















Acculturation, the phenomena “which result when groups of individuals having different cultures come into continuous first-hand contact with subsequent changes in the original culture patterns of either of both groups” (Redfield, Linton, & Herskovits, 1936, p. 149) has been incorporated as the predictor variable in behavioral studies of Hispanics as shoppers (Valencia, 1982), in media preferences (Subervi Velez, 1986; Faber, O’Guinn, & Meyer, 1986; Rios & Gaines, 1998), and advertising effectiveness (Veltshy & Krampf, 1997). Generally, the models tested assumed the accultured-unacculturated dichotomy. Hispanics who behave more like their Anglo neighbors were considered acculturated; those who behaved differently were considered unacculturated. Others have approached acculturation from what is called the four-fold taxonomy: assimilation, separation, integration, and marginalization (Berry, 1970; Berry & Annis, 1974; Berry, Kalin & Taylor, 1977). Critics have noted, however, that this taxonomy lacks explanatory force and utility (Escobar & Vega, 2000).

How people use the mass media has been a topic of interest for researchers since the Paine Fund studies of the 1920s. The interest then, as now, was in the effects that a medium, such as motion pictures, may have on people, particularly if it was popular. In the late 1940s and early 1950s researchers began in earnest to look into audiences’ uses of the media. Berelson (1949), for example, examined the uses of the newspaper, while Wolfe and Fiske (1949) looked at children’s use of comic books. With the development and popularity of television in the 1950s and 1960s, researchers shifted their focus to the active participation of audiences with that medium. Of particular concern have been the social, political, and psychological effects of media or programs, which audiences actively seek and choose to use (Lowery and DeFleur, 1983).

Since the 1950s, much of the research on media uses and gratifications has been guided by the seminal works of Lasswell (1948), who identified three principal reasons why people use the mass media (e.g., surveillance of the environment, correlation of events in the environment, and transmission of social heritage); Katz, Gurevitch, and Haas (1973) argued that media uses are functional and that people are more likely to use the media as they wish and are therefore less vulnerable to their influence; and McQuail, Blumler, and Brown (1972) took a motivational approach to media use. Rayburn (1996) argued that “these functions have served as the basis for most of the empirical investigations of gratifications research...” (p.146).

Researchers’ interest in the use of mass media by ethnic groups can be traced to early 1900s (Park, 1922). But it was in the 1970s, when census data showed significant growth trends among these markets, particularly Hispanics that the research literature in this subject began to grow in earnest. Greenberg et al. (1983) — to date the most comprehensive study of Mexican-Americans and the mass media — found that adults of this ethnic group used Spanish-language extensively and preferred entertainment to news. Albarran and Umphrey (1993) found that Hispanics were more likely to use television for informational and learning purposes than other groups. Other researchers have also noted a general predilection for Hispanic-oriented content and viewing patterns for children of an average of 29 hours/week (Subervi-Velez & Necochea, 1990).

In the early 1980s, researchers began to focus on Hispanics’ use of mass media and its possible effects on their acculturation. An early study by Shoemaker et al. (1985) found that young Hispanics — more properly “Mexican-Americans” from Texas — were more likely to use English-language print media than their elders, but in rates comparable to those of Anglos, which suggested some form of acculturation. In a more insightful study, Subervi-Velez noted that Hispanics choose various media in order to assimilate into U.S. culture, as well as choosing “ethnic” media in order to maintain their home cultures in a strange land, something other studies have also corroborated (Soruco, 1996; Subervi-Velez, 1986). On the other hand, Jeffres (2000)



found strong evidence that use of ethnic media “leads to stronger ethnic identification” over time (p. 522).

Bilingual Hispanics have various choices of media offerings at their disposal, and choose media based on preferences and variables outlined in a few studies. The question of why Hispanics would go between media and languages has been related to processes of acculturation. Various factors have been noted as functions of foreign-language media usage, including: cultural maintenance, agenda setting, informational needs, promotional or motivational functions, as comfort or expressions of anger. Rios and Gaines (1998) found disparate results among Latino audiences in terms of their use of English- and Spanish-language media for cultural maintenance, especially in terms of degrees of “membership” as Latinos. Those who identified with both Latino and Anglo communities tended to use media in both languages. Chambers (2006) found more support for this “heterogeneity,” as he noted diversity in formatting among Spanish-language radio.

South Florida is without a doubt one of the best social laboratories for the study of Hispanic migration and adaptation and implications regarding mass media behaviors. Since the early 1960s, the region has experienced significant cultural, political, economic, and social transformations. Miami-Dade and Broward counties, which include such large metropolitan areas as Miami’s metropolitan area and Fort Lauderdale and its suburbs, are now the homes of people from all over Latin America. Although Cuban exiles continue to be the largest segment of the Hispanic population, other nationalities, such as Colombians, and Venezuelans are rapidly gaining a foothold in both counties, but particularly in Miami-Dade County. According to census figures, by the year 2000, Miami-Dade County had 2.3 million residents, of which 1.3 million (57 percent) identified themselves as Hispanic or Latino. Neighboring Broward County’s 272,000 Hispanic residents inflated the Latino population of the region to a total of 1.6 million.

Based on the literature review, three general research questions are proposed as follows:

R1: How does newspaper (both Spanish- and English-language) consumption influence Hispanic immigrants’ acculturation to the American culture?

R2: How does magazine (both Spanish- and English-language) consumption influence Hispanic immigrants’ acculturation to the American culture?

R3: How does television (both Spanish and English-language) consumption influence Hispanic immigrants’ acculturation to the American culture?

Method

We used a snowball sampling method. Respondents were contacted by phone and in person and asked to respond to the instrument as well as pass it along to friends and relatives. The sample frame included households in Miami-Dade and Broward counties, whose adult members identified themselves as being Hispanic or of Hispanic heritage. There were a total of 160 respondents who completed the survey questionnaire. Among them, 62.3 percent were female and 37.7 percent were male. Their average age was 35.33 years old ( $SD = 15.59$ ), and 46.8 percent of them were married and had an average of 2.2 children ( $SD = 1.18$ ). Their countries of origin were widely distributed, including Cuba (23.3 percent), Colombia (23.3 percent), Peru (12.6 percent), and several others. Their occupations were also miscellaneous, such as business owners, graphic designers, market analysts, drivers, secretaries, accountants, students, and so on. Most of them (70.6 percent) had a college degree or had completed some college. On average, they had stayed in the U.S. for 21.38 years ( $SD = 13.41$ ).

Their consumption of both Spanish- and English-language media was measured in the traditional sense in the current study: newspapers, magazines, and television. It was found that 50.0 percent of them read one or more Spanish-language newspapers. Meanwhile, 46.2 percent of them read one or more English-language newspapers. Moreover, 42.6 percent of them read one or

more Spanish-language magazines and 58.0 percent read one or more English-language ones. Finally, on an average day, 45.6 percent of them would pick a Spanish-language television program to watch and 54.4 percent of them would select an English-language one.

Respondents' acculturation to the American culture was measured primarily from two aspects: language use and social interactions. They were requested to report what language they use to speak with their families, as well as with their friends at work or school. They were also asked to report how they categorize their closest friends (mostly Hispanics, mostly non-Hispanics, or both equally), and how often they attend to the festivals of their countries of origin. It was found that 70 percent of them spoke mostly Spanish with their families (13.1 percent mostly English and 16.9 percent both equally), and 47.2 percent spoke mostly Spanish with their friends at work or school (28.3 percent mostly English and 24.5 percent both equally). It was also discovered that 82.5 percent of them categorized their closest friends to be mostly Hispanics (5.6 percent mostly non-Hispanics and 11.9 percent both equally), and 55.8 percent of them rarely or never went to the festivals of their countries of origin (24.1 percent sometimes and 20.1 percent often or very often).

### Results

To explore the research questions proposed in the current study, a series of chi-square tests were performed. The first research question was focused on the association between newspaper consumption on acculturation. It was found that respondents who read one or more Spanish-language newspapers were more likely to speak Spanish with their families (86.1 percent) as opposed to those who did not (53.2 percent),  $\chi^2 (2, N = 158) = 20.241, p < .001$ . Similarly, it was also found that respondents who read Spanish-language newspapers were more likely to speak Spanish with their friends at work or school (60.3 percent) in comparison to people who did not (32.9 percent),  $\chi^2 (2, N = 157) = 15.861, p < .001$ . However, in regard to respondents' social interactions with Hispanics, no significant associations were detected. Consumption of Spanish-language newspapers did not significantly influence how respondents categorized their closest friends,  $\chi^2 (2, N = 158) = 1.751, p > .1$ , and how often they attended to the festivals of their countries of origin,  $\chi^2 (2, N = 153) = 4.589, p > .1$  (See Table 1).

**Table 1. Impact of Spanish-Language Newspaper Consumption on Acculturation**

		Do you read one or more Spanish-language newspapers?	
		Yes	No
What language are you most likely to speak with your family?	Mostly English	6.3% ***	20.3% ***
	Mostly Spanish	86.1% ***	53.2% ***
	Both equally	7.6% ***	26.6% ***
What language are you most likely to speak at work or school with friends?	Mostly English	15.4% ***	41.8% ***
	Mostly Spanish	60.3% ***	32.9% ***
	Both equally	24.4% ***	25.3% ***
How would you categorize your closest friends?	Mostly Hispanics	86.1%	78.5%
	Mostly non-Hispanics	3.8%	7.6%
	Both equally	10.1%	13.9%
How often do you attend the festivals of your country of origin?	Rarely	51.4%	60.8%
	Sometimes	31.1%	16.5%
	Often	17.6%	22.8%

\*p < .05, \*\*p < .01, \*\*\*p < .001.

When the impact of English-language newspaper consumption on acculturation was examined, it was discovered that respondents who read one or more English-language newspapers were more likely to speak English with their families (23.6 percent) than people who did not (3.6 percent),  $\chi^2(2, N = 156) = 23.253, p < .001$ . Reading English-language newspapers also increased respondents' tendency to speak English with their friends at work or school (44.4 percent vs. 14.5 percent),  $\chi^2(2, N = 155) = 25.641, p < .001$ . Moreover, respondents who read

English-language newspapers claimed more both Hispanic and non-Hispanic friends (20.8 percent) than those who did not (4.8 percent),  $\chi^2 (2, N = 156) = 10.305, p < .01$ . However, reading English-language newspapers was not significantly associated with how often respondents attended to the festivals of their countries of origin,  $\chi^2 (2, N = 150) = 1.113, p > .1$  (See Table 2).

**Table 2. Impact of English-Language Newspaper Consumption on Acculturation**

		Do you read one or more English-language newspapers?	
		Yes	No
What language are you most likely to speak with your family?	Mostly English	23.6% ***	3.6% ***
	Mostly Spanish	51.4% ***	85.7% ***
	Both equally	25.0% ***	10.7% ***
What language are you most likely to speak at work or school with friends?	Mostly English	44.4% ***	14.5% ***
	Mostly Spanish	26.4% ***	65.1% ***
	Both equally	24.4% ***	20.5% ***
How would you categorize your closest friends?	Mostly Hispanics	76.4% **	88.1% **
	Mostly non-Hispanics	2.8% **	7.1% **
	Both equally	20.8% **	4.8% **
How often do you attend to the festivals of your country of origin?	Rarely	50.7%	58.2%
	Sometimes	25.4%	24.1%
	Often	23.9%	17.7%

\*p < .05, \*\*p < .01, \*\*\*p < .001.

The second research question was centered around the association of magazine reading on acculturation. According to the chi-square test results, consumption of Spanish-language magazines is associated with acculturation. Respondents who read one or more Spanish-language magazines were more likely to speak Spanish with their families (80.3 percent) than those who did not (61.8 percent),  $\chi^2(2, N = 155) = 7.833, p < .05$ . In addition, people who read Spanish-language magazines were more likely to attend to the festivals of their countries of origin (54.0 percent) than people who did not (34.9 percent),  $\chi^2(2, N = 149) = 11.673, p < .01$ . However, reading Spanish-language magazines did not significantly influence how respondents categorized their closest friends,  $\chi^2(2, N = 155) = 2.343, p > .1$ , and what language they used to speak with friends at work or school,  $\chi^2(2, N = 154) = 3.032, p > .1$  (See Table 3).

**Table 3. Impact of Spanish-Language Magazine Consumption on Acculturation**

		Do you read one or more Spanish-language magazines?	
		Yes	No
What language are you most likely to speak with your family?	Mostly English	12.1% *	14.6% *
	Mostly Spanish	80.3% *	61.8% *
	Both equally	7.6% *	23.6% *
What language are you most likely to speak at work or school with friends?	Mostly English	23.1%	33.7%
	Mostly Spanish	53.8%	40.4%
	Both equally	23.1%	25.8%
How would you categorize your closest friends?	Mostly Hispanics	87.9%	78.7%
	Mostly non-Hispanics	3.0%	6.7%
	Both equally	9.1%	14.6%
How often do you attend to the festivals of your country of origin?	Rarely	46.0% **	65.1% **
	Sometimes	36.5% **	12.8% **
	Often	17.5% **	22.1% **

\*p < .05, \*\*p < .01, \*\*\*p < .001

In regard to the associations of English-language magazine consumption, it was found that respondents who read one or more English-language magazines were less likely to speak Spanish with their families (57.5 percent) than people who did not (85.7 percent),  $\chi^2(2, N = 150) = 13.711, p < .001$ . Respondents who read English-language magazines were also less likely to speak Spanish with their friends at work or school (27.4 percent) in comparison with those who

did not (71.0 percent),  $\chi^2 (2, N = 149) = 30.753, p < .001$ . No significant associations were revealed for English-language magazine reading on how respondents categorized their closest friends,  $\chi^2 (2, N = 150) = 4.364, p > .1$ , and how often they attended to the festivals of their countries of origin,  $\chi^2 (2, N = 145) = .790, p > .1$  (See Table 4).

**Table 4. Impact of English-Language Magazine Consumption on Acculturation**

		Do you read one or more English-language magazines?	
		Yes	No
What language are you most likely to speak with your family?	Mostly English	18.4% ***	6.3% ***
	Mostly Spanish	57.5% ***	85.7% ***
	Both equally	24.1% ***	7.9% ***
What language are you most likely to speak at work or school with friends?	Mostly English	44.8% ***	9.7% ***
	Mostly Spanish	27.4% ***	71.0% ***
	Both equally	27.6% ***	19.4% ***
How would you categorize your closest friends?	Mostly Hispanics	79.3%	87.3%
	Mostly non-Hispanics	3.4%	6.3%
	Both equally	17.2%	6.3%
How often do you attend to the festivals of your country of origin?	Rarely	58.1%	50.8%
	Sometimes	22.1%	27.1%
	Often	19.8%	22.0%

\*p < .05, \*\*p < .01, \*\*\*p < .001.

Finally, the third research question was based on the impact of television watching on acculturation. It was found that respondents who were more likely to watch Spanish-language television on an average day tended to speak Spanish more often with their families (91.7 percent), compared to others who were more likely to watch English-language television (51.2 percent),  $\chi^2(2, N = 158) = 30.446, p < .001$ . They were also more likely to speak Spanish with their friends at work or school (71.8 percent) than others (25.6 percent),  $\chi^2(2, N = 157) = 36.106, p < .001$ . No significant associations were detected regarding television watching on how respondents categorized their closest friends,  $\chi^2(2, N = 158) = 3.283, p > .01$ , and how often they attended to the festivals of their countries of origin,  $\chi^2(2, N = 152) = .339, p > .01$  (See Table 5).



**Table 5. Impact of Television Consumption on Acculturation**

		On an average day, are you more likely to watch Spanish-language television or English-language television?	
		Spanish	English
What language are you most likely to speak with your family?	Mostly English	4.2% ***	20.9% ***
	Mostly Spanish	91.7% ***	51.2% ***
	Both equally	4.2% ***	27.9% ***
What language are you most likely to speak at work or school with friends?	Mostly English	9.9% ***	44.2% ***
	Mostly Spanish	71.8% ***	25.6% ***
	Both equally	18.3% ***	30.2% ***
How would you categorize your closest friends?	Mostly Hispanics	87.5%	77.9%
	Mostly non-Hispanics	5.6%	5.8%
	Both equally	6.9%	16.3%
How often do you attend to the festivals of your country of origin?	Rarely	57.4%	54.8%
	Sometimes	25.0%	23.8%
	Often	17.6%	21.4%

\*p < .05, \*\*p < .01, \*\*\*p < .001.

## Discussion

The current study aimed to examine the relationship between media consumption and Hispanic immigrants' adaptation to the American culture. Media were defined from the perspective of traditional mass media, including newspapers, magazines, and television. Adaptation to the American culture was conceptualized from the aspects of language use and social interactions. Heavier usage of Spanish with families and friends was considered as an indicator of a low level of adaptation. Conversely, increased use of English was considered as an indicator of more adaptation. Similarly, having more Hispanic closest friends and more attendance to the festivals of country of origin were considered features of less adaptation and vice versa. According to the data analysis results depicted in the above section, it was shown that media consumption significantly influenced Hispanic immigrants' adaptation to the American culture.

First of all, the language that respondents used with their families and friends was strongly associated with the type of media they consumed. Specifically, when they read Spanish-language newspapers and magazines and watched Spanish-language television, Spanish became the dominant language for communications both at home and at work. In contrast, when people read English-language newspapers and magazines and watched English-language television, they started to use English more often both at home and at work. However, it was important to note that English did not become the "dominant" language even if respondents consumed English-language media heavily, but the proportion of English usage in their daily lives increased. Such a finding supported the conclusion of prior research on acculturation phenomena that acculturation was not a simple linear process. That is to say, both the home culture and host culture could co-exist. Acculturation to the host culture did not necessarily mean that individuals had to "abandon" their home culture. As reflected in the findings of the current study, those respondents who consumed English-language media heavily did adopt English in their daily lives, but they also kept using Spanish instead of completely "abandoning" it.

In regard to how media consumption affected Hispanic immigrants' social interactions with non-Hispanics, the associations appeared to be weaker than those on the language use. Newspaper and magazine reading and television watching had little effect on how people categorized their closest friends and how often they attended to the festivals of their countries of origin. The only significant findings were found in English-language newspaper and Spanish-language magazine reading. Specifically, reading English-language newspapers helped respondents make more non-Hispanic friends. Reading Spanish-language magazines pushed them to attend to the festivals of their countries of origin more often. Such results revealed that acculturation at the "center" of a host culture might be a longer process than imagined. Considering the context of the current study, the respondents had resided in the U.S for over an average of 21 years. However, the vast majority of their closest friends were still Hispanics (82.5 percent). This suggested that the construct of acculturation might need to be conceptualized at multiple levels, such as cognitive, affective, and behavioral. For example, at the cognitive level, acculturation might be conceptualized that sojourners become aware of the existence of the host culture and its values. In fact, as a result of globalization and the widespread distribution of American information and entertainment programs and products (i.e., CNN, sports, movies, etc.) immigrants have already become acquainted with elements of the host culture. At the affective level, they start to form favorable attitudes toward the core values of the host culture. Finally, at the behavioral level, they are actively involved in the host culture and become an inseparable part of it. As reflected in the current study, however, acculturation at the behavioral level might be much harder to achieve, compared to that at the cognitive and affective level.

As previous research on media have suggested, populations use media for various reasons; surveillance and transmission of social heritage are some of them (Lasswell, 1948). Our research suggests that South Florida Latinos seek both Spanish- and English-language media for their functionality (Katz, et al, 1973, Soruco, 1996) to “connect” with their own culture as well the host culture; to gain information on the “self, family, friends, society, and culture” (p. 166). In their functional role, both media appear to be equally important. Less clear is the effect that culture may have on the medium sought and whether there is a reciprocal relationship between media use and culture. Further research is necessary to establish whether acculturation leads to increased use of host culture media or whether increased used of host media leads to acculturation. Unfortunately, our findings are limited because of sample size and the fact that it was obtained though non-probability methods. Future research should address these factors.

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**Table 1 - Keywords Used to Develop Measures of Issue Attention**

Issue Domain	Keywords
Crime	crime, gun, death penalty, victim's right, sentencing, sentenced, criminal, prison, penitentiary, capital punishment, death row, Brady bill, trigger lock
Education	educate, education, educational, school, teacher, voucher, integration, standardized testing, classroom, high school, college
Immigration	immigration, illegal immigrant, guest worker, border security, citizenship, border fence, border patrol, amnesty program

Note: Many keywords used here employed in Wood (2009b, 78-80) to measure presidential rhetoric.

For each issue, a sentence that mentions one of the issue keywords for that particular issue are included in the total count for that respective month. Human validation efforts for each issue area were performed to determine whether the extracted sentences discuss the specific issue area in question, as some of the keywords have different meanings, or can be applied to contexts outside of the specific issue area. Several undergraduate students reviewed the extracted sentences and assessed whether each sentence actually involved a discussion of the issue that Perl was programmed to collect mentions of. Those sentences that did not involve a discussion of a specific issue area were omitted from the final count of mentions of that particular issue.

Information on English- and Spanish- language news media is obtained from ProQuest's Newsstand electronic repository. ProQuest indexes stories in newspapers by having staff members manually categorize stories based on newspaper hard-copies and newspaper online feed information using set content analysis guidelines. The source selected to serve as a representation of English-language news media issue attention is the Los Angeles Times. For the Spanish-language news media issue attention measure, information comes from the paper La Opinión. Sources from the same market, Los Angeles, are selected to help control for any geographic or regional effect differences in issue attention that would be difficult to account for if the selected sources were located in distinct markets from each other.

Both La Opinión and the Los Angeles Times are traditionally highly read papers, especially compared to peer publications. The Los Angeles Times in 2008 was rated as having the fourth-highest daily circulation in the country, behind only USA Today, the Wall Street Journal, and the New York Times (Burrelles Luce, 2008). In the same list, La Opinión was the only Spanish-language newspaper to be listed in the top one-hundred daily newspapers in the United States based on circulation, ranking eighty-seventh out of one-hundred. More recent information from the Audit Bureau of Circulations (2012) indicates that between October 2011 and March 2012, La Opinión had a Monday through Friday average paid circulation of 95,148. This was over twice the size of the circulation of New York's El Diario La Prensa (38,327). Such high readership figures indicate La Opinión is a viable Spanish-language news media outlet presidential administrations would want coverage in to get their issue agenda discussed.

Newspapers are selected since there is much more extensive time series information currently available for Spanish newspapers like La Opinión compared to what is currently available in terms of transcripts for Spanish-language radio and television. La Opinión was the most prominent Spanish-language paper available on ProQuest Newsstand without major missing data problems. Other Spanish-language newspapers available at the time of data collection on the electronic repository provide more intermittent time series. It is not necessarily clear if the missing information can be attributable to those papers not being published in some months, or

ProQuest not yet adding the information on those months into their electronic holdings, or some other potential issue.

The number of news stories written in a month that address a specific issue area is the representation of issue attention for each of the newspapers selected. If there are a consistently high number of news stories about a single issue within a newspaper, this should serve as a clear indicator to others in the political system that the issue is perceived as salient by the news staff. This can then help to shape the decision calculus of others in the political system as to which issues are most salient.

ProQuest Newsstand has several potential news document types that can be measured over time (e.g. "Feature," "Report," "Commentary," "Editorial," etc.). One of these categories, "News" is selected for the project, as it is the most representative of news story coverage. A benefit of the ProQuest electronic repository is that English-language search terms used to collect stories in English-language media sources can be used to collect stories in Spanish-language news media sources, simplifying future attempts at replication. The same issue keywords used in the extraction of sentences for presidential issue attention were used as subject keywords in finding news stories about each respective issue area.

### **Time Series Procedures**

The possibility of multidirectional relationships in time series variables like those measured in this project require the usage of techniques that consider the potential presence of feedback between the variables. These techniques can help to determine whether the president can guide the issue attention of media outlets, or instead responds to the focus of the news media (Edwards & Wood, 1999).

An approach that helps to determine the presence of multidirectional relationships is a vector autoregression or VAR analysis. In a vector autoregression model, all of the variables are measured within a system of several variables (Freeman, Williams, & Lin, 1989). Each variable in this system is analyzed as an endogenous variable. An endogenous variable is one whose values are predicted by another variable or multiple variables in the system. An endogenous variable is regressed both on past values of itself, as well as lags (meaning prior values) of other variables in the system. An approach like this can help in attempts to determine the appropriate direction of causal relationships between variables. Simply put, the attempt is to see whether changes in one variable produce changes in another variable. If prior change in one variable significantly predicts shifts in another variable, this helps to clarify the potential dynamics between these variables.

The utility of vector autoregression is that it specifies whether prior change in one variable can predict changes in another variable without having to place a theoretical restriction on which variables in the system are a priori exogenous. A variable that is exogenous is independent of other variables in the system. Including lags in the system can help account for the lack of change, or inertial qualities each variable has (Sims, 1980).

Granger tests are employed in hypothesis tests for the joint significance of coefficients for each variable in each equation (Granger, 1969). This is made possible through the usage of F tests. The test is on the restriction that all of the lags in a variable do not significantly enter into the regression of the endogenous variable. It is possible to assess whether prior values of one variable in the system can impact the endogenous variable. A statistically significant block of coefficients means a Granger causal relationship is present between a variable and the specified endogenous variable in the system.

While VAR techniques are useful to determine the direction of causal relationships between variables, such procedures do not detail whether or not the relationship between

variables is positive or negative. It is also not possible to determine the magnitude of the relationship between variables. The reason is that with the number of lags used in a vector autoregression, multicollinearity (the high correlation of independent variables) influences the coefficient estimates.

In order to determine the direction and magnitude of dynamic relationships between variables, the usage of moving-average representation (MAR) is ideal. When performing a moving-average representation procedure, a simulated shock is induced on a variable, and then the dynamics of that shock are observed over a period of time (Wood, 2009b, 172). Under MAR, it is possible to see the response of other variables in the system when a change (the shock) is induced on a single variable in the system. In order to have a more intuitive interpretation of the size of the change in one variable after other experiences a simulated shock, all variables are standardized. When standardizing a variable, it is rescaled to have a mean of zero and a standard deviation of one.

Lastly, indicator dummy variables are used in the analysis to designate major focusing events in each issue area. For the system evaluating crime, the Columbine school shootings is measured given the event helped to raise discussion about gun violence (Reich, Culross, & Behrman, 2002). In the issue area of education, the signing of the major piece of legislation, the No Child Left Behind Act, is measured. For the issue area of immigration, the initiation of the Minutemen Project border patrol militia is measured.

A honeymoon period indicator is not included in the analysis for the George W. Bush administration. Research has shown that the public can be more responsive to presidential rhetoric during honeymoon periods (Wood, 2009b), but there is evidence that the news media does not consistently offer “honeymoon coverage” across administrations (Hughes, 1995).

### **Research Findings**

The findings of the analyses suggest the president struggles to direct La Opinión’s issue attention in the executive branch’s preferred direction. This offers an initial piece of evidence that the president struggles to direct attention to issues in the Spanish-language press. In one (crime) of the three issue areas studied, changes in presidential attention do not significantly predict changes in La Opinión’s issue attention. Support for Hypothesis One is seen in the issue areas of education and immigration. Nonetheless, when assessing the direction and magnitude of the response in La Opinión’s issue attention following a positive shift to presidential issue attention, it appears issue attention in this Spanish-language news media outlet is either unresponsive, or moves in a direction opposite the president. In two of the three issue areas, an increase in presidential attention to an issue is met with a decrease in attention to the same issue within the pages of La Opinión. Only in the issue area of education is a positive shift in coverage observed in La Opinión following a positive shift in presidential attention, and this observed increase in issue attention is fairly brief in duration. This suggests limited support for Hypothesis Two.

Such findings reinforce those that suggest the president struggles to direct the attention of the news media (Wood & Peake, 1998). The capacity of the president to set the systemic agenda is constrained if Spanish-language news media outlets are not responsive to a heightened focus from the executive to specific issues. It is also worth noting that the Spanish-language news media outlet analyzed here is limited in directing the issue attention of the president, and the English-language media outlet analyzed here does not exhibit a clear ability to guide the issue attention of either the president or the Spanish-language news media outlet studied. Upon an in-depth review of the dynamics in each specific issue area, it appears that each actor in the political system prioritizes issues independently of other actors in the system.

**Crime**

Table Two presents the results of the vector autoregression analysis of the system of variables in the issue area of crime. The president does not Granger-cause issue attention to crime in *La Opinión* (p-value = 0.21). News coverage on crime in the *Los Angeles Times* though does significantly predict news coverage to crime in *La Opinión* (p-value = 0.05). Past attention to crime in *La Opinión* does predict current attention to crime coverage within the paper (p-value = 0.00). In other words, the *La Opinión* series is inertial, with prior news coverage to the issue shaping current news coverage to the issue. Both presidential attention (p-value = 0.00) and *Los Angeles Times* issue attention (p-value = 0.00) are also inertial.

While presidential attention to crime does not appear to help shape news coverage to crime in *La Opinión*, presidential attention to the issue does significantly Granger-cause attention to crime in the *Los Angeles Times* (p-value = 0.09). News coverage in the *Los Angeles Times* to crime though also Granger-causes presidential attention to crime (p-value = 0.10). This reciprocal relationship resembles results seen in prior research like Edwards and Wood (1999) and Eshbaugh-Soha and Peake (2005) that indicate both the president and the news media have the capacity to mutually influence each other. Neither the president nor the *Los Angeles Times* media shift attention significantly in the face of prior change in *La Opinión* news coverage to crime.

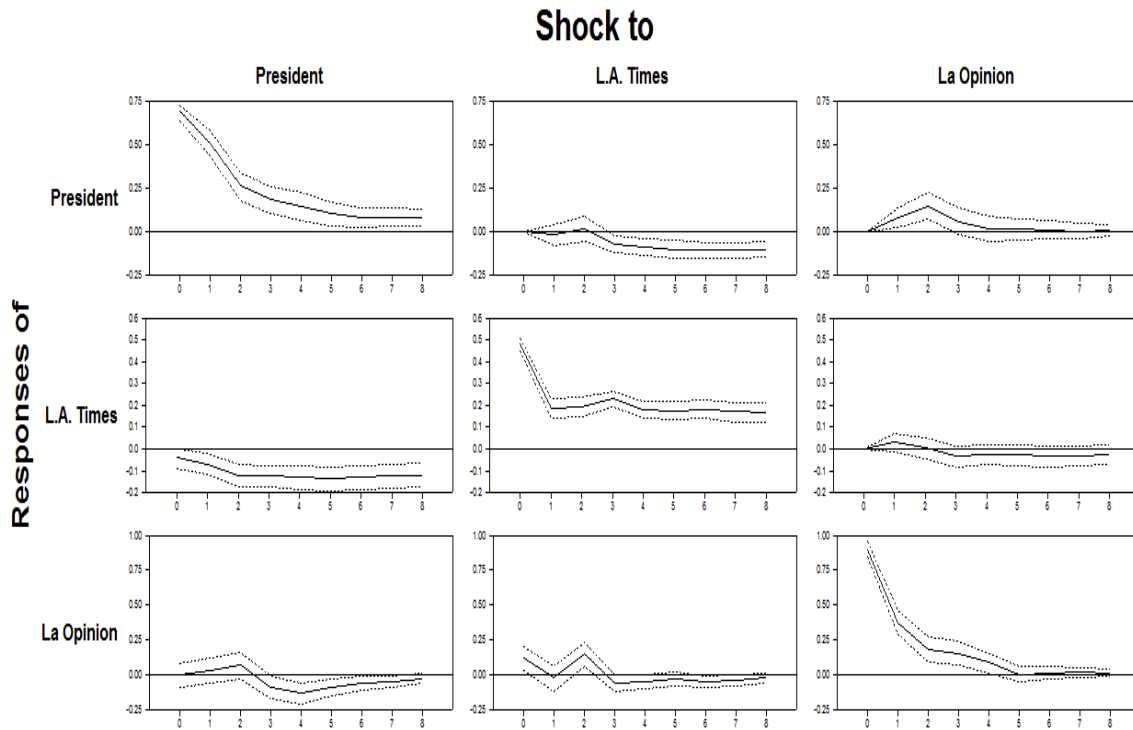
**Table 2 - Granger Tests for the Crime Issue System**

Independent Variable	Dependent Variable	p-value
Presidential Attention	=> Presidential Attention	0.00
English-Language Media Attention	=>	0.10
Spanish-Language Media Attention		0.22
Presidential Attention	=> English-Language Media Attention	0.09
English-Language Media Attention	=>	0.00
Spanish-Language Media Attention		0.81
Presidential Attention	Spanish-Language Media Attention	0.21
English-Language Media Attention	=>	0.05
Spanish-Language Media Attention	=>	0.00

Note: The arrows represent Granger causality from the block of coefficients for the independent variable to the dependent variable based on 0.10 significance levels. The p-values are from F tests for the null hypothesis of no Granger causality. The system includes a deterministic constant and an indicator for the Columbine school shootings. Each of the independent variables includes three monthly lags to control for the inertia of the variables.

A plot of the response to simulated shocks to the three variables in the crime system is presented in Figure One. The number of months following a positive shock to a variable is measured along the horizontal axis of each plot. The vertical axis of each plot measures the positive or negative shift from the standardized mean following the shock. The variable given a simulated shock is the same within each specific column in the figure.



**Figure 1 - MAR Impulse Responses for Variable System in Issue Area of Crime**

Note: Dashed lines are 95 percent confidence intervals

For example, in the first column, the variable given a positive shock is presidential issue attention. In row one, the response of presidential issue attention to a positive shock in itself is represented. The response of the Los Angeles Times to the positive shock in presidential issue attention is presented in row two of column one (labeled as L.A. Times), and the response of La Opinión to the shock in presidential attention is presented in row three of column one (labeled as La Opinión).

In observing row three of column one, a positive shock to presidential attention to crime does not shift news coverage in La Opinión to crime contemporaneously. La Opinión issue attention appears to hold still at the standardized mean at the point where the positive shock to presidential attention to crime occurs. The upward shift in La Opinión attention to crime for two months following the shock to presidential attention is not significant, as the 95 percent confidence interval is not bounded away from the standardized mean of zero. At the third month following the shock to presidential attention, La Opinión attention shifts downward, then decays to the standardized mean. Presidential attention to crime, based on both the VAR and MAR analyses, does not guide attention in La Opinión to crime.

Since the vector autoregression analysis did indicate that Los Angeles Times media attention to crime does Granger-cause attention to crime in La Opinión, it is worthwhile to examine the response of La Opinión to a positive shock in Los Angeles Times attention to crime. Based on the dynamics displayed in column two, row three of the figure for the MAR analysis, there is a 0.125 standard deviation contemporaneous increase in La Opinión attention to crime after a shock to Los Angeles Times attention to crime. After a return to the standardized mean a

month after the shock, La Opinión attention again increases in the second month after the shock, then decays to the standardized mean at the third month after the shock. The effect of Los Angeles Times attention to crime on La Opinión attention to crime is positive, albeit short-lived.

### Education

In the issue area of education, presidential attention does Granger-cause attention in La Opinión (p-value = 0.03). Attention in La Opinión to education though does Granger-cause presidential attention to education as well (p-value = 0.03). Attention in the Los Angeles Times to this issue area does not Granger-cause attention in La Opinión (p-value = 0.19), while attention in La Opinión does Granger-cause attention to education in the Los Angeles Times (p-value = 0.06). All of the issue series are inertial, with prior values of a specific dependent variable in the system predicting current values of that dependent variable.

**Table 3 - Granger Tests for the Education Issue System**

Independent Variable		Dependent Variable	p-value
Presidential Attention	=>	Presidential Attention	0.00
English-Language Media Attention			0.70
Spanish-Language Media Attention	=>		0.03
Presidential Attention		English-Language Media Attention	0.40
English-Language Media Attention	=>		0.00
Spanish-Language Media Attention	=>		0.06
Presidential Attention	=>	Spanish-Language Media Attention	0.03
English-Language Media Attention			0.19
Spanish-Language Media Attention	=>		0.00

Note: The arrows represent Granger causality from the block of coefficients for the independent variable to the dependent variable based on 0.10 significance levels. The p-values are from F tests for the null hypothesis of no Granger causality. The system includes a deterministic constant and an indicator for the signing of No Child Left Behind. Each of the independent variables includes two monthly lags to control for the inertia of the variables.

Figure Two presents the results of the moving-average representation for this particular system of variables. In reviewing the results, a positive shock to presidential attention has no contemporaneous effect on La Opinión coverage (see column one, row three). One month after the positive shock to presidential attention in education, attention in La Opinión to education increases to about 0.23 standard deviations above the standardized mean. Following this, La Opinión coverage to education decays to the standardized mean. The positive effect presidential attention has on attention in La Opinión to education is finite in duration.



attention is not highly inertial ( $p$ -value = 0.23). The full results of the vector autoregression are presented in Table Four.

**Table 4 - Granger Tests for the Immigration Issue System**

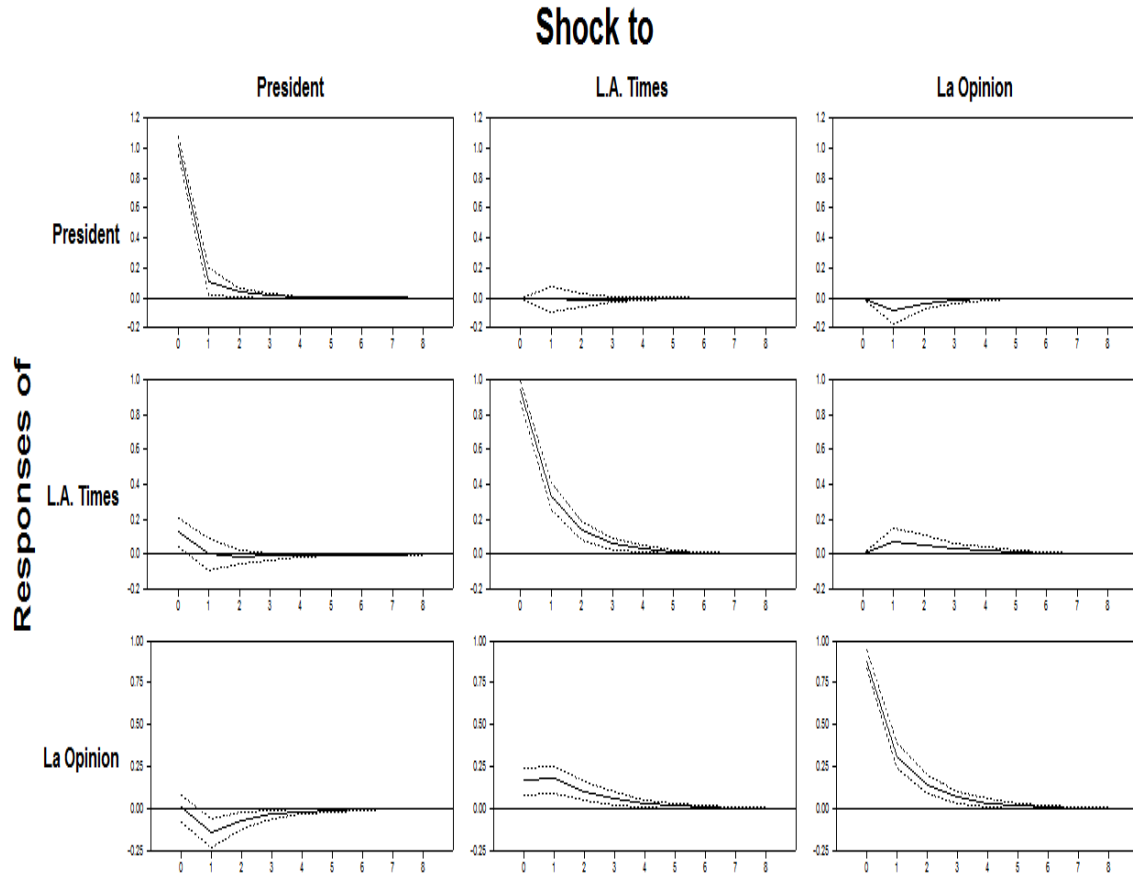
Independent Variable	Dependent Variable	p-value
Presidential Attention	Presidential Attention	0.23
English-Language Media Attention		0.94
Spanish-Language Media Attention		0.30
Presidential Attention	English-Language Media Attention	0.61
English-Language Media Attention =>		0.00
Spanish-Language Media Attention		0.31
Presidential Attention =>	Spanish-Language Media Attention	0.05
English-Language Media Attention		0.14
Spanish-Language Media Attention =>		0.00

Note: The arrows represent Granger causality from the block of coefficients for the independent variable to the dependent variable based on 0.10 significance levels. The p-values are from F tests for the null hypothesis of no Granger causality. The system includes a deterministic constant and an indicator for the establishment of Minutemen Project. Each of the independent variables includes one monthly lag to control for the inertia of the variables.

The moving-average representation indicates that a positive shift in presidential attention to immigration is met with a brief drop in La Opinión coverage to immigration in the first month following the shock (column one, row three of Figure Three). There is then a quick decay to the standardized mean. The president in this instance is not successful in heightening attention to immigration in La Opinión. This Spanish-language news media outlet could simply be consistently focusing on immigration, regardless of cues from other actors in the political system.

Evaluating the response to a positive shock to La Opinión coverage by both the president and the Los Angeles Times suggests a negligible effect. In both the impulse responses of presidential issue attention and issue attention from the Los Angeles Times, the 95 percent confidence interval is not bounded away from zero. As a result, it cannot be said with clarity whether the president and the Los Angeles Times increases or decreases attention to immigration in the face of heightened attention in La Opinión. Figure Three presents the results of the MAR analysis for the immigration system of variables.

Figure 3 - MAR Impulse Responses for Variable System in Issue Area of Immigration



Note: Dashed lines are 95 percent confidence intervals

### Summary

Changes in presidential issue attention do not consistently predict changes in issue attention to the Spanish-language news media source studied. In two of the three issue areas studied, prior presidential attention to an issue does Granger-cause current values of attention to an issue in La Opinión, but in only one of the three issue areas studied does an increase in presidential attention to an issue appear to direct an increase in issue attention in the Spanish-language news media source studied.

The contribution of this work is that it offers an initial indication that rhetorical leadership of the presidency with Spanish-language news media is not necessarily strong. An increase in presidential attention to an issue does not always bring about an increase in attention in La Opinión to an issue. While prior work (e.g. Gillberg et al., 1980; Wanta et al., 1989; Wood & Peake, 1998) has made clear that the president struggles to guide the issue agenda of English-language media, there is much unknown about presidential relations with Spanish-language news media outlets. If presidential leadership in the executive branch is the power to persuade others (Neustadt, 1990), the leadership abilities of the president are not clearly demonstrated here with the Spanish-language news media source studied.

## Discussion

The intention of this project was to explore a fairly understudied area of the presidential agenda setting literature. Despite the rapid growth in Spanish-language news media serving many within the Latino population of the United States, efforts to examine whether the president can shape the issue attention of this particular type of press outlet has surprisingly not been examined in depth. In the systematic analysis performed here, it appears that the president struggles to raise issue attention in a prominent Spanish-language news media source, a finding similar to past studies evaluating the president's interactions with English-language media sources (Gilberg et al., 1980; Wanta et al., 1989; Wood & Peake, 1998).

While the results give an initial indication that the president lacks the ability to lead attention in the political system through issue rhetoric, there are some aspects worthy of consideration for future study. This project evaluates one Spanish-language news media source, *La Opinión*. This publication, while certainly a highly read newspaper (especially when compared to other Spanish-language newspapers), should be just one of many sources evaluated in the future. There is no totally definitive evidence that one media source can represent the dynamics of issue attention seen in other media sources (Woolley, 2000). For this reason, the examination of issue attention dynamics in other Spanish-language sources will be worthwhile.

More extended efforts to see if the results seen here hold across other Spanish-language sources will help to clarify a potentially disconcerting implication of the results of this paper: Spanish-language news media and the presidential administrations resisting issue cues from each other. If this is the case, then it could be that the Spanish-language news media outlets are indeed encouraging ethnic pluralism. Instead of presenting readers information on issues the president is discussing, which would help in the acculturation process, Spanish-language news media could be focusing on other areas likely to be of more interest to the audience. These areas will often be unique to Latino ethnic culture and identity (Subervi-Velez, 1986).

Presidential administrations could contribute to their lack of success in guiding issue attention by not being receptive to a heightened intensity in the level of attention media outlets give to an issue. In the areas studied here, the president did not increase attention to an issue in a meaningful way after the Spanish-language press outlet (or the English-language press outlet, for that matter) heightened attention to that issue. The lack of a response from the president to potential efforts by media outlets to influence the issue agenda of the executive branch could drive the news media to be lackluster in its response to the president's attempts to set the systemic agenda.

In order to reach the public, the president has to engage with the news media to get the administration's message communicated. If an administration cannot get its issue agenda communicated through the news media's variety of information channels, it will have a hard time getting issue messages to resonate with the public in such a way that the systemic agenda will shift in the president's preferred direction. If the president is largely incapable of raising the issue attention of Spanish-language press outlets (and ultimately members of the Latino community as a result) by increasing rhetorical attention to an issue, then some reflection could be necessary. Perhaps a revised communication strategy that clearly and precisely links the president's issue priorities to cultural themes and concerns in the Spanish-speaking community will help.

If future research reinforces the findings of the current project, the possibility that presidential issue communications are not reaching a growing population in the United States should raise some measure of alarm. Efforts by the president at setting the systemic agenda through the traditional technique of an increase in rhetorical discussion of an issue could be ineffective at garnering the attention of the Latino population.

To help direct Latinos to specific issue areas, strategies that directly engage with Latinos through targeted messages like mailings, text messaging, social networking communications, and appearances in communities with a high concentration of Latinos could be more impactful. In other words, more focused agenda setting techniques from the executive branch might be more influential in helping to heighten issue attention in the preferred direction with Latino residents, rather than popular Latino news sources.

Lastly, research on the Spanish-language news media coverage of policy issues should continue to flourish so that an evaluation of biased information processing (Festinger, 1957; Redlawsk, 2002; Lodge & Taber, 2005), and how this might impact presidential attempts at agenda setting, can be explored empirically. Further inquiry will help to clarify the role of ideology in the response of Spanish-language press outlets to presidential rhetoric. This is very important, as Spanish-language press outlets might not cover the issue agenda being proposed by a presidential administration if the administration adheres to a political ideology distinct from the staff of each respective press outlet.

An ideological press outlet might not want to make the significant cognitive effort necessary to process and possess views being expressed by others if said views are inconsistent with the ideological press outlet's preexisting positions (Festinger, 1957). Ideological news outlets might only search for and present information that reinforces their preexisting attitudes, something known as a confirmation bias (Taber & Lodge, 2006; Taber, Cann, & Kucsova, 2009).

Due to ideological differences, Spanish-news outlets (and English-news outlets, for that matter) could omit coverage of the president's rhetorical attempts at heightening attention to issues. Exposure to a policy proposal from a source that a decision-maker dislikes increases the likelihood the decision-maker evaluates the proposal negatively (Capelos, 2010). This spawns selective exposure to information, where decision-makers (such as the staff of media outlets) opt to only be exposed to information that matches their beliefs (Stroud, 2008). Perceiving that a president is promoting an alternative policy ideology, news outlets could choose to ignore what the president is saying. They might also adopt a more critical tone in the coverage of presidential issue rhetoric (Graber, 2009; Bennett, 2011). Future empirical work needs to see if there are systematic differences in the level of coverage and tone of coverage given to issues in Spanish-language news outlets depending on the ideology of the presidential administration.

If anything, this research project has made a contribution by raising many options for future research efforts using the research methodology employed. The relationship between the president and the Spanish-language news media over time is an area of study that has countless potential for intriguing avenues of inquiry. There is no indication that the usage of Spanish-language news media within the United States will dissipate in the future, so continued attempts to assess how formal political institutions like the executive branch interact with the Spanish-language news media will definitely be worthwhile.



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## Coverage of Climate Change in leading U.S. Spanish-language Newspapers

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### Abstract

This study examines the portrayal of climate change in six leading Spanish-language newspapers in the United States. In total, 222 items published in 26 months were analyzed for salience of frames, tone of headlines, and sources cited. The most salient frame was social progress, followed by moral/ethical frames, economic development and conflict and strategy. The most frequently cited sources were government officials and scientists or academics, followed by NGOs or interest groups. Community residents were rarely cited. Wire services bylines represented over 60 percent of the pieces. There was a great disparity in the volume of climate change coverage among newspapers, with one daily paper accounting for almost 60% of the coverage and one of the weeklies containing less than 1%. Results revealed minimal differences between daily and weekly newspapers in the topics, tone, frames used or sources cited. Both news and opinion pieces had a generally pessimistic tone. It appears that Spanish language print media is not actively engaged in public discourse about climate change.

## Coverage of Climate Change in leading U.S. Spanish-language Newspapers

### Introduction

The issue of climate change has received extensive media coverage and subsequent analysis by academics (e.g. Boykoff & Boykoff, 2007; Brossard, et al. 2004; Carvalho & Burgess, 2005; Dispensa & Brulle, 2003; Zehr, 2000). Climate change media coverage frames the issue for the audience and shapes public opinion, which in turn influences politics, program funding, and social understanding of the causes and remedies. It is important to understand how this issue is being presented to Spanish-dominant news consumers, the fastest growing linguistic minority in the country (U.S. Census, 2011). Furthermore, the framing or presentation of this issue in the news may have implications on future voting and policy.

Climate change information for Spanish-dominant Hispanics, whose public opinion is becoming increasingly influential in the United States, has not been systematically studied. The relations among media coverage, public opinion and political agendas have been the subjects of much study and are particularly important in terms of climate change, an issue that has become intensely politicized in recent years (McCright & Dunlap, 2011). While broadcast (television and local radio) news outlets are the most common source of news for Hispanics, Spanish-language print media remains important (Pew Report, 2011) as opinion leaders. Studies examining intermedia agenda setting have found dominant or elite media may set the agenda for others (McCombs, 2004). Newspapers may exert influence over the agenda for TV news (Noelle-Neumann & Mathes, 1987; Vliegenthart & Walgrave, 2010).

Given that news media are an influential contributor to public opinion on social issues (Weaver, Graber, & McCombs, 1981), the degree to which Spanish-dominant Latinos may access scientific and public policy information framed in a way that enhances comprehension and acceptance is an important question. Links between individuals' exposure to mass media and their overall beliefs has been established across a variety of contexts (Hayes et al., 2007). With the incredible growth of the Latino population in the United States, understanding the nature of messages being disseminated by mass media outlets that cater to Spanish-speaking Latinos will help identify opportunities for education, advocacy, and social change.

### *U.S. Hispanics and Media Sectors*

Hispanics<sup>1</sup> are the fastest growing demographic group in the United States, surpassing 50 million and accounting for about 1 out of 6 Americans (2010 U.S. Census). As a voting group, the Hispanic sector is also one of the most rapidly growing, representing 10% of voters in the 2012 presidential election, compared to 9% in 2008, and 8% in 2004 (Pew Center, 2012). If such trends continue, it will indicate a generational shift in which Hispanics continue to gain political clout and, by 2050, could make up a third of the U.S. population (Pew Center, 2008).

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<sup>1</sup> The confluence of immigrants from Spanish-speaking countries and their descendants has brought about a shared identity described interchangeably by the terms "Latino" or "Hispanic" to encompass anyone of Latin American origin (Dávila, 2001). Therefore, this paper uses the descriptors of Latino and Hispanic synonymously.

Such explosive growth has been accompanied by a trillion-dollar buying power for material goods and high consumption rates. Projections from the U.S. Census attribute much of the growth of the national population by 2050 to immigrants in general and their descendants, with Latinos contributing nearly 30 percent of that growth (Pew Center, 2011). Thus, the buying power and sheer size of Hispanic populations in the U.S. is an important one in terms of the importance of information regarding climate change and related issues.

Hispanics are also consumers of English- and Spanish-language media. A 2007 study found that 44 percent of all Latino adults, both foreign born and native born, are comfortable talking in both English and Spanish, and 41 percent of speak mainly Spanish. Among second-generation (U.S. born) Hispanics, 71% can read a newspaper or book in Spanish (Pew Hispanic Center, 2007). Almost half of U.S. Hispanics are Spanish-dominant and prefer to consume media in Spanish, 30% of English-dominant Hispanics regularly watch Spanish programming, often citing poor coverage of Latin America and U.S. Hispanic communities in English-language media (Suro, 2004). While radio and television are important sources of news and entertainment for Spanish-dominant Hispanics (Vigon, 2010; Fowler et al., 2009), others have found that print media set the agenda for television and radio news (López-Escobar, Llamas, McCombs, & Lennon, 1998; Golan, 2006). In fact, Spanish-language media followed the same trend as their English-language counterparts of expanding to online platforms and have actually fared better in recent years. Hispanic newspapers overall saw slight decreases in print circulation in 2010, however Hispanic newspapers continued to be strong that year with the total number of Spanish-language newspapers remaining stable, with local ad revenue maintained that same year (Pew Research Center, 2011). Since 2010, some of the flagship Hispanic newspapers experienced a slight decrease in circulation of their print versions, but expanded into other media forms and partnerships, a transition similar to the one that English-language dailies are undergoing (Pew Research Center, 2011).

Further, for environmental issues, the press is an important source. Lee (2008) found that print media is the most trusted source for information about environmentally conscious behaviors, such as recycling and conservation. In developed nations, polls have found that television and daily newspapers are the primary sources of public information regarding environmental news (Project for Excellence in Journalism, 2006). Sachsman, Simon and Valenti (2008) observed that newspapers in general employ more eco-beat reporters than do broadcast media outlets because the nature of the print medium is more conducive to in-depth and extensive analysis of science-based subjects.

Various research studies have observed linkages among media content and subsequent behaviors. Studies in Mexico (Corral-Verdugo, 1996), Germany (Schoenbach, Lauf, McLeod, & Scheufele, 1999), and Norway (Kipperberg, 2006) found correlations between news media reports, consumer media consumption, and conservation behavior. In the United States, several studies hold the news media as having a mediating influence on green behavior (e.g. recycling) (McCarty, 1994; Vining & Ebreo, 1990; and Jackson et al., 1993). Nearly all of these have focused exclusively on English-language media and on Anglo consumers. Barr and Gilg (2006) concluded that framing of environmental issues in the media contribute greatly to recycling attitudes and behaviors. This implies the need to observe and cultivate eco-friendly activities among ethnic segments.

#### *Differences in Spanish-Language and English Language News*

Less research has compared English- and Spanish-language media coverage. Several studies have looked at the differences in media coverage between English and Spanish-language media, on a variety of topics including climate change and other politicized issues such as



immigration and health care (Branton & Dunaway, 2008; Lozano, 1989; Moran, 2006; Subervi-Velez, 2010; Villar & Bueno, 2012; Zamith, et al, 2012). Lozano (1989), Moran (2006) and Subervi-Velez (2010) which compare Spanish-language television and general market television, found no significant differences in topics or approaches followed, and found that Spanish-language media based their reporting on general market sources rather than Hispanic media, although none looked specifically at environmental reporting. However, other studies found differences in the amount, frequency or tone of coverage of issues important to the Hispanic community such as immigration, political empowerment, labor issues and health (Abrajano & Singh, 2009; Villar & Bueno, 2012; Branton & Dunaway, 2008; Hale et al., 2004; Subervi-Velez, 2010).

#### *Setting the Agenda: Frames and Sources*

Agenda-setting theory (McCombs & Shaw, 1972) states that the news media influences audiences by deciding what is considered newsworthy and the level of prominence of the story. Agenda-setting revolves around salience, or the ability of news media to transfer issues of importance from news media agendas to public agendas by the quantity of coverage on an issue or topic, as well as through placement, and other peripheral cues. Second level agenda setting has to do with the salience of attributes about a topic (McCombs & Llamas, 1997). Understanding the components of journalist-constructed artifacts that create salience of certain attributes of an issue is important for climate change, an issue with political, cultural, and economic implications (Dispensa & Brulle, 2003; Nisbet, 2009). Consumers of mass media are likely to interpret these messages and attribute responsibility, form policy opinions, and decide whether to support measures to address climate change. Over the past decades, increasing attention has been paid to the way that environmental problems facing the planet are portrayed in the mass media (Jackson, Olsen, Granzin & Burns, 1993).

Framing refers to the way journalists may favor certain interpretations and ignore other information consciously or unconsciously in reporting information. In other words, how a topic is covered or framed will influence the public's opinions on an issue. Varying perspectives in the context of media exist, however, a generally-used definition for framing is to "select some aspects of a perceived reality and make them more salient" to promote a particular reality (Entman, 1993, p. 52). Research has found that how media frames issues affects not only the receivers' understanding of issues but also how they later recall them (Entman, 2004; Nelson, Clawson, & Oxley, 1997; Pan & Kosicki, 1993).

Apart from understanding how salience of frames can shape coverage, "frame sponsors," or the actors selected to participate in the frame-building process are also critical in understanding media coverage (Deprez & Raeymaeckers, 2010). The source can provide a broader authority to the story beyond the background and context the journalist may bring (Trumbo, 1996). Source selection is further highlighted by Manheim (1998), arguing that journalists frequently turn to sources who "strive systematically to ensure, insofar as possible, that the work product of journalism reflects events and an environment, and creates a reality, which they, and not the journalists, define" (p. 96). Furthermore, Wilkins states that sources must be in a position of authority to have a voice in the news coverage of the climate change debate, further institutionalizing knowledge (1993).

Research examining media coverage of climate change in the U.S. has varied from finding informationally deficient mass media coverage (Boykoff & Boykoff, 2007) to balanced coverage (Boykoff, 2007). Other studies have examined how U.S. news media coverage influences public understanding of the causes and consequences of climate change (Boykoff, 2005). Studies on foreign media have shown distinctions with U.S. media coverage in that foreign

press tend to emphasize international relations (Brossard, et al., 2004; Gordon, et al, 2010), de-emphasize conflicts and controversies (Gordon, et al, 2010) and focus on consequences rather than causes (Taylor & Nathan, 2002). Factors in news production can affect coverage, such as time constraints that predispose journalists toward institutional sources and often drive single-source stories (Stocking, 1999) as well as a variety of business-side constraints (Bennett, 1996). Other research has found that media coverage of environmental issues in the United States suffers from both lack of depth and pro-corporate bias (Nissani, 1999), and may be more likely to include business and industry group sources than comparable countries (Brossard et al., 2004).

Research on frames and other mechanisms to guide understanding and comprehension of climate change and other scientific debates has found that over time, frames in U.S. media accounts moved from defining problems and diagnosing problems, to making more judgments and suggesting solutions, as the issue became increasingly politicized and scientific voices dropped out of the debate (Trumbo, 1996, p. 278). Indeed, despite the IPCC and the scientific community's consensus on climate change and its causes, equal weight had been observed to be provided to oppositional viewpoints, effectively distancing media accounts from scientific consensus (Boykoff & Boykoff, 2007; Brossard et al., 2004; Lahsen, 2005; Stocking, 1999). Carvalho (2007) noted that while scientists predominated as sources for climate change news stories in the 1980s, politicians and interest group actors figured much more as the issue became politicized, and what Zehr (2009, p. 82) termed an "environmental countermovement" financed by fossil fuel industry, among others, gained traction in the media with "ready made arguments" to argue the scientific perspective. Subsequently, Boykoff (2007) found that coverage was returning to reflecting the scientific consensus regarding human causes of climate change. However, Leiserowitz (2006) found that U.S. publics' understandings of climate change come from various moral, psychological and socio-cultural constructions, rather than from solely a scientific one.

Interrelations among framing patterns and sources have been observed. In his analysis on climate change, Trumbo (1996) found that scientists were quoted as sources in stories that had frames of problem definition and cause diagnosis, while politicians showed up in articles on making moral judgments or suggesting remedies.

Despite the growing audience, stable circulation and robust advertising revenues (Pew Research Center, 2011) of Spanish-language newspapers, there is scarce in-depth research of Spanish-language newspaper content, particularly in the area of environment and climate change. Various content-focused studies have advanced academic knowledge on the role of U.S. Latino newspapers as health communication resources (Vargas & De Pyssler, 1999; Thorson, 2006; Villar & Bueno, 2012); as drivers of political action (Vargas, 2000; Veciana-Suárez, 1990); and champions of immigration reform (Branton & Dunaway, 2009; Subervi-Vélez, 2008).

We seek to explore the coverage of climate change in Spanish-language media in order to better understand how the issue is being communicated to this audience, which may ultimately affect beliefs and public opinion among U.S. Hispanic voters. We propose to address the following research questions:

#### *Research Questions*

RQ 1: What topics are covered in climate change news and opinion pieces in Spanish-language U.S. newspapers?

RQ2: What is the tone of headlines about climate change in Spanish-language U.S. newspapers?

RQ3: What are the predominant frames used by Spanish-language U.S. newspapers coverage on climate change?



RQ4: What types of sources are cited in Spanish-language U.S. newspapers coverage on climate change?

RQ5: Are there differences in framing of climate change news in Spanish-language U.S. newspapers based on frequency (daily/weekly) of newspaper?

### **Method**

The sample represented the top circulating daily and weekly newspapers. These newspapers were selected for content analysis because of their reach, frequency, longevity and participation in regional and national level discourse as identified by the Pew Research Center's Project for Excellence in Journalism (Pew Center, 2011).

The use of a mix of daily and weekly newspapers was modeled after content and textual analyses of Latino media conducted by Vargas (2000), which used high-circulation weeklies to offset low-circulation dailies in markets with significant Hispanic populations. Table 1 below indicates the owner, circulation, frequency, and target market of each newspaper included in this study.

**Table 1: Characteristics of the newspapers surveyed in this study**

Title	Ownership	Circulation	Frequency	Target Market
<i>Vida en el Valle</i>	Impremedia*	152,000	Weekly	San Joaquin Valley (including 11 counties in northern and central California)
<i>El Sentinel</i> (weekly insert in Orlando Sentinel)	Tribune	125,000	Weekly	Central Florida (Orange, Seminole, Osceola, Lake and western Volusia counties)
<i>La Opinión</i>	Impremedia*	79,000	Daily	Los Angeles
<i>La Prensa Riverside</i>	Enterprise Media	55,000	Weekly	Inland Empire (Riverside, San Bernardino, and eastern Los Angeles Counties in California).
<i>El Nuevo Herald</i>	McClatchy	78,000	Daily	South Florida (Miami-Dade, Broward and Monroe Counties)
<i>El Diario-La Prensa</i>	Impremedia*	50,000	Daily	New York Tri-State Area

Source: Pew Research Center, *State of the Media in the United States, 2011*

\* In May 2012, the Argentine newspaper La Nación purchased a majority share of Impremedia. At the time the articles included in this study were published, Impremedia was wholly owned by the Lozano Family.

Items included in the analysis were either full length news stories, news briefs, editorials, and/or opinion columns. Letters to the editor and advertisements were excluded. Cases were identified using each newspaper's online archive, and discriminated by full-text searches of eligible items published between November 1, 2009 and December 31, 2011 for the inclusion of any of the following terms: "calentamiento global" (global warming), "cambio climático" (climate change), and "efecto invernadero" (greenhouse effect).

Researchers reviewed all results and kept only those that were either (a) primarily about the idea or actuality of changes in the climate; or (b) about other issues in which the topic of climate

change is linked to explicitly and principally within the headline or the first three paragraphs. A total of 222 articles met the selection criteria and ultimately comprised the sample universe.

The list of topics was developed inductively based on brief summaries provided by the coders. The researchers read the topic summaries and verified agreement with the article content, and then collapsed related topics into 13 mutually exclusive topic categories that included: (1) international conference, agreement or policy; (2) weather or temperature; (3) domestic/local policy or politics; (4) social movements, programs or advocacy; (5) science/research report; (6) eco-friendly products, behaviors or companies; (7) climate change legitimacy debate; (8) negative effects of climate change; (9) environmental efforts abroad; (10) environmental protection vs. economics progress; (11) assigning blame for climate change; (12) tourism/ecotourism; and other.

The coders primarily employed a deductive approach to frame analysis using modified coding instruments sourced from Nisbet's (2009) review of science-related frame typologies, which identified eight frames applicable to climate change: social progress, economic development and competitiveness, morality and ethics, scientific and technical uncertainty, Pandora's box/Frankenstein monster/runaway science, public accountability and governance, middle way/alternative path, and conflict and strategy (see Table 2). Adopting an operational scheme from McComas and Shanahan (1999), each frame was coded as "not present," or "present." Manual coding methods consistent with Lindlof and Taylor (2002) were employed because of the small number of texts available for collection.

**Table 2: Frame definitions**

<b>Frame</b>	<b>Definition</b> (adapted from Nisbet, 2009)
Social progress	A means of improving quality of life or solving problems.
Economic Development	An economic investment; market benefit or risk; or a point of local, national, or global economic impact.
Morality / Ethics	A matter of right or wrong; or of respect or disrespect for limits, thresholds, or boundaries.
Pandoras Box	A need for precaution or action in face of possible catastrophe and out-of-control consequences.
Public Accountability and Governance	Research or policy either in the public interest or serving special interests; includes issues of control, transparency, participation, ownership; or decision making ('politicization').
Middle way	A third way between conflicting or polarized views or options.
Conflict/strategy	A battle of personalities or groups; focuses on who is winning or losing the battle.

Source typology was sourced from Brossard et al. (2004), and included: (1) academic/scientist, (2) community resident, non-expert, (3) interest group, (4) government agency or spokesperson; (5) NGO or spokesperson; and other sources. Sources were categorized according

to the first title attributed to them in the article, and only the first two quoted sources were studied. In measuring tone, three conditions were considered: positive/optimistic, negative/pessimistic, both positive and negative, or neutral. The last two categories were collapsed for cross tab analysis. Tone was coded only for the headline, after coders found that most articles included both negatively and positively valences statements in the text.

Two coders fluent in Spanish served as the primary coders, with one coder coding the entire sample and the other double-coding a random subsample of 47 articles (21%). The researchers utilized Scott's pi (Scott, 1955), which corrects for chance agreement, to assess intercoder reliability. An average coefficient of .77 was found for the frame typology, .91 for headline tone, .80 for article tone, .88 for source identification, and .82 for source tone.

## Results

The number of stories increased around the month of April, likely due to celebration of Earth Day, and in the months immediately before and after the Copenhagen Climate Summit, in December 2009. There was great disparity in the amount of coverage of climate change in the newspapers studied. The majority of the sample came from El Nuevo Herald (daily; n=127; 57.2%), followed by El Sentinel (weekly; n=39; 17.6%), La Opinion (daily, n=13.9%); Diario La Prensa (daily; n=8.5%), Vida en el Valle (weekly, n=1.8%), and La Prensa Riverside (weekly; n=2; 0.9%). The vast majority of the content was in the form of news articles or briefs, with only 9.9% of the sample being opinion pieces. Only El Nuevo Herald and La Opinion printed opinion columns on climate change, with 17 and 5 items respectively.

There was no statistically significant difference in terms of the placement of climate change stories within newspaper sections. Almost three quarters of the sample (79.3%) appeared in "news" section, but not on the front page; 10% in science/environment sections; rest in business and lifestyle. Only 3 articles or 1.4% of sample were on the front page. Over half (60.4%) of the items included in the sample were from wire services. El Sentinel included primarily wire pieces (74.4% of all items were from AP, 5.1% from AFP, and 7.7% from EFE). There were differences by newspaper in the proportion of items that came from wire services ( $X^2= 29.73; df=15; p<.05$ ). Table 3 shows the distribution of wire service use in climate change stories across the six newspapers.

**Table 3: Use of Wire Service in Spanish Language News Coverage**

Wire	Diario LaPrensa (n=19)	El Sentinel (n=39)	El Nuevo Herald (n=127)	La Opinion (n=31)	La Prensa Riverside (n=2)	Vida en el Valle (n=4)	TOTAL
Not wire	57.9%	12.8%	40.2%	54.8%	50.0%	75.0%	39.6%
AP	26.3%	74.4%	37.0%	29.0%	50.0%	25.0%	41.4%
AFP	.0%	5.1%	7.1%	3.2%	.0%	.0%	5.4%
EFE	15.8%	7.7%	15.7%	12.9%	.0%	.0%	13.5%

The first research question asked what topics are covered in climate change news and editorial in Spanish-language U.S. newspapers. Table 4 shows the results.

**Table 4: Topics addressed in climate change stories in Spanish-language newspapers**

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<b>Topics</b>	<b>#</b>	<b>%</b>
International conference, agreement or policy	50	22.5
Weather / Temperature	26	11.7
Domestic/local policy or politics	25	11.3
Social movements, programs or advocacy	23	10.4
Science/Research report	22	9.9
Eco-friendly options, products, behaviors or companies	15	6.8
Climate change debate	14	6.3
Negative effects of climate change	13	5.9
Environmental efforts abroad	13	5.9
Environmental protection vs. economic progress	8	3.6
Assigning Blame	5	2.3
Other	5	2.3
Tourism/Eco-tourism	3	1.4

Most items were based on breaking news of conferences, such as the Copenhagen event, or centered around other international news by far the most prevalent topic observed. However, the second most observed topics were close in frequency: weather/temperature events, domestic political news. Few focused on the negative, assigning blame or the negative outcomes of climate change, such as habitat loss.

The second research question focused on the tone of headlines, shown in Table 5. Almost half (46 percent) of all headlines had a pessimistic tone. Only 15 percent had an optimistic tone, while almost 39 percent had either both or were neutral.

**Table 5. Valence of Headlines**

<b>Tone</b>	<b>#</b>	<b>%</b>	<b>Examples</b>
Negative/ Pessimistic	102	45.9%	<i>Cambio climatico: científicos portandose mal</i> (Climate change: scientists behaving badly) - opinion  <i>Amenazadas reservas de agua</i> (Water reserves are threatened) - news
Positive/ Optimistic	34	15.3%	<i>Amazonia brasilena es modelo de desarrollo sostenible</i> (Brazilian Amazon is a model of sustainable development) – News  <i>Un clima apropiado para sentirse bien</i> (The right climate to feel good) - opinion
Both	33	14.9%	<i>Melissa Ethridge se una a un evento que advierte escasez de agua</i> (Melissa Ethridge joins an event that predicts water scarcity) - brief  <i>¿El mundo esta mejor o peor?</i> (Is the world better or worse off?) - opinion
Neutral	53	23.9%	<i>Las nevadas y el calentamiento global</i> (Snowfall and climate change) - News  <i>Por Miami en dos ruedas</i> (Around Miami on two wheels)- brief
TOTAL	222	100.0%	

The third research question asked about the frames observed in mediated content (See Table 6). In rank order, by frequency of use, the frames found in the stories analyzed were: Social progress (89.6%), Moral/Ethics (85.0%), Economic Development (82.8%), Conflict Strategy (73.8%), Pandora's Box (69.7%), Public Accountability (69.7%), and Middle Way (57.0%). There were significant differences found in three frames (Pandora's Box, Public Accountability and Governance, and Middle Way). However, given the minute proportion of pieces in the weekly papers, these differences may not be of practical significance.

**Table 6. Frames observed in newspaper content**

<b>FRAMES</b>	<b>Diario LaPre nsa</b> (n=19)	<b>El Sentinel</b> (n=39)	<b>El Nuevo Herald</b> (n=127)	<b>La Opinion</b> (n=31)	<b>La Prensa Riverside</b> (n=2)	<b>Vida en el Valle</b> (n=4)	<b>X<sup>2</sup></b>	<b>df</b>	<b>Sig.</b>
Social progress	73.7%	94.9%	88.1%	96.8%	100.0%	100.0%	9.037 <sup>a</sup>	5	.108
EconomDevel	73.7%	87.2%	83.3%	87.1%	50.0%	50.0%	6.595 <sup>a</sup>	5	.253
Moral/Ethics	68.4%	84.6%	84.0%	100.0%	100.0%	75.0%	10.336 <sup>a</sup>	5	.066
PandorasBox	22.2%	69.2%	72.0%	90.3%	100.0%	75.0%	26.972 <sup>a</sup>	5	<b>.000</b>
PublAccGov	63.2%	71.8%	65.9%	87.1%	50.0%	75.0%	21.497 <sup>a</sup>	5	<b>.018</b>
Middle way	21.1%	79.5%	51.6%	71.0%	100.0%	50.0%	23.628 <sup>a</sup>	5	<b>.000</b>
Conflict/ strategy	68.4%	71.8%	74.6%	80.6%	100.0%	25.0%	6.788 <sup>a</sup>	5	.237

The fourth research question asked which sources gained access to the articles on climate change. In rank order, the sources used were: government (28.8%), academics (26.1%), NGO (22.9%), interest group (12.4%), other & community resident (2.0%; only El Nuevo Herald did that). There was no difference between newspapers in the type of sources cited in stories about climate change.

The last research question regarded comparisons seen in the framing of coverage of climate change between weekly and daily newspapers. There was no difference in the frequency of frame use between dailies and weeklies, except for the “middle way” frame ( $X^2= 9.94,1$ ,  $p<0.001$ ). To further examine differences, we also looked at the percent of content that came from wire services, the inclusion of opinion pieces, headline tone, and topics featured in the presentation of climate change (see Tables 7-8). Weeklies included significantly more wire stories than dailies, and no opinion pieces. There were no differences in headline tone, but some differences in topics.

**Table 7: Comparison of content and tone by newspaper frequency**

	Dailies	Weeklies	X <sup>2</sup>	Sig.
% Wire	55.40%	80.00%	17.81	p<.001
% Opinion	12.40%	0.00%	7.73	p<0.05
% Negative Tone	47.50%	40.00%	2.58	NS

**Table 8: Comparison of Topics Covered by Newspaper Frequency**

Topic	Dailies	Weeklies
International conference, agreement or policy	19.80%	33.30%
Weather / Temperature	9.60%	20.00%
Domestic/local policy or politics	11.90%	8.96%
Social movements, programs or advocacy	7.30%	22.20%
Science/Research report	11.30%	4.40%
Eco-friendly options, products, behaviors or companies	7.90%	2.20%
Climate change debate	6.80%	4.40%
Negative effects of climate change	6.80%	2.20%
Environmental efforts abroad	7.30%	0.00%
Environmental protection vs. economic progress	4%	2.20%
Assigning Blame	2.80%	0.00%
Tourism/Ecotourism	1.70%	0.00%

X<sup>2</sup>=26.0; df=12; p<0.01

### Discussion

The findings of this study found slight nuances among U.S. Spanish-language newspaper coverage of climate change. As the Spanish-language information sources with the highest circulation in the United States, these outlets represent important community sources of information, news and opinion. As Vargas & De Pyssler (2010, p. 192) note, “Latino newspapers are a hybrid medium—a complex mix of community, commercial, ethnic, and immigrant media.” For Spanish-dominant Hispanics, Latino newspaper content can summon cultural constructions that resonate and may influence subsequent perceptions, attitudes or even behaviors.

The most prevalent differences observed here among U.S. English- and Spanish-language press coverage of climate change was in terms of the volume of coverage. Spanish-language print



media in the United States lag behind English-language counterparts in climate change coverage, particularly the weekly papers. Another finding, not examined as a research question, was that news and editorial pieces reflected a homogeneity in their content tone, topics and frames, rather than injecting disparate views into the discussion. In the ethnic press, opinion and news buttressed each other's viewpoints and frames, providing a monolithic feel to coverage.

Similarities to trends in English-language U.S. press coverage of climate change were also seen. Spanish-language media focused stories around international breaking news, such as the Copenhagen climate talks, as well as other international agreements, policies, conferences & environmental efforts abroad and tended to cite international and non-governmental (NGO) sources. Many of these were wire stories. Staff writers covered more local breaking news, such as local politics, or features dealing with eco-friendly products and companies, citing more government sources and interest group advocates. Headlines in both types of newspapers reflected a general pessimism. Elite institutional actors were the most frequently sourced, as government sources had the most voice, followed by experts and advocates, something widely seen in other studies of U.S. media (Brossard et al., 2004).

The frames observed here did vary from U.S. English-language counterparts. While earlier studies had found an emphasis on scientific uncertainty (Boykoff & Boykoff, 2004), more recent studies have found a shift away from this construction (Boykoff, 2007; Zehr, 2009). Zehr's (2009, p. 91) study of newspaper coverage from 2000-2008 found increasing use of a "hybrid" environmental/economic frame that presented the issue as an economic opportunity as well as an environmental threat, therefore reflecting consumer society discourse in mediated content. Our study found economic development and conflict frames were distant third and fourth place finishers, behind social progress and moral/ethical frames, suggesting socio-cultural differentiations in terms of the presentation of the issue, rather than a focus on uncertainty of science and a sense that experts are debating whether climate change actually exists.

In terms of comparing climate change information from daily Spanish-language media versus their weekly counterparts, there was not much difference between papers, other than a significantly reduced amount of coverage of climate change in weeklies. The few times the issue surfaced, it was given a non-committal, "middle-way" frame, avoiding controversy and debate in the issue. There were also some differences in topics. Weeklies included more coverage of (a) weather/temperature, (b) international conferences, agreements or policies, (c) social movements, programs, advocacy, while dailies were more likely to cover international conferences and environmental efforts as well as articles about science and research reports. These differences may be explained by the differential use of wire services.

Little robust discussion of climate change and the frames employed have implications for future policymaking directions, given the strength of the Latino sector in the United States. The findings reported here show that Latino press are not leveraging their roles as community media and information resources regarding the issues, concepts and problematiques associated with climate change and its effects, in line with Vargas and De Pyssler's (2010) findings of health care information from Latino community media. Further, given recent poll findings by the Sierra Club and the National Council of La Raza showing over 90 percent of Hispanic voters believe "climate change is already happening, or will happen in the future" (Latinos and the Environment Survey, 2012), lack of coverage that can inform and empower Hispanics as voters and environmental citizens has negative implications for the articulations of nature into political and socio-cultural spheres. Others have observed similar gaps from U.S. Spanish-language information sources. In her study of Spanish-dominant Latinos and Spanish media advertising during the 2000 and 2004 campaigns, Abrajano (2004) found that Spanish media advertisements did "little in the way of substantive policy information about the presidential candidates" (p. 136), concluding that these

voters might be voting in inconsistent ways in terms of actual policy positions and ideological beliefs. So if the majority of Hispanics believe that climate change is or will occur, Spanish-dominant consumers may need to look elsewhere than print sectors for mediated material that may help them develop adequate decisions and behaviors regarding policy, voting, consumer and other spheres.

#### *Future Research*

This study examined only print media, as intermedia agenda setters. However, future studies should examine broadcast, Internet and cable Spanish-language material as well. Further, we included news and opinion from daily and weekly publications to get the broadest sense of what type of information was being advanced. Obviously, these are different products aimed at different audiences and merit more fine-grained analysis. Future research would do well to examine the spectrum of media and information aimed at Spanish-language dominant Hispanics.

#### **Conclusion**

Scholars have observed that media framing of issues such as the environment may have substantial influence on consumer attitudes and behaviors, as well as public policy. Spanish-language newspapers, as minority and community media, are strong resources for informative and persuasive communication. Using data from content analysis of the leading Spanish-language newspapers in the country, this study found that Latino newspapers are minimally engaged in discourse regarding climate change and the Hispanic community. As climate change issues, such as global warming, engage individuals and institutions across society, the role of the media in representing and framing specific environmental behaviors is an important one, particularly when language can define the demographic, as it does for Spanish-dominant Hispanics in the United States (Pew Center, 2011). The U.S. Hispanic population, the country's largest ethnic segment, has both the size and spending power to make a difference in public policy regarding the environment. Present research on the eco-friendly attitudes of Hispanics versus the general population indicates that Hispanics are participating at significantly lesser levels in behaviors like buying environmentally friendly products and supporting green causes, although concern for environmental issues like climate change is high (Latinos and the Environment Survey, 2012). Such disparities between perceptions and behaviors are not being bolstered by consistent, comprehensive information on climate change, at least in the Spanish-language press examined here. As climate change continues to increase in salience for global populations, how the media interpret, explain and present information regarding these complex issues will be important components of the linkages among information, perception and behavior in various contexts.

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