BELIEFS ABOUT BILINGUAL LABELS ON CONSUMER PRODUCTS

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ABSTRACT

There is increasing number of people living in the United States who do not speak or read English, and who understand exclusively Spanish. The present study sought to gain insight into people's beliefs on issues related to the use of bilingual labels (English and Spanish) on consumer products. The results of a questionnaire completed by 342 U.S. citizens showed strong agreement that people who intend to live in the U.S. should learn English, and that bilingual labels are important to people in the U.S. who do not read English. They also strongly disagree that bilingual labeled products should not be sold in the U.S. and that such labeling would indicate a lower quality product. Implications for the use of two or more languages on labels of U.S. consumer products are discussed.

INTRODUCTION

The U.S. Census bureau projects an increase of Hispanics from 11.5% to 15.8% of the total U.S. population from the year 1999 to the year 2015 (U.S. Census Bureau, 2002). These figures account for only those who identify themselves with the Census Bureau. The actual figure is higher because the Immigration and Naturalization Service (INS) estimates that during the year 1996, there was 2.7 million undocumented illegal immigrants residing in the U.S. (INS, 2002).

Many immigrants, both legal and illegal, have limited skills in the English language. Many take jobs that involve manual labor, which may include the handling of potentially dangerous chemicals or operating hazardous equipment. To warn users of potential hazards, a print warning is usually located on the container of the product or attached directly to the product. However, the vast majority of products in the U.S. only have warnings in English. Thus, non-English users are at greater risk to injuries, illness, or death because they may not understand the warnings about hazards that are only presented in English.

There are both advantages and disadvantages of bilingual labels on products. Note that in this article, the use of the term "bilingual labels" refers to labels bearing both English and Spanish. One advantage of bilingual labels is that non-English users of the added language will be able to understand the warning about hazards, and thus be able to make better informed usage decisions. Ultimately, understandable and usable labels will likely decrease injuries, illness and death.

However, there are also potential disadvantages with bilingual labels. For example, having two languages on the container label will decrease the surface area dedicated to warnings and instructions in English, which in turn may reduce the salience and legibility of the information because of the smaller text size. It also might have the appearance of "too much" text and thus could degrade its attractiveness to readers (Silver & Braun, 1993; Wogalter & Young, 1994).

The purpose of the present study was to gain insight into people's beliefs and attitudes towards bilingual-label issues. The statements concerned various issues related to bilingual labels and participants rated their agreement versus disagreement.

METHODS

Participants

A questionnaire was distributed a total of 342 (158 males and 184 females) individuals at various locales in the Raleigh-Durham area of North Carolina (279 individuals) and in the Los Angeles area of California (63 individuals). The sample was collected as part of class projects at two universities. Ages of the participants ranged from 17 to 84 years (M= 26.53, SD = 11.32). Fulltime students made up 73% of the sample and their

average age was 21.7 (SD = 3.8). Non-students made up 27% of the sample and their average age was 39.4 (SD = 14.2). All participants reported having completed at least the 9th grade with the average education level attained being 2.7 years of college. All participants reported being fluent in English, but for 16%, English was not the first language they learned.

Racial/Ethnic group composition was 73% Caucasians, 10% Hispanic or Latinos, 4.5% African-Americans, 3.5% Asians, 2% Middle Easterners, and 7% Other.

Materials and Procedure

A multipage questionnaire was distributed containing items asking participants for their opinion about current technology. One section requested demographic information such as age, gender, etc. Another section contained 14 statements concerning beliefs and attitudes about bilingual labels. These statements are shown in Table 1. There were two versions of the questionnaire, each with a different random order of statements. Each version was given to approximately half of the participants. A short vignette preceded the statements:

> There will be an increase of Spanish speakers in the United States. Manufacturers may begin to use bilingual labels to communicate directions for use, and any warnings of potential hazards. Use the 0 to 8 point scale to rate the statements as to how much you disagree or agree with them. Assume that bilingual labels have both English and Spanish text.

Participants were then asked to rate the level of agreement and disagreement of statements on a 9-point rating scale ranging form 0 to 8 with the even-numbered points having the following word anchors: 0 (Very strongly disagree), 1 (Strongly disagree), 2 (Disagree), 3 (Slightly disagree), 4 (No opinion- neither agree or disagree), 5 (Slightly agree), 6 (Agree), 7 (Strongly agree), and 8 (Very strongly agree).

RESULTS

The mean agreement ratings (and standard deviations) for each of the 14 statements are shown in order from highest to lowest in Table 1. Initially, a repeated-measures analysis of variance (ANOVA) was conducted on the statement ratings. Comparisons among the means using Tukey's Honestly Significant Difference (HSD) of .497 at p=.05 indicates that many of the statement means were significantly different from one another, particularly at the high and low ends of the scale.

As can be seen in the table, the three highest statements in rated agreement were: (1) Bilingual products are useful for Spanish speakers; (2) People who intend to live in the U.S. should learn English; and (3) Bilingual labels are important, because many people in the U.S. do not read English. At the other end the three statements with the lowest agreement ratings (i.e., most disagreement with) were: (12) I would expect to pay less for a product with bilingual labels; (13) Bilingual products should not be sold in the United States; and (14) Bilingual products are lower quality than English labeled products.

Demographic Differences

Additional analyses examined the relationship of demographic category of participants and beliefs and attitudes about bilingual labels to determine if there were differences. These analyses used a mixed-model design using single demographic category as the between-subjects factor and statement as the within-subjects (repeated-measures) factor. The categories examined were: age, gender, student status (student vs. non-student), ethnicity (Hispanic v. non-Hispanic), and English as a first language vs. English as a second language. As described in the next two respective paragraphs, only the latter two demographic categories showed a significant interaction.

A 2 (Hispanic vs Non-Hispanic) X 14 (statement) mixed-model ANOVA showed a significant interaction, $F(13, 4420) = 4.72$, $p< .0001$.

Table 1.
Mean agreement ratings and standard deviations for the 14 statements.

Statements	Mean	(SD)
1. Products with bilingual labels are useful for users who speak Spanish.	6.58	1.5
2. I believe that people who intend to live in the U.S. should learn English.	6.01	1.9
3. I think bilingual labels are important because many people in the U.S. do not read English.	5.11	2.0
4. Rather than make the labels bilingual, manufacturers should try to use pictorials, symbols, or icons to convey meaning to users of all languages and for people who can not read.	4.46	2.0
5. Bilingual labels are worth the extra cost.	3.96	2.1
6. Products with bilingual labels will have too much text; many people will not read the label because it takes too much effort to read.	3.52	2.0
7. Bilingual labels should only be used for those products that are potentially hazardous to users and others (for example, pesticides and chemicals).	3.50	2.2
8. Products with bilingual labels make the product cost more because extra material must be printed on the labels.	3.44	1.7
9. Products with bilingual labels are useful for users who speak English	3.26	2.4
10. I would not read the warning on bilingual labels.	3.05	1.9
11. I prefer products that have bilingual labels more than English-only labels.	2.95	1.8
12. I would expect to pay less for a product with bilingual labels.	2.57	1.6
13. I believe that products with bilingual labels should not be sold in the United States.	1.99	1.9
14. I believe that products with bilingual labels are of lower quality than products with only English labels.	1.96	1.7

Shown in the order of highest overall agreement to disagreement.

The means are shown in Table 2. Simple effects analysis indicated that several of the statements significantly differed as a function of demographic category. Hispanics gave significantly higher ratings than non-Hispanics to the statements: (5) Bilingual labels are worth the extra cost; and (3) I believe that bilingual labels are important because many people in the U.S. do not read English. Also, Hispanics gave significantly lower agreement ratings (i.e., great disagreement with) than non-Hispanics to the statements: (13) I believe that products with bilingual labels are of lower quality than products with only English labels; (2) I believe that people who intend to live in the U.S. should learn English; and (6) Products with bilingual labels will have too much text; many people will not read the label because it takes too much effort to read.

A 2 (English as a first language vs. English as a second language) X 14 (statement) mixed-model ANOVA showed a significant interaction, $F(13, 4420) = 1.79$, $p < .05$. The means are shown in Table 2. A similar, although somewhat weaker, pattern of mean differences as the above-mentioned Hispanic vs. Non-Hispanic by statement interaction can be seen in the table.

Attitude Difference

To determine whether persons who are strongly in favor of English-only labels differed in other respects, its relation to the other items was examined. A median split at the rating of 6 (agree) was performed on statement: "I believe that people who intend to live in the U.S. should learn English. Those that rated the "learn English" statement with a 7 or above were grouped as having strong indication that English is necessary for those who intend to live in the U.S. Whereas those that rated the "learn English" statement with a 5 or below were grouped as having a strong indication that English was not necessary for those who intend to live in the U.S. Those that rated the "learn English" statement with a 6 were randomly placed either in the first or second group, to distribute participants in equal numbers in the 2 groups.

Table 2.
Mean agreement ratings for two-way interactions between Hispanics vs. Non-Hispanics and English-as-first language for the 14 statements.

Statements	Non-Hispanics	Hispanics	English 1st	English 2nd
1. Products with bilingual labels are useful for users who speak Spanish.	6.53	7.05	6.57	6.64
2. I believe that people who intend to live in the U.S. should learn English.	6.10*	5.17	6.12*	5.39
3. I think bilingual labels are important because many people in the U.S. do not read English.	5.01	6.00*	5.07	5.34
4. Rather than make the labels bilingual, manufacturers should try to use pictorials, symbols, or icons to convey meaning to users of all languages and for people who cannot read.	4.50	4.08	4.50	4.22
5. Bilingual labels are worth the extra cost.	3.88	4.70*	3.92	4.18
6. Products with bilingual labels will have too much text; many people will not read the label because it takes too much effort to read.	3.64*	2.35	3.59	3.13
7. Products with bilingual labels make the product cost more because extra material must be printed on the labels.	3.50	2.44	3.48	3.22
8. Bilingual labels should only be used for those products that are potentially hazardous to users and others (for example, pesticides and chemicals).	3.53	3.29	3.48	3.66
9. Products with bilingual labels are useful for users who speak English	3.26	3.29	3.31	2.98
10. I would not read the warning on bilingual labels.	3.04	3.14	3.02	3.22
11. I prefer products that have bilingual labels more than English-only labels.	2.88	3.58*	2.90	3.18
12. I would expect to pay less for a product with bilingual labels.	2.58	2.47	2.56	2.62
13. I believe that products with bilingual labels are of lower quality than products with only English labels.	2.10*	0.70	2.10*	1.22
14. I believe that products with bilingual labels should not be sold in the United States.	2.05	1.44	2.06	1.62

* Indicates significant difference ($p<.05$).

A mixed model design similar to that described for the demographics analyses showed a significant interaction in a 2 (lower vs. higher on the statement "I believe that people who intend to live in the U.S. should learn English") X 13 (statements) ANOVA, $F(12, 4080) = 12.82, p< .0001$. Simple effects analyses showed several statements to differ significantly ($p<.05$). Participants who more strongly agreed to the "intend to live in the U.S., should learn English" (compared to those who more strongly disagreed) also gave significantly higher agreement ratings to the statements: "I believe that products with bilingual labels should not be sold in the United States" (M= 2.39 vs.1.40), and "Products with bilingual labels will have too much text; many people will not read the label because it takes too much effort to read" (M= 3.88 vs. 3.03). Those who more strongly disagreed with the "learn English" statement (compared to those who more strongly agreed) also tended to agree with the statement "I prefer products that have bilingual labels more than English-only labels" (M= 3.49 vs. 2.53), and "I think bilingual labels are important because many people in the U.S. do not read English" (M= 5.81 vs. 4.58).

DISCUSSION

This research examined the level of agreement to 14 statements regarding bilingual label issues in the U.S. Generally, there were high levels of agreement among the participant that bilingual labels are important to non-English users and that such labels are acceptable to U.S. English users. The statement "Products with bilingual labels are useful for users who speak Spanish" was the top-

most rated statement in the list. Another highly rated statement was "I think bilingual labels are important because many people in the U.S. do not read English." Moreover, the statement "I believe that products with bilingual labels should not be sold in the U.S." received very high disagreement ratings (i.e. very low agreement). Together the data suggest that most participants were favorable toward bilingual labels, probably as a reflection of being concerned for people whose language is not English. Also, some participants may be aware that there may be societal costs associated with personal injury and property damage. These potential explanations and others could be a basis for future research.

It is interesting that people who would not benefit (or only indirectly) from bilingual labels, nevertheless, believe them important to non-English. However, perhaps even more interesting is that another of the highest rated statements was "I believe that people who live in the U.S. should learn English." Thus while participants felt that bilingual labeling is important, they also held the belief that people living in the U.S. ought to learn English. Obviously, if everyone in the U.S. knew English there would not be a need for bilingual labeling. This would suggest that participants were considering that, inevitably, not everyone in the U.S. would have adequate English reading skill. In other words, bilingual labels are important for preventing injury to foreign visitors and persons who do not yet know English.

Some demographic differences were shown for the categories: English as the first or second language, and Hispanic vs. Non-Hispanic category. The differences were not unexpected since persons in two of the categories (English as second language and Hispanics) tended to overlap in membership and would likely be more sympathetic toward the use of bilingual labels. Interestingly for most statements, however, demographic category (including age and sex) made no difference in the ratings.

A problem with including two or more languages on labels is the lack of space. However, some potential solutions can be derived from the last two decades of research in the Human Factors/Ergonomics literature on warnings. For example, the use of pictorial symbols (Caird, Wheat, McIntosh & Dewar, 1997; Smith-Jackson & Wogalter, 2000), and label designs that expand the surface area could be used (Wogalter, Forbes & Barlow, 1993). For example, to persons with negative attitudes for bilingual labels, designs in which the Spanish translation is given on the underside of a multi-sided label (pullout label) and does not interfere with the English text, may be considered acceptable. Other possible designs can be implemented where the text of a particular language is designed in such a way that the reader can easily discriminate portions of the label for their language. Colors might be used to enhance the salience for a particular language whereby the reader can discriminate and ultimately find their particular language (Smith-Jackson & Wogalter, 2000).

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