the person delivering the information or racial self-identification of the information receiver, but also on perceptions of the environment in which the communication takes place. Therefore, in the next section we examine geographic bias.

Examining Influences Regarding Geographic Bias

One's interpretation of the environment impacts their perceptions of people in those environments and, consequently, their notions of credibility and believability in various of communication processes from interpersonal interactions to mass media messages such as new stories shared in that space (Knapp, Hall, & Horgan, 2014). Furthermore, researchers have widely investigated the relationship between environment and perceived characteristics of credibility in relationships with intercultural attributions of different cultural groups (Hoehner, Brennan Ramirez, Elliott, Handy, & Brownson, 2005; Quillian & Pager, 2001; Schwartz & Halegoua, 2015). Research suggests perceptions of environment influence attributions to those within these environments (Bargh, Chen, & Burrows, 1996; Higgins, 1987; Perdue & Gurtman, 1990; Pratto & Bargh, 1991).

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Similarly, locations, environments, and related visual stereotypes (an individual's attire or a neighborhood's appearance) influence social behaviors regarding members of the perceived group (Bargh, 2006; Peña & Blackburn, 2013). Neighborhoods that are perceived to lack upkeep, for instance, can result in a negative perception of the environment's safety and the residents' credibility (French, Wood, Foster, Giles-Corti, Frank, & Learnihan, 2014; Knapp, Hall, & Horgan, 2014).

Research also shows that some socioeconomic and cultural groups are socially under-privileged and are more vulnerable to be victimized, which explains the correlation between race/ethnicity and fear of crime (Covington & Taylor, 1991; Liska, Sanchirico, & Reed, 1988; Luo & Zhao, 2017). For example, in Miami-Dade County, Hispanics reported the highest level of fear of crime in comparison with Whites and Africans Americans (Eitle and Taylor, 2008). Similarly, previous research data from New York City on fear of crime and race/ethnicity found that Hispanics respondents reported highest levels of fear of crime (Parker, McMorris, Smith, & Murty, 1993). Fear of crime originates from the Hispanics' precipitations on their level of safety (Parker, McMorris, Smith, & Murty, 1993). In addition, research found that Whites in South Florida were more fearful of crime and viewed minorities as threats because of "the growing presence of blacks and Hispanics" (Chiricos, McEntire, & Gertz, 2001, p. 336). According to the authors (Chiricos et al 2001), whites report similar perceptions of minorities as threats, however, this fear is magnified in South Florida because of its unique demographics that puts Whites in the position of being minorities. This is significant because fear of crime and feeling threatened produces social withdrawal which "generates animosity in different aspects of social and political life," and leads to inequalities and lowers the social cohesion and neighborhood trust (Bunting, Chang, Cowen, Hankins, Langston, Warner, & Sen Roy, 2018, p. 43**).**

Perceptions of urban neighborhoods are usually connected to negative characteristics, and as consequence, urban spaces are associated with racial and ethnic stigmas (Billingham & Kimelberg, 2018). On the contrary, suburban spaces are usually associate with middle-White class and considered the normative reference group in evaluations against urban institutions such as schools, which contributes to the perpetration of stigmas and stereotypes ((Billingham & Kimelberg, 2018; Posey-Maddox, 2016). Researchers also point out that neighborhood perceptions not only matter at a social level, they have an influence at economic level such as investment and developmental decisions (Billingham & Kimelberg, 2018; Florida, 2015). Authors found that it is problematic to stereotype neighborhood as "the struggling (mostly nonwhite) city and the prosperous (mostly white) suburb" (Billingham & Kimelberg, 2018, p.861) due to changing social landscapes of cities through gentrification and relocation of poverty into the suburbs (Billingham & Kimelberg, 2018).

Examining Credibility

Social identity theory is interconnected with the notions of stereotyping and perceptions of credibility. Credibility, in this context, is the trustworthiness or believability of the information source. When one is presented with information, perceptions of the source, and their believability, helps determine whether one evaluates this information favorably (Spence, Lachlan, Westerman, & Spates, 2013).

Stereotyping, then, has a great impact on "perceived source credibility" (Spence et. al, 2013, p. 4). Many stereotypes are ingrained in both minority and majority groups (Ferrucci & Tandoc, 2018). Social identity theory argues that people tend to evaluate in-group members more favorably due to a need for a positive self-image. Thus, out-group members are stereotyped more. As Ferucci and Tandoc (2018) explain, "Because minority groups are so used to being

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stereotyped themselves, they tend to stereotype more often; these minority groups also tend to

strongly identify with positive stereotypes concerning their own in-group" (p. 113).

Thus, in this study researchers aim to understand how perceived race/ethnicity and

geographical imagery influence perceptions of credibility. The majority of our participants

identified as Hispanic, which provides information about the minority group's perceptions

regarding these notions. Thus, we define credibility as evaluation of information, and evaluation

of the source of that information, in a favorable way, along with a tendency to believe the

communicator. To this end, we measure pre-conceived assumptions about a person's credibility

because of their race and/or geographical location. In addition, the argument that determining

credibility through certain stereotypes is problematic, relative to achieving effective

communication and exchange between individuals (Knapp, Hall, & Horgan, 2014). As a result,

for this research, we propose the following hypotheses:

H1: Attitudes toward a neighborhood are correlated with attitudes toward an information

source, such that when participants have a negative attitude toward a neighborhood, they

will also have a negative attitude toward the information source (person they encounter)

in this neighborhood.

H2: When participants have a negative attitude toward a neighborhood, they will

perceive the information source (person they encounter) as less credible.

Our third hypothesis incorporates ideas of negative stereotyping and expectations of

criminal activity regarding minorities and urban neighborhoods (Carney & Enos, 2019; Harris &

Gonzalez, 2012; Ferrucci & Tandoc, 2018). We theorize that negative perceptions of the

information source (i.e. when the speaker is a member of a minority group) compiled with

negative expectations of the environment (i.e. expectations of higher criminal activity in urban

settings) lead to negative presumptions within the context. Thus, we hypothesize that:

H3: When participants have a negative attitude toward a neighborhood, they will

presume the described suspect to be guilty without any additional information.

Finally, we wished to see whether, based on the environment and the users' assessment of

the source's information credibility, would these participants attempt to identify the race of the

suspect without any information?

Our hypotheses examined the perceptions of race/ethnicity and geography inter-

connectedly. To further explore these issues, we raise two research questions, which analyze

race/ethnicity and geography independently from one another. We aim to understand how each

concept is contextualized regardless of the other's influence. To that end, we ask:

RQ1: How does the perceived race/ethnicity of the information source, regardless of

geography, influence their attributed credibility?

RQ2: How might users envision the race/ethnicity of the unseen suspect who was not

identified based on race?

Our study took place in a region where 70% of the population identifies as Hispanic. As

previously mentioned, literature suggests that stereotyping and negative attributions toward

Hispanics lead to racial prejudice against those who are perceived to be Hispanic (Arias &

Hellmueller, 2016). Thus, our first research question was designed to explore the potential for

racial bias regarding Hispanics within a majority-Hispanic population.

Our second research question was designed to explore potential racial bias via an

unknown/unseen alleged suspect in connection with the race/ethnicity of the information source

and the environment where the information was provided. The video in this research,

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purposefully, did not include any information or indication of the alleged suspect's

race/ethnicity. We posed this research question to determine whether the users envision the

race/ethnicity of the imagined suspect and if so, how they made this assumption. An attempt was

made to determine whether the race/ethnicity of the information source and/or the environment

had an impact on this view.

Method

Participants

This analysis was conducted using 248 students from a large southeastern university who

either volunteered or were provided extra credit for their participation. The study took place in a

Miami-Date County, Florida region, where the population is approximately 70% Hispanic (U.S.

Census Bureau). Given the racial demographics of the region, the majority of the population

sample were self-described as Hispanic/Latino (n = 163; 66%), followed by White/Caucasian (n

= 38; 15%), Black/African-American (n = 34; 14%), Asian, Asian-American or Pacific Islander

(n = 8; 3%), American Indian, Native American or Other (n = 5; 2%).

To examine the influence race and neighborhood have on perceptions of witness

credibility, we conducted a 2 (race of source: non-Hispanic and Hispanic) x 4 (neighborhood:

suburban White, urban White, suburban Hispanic, urban Hispanic) between-subjects experiment.

Due to the heavy Hispanic population used in the study, we combined all non-Hispanic

participants into one group in order to make comparisons between non-Hispanics and Hispanics.

A recent research study (Bunting, et al., 2018) on spatial patterns and crime conducted in Miami-

Dade County described the region in the following manner: "Miami–Dade is an ethnically

diverse county with large, segmented communities of Hispanic and Latino immigrants, as well as

sizable black and white populations" (p. 36). The authors added that "Miami–Dade County is

particularly suitable as a metropolitan context to study crime patterns that can be generalized to

other major U.S. cities, demonstrating the external validity" (p. 36).

We acknowledge that there are many cultural elements to be considered and it might be

problematic to combine different cultural groups into one as "non-Hispanic." However, we are

making this choice because our population consisted so heavily of Hispanic-identifying

individuals. Thus, our study inadvertently focused specifically on Hispanic perceptions.

Instrumentation

In this study, our reference to virtual reality (VR) correlates with increasingly accessible

and popular use of 360-by-80 degree video, which users view by using headsets. Studies have

used VR to reduce implicit racial bias in courtrooms (Salmanowitz, 2016), while others have

utilized it to promote cross-cultural interactions (Grantham O'Brien & Levy, 2008; Hasler &

Friedman, 2012) and to reduce prejudice through cross-cultural encounters (Behm-Morawitz, E.,

Pennell, H., & Gerding Speno, A., 2016). Researchers who use VR as an instrument for

understanding attitudes and opinion, do so by measuring users' reported or observed reactions to

the visual environment of the medium and to audible forms (Blascovich, Loomis, Beall, Swinth,

Hoyt & Bailenson, 2002). The use of VR could be valuable to use in research to study human-

environment interactions because VR-technology allows to mimic real-world environments,

allowing highly-detailed observations and accurate behavior measurements (Kuliga, Thrash,

Dalton, & Hölscher, 2015), and more realistic responses in comparison with 2D representations

(Kuliga, et al., 2015). For example, perceptions of fear of crime were examined at railway

stations (Cozens, et al., 2003) using VR technology which allowed to collect data from various

points of railway stations.

This medium allows for animation and a variety of storytelling devices with which to interpret participant attitudes and beliefs by transporting users into immersive experiences (Devlin, 2008; Friedrich, 2016; Salmanowitz, 2016). During these immersive experiences, users are able to view and/or interact with various scenes, from animated simulations and natural environments to battle training and other scenarios (Ahn, Fox, Dale, & Avant, 2015; Lemheney, et al., 2016). For this study, our use of VR relied on capturing a scenario in which the user was encouraged to follow the communicator to view the environment surrounding her. While the user was not able to communicate with the subject of the video used in this study, users were encouraged to explore the environment by following the communicator as he moved around the user. This approach enhanced the video's ability to "envelope" the user in a space by supplying a continuous stream of stimuli, such as neighborhood landmarks, vehicles, houses, fences, trees, and other elements (Blascovich, et al., 2002). In this study, the video was used to immerse the participant in both urban and suburban environments.

Procedure

Each participant viewed a 45-second 360-degree by 180-degree virtual reality video via Samsung Gear VR headsets. In the video, they were placed outside the scene of an alleged home invasion in a suburban White, urban White, suburban Hispanic, or urban Hispanic neighborhood. The decision to use these neighborhoods was based on the purpose of this study, i.e., to examine the perspectives of White (the dominant cultural group in the U.S.) and Hispanic (largest minority group in the U.S.) audiences' attitudes about individuals perceived to be White or Hispanic, and to see the degree to which users may be influenced by their perceptions of the neighborhood from which sources of information are located.

Users were randomly assigned to a neighborhood where a home break-in had occurred. An eyewitness (White or Hispanic) provided the user with a description of the incident and a description of what the suspect was wearing. The eyewitness walks around the user to describe how the suspect moved through the neighborhood after committing the crime. The eyewitness then asks for the participant's help in finding the suspect.

Scripts for each video were identical and were tested among a sample of the population who would be asked to participate in the study to address believability and clarity in the language. Three volunteer actors were selected to portray the witness as either a Hispanic or White man. Researchers took portrait photographs of each man in a white t-shirt and white background and tested how a portion of the possible study population categorized the three men based on race. Of the 37 participants, 78.4 percent indicated that an actor volunteering to portray a white witness was white; 13.5 percent categorized the actor as Hispanic. Regarding the actor who volunteered to portray a Hispanic witness, 72.9 percent of participants categorized him as Hispanic; 18.9 percent categorized him as White.

To select environmental settings for the videos, the same participants viewed images on a paper survey of six local, unidentified neighborhoods. Participants were asked to rank on a scale of 1 to 7 the degree to which they perceived the neighborhoods as safe, welcoming, or as a space they would visit. Researchers selected for the "suburban" setting that which 87 percent of participants (marking between 5 and 7) and 74 percent (marking 6 and 7) categorized as "suburban." Of this location, 80 percent of participants indicated (marking range of between 1 and 3) and 22 percent (marking 1 and 2) indicated that they considered the space to be "safe." Researchers selected for the "urban" setting that which 80 percent of participants (marking 1 to 3) and 54 percent (marking 1 and 2) categorized as "urban. Of this location, 74 percent of

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participants (marking 5 to 7) and 61 percent (marking 6 and 7) categorized the neighborhood as

"unsafe." From this, researchers created videos with the following conditions: White

witness/urban neighborhood, White witness/suburban neighborhood, Hispanic witness/urban

neighborhood, Hispanic witness/suburban neighborhood over the period of two consecutive

days. Actors rehearsed and were guided to maintain as exact as possible similar voice inflections,

movements, and facial expressions to reduce user bias. Each man was dressed in blue jeans and a

white t-shirt.

INSERT SNAPSHOTS HERE

Dependent Measures

The dependent measures included users' attitudes about the neighborhood in which a

crime allegedly occurred, their overall opinion of the information source, the opinions of those

who disliked the source of information, and whether study participants believed that the suspect

described by a source they disliked was guilty or innocent of the crime he was alleged to have

committed. The dependent variables were measured on a scale from 1 to 9, with higher scores

indicating a higher level of agreement with the question being asked. Some scores were reverse-

coded when necessary.

To create the dependent variable regarding people's attitudes about the neighborhood,

participants answered eight questions. These included how safe the participants perceived the

neighborhood to be, whether they would avoid the neighborhood if they could, and if they

thought crime was a regular occurrence in the neighborhood. In order to make this variable less

susceptible to fluctuations from answers on a single variable, all eight questions were combined

into a single item scale upon which a reliability analysis was conducted. The principal

component analysis with orthogonal rotation (varimax), showed a level of reliability for the scale

(α = .880). We used principal component analysis because, even though we only analyzed

persons who disliked the information, we were unsure if study participants would dislike the

information for the same reasons (e.g., source of the information or that source's neighborhood).

Hence, we used this technique to increase the likelihood of capturing the specific effect that was

spurring the dislike. The Kaiser-Meyer-Olkin measure verified the use of these items, KMO =

.857 ("superb," according to Field, 2009), and all of the KMO values were > .80, which far

exceeded the acceptable limit of .5 (Field, 2009).

To create the second dependent variable regarding perceptions of the source of

information, we employed a five-item scale combining how honest, friendly, caring,

compassionate, and believable they found the source. The scale showed reliability (α = .715) and

the KMO (.70) was at an acceptable level.

In order to analyze the attitudes of only the users who disliked the source of information,

a principal component analysis was conducted on eight items that asked about negative traits

regarding the source, including the belief that the person was dishonest, untrustworthy, and

dangerous. These were combined to create a single scale item. A reliability test showed an

acceptable reliability for this scale (α = .723). The Kaiser-Meyer-Olkin (KMO) measure (.78)

also validated the use of these items. In addition, an ANOVA was used to answer both research

questions, which asked if people's opinions of sources varied by neighborhood and as a function

of the study participant. Below, we provide the results from this study.

Results

We first tested users' perceptions of the neighborhood in which a person alleged a crime

had occurred. The first hypothesis predicted negative attitudes about the neighborhood would be

correlated with users having bad attitudes about sources from these neighborhoods. To examine

this relationship, a Pearson's correlation was run, which revealed that having a negative attitude

about the neighborhood in which the crime occurred was significantly correlated with having a

negative attitude about the person giving information from that neighborhood ($r = .155$, p < .05).

Therefore, H1 was supported.

Next, we investigated if there was a nesting effect. In other words, we examined whether

having a negative attitude about the neighborhood in which the crime occurred also influenced

people to perceive sources from these neighborhoods to be less credible (H2). The multi-stage

regression shows that users found sources from neighborhoods about which people have negative

attitudes to be less credible ($\beta= .-154$, $SE = .042$, $p =< .006$) and less truthful in their account of

events ($\beta= .-405$, $SE = .032$, $p < .0001$). Users even believed sources from neighborhoods that

they disliked to be dangerous ($\beta= .453$, $SE = .026$, $p < .0001$). This analysis also found that these

negative beliefs were compounded by the fact that not only did users distrust information from

sources in disliked neighborhoods, but that they were also more likely to believe the suspect

described by these sources was guilty of the crime ($\beta= .138$, $SE = .025$, $p < .0001$) he was

accused of committing (H3).

Insert Table 1 Here

The ANOVA revealed users to have more favorable attitudes toward sources from urban

neighborhoods $F(3, 247) = 1.518$, $p = .022$, $\eta^2=.373$. A post-hoc Tukey test showed that study

participants believed information coming from a source in a suburban Hispanic neighborhood ($M = 6.09$) was less credible than information given by a source in an urban Hispanic ($M = 3.84$)

neighborhood ($p < .0001$). The ANOVA also revealed a main effect for race $F(1, 247) = 4.168$, $p = .043$, $\eta^2=.527$, indicating that non-Hispanics ($M = 4.89$) believed the source was less credible

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than did Hispanics ($M = 4.41$). We, however, view this finding with some trepidation due to the small number of non-Hispanics in the sample population and would finding making broad statements about non-Hispanics thought on an issue based on this small population specious. Hence, from here we focus most of our discussion on findings from the larger population.

Discussion

Studies focusing on majority-Hispanic populations' perceptions of bias and credibility are scarce in the literature. Our study tested hypotheses drawn from mainstream research. However, these presented under-reported perspectives by exploring a majority-Hispanic population. We aimed to understand to what degree our majority-Hispanic participants' interpretations of race and environment may influence their perceptions of the credibility of the information they received from a particular source within a particular environment – urban or suburban neighborhoods. The results were as predicted regarding the participants' perceptions and attributions of environments, as evident in the support for our hypotheses. The research questions, on the other hand, yielded implications which present our study's main contribution to literature, since the results were unexpected in terms of racial bias toward information sources perceived to be Hispanic.

Our first hypothesis suggested that participants who have negative attitudes about certain neighborhoods will also have negative attitudes about people in these neighborhoods. Our results supported this hypothesis. Based on previous research, we may assume that the media furthers the perpetuation of some people's dislike for urban/inner-city neighborhoods, and calcifies negative perceptions about such people who live in urban environments. Results supporting our first hypothesis, indicated that when they had a negative perception of the environment, subjects in our study showed a more negative attitude toward the information source. This result, which

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reiterates previous research, indicates that people are more skeptical about information received

from a source associated with a negatively-perceived neighborhood.

Our second hypothesis suggested that when participants have a negative attitude toward a

neighborhood, they will perceive information coming from a source in that neighborhood as less

credible (e.g., dishonest, untrustworthy, etc.). This hypothesis, too, was supported. Such findings

present further concern about the degree to which neighborhoods and individuals from those

neighborhoods are aligned in communication about explanations of and for social conditions

related to wealth, race, and environmental characteristics. In other words, it may be difficult for

some individuals to separate perceptions of people from place, a finding which should be further

examined within research.

Our third and last hypothesis suggested that participants who have a negative attitude

toward the source of information, will also be more likely to believe the suspect such sources

describe is guilty of the crime he is alleged to have committed, even though the alleged suspect is

unseen. As explained in the previous section, negative attitudes toward the neighborhood and the

information source encouraged the participants to distrust the information they were given. Yet,

when asked whether they thought the described suspect was guilty of the crime explained to

them, participants were more likely to believe the suspect to be guilty of the alleged crime.

Support for this hypothesis seems to reaffirm blanket stereotypes of "bad neighborhoods"

as being home to "bad people." This finding is also troubling in that, in a court of juris prudence

where all persons are presumed guilty until proven otherwise, audiences familiar with certain

neighborhoods may presume a purported suspect committed the crime without further evidence,

based simply on location. Should this finding be reaffirmed in future studies, it could have

negative consequences for both the justice system and people living in neighborhoods deemed as

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"bad" by persons who evaluate criminal suspects. Future analyses, especially in criminal justice, should investigate this finding further.

Findings from this study support the theories which show that not only do these assumptions have an attitudinal effect, but that this effect also has a geographic component. These beliefs are tethered to certain regions more so than to others. It is telling that, related to specific regions and specific persons, even amongst a largely-Hispanic sample, we found stereotypical beliefs that the suburbs, regardless of the perceived races/ethnicities of those within the neighborhood, are safer than their urban equivalents. These findings are particularly salient since it suggests that negative stereotypical depictions of Hispanics, especially urban Hispanics and urban Hispanic neighborhoods, have not only permeated the perception of Hispanics but has been endorsed by the group for whom this stereotype is the most harmful.

Even though a common public perception tends to affirm that neighborhoods with high immigrant, ethnic, and racial concentrations have high levels of crime, recent research shows that neighborhoods with mostly Latino immigrants have lower levels of crimes (Lee and Martinez 2002; Lyons, Velez, and Santoro 2013; Nielsen, Lee, and Martinez 2005; Ousey and Kubrin 2009; Ramey 2013). Researchers reported that the positive correlation between crime and ethnic/racial diversity might be explained by distrust or lack of familiarity (Bunting et. al, 2018; Hooghe and de Vroome, 2016). For example, studies on the correlation between crime and race/ethnic groups performed in South Florida showed that Whites felt threatened by Hispanics and blacks living in close proximity (Chiricos et. al, 2001), and that Hispanics felt threatened by the presence of blacks (Putnam, 2007). Future research should examine the degree to which this is the case and, if found in future analyses, perhaps identify the factors that can lead to reversing this belief. This is important because levels of fear and distrust cause individuals to withdraw

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from their neighborhoods which become more heterogenous, increasing social cohesion (Bunting et al, 2018); at the cost of a multicultural environment. This cultural separation feeds into stereotypes, stigmas, and animosity (Bunting et al 2018; Putman, 2007).

The research questions guiding our study were designed to explore possible racial bias and its implications. Our first research question asked how the perceived race/ethnicity of the information source, regardless of geography, influence their attributed credibility. As previously mentioned, in this study we questioned whether racial bias or prejudice toward the Hispanic population fluctuates, positively or negatively, in a Hispanic-majority environment. Based on related research, we expected our research question to yield results indicating a more negative attitude toward the information source perceived to be Hispanic. Yet, our results did not indicate any significant differences in attributed credibility or likability between information sources perceived to be Hispanic or non-Hispanic White. To clarify, the participants did recognize race: whether the subjects identified as Hispanic or non-Hispanic White actors accordingly. However, the perceived race of the actor did not have a significant influence on the actor's perceived credibility as much as did the neighborhood. Research indicates an in-group bias should have led to participants identifying as Hispanic and non-Hispanic White to present a more positive attitude toward the information source of their own cultural group. Our results, as mentioned above, demonstrated that a Hispanic source in a suburban neighborhood was found to be more credible by non-Hispanics ($M = 4.89$) than by Hispanics ($M = 4.41$).

We propose that these results yield a number of possible implications. For instance, we need to account for the fact that the general population of the region where the study occurred consists of a population where 70% identify as Hispanic. In addition, the university where the study took place has an equal amount of its population that identifies as Hispanic. To an extent,

one may argue that the non-Hispanic participants still have a certain amount of familiarity with the Hispanic population; hence, they may have a more positive attitude toward the population. At the very least, it could be expected that they would have a less negative attitude than expected toward the study population. However, the same argument cannot be made for the Hispanic population. Familiarity, contrary to previous research, did not produce more positive attitudes. These results contradict the Social Identity Theory, which predicts that in-group members would tend to favor one another, or at the very least see each other in a positive light as a result of a positive self-image.

Consequently, the argument can be made that attitudes toward the neighborhood took precedence over attitudes toward perceived race/ethnicity. Studies reveal that bias may reinforce negative stereotypes of urban environments (Alderman, 1994; Dixon & Linz, 2000; Entman, 1990, 1992; Hill Taylor & Helfenbein, 2009) and that fear of crime in urban environments is perceived at higher levels, specifically urban areas (Quillian & Pager, 2001). Additionally, our perceptions of the environment, and people we associate with it, influence our assumed knowledge (O'Neill, 2001).

Furthermore, we were also struck by the degree to which race was a salient feature of users' understanding of the scenario in which they were placed. This helped answer the second research question, inquiring how users might envision the race/ethnicity of the unseen suspect. While 66% of the users answered that they were "unsure" of the suspect's race (the suspect was only identified by the source of information as being male and wearing jeans and a T-shirt), nearly 16% identified the suspect as non-Hispanic White; roughly 13% identified him as Hispanic; 5% identified the suspect as Black, and less than 1% identified the suspect as 0.40% Asian, Asian-American, or Pacific-Islander.

We do not claim these results to be statistically significant; rather, we provide the information as further evidence that users were mindful of race in terms of the suspect – enough to guess the race. From this study, we propose that at least an ancillary part of the perceptual process involved users' attitudes about the neighborhood in which a crime occurred and users' attitudes about the people in such neighborhoods. In essence, we predicted and found that participants who described a neighborhood as "bad" also believed that they would be more likely to become victims of crime in that neighborhood, that they were more likely to perceive people who live in that neighborhood to be criminals, and to be untrustworthy as well.

Conclusion

This study provides insight into issues of geography and race/ethnicity related to an increasingly important group within the United States and in expanding regions where Hispanics and non-Hispanic Whites live. Although this study did have noteworthy findings, it was not without limitations. Specifically, we acknowledge that there are many cultural elements to be considered and it might be problematic to combine different cultural groups into one as "non-Hispanic." However, we made this choice because our population consisted so heavily of Hispanic-identifying individuals. Thus, our study inadvertently focused specifically on Hispanic perceptions.

Second, this analysis used primarily college-aged students whose opinions could be vastly different from those in the general population. Finally, we examined a relatively small region of the country that was not fairly representative of the general population. Perhaps a future study done on a more diverse, and ethnically more representative population – could yield findings that are more applicable to the U.S. population as a whole, though the focus of this study was to shed further light on perceptions of credibility among and between Hispanic and

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non-Hispanic populations in urban and suburban environments. Future analyses should be

conducted across several other metro areas. These could then be compared to urban/metro areas

from different regions.

Beyond these limitations, however, this analysis does present further research in two

important ways. First, it uncovered social and environmental contexts that greatly impact

attributions of race and/or ethnicity. Thus, researchers studying race and/or ethnicity must

consider these components. Cultural studies, media studies, intercultural communication, and

similar disciplines further our understanding of race and ethnicity. This study contributes to the

literature in several ways described below.

Specifically, when individuals hold negative predispositions about specific environments

(i.e., they find them dangerous, violent, etc.), they also hold perceptual baggage regarding their

perception of an event that occurs there. They are more likely to believe the source of the

information they encounter is untrustworthy, and less credible. Thus, information coming from

that source is of dubious value. In the case of a person describing a criminal suspect, that suspect

is suspected of being guilty to some degree because of the environment and the information

source who described the person committing the crime. This finding can have greater

implications, from social encounters to the process of law.

Second, and quite troubling, this effect is especially pronounced on the Hispanic

population in urban environments ,who are also more likely to live in the proverbial "bad"

neighborhoods described as "urban" and thus considered criminal by their own peers. As the

literature demonstrates, there is a perceived connection between certain racial/ethnic groups and

certain neighborhoods. By focusing on negative portrayals of certain racial/ethnic groups in

certain neighborhoods, the media perpetuates this connection. Research shows that there is a

higher correlation between crime and socio-economic factors, rather than race/ethnicity. However, the portrayal in the media overwhelmingly connects minorities in urban areas to crime. A take-away from this study, based on these findings, is that although crime can happen anywhere, a good continuation of this project would be to find ways to counter people's beliefs that certain places are endemic to crime. This could be done by showing positive news about so-called bad neighborhoods, not just reporting on criminal acts. Crime can and does happen everywhere. Since the media does influence people's attitudes, perhaps by showing both the good and the bad, by showing positive news, the geographic connection will not always be perceived as negative.

Future studies need to explore credibility perceptions in relation to race/ethnicity and geography for various racial/ethnic cultural groups and different geographical settings. Additionally, future studies that present a research design including a pre-test and post-test assessment can help further scholarly understanding regarding VR-exposure effects.

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Table 1

Factors that influence credibility		
Significant effects	*F*	*p*
Source's neighborhood	$F(3, 247) = 1.518$	< .022
Source's race	$F(1, 247) = 4.168$	< .043
Neighborhood type	M	*SE*
Suburban Hispanic	6.09***	.142
Urban Hispanic	3.84***	.165
Non-Hispanic Suburban	4.22	.329
Non-Hispanic Urban	4.08	.278

*** $p < .0001$