

# Bilingual Signs: How Language Influences Shoppers

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## INTRODUCTION

Bilingual signs—those that feature two written languages—have long been a common feature of the linguistic landscape in places frequently visited by travelers (e.g., international airports, cultural and touristic sites), and where mandated by law to serve a bilingual population (e.g., Eastern Canada). There are many possible benefits of bilingual signage beyond the practical utility of facilitating communication. As examples, bilingual signs have the potential to contribute positively to the bottom line of a business by broadening the accessibility of messages to include wider audiences. Bilingual signs can foster feelings of inclusion (de Villiers et al., 2022). The implicit effort underlying bilingual communication may cue inferences about product quality and the service one might expect from a business represented by such signs. Moreover, they may lend interest to a retail environment, imply cosmopolitan sophistication, and contribute to the richness of the linguistic landscape. Ample merits notwithstanding, there may be some looming hazards to using bilingual signage. For example, bilingual signs may risk triggering negative sentiments among individuals who view multilingualism as an ideological threat to American-English dominance or as symbolic of a failure to assimilate immigrant groups into the mainstream.

Foreign language signs—those featuring only a language other than the dominant language—are often found in ethnic enclaves (e.g., Chinatown, Little Italy, French Quarter). Such signs may be intended to signal selected population segments (e.g., Hebrew signage on a synagogue, Greek signage on an Eastern Orthodox church). In the case of businesses, we speculate that foreign language signs may convey impressions of authenticity (e.g., Spanish signage identifying a taquería “taco restaurant”). Nevertheless, they may also risk being off-putting to some members of the dominant culture, specifically those of an ethnocentric

## Abstract

A growing use of bilingual signage among retailers in the United States begs the question, How do shoppers react to bilingual signs? How is such signage processed by consumers, what does it signal, and to what effect? Drawing from a national panel of American consumers, we exposed participants to examples of English, bilingual, or Spanish signage in a program of experiments that measured behavioral intentions, attitudes toward the stores and signs, and various expectations, perceptions, and impressions. Results show a direct effect of the language of the sign on shoppers' behavioral intentions to engage with and buy from a store. Evidence shows that evaluations of signs shape evaluations of the stores they represent. Additionally, the language used on signs shapes shoppers' expectations of service quality, with bilingual signs engendering favorable impressions of authenticity, inclusiveness, and interestingness. Signs using only a foreign language, by contrast, tend to lower expectations of service, communication, and inclusiveness.

## Keywords

On-premises signs, Bilingual communication, Signage information processing, Inclusive signage

bent (Liu et al., 2006) who characteristically embrace monolingualism as a linguistic ideology (Leeman, 2018) but also to majorities that may resent an implied exclusion.

Based on casual observation, bilingual signage is becoming more commonplace beyond its customary use in international, touristic contexts. The widespread use of bilingual in-store signs by large U.S. retailers such as Walmart, Home Depot, Kroger grocery stores, among others have expanded from areas with large immigrant populations (Coomer, 2012) to more widespread use (A. Colón, personal communication, September 13, 2022). Despite the proliferation of such signs, scant evidence documents how majority customers perceive bilingual signs and their effect(s) on customer behavior.

Given the expansive breadth of the topic, we narrowed this initial investigation to the following research questions: Generally, what are the benefits and hazards of bilingual and foreign language signs? How do consumers process information communicated by bilingual or foreign language signs (as compared to the dominant, majority language)? What impressions do bilingual and foreign language signs provoke? Do they foster perceptions of inclusion and authenticity, as we speculated? Do they add an element of interest to a retail environment? Do they cue expectations about the quality of products and customer service? What influence does the language of signs have on prospective customers' behavioral intentions vis-à-vis a business? Although this research is preliminary and exploratory, the goal is to develop evidence-based, practical guidelines concerning the commercial use of bilingual signs.

## CONCEPTUAL BACKGROUND

### *Two Paths to Persuasion*

According to Kellaris and Machleit (2016), viewers can process signage information via two paths, one being essentially an automatic, nonconscious route (heuristic processing), the other being an actively evaluative, effortful processing route (systematic processing). Communication can take place successfully via either path if the information is designed to facilitate both.

Which process viewers use depends on the traits of the individual and the circumstances surrounding the exposure to the sign. For example, when conditions trigger thoughtful processing of sign information, viewers form affective evaluations of the sign and its message, which leads to consistent evaluations of the business the sign represents, with downstream consequences for behavioral responses (Kellaris et al., 2020). However, this is not always the case. Individuals characterized by a low need for cognition (i.e., those who do not particularly enjoy the process of effortful thinking; Cacioppo et al., 1983), should be more prone to heuristic processing, wherein they rely on heuristic shortcuts to form quick impressions. Similarly, when people are in a hurry, they may have a high need for closure (Webster & Kruglanski, 1994), wherein they do not take the time

to process information critically. Events such as seeing something interesting, exceptional, or unexpected can trigger more mindful processing (Kruglanski & Webster, 1996).

According to Schwarz (2004), people often use positive or negative metacognitive experiences as a basis for forming judgments. Such judgments occur automatically, without effortful evaluation. For example, the ease or difficulty with which information is processed (fluency) can serve as an implicit heuristic cue to inform judgments of objects or messages encountered. In the case of signage information, if it is easy (vs. difficult) to process, the experience of fluency (disfluency) will be positive (negative), and this valence (+/-) will color perceptions of the sign message. Hence, signs in one's native language or those that facilitate ease of processing via bilingualism should be more fluently processed and thus generate a positive metacognitive experience. When the experience is positive, the information source is assumed to be positive, good, likeable, believable. The reverse is also true. Signs experienced disfluently, such as a monolingual English speaker encountering a Spanish sign that is difficult or impossible to decode, lead to a negative metacognitive experience such that the source is assumed to be negative, bad, disliked, or distrusted.

#### *The Role of Ethnocentrism*

When a viewer is exposed to bilingual or foreign language information, reactions could be shaped by the individual's level of ethnocentrism. Ethnocentrism is a type of cultural bias wherein one views other cultures, nationalities, or ethnic groups, through the lens of one's own culture (Shimp & Sharma, 1987). A highly ethnocentric individual believes his or her own culture, nationality, or ethnic group is more important or superior to those of others. Individuals can be characterized in terms of differences in their degree of ethnocentrism, a trait correlated with political ideologies, with right-leaning individuals tending to hold more ethnocentric views.

Given its biasing potential, we expect consumer ethnocentrism to play a role in shaping reactions to bilingual and foreign language signs. Specifically, more ethnocentric individuals (because they are more locally focused) are more likely to experience bilingual, or foreign language signs as disfluent (vs. those in English). This disfluency may contribute to less positive behavioral intentions.

#### *Overview of Studies*

We explore consumers' reactions to bilingual signs in a program of experimental studies. In each study, participants are exposed to a mock-up of signage for a retail shop in English only, both English and Spanish (bilingual), or Spanish only, and asked questions regarding their behavioral intentions toward the store, their evaluations of the store and the signage, expectations regarding product and service quality, and other perceptions hypothesized to be antecedents of behavioral responses (authenticity, inclusiveness, relevance, interestingness). We selected Spanish as the second language because it is the second most widely



English only



Spanish only



Bilingual

**Figure 1 /**

Study 1 Stimuli – Bakery Signage

spoken language in the United States after English. Indeed, famously, more Spanish speakers are in the United States than in Spain (Dynamic Language, 2022), estimated to be over 50 million (World Population Review, 2022).

### **Study 1**

Study 1 investigates how the language of retail signage (English, Bilingual, Spanish) influences shoppers' behavioral intentions toward a store and the paths by which signs shape those behavioral intentions, including conscious (evaluative) and nonconscious (automatic) processes. Additionally, this study explores how the language of signs shapes shoppers' expectations of a business's product and service quality.

#### *Participants and Design*

We recruited a national sample of 240 adult consumers (57.9% female; median age 35; age range 18–79) from the Prolific™ consumer panel in exchange for a nominal fee. For the most part, the participants learned English as their first language (99.6%). However, 23% report the ability to read or speak Spanish, and another 59% report familiarity with some Spanish phrases, leaving 18% reporting complete unfamiliarity with Spanish. We told participants that the purpose of the study is to “Investigate consumers' feelings, opinions and attitudes regarding some pieces of information.” An additional 17 participants started the study but did not pass standard attention checks and were excluded from analysis.

All participants were required to view the survey on a larger screen device and were rejected if they attempted to participate from a mobile phone. After reading and agreeing to the informed consent document, participants were asked to remove headphones to reduce distractions. Next, participants were told, “You will see a picture of a business store front. Please imagine that this business is in a local strip commercial center somewhere near you.” The participants were also told that they should review the information for as long as they need and really think about all aspects of this business because they will not be able to go back to the photo after they are done viewing it. The stimuli were randomly assigned so that one-third of the participants viewed a storefront with signage printed in English only, one-third viewed a storefront with bilingual signage in both English and Spanish, and one-third viewed a storefront with signage printed in Spanish only in a between-subjects design (see Figure 1). The English-only condition served as a control group for comparisons with reactions to bilingual and Spanish signs.

After reviewing the stimuli, participants were asked to respond to questions about their perceptions of the business they just saw. First, they were asked to report their behavioral intentions toward the store, then their attitude toward the store, their attitude toward the sign, their perception of ease of processing the sign information (“fluency”), and finally, they reported their ethnocentrism and demographics.

### Measures

We measured Behavioral Intent using a seven-point, two-item likelihood scale (1 = extremely unlikely, 7 = extremely likely). The items were “How likely is that you would interact with the business (e.g., stop in, patronize)?” and “How likely would you be to make a purchase at the business that you just viewed?” Alpha reliability was high ( $\alpha = 0.93$ ), so we summed and averaged the responses to the two items to form a composite scale of behavioral intent (BI).

Attitude-toward-the-store was adapted from (Goldsmith et al., 2000) and measured using a seven-point, four-item, bipolar scale. The items were “Inviting/Uninviting, Authentic/Inauthentic, Welcoming/Unwelcoming, Inclusive/Not Inclusive, reverse coded such that higher numbers indicate more positive attitudes. This measure was reliable ( $\alpha = 0.85$ ) and thus summed and averaged to form a composite measure ( $A_{\text{Store}}$ ).

Attitude-toward-the-sign was adapted from (Goldsmith et al., 2000) and measured using a seven-point, 4-item bipolar scale (Good/Bad, Favorable/Unfavorable, Pleasant/Unpleasant, Well designed/Poorly Designed. These were reverse coded such that higher values indicate more positive attitudes). This measure was reliable ( $\alpha = 0.95$ ) and thus summed and averaged to form a composite measure ( $A_{\text{Sign}}$ ).

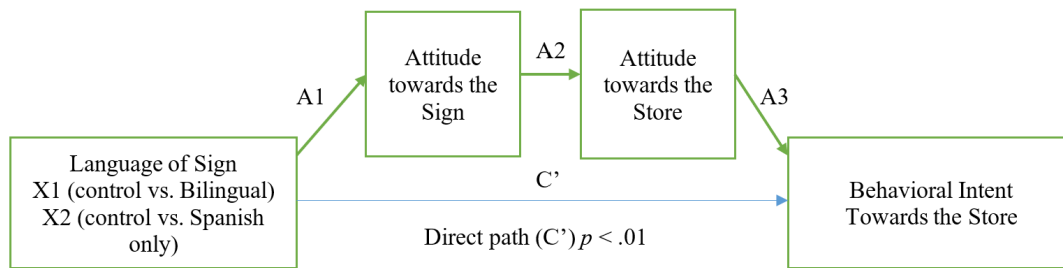
Fluency was adapted from (Kostyk et al., 2021) to measure perceptions of how easy the sign information was to process. The measure consisted of four, seven-point agreement items (agree = 7, disagree = 1) preceded by the prompt “The sign was ...” The items were “Difficult to process. Difficult to read. Takes a long time to process. Difficult to understand.” The scale was reverse coded to produce a scale with a high number representing ease of processing. The resulting (reverse coded scale) was reliable ( $\alpha = 0.96$ ) and thus summed and averaged to form a composite measure.

We measured ethnocentrism using a seven-point, 8-item agreement scale (e.g., “Most other countries are backward in comparison with the United States”; Neuliep & McCroskey, 1997). Low levels of agreement on the Ethnocentrism items indicate a more global outlook; higher levels of agreement indicate a more local (U.S.-centric) outlook. The ethnocentrism scale is reliable ( $\alpha = 0.94$ ) and thus summed and measured to form a composite scale.

### Results

First, we evaluated the data using a one-way ANOVA with behavioral intent as a function of sign type. Results show a main effect of sign type on behavioral intent ( $F_{(2,239)} = 3.395, p = .04, \eta^2 = .03$ ) such that the bilingual sign engenders more positive intentions toward the store ( $M = 4.8$ ) as compared to the Spanish only sign ( $M = 4.1, p = .01$ ). The English sign engendered more positive behavioral intention than the Spanish sign, less positive than the bilingual sign but not statistically different from either ( $M = 4.5$ ).

To test the hypothesis that the language of a sign will produce systematic differences in attitudes toward the sign and the store it represents, we conducted a mediation analysis using PROCESS version 4.0, model 6 (Hayes, 2021). We evaluated the independent variable (language of the sign) with the English-only sign as the control compared to the bilingual and Spanish-only signs as the two test conditions.



Serial mediation (A1, A2, A3)  
 X1 (Effect = 0.39, LLCI = 0.2122, ULCI = 0.6299)  
 X2 (Effect = 0.16, LLCI = -0.0119, ULCI = 0.3435, *ns*)

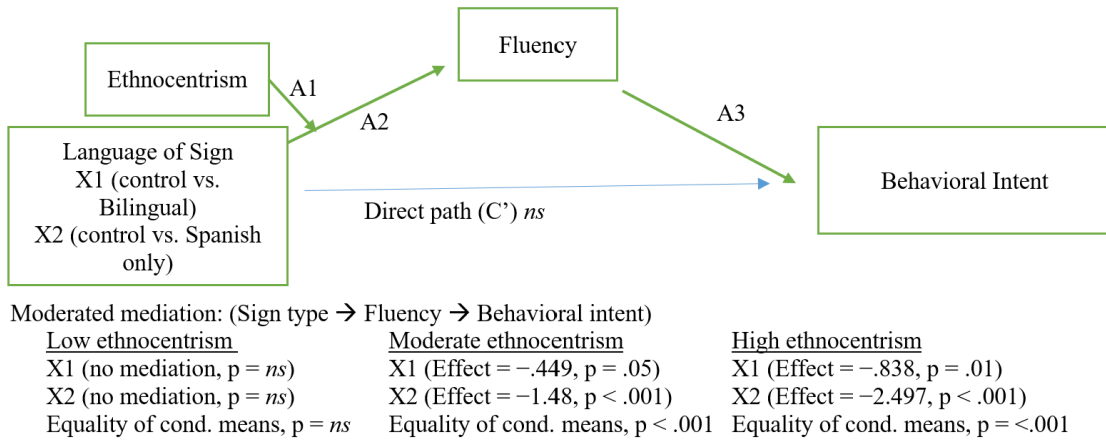
The model included language of the sign as the independent variable, Attitude-to-the-sign and attitude-to-the-store as mediators, and behavioral intent as the dependent variable (see Figure 2). Results show partial mediation with a significant path from Sign through Attitude-toward-the-sign and Attitude-toward-the-store to behavioral intent ( $p < .01$ ). This serial mediation is particularly driven by the positive impact of the bilingual sign compared to the English-only control (Effect = .39,  $p < .01$ , LLCI = .212; ULCI = .629); however, the direct path from sign type to behavioral intent remains significant for the bilingual sign (Effect = -.40,  $p = .03$ ) and the Spanish only sign (Effect = -.54,  $p < .01$ ) compared to the control (Omnibus test of direct effects of X on Y,  $F_{(2, 235)} = 4.70$ ,  $p < .01$ ).

Next, we investigated the hypothesis that fluency (ease of processing sign information) will mediate the impact of a sign's language on behavioral intent, contingent upon the viewer's level of ethnocentricity. Specifically, individuals who hold a more local (U.S.-centric) view should perceive a sign using Spanish (bilingual or Spanish only) as less fluent (more difficult to process) than an English-only sign. To test this hypothesis, we investigated moderated mediation using the PROCESS version 4.0, model 7 (Hayes, 2021). Language of the sign remains the independent variable, Ethnocentrism is included as the moderator, Fluency is included as the mediator, and Behavioral Intent is included as the dependent variable. Results show a significant moderated mediation (Index = -0.2206, LLCI = -0.4135, ULCI = -0.0709), such that at low levels of ethnocentrism (Global focus) there is no mediation through fluency; however, at moderate and high levels of ethnocentrism (relatively more United States focused) there is a mediation through fluency (see Figure 3).

Consistent with our expectations, ethnocentrism and fluency combine to explain the influence of a sign's language on behavioral intent. Specifically, an individual's level of ethnocentrism amplifies the perceived ease of processing sign information in English but significantly decreases the perceived ease of processing bilingual and Spanish information. Among individuals characterized by higher levels of ethnocentrism, the perceived fluency of bilingual (mean = 5.5)

**Figure 2**

Study 1: How the Language of a Sign Shapes Behavioral Intentions Toward the Store It Represent



and Spanish (3.9) signs is lower than that of English (6.4) signs. That perceived fluency level shapes behavioral intentions but only among individuals characterized by moderate to high ethnocentrism.

*Bilingual Signs Cue Expectations*

Taylor et al. (2005) described the practical wisdom of the sign industry, which suggests that on-premises signs are analogous to a salesperson's handshake, (i.e., a first impression, conveying the personality of the business they represent). Survey evidence showed that a large majority of shoppers claim that they can infer the quality of a business from its signage (Kellaris, 2010). Kellaris and Machleit (2016) formalized this idea by proposing that viewers may use signs as "inferential cues" to formulate impressions. In this vein, we explored how the language of signs may shape shoppers' expectations of product and service quality, as well as perceptions of authenticity, inclusiveness, personal relevancy, and interestingness. Table 1 shows average ratings across language conditions.

**Table 1** / Mean Expectations Across Language Conditions (Study 1)

| Expectations of...       | English only (control) | Bilingual | Spanish only        |
|--------------------------|------------------------|-----------|---------------------|
| Product quality          | 3.48                   | 3.65      | 3.43                |
| Service quality          |                        |           |                     |
| • Warmth                 | 3.36                   | 3.74*     | 3.32 <sup>1</sup>   |
| • Competency             | 3.70                   | 3.85      | 3.66                |
| • Ease of communication  | 4.01                   | 4.01      | 3.38 <sup>1,2</sup> |
| Authenticity             | 4.45                   | 5.06**    | 4.73                |
| Inclusiveness            | 4.40                   | 5.01**    | 4.331               |
| Personal relevancy       | 3.96                   | 4.01      | 3.63                |
| Interestingness of store | 3.97                   | 4.55*     | 4.24                |

Note. Cell entries are means on seven-point scales.

\*  $p < .05$  compared to control; \*\*  $p < .01$  compared to control.

<sup>1</sup>  $p < .05$  compared to Bilingual condition; <sup>2</sup>  $p < .05$  compared to control.

**Figure 3**

Study 1: The Role of Fluency as a Mediator of the Impact of a Sign's Language on Behavioral Intentions Toward the Store It Represents, Contingent Upon Shopper Ethnocentrism



## Discussion

In summation of Study 1 findings, the language of a sign has a direct influence on behavioral intentions toward the store represented by the sign, with bilingual signs having the most positive effect. One process by which this influence takes place is an evaluative process whereby the language of a sign leads to shoppers forming attitudes toward the sign itself, which in turn shapes attitudes toward the store the sign represents. More positive attitudes lead to more positive intentions to patronize a store (see Figure 2). However, this is not the whole story. The path from signs to intentions is only partially mediated by attitudes (affective evaluations of the sign and store). This suggests that there is another process by which this influence may take place.

Hence, we investigated the possibility of a second, nonconscious process by which fluency—the ease of processing sign information—may shape behavioral intentions in conjunction with ethnocentrism (see Figure 3). Evidence shows that ethnocentrism interacts with fluency such that when ethnocentrism is moderate or high, English signs are perceived as easier to process, and bilingual or Spanish signs are perceived as disfluent. Generally, more fluent sign information tends to engender more positive intentions toward a store ( $r = .288, p < .001$ ). But this effect is not statistically significant when ethnocentrism is low.

The evidence suggests that the language of the signs shapes expectations. Specifically, bilingual signage enhances perceptions of warmth, authenticity, and inclusiveness, and makes a store seem more interesting, as compared to English-only signage (see Table 1). Additionally, only a marginal uptick occurs in average product quality expectations when signs are bilingual, albeit no statistical difference as compared to single-language signs. What is the root source of these apparent advantages of bilingual signs? One respect in which such signs differ from single-language signs is the amount of text used to convey information in two languages. Thus, the mere amount of text poses an alternative explanation to the effects attributed to a sign being bilingual. We speculate that increasing the amount of text on a sign (within a reasonable limit) may trigger a mindless “more is better” heuristic (Cialdini, 2009), with attendant halo effects. Study 2 will explore this issue.

Whereas mean ratings represent “the average consumer” in our sample, we explored contingencies that might underlie the documented advantages of bilingual signage, reasoning that individuals characterized by different levels of ethnocentrism, differing political ideologies, foreign language facility, and demographics (gender, age, education) could react differently to the same sign message (Kellaris & Machleit, 2016). For the most part, the pattern evident in Table 1 persisted across participants characterized by these individual differences. We did, however, discover a correlation between political ideology and personal relevancy of the store, such that the more conservative an individual, the less relevant a store seems when it is represented by bilingual signage ( $r = -.225, N = 84, p < .04$  two-tailed). Additionally, we find that men and women, young and old, with varying levels of education, language facility, ethnocentrism, and political ideologies generally tend to respond similarly to bilingual signage.

## Study 2

Study 2 is a conceptual replication and extension of Study 1. Using different signs for different retail store types to assess the generality of the prior findings, we also sought to test an alternative explanation for the effects attributed to bilingual signage. Specifically, we created an additional “English + English” experimental condition in which the total amount of textual information was similar to that of the bilingual condition. As an added extension, we added a thought-elicitation task to gather qualitative evidence regarding impressions of the signs.

### *Participants and Design*

We recruited a national sample of 236 adult consumers (49.6% female; median age 35; age range 19–93) from the *Prolific*™ consumer panel in exchange for a nominal fee. As in study 1, these participants learned English as their first language (98.3%) and report similar levels of familiarity with the Spanish language (19% report the ability to read or speak Spanish; another 66% report familiarity with some Spanish phrases; and only 15% reporting complete unfamiliarity with Spanish). Participants were told that the purpose of the study is to “Investigate consumers’ feelings, opinions and attitudes regarding some pieces of information.” An additional 15 participants started the study but did not pass attention checks and were excluded from the analysis.



The procedure and measures were identical to those used in Study 1, with the following exceptions: (1) We changed the store signs to represent a candy shop; (2) we added a thought-elicitation task to gather additional insights; and (3) we added a fourth “English plus more English” condition that parallels the amount of text on the bilingual sign (see Figure 4). The intent of this condition is to determine if the apparent advantage of bilingual signs might stem partly from the greater amount of text such signs contain.

### Measures

In addition to the measures used in Study 1, Study 2 included a thought-elicitation task to capture affective evaluations of the sign. Participants were instructed to report retrospectively on “What thoughts passed through your mind as you viewed the sign? Please list any thoughts you can recall, briefly, including thoughts about the sign, the store, this research study, or any unrelated, random thoughts.” We provided ten spaces with instructions to “PLEASE LIST ONE COMPLETE THOUGHT PER BOX BELOW (words, phrases, or incomplete sentences are fine).” Across participants, the average number of thoughts listed was 5 (median = 6.1). After completing that task, participants were asked to code the affective valence of each thought they listed as being either positive, negative, or neutral. We averaged to form a measure we label valence of thoughts generated by the signs (Thought Valence). Finally, we used participant location data to create a geo-demographic variable (Geo) that classified each participant as residing in an area with relatively low, moderate, or high proportions of Spanish speakers relative to the general population (World Population Review, 2022).

### Qualitative Results

Write-in comments from the thought-elicitation task revealed interesting similarities and differences between reactions to otherwise identical store signs in English, bilingual, or Spanish-only. In terms of similarities, there were many comments across signage groups regarding nonsign features of the storefront, such as the dark windows and parking. Additionally, the size of the sign, the font, and other common features were noted consistently across groups.



Bilingual



English only



English + English



Spanish only

### Figure 4

Study 2 Stimuli—Candy Shop Signage

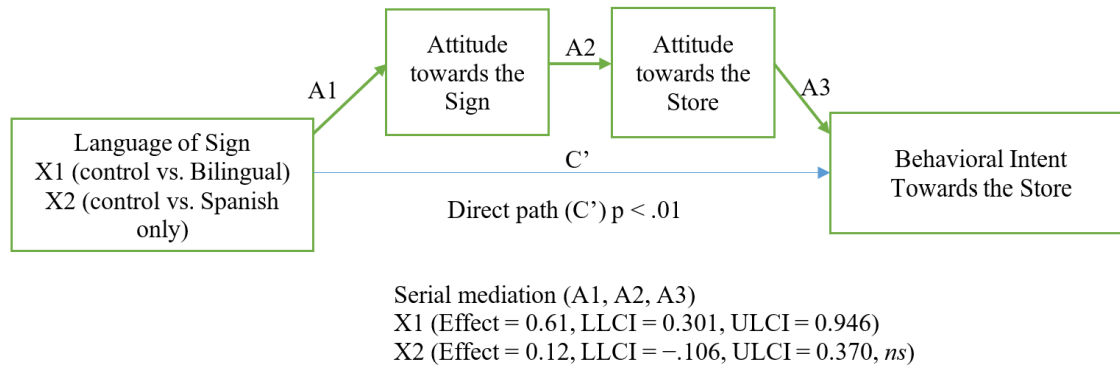


Figure 5

Study 2: Replication—How the Language of a Sign Shapes Behavioral Intentions Toward the Store It Represents

The English version of the sign was perceived as plain, simple, minimalist, somewhat dull, not particularly interesting, but clean and perfectly clear in its purpose: it was unambiguously a candy shop, which evoked disparate sentiments ranging from warm nostalgia to cold horror at the sugar and calories. Participants exposed to the sign in English did not appear to spontaneously generate thoughts regarding inclusiveness until they were asked about it later in the survey.

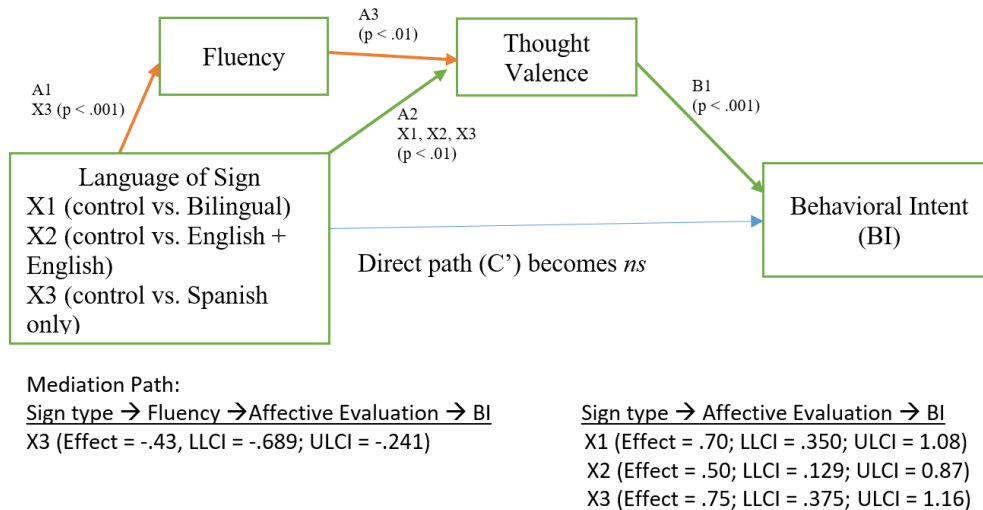
Exposure to a bilingual (English + Spanish) version of the sign provoked, in many cases, notably different perceptions. Not only was the sign perceived to be more interesting and inclusive, it was also characterized as cute, colorful, fun, and welcoming. Only a few participants misidentified the second language as something other than Spanish (One elderly participant commented cheerfully that “France is known for its excellent candy!”). Those that correctly identified the second language as Spanish inferred store location in a culturally diverse area with Hispanic customers or ownership.

Exposure to a Spanish-only version of the sign leads to misunderstandings regarding the nature of the store and what it sells, with some guessing it is a dairy shop, bakery, pastry shop, or something other than a candy store. It was the only condition that provoked responses in the form of questions (e.g., “What kind of business?” “Why is the sign in Spanish?” “What do they sell?” and “Is this (storefront)

a church?”). Additionally, many participants expressed a reluctance to explore the shop, anticipating communication problems or simply inferring personal irrelevance.

#### Statistical Results

The statistical analysis began with a replication of Study 1 using data from Study 2. To test the hypothesis that the language of a sign will produce systematic differences in attitudes toward the sign and the store it represents, we conducted a mediation analysis using PROCESS version 4.0, model 6 (Hayes, 2021). As in the prior study, we evaluated the independent variable (language of the sign) with the English-only sign as the control compared to the bilingual and Spanish-only signs as the two test conditions. The model included language of the sign as the independent variable, Attitude-to-the-sign and Attitude-to-the-store as mediators, and behavioral intent as the dependent variable (see Figure 5). Results show partial mediation with a significant path from Sign through Attitude-toward-the-sign and Attitude-toward-the-store to behavioral intent ( $p < .01$ ). This mediation is particularly driven by the positive impact of the bilingual sign compared to the English-only control (Effect = .61,  $p < .01$ , LLCI = .301; ULCI = .946), however the direct path from sign type to behavioral intent remains significant for the Spanish only sign (Effect = -.75,  $p < .01$ ) compared to the control (Omnibus test of direct effects of X on Y,  $F(2, 168) = 4.72$ ,  $p = .01$ ). In summation, results from



Study 1 were conceptually replicated using different stimuli and a different sample of consumers, which affirms the generality of the process by which the language of signs influence behavioral intentions toward the stores they represent.

Next, we investigated the possibility that fluency (ease of processing sign information) and the valence of thoughts generated by signs might mediate the impact of a sign's language on shoppers' behavioral intentions. Our conjecture is that fluency will be an important mediator for the Spanish language sign, but valence of thoughts will be more important for processing bilingual signage. To test this, we conducted a sequential mediation analysis using PROCESS version 4.0, model 6 (Hayes, 2021). Language of the sign is the independent variable, Fluency and Thought Valence are included as mediators, and Behavioral Intent as the dependent variable.

Results show a significant ( $p < .01$ ) serial mediation through Thought Valence for all the sign conditions (bilingual, English + English, and Spanish). Moreover, for the Spanish language sign, there is an additional, significant ( $p < .001$ ) serial mediation through Fluency to Thought Valence to Behavioral Intent. When the mediators are included in the model, the direct effect of a sign's language on behavioral intentions becomes nonsignificant, indicating a full mediation. (see Figure 6).

To further explore the role of fluency as a mediator, we introduced a geo-demographic variable as a moderator of language's influence on the experience of (dis)fluency. This variable (Geo) divided participants into areas characterized as low, moderate, or high in terms of proportion of Spanish speakers in the population. For example, whereas California (26.16%) and Texas (25.60%) have relatively high proportions, Vermont (1.05%) and Maine (0.86%) have relatively low proportions (World Population Review, 2022). Not surprisingly, we find a significant

**Figure 6**

Study 2: The Role of Fluency and Affective Evaluation of the Sign as Mediators of the Impact of a Sign's Language on Behavioral Intentions Toward the Store It Represents

interaction ( $p < .01$ ) between language of sign and Geo, with Geo moderating the influence of language on perceptions of fluency. People living in areas with low or moderate numbers of Spanish speakers find signs in Spanish more disfluent than do people living in areas with a high proportion of Spanish speakers. For example, whereas the English sign averaged 5.8 in fluency among people living in locales with a small Hispanic population, Spanish signs averaged 2.8 in fluency (vs. 4.4 among those living in areas with a large Hispanic population).

Finally, we replicated the analysis shown in Table 1 of Study 1, which examined how the language of a sign shapes consumers' expectations of the store it represents. The results of Study 2 replicated those of Study 1 using different stimuli and participants (see Table 2), affirming certain advantages of bilingual signs.

**Table 2 / Mean Expectations Across Language Conditions (Study 2)**

| Expectations of...       | English only (control) | Bilingual         | English + English | Spanish only      |
|--------------------------|------------------------|-------------------|-------------------|-------------------|
| Product quality          | 3.08                   | 3.68 <sup>1</sup> | 3.38              | 3.31              |
| Service quality          |                        |                   |                   |                   |
| • Warmth                 | 3.02                   | 3.77 <sup>1</sup> | 3.70 <sup>1</sup> | 3.31              |
| • Competency             | 3.27                   | 3.82 <sup>1</sup> | 3.70 <sup>2</sup> | 3.47              |
| • Ease of communication  | 3.54                   | 3.93 <sup>2</sup> | 3.87              | 2.85 <sup>1</sup> |
| Authenticity             | 3.53                   | 4.72 <sup>1</sup> | 4.53 <sup>1</sup> | 4.76 <sup>1</sup> |
| Inclusiveness            | 3.68                   | 5.12 <sup>1</sup> | 4.60 <sup>1</sup> | 3.61              |
| Personal relevancy       | 3.48                   | 4.11 <sup>2</sup> | 3.87              | 2.81 <sup>2</sup> |
| Interestingness of store | 2.98                   | 4.42 <sup>1</sup> | 3.75 <sup>2</sup> | 3.86 <sup>2</sup> |

Note. Cell entries are means on seven-point scales.

<sup>1</sup> Significantly different from control  $p < .01$ .

<sup>2</sup> Significantly different from control  $p < .05$ .

### Discussion

Again, the evidence from Study 2 shows that the language of a sign has a direct influence on behavioral intentions toward the store represented by the sign, with bilingual signs having the most positive effect. One process by which this takes place is through attitude formation wherein a sign that engenders positive evaluations of the sign tends to foster similar attitudes toward the store it represents, with positive attitudes encouraging positive behavioral intentions.

Study 2 provides additional evidence that the ease with which sign information is processed (fluency) plays a mediational role in shaping a sign's influence on prospective shoppers' behavioral intentions. This is most evident in the case of Spanish signage, which is processed with less ease, particularly in areas with relatively small Spanish-speaking populations, where Spanish signage is presumably less common. Disfluency colors the thoughts generated during the viewing of a sign, with negative thoughts reducing intentions to engage with a business.

Bilingual signage has advantages over English-only signage in terms of product and service quality expectations, perceived authenticity, inclusiveness, and interestingness of the store. Additionally, whereas increasing the amount

of English text to mirror the amount of text on a bilingual sign (English + English condition) appears to operate similarly on many categories of expectations, suggesting that some of the advantages of bilingual signs may stem from an implicit “more is better” heuristic. Moreover, whereas Spanish-only signage scored well in terms of authenticity and interestingness, these advantages are offset by disadvantages in terms of ease of communication and personal relevancy to majority consumers.

## GENERAL DISCUSSION/CONCLUSION

This study is an initial, exploratory investigation of shopper reactions to bilingual signage. Evidence from two experimental studies indicates that bilingual signs may have a number of advantages beyond the mere facilitation of communication across language groups. In general, bilingual signs, as compared to single-language signs, foster more positive perceptions of authenticity, inclusiveness, warmth, and add an element of interestingness to the stores they represent. Foreign language signs (Spanish-only in the present case), by contrast, appear to cue expectations among some English-speaking majorities of less positive service experiences in terms of friendliness and ease of communication and seem less welcoming (inclusive) as compared with bilingual signs.

There appear to be multiple processes by which bilingual signs influence prospective shoppers’ intentions to patronize a store. One path by which the language of a sign shapes behavioral outcomes is by engendering attitudes toward the sign itself, which foster similar attitudes toward the store it represents. Positive regard (“I like this sign, therefore I like this store”) naturally leads to approach behaviors, such as the intent to shop.

This, however, does not fully explain how the language of the signs shapes behavioral intent in all cases, under all circumstances. A second path by which the language of a sign shapes behavioral outcomes is by the ease with which the sign information can be processed (“fluency”), which in turn is contingent upon the level of an individual’s ethnocentrism (Study 1) and can operate through the valence of thoughts it generates (Study 2). Moreover, whereas study participants reacted similarly to bilingual signs and English signs with texts of similar length (“English

+ English” condition, Study 2), some apparent advantages of bilingual signs may stem from a “more is better” heuristic. Collectively these paths may account for the majority of influence a sign’s language exerts on viewers’ intentions, but other process mechanisms may await discovery.

## Practical Implications

Although we consider the present findings to be preliminary, they suggest intriguing communication effects with potential to guide real-world applications in the realm of on-premises signage. Primarily, even if bilingual signage is not needed to facilitate basic communication, such as in an area with recent immigrants, it may be advantageous to use in terms of fostering generally positive perceptions and outcomes among majority consumers. Bilingual signage has the potential for making stores seem more interesting by adding a dash of international flavor and more inclusive by appearing welcoming to a broader range of shoppers.

This, however, comes with a caveat. According to Angel Colón (personal communication, September 13, 2022), Senior Director of Diversity at The Kroger Company, target markets are moving targets, so responses to bilingual signs are not static over time. He recounted examples of the market’s dynamic nature from Kroger grocery stores’ experience with bilingual signage. Originally, it was intended to facilitate basic communication with the growing Hispanic segment, primarily “Mexican moms.” Older Hispanic customers and recent immigrants appreciated the courtesy of easily understandable bilingual signage in both English and Spanish, which facilitated shopping and conferred the residual benefit of helping them learn English. Children of the next generation, however, grew to resent bilingual signage, as implied that they did not understand English adequately. It singled them out as “different.” However, over time, as Latino Pride emerged as a cultural phenomenon, bilingual signage became a source of pride in heritage and in the impact of Latinos on the culture. It signaled that Spanish was “mainstream.” (A. Colón, personal communication, September 13, 2022). From this perspective, we can say that bilingual signage tended to be viewed positively by majorities and minorities alike *at this moment in time*. How this might change in the future is a topic ripe for speculation and investigation and a caution flag for the sign industry.

The generality and practical value of the present findings are subject to verification in future research. Nevertheless, we hope that this article will spark further investigations into the effects of bilingual signs. Among the topics that could be explored are a deeper dive into nonconscious processes through which types of signs influence desired behavioral outcomes. It would be interesting to investigate personal characteristics (need for closure or need for cognition) and heuristics (e.g., “more is better”) as possible moderators of mediators of the process. For example, in addition to evoking a “more is better” heuristic, perhaps bilingual signs foster an illusion of being able to read in two languages. If so, we speculate that a resulting uplift to ego (e.g., “I am smart, because I can read a second language”) may be generalized as a positive metacognitive experience attributed to or otherwise associated with the sign and the business it represents, with downstream consequences for shopper behavior.

Another direction for future research could be to examine reactions to bilingual signs in other contexts, such as wayfinding signs at international tourist sites or aspects of the signage design. Bilingual signs at tourist locations may seem natural and imply that visitors come from far and wide. The design of the sign could vary the order of languages presented (e.g., English/Spanish vs. Spanish/English) as well as the relative size of the text (e.g., equal sizes vs. larger English/smaller Spanish), which may signal implied importance and cue inferences of who the intended audience is, or respect for different segments.

Finally, we believe it could be interesting for future investigations to dive deeper into geo-demographic factors, such as the proportion of a local population that is Hispanic, Spanish-speaking, or highly ethnocentric. We found that ethnocentrism moderates the influence of the language of the sign on fluency, but it would be interesting for future research to investigate why individuals characterized by high ethnocentrism perceive bilingual and foreign language signs as more disfluent. Is it because they are more likely to be monolingual or is it driven by a lack of comprehension or some other demographic or cognitive difference? We speculate that bilingual signs could seem more/less normal, welcoming, or threatening, depending upon geo-demographics, but commend the investigation of these questions to future research.

### *Conclusions*

At the outset, a number of research questions guided this investigation. To conclude our report, we will briefly recap the research questions and the answers provided by the evidence.

What are the benefits and hazards of bilingual and foreign language signs? The benefits of bilingual signs include their positive effect on behavioral intentions toward the businesses they represent as well as fostering positive perceptions of service quality, authenticity, inclusiveness, and interestingness. A hazard of bilingual signs is their potential to be off-putting to some shopper segments (e.g., highly ethnocentric customers, second-generation immigrants that are fully fluent in English). Benefits of foreign language signage include their “audience

sorting” potential to target a specific segment as well as fostering perceptions of authenticity. Hazards of foreign language signs include their potential to be off-putting to some majority consumers and their cueing expectations of communication difficulty, a dimension of service quality.

How do consumers process information communicated by bilingual or foreign language signs (as compared to the dominant, majority language)? Evidence shows that sign information can be processed via a conscious, evaluative process (see Figures 2 & 5) or by nonconscious, automatic processes, such as inferring from the ease of processing sign information that the store it represents is good or bad.

What impressions do bilingual and foreign language signs provoke? Do they foster perceptions of inclusion and authenticity, as we speculated? Do they add an element of interest to a retail environment? The short answer is yes. Across studies, bilingual signs consistently provoked impressions of warm, cordial service, authenticity, inclusion, and interestingness, more so than English or Spanish signs. Foreign language signs provoked the impression that communication might be difficult.

Do signs cue expectations about the quality of products and customer service? Again, the short answer is yes. Bilingual signs enhanced expectations of service (Studies 1 & 2) and product (Study 2) quality. Foreign language signs, by contrast, tended to cue expectations of nominally but not statistically lower quality. The main problem issue was cueing expectations of communication challenges with majority language customers.

What influence does the language of signs have on prospective customers’ behavioral intentions vis-à-vis a business? Evidence from two experiments shows wide variation in behavioral intentions toward stores, depending upon the language of signage. Bilingual signage has a general advantage over English and Spanish signs. This advantage stems from encouraging positive attitudes, positive metacognitive experiences (fluency), and priming positive expectations. Whereas bilingual signs use more text than monolingual signs, repeating information in two languages, such signs may benefit from triggering a “more is better” heuristic below the threshold of conscious perception.



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