

# Siegel+Gale SimplicityLab™ Evaluation of Proposed Environmental Protection Agency Fuel Economy Labels

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## Research objectives

- + The primary objective of this web-based research is to understand respondent perception, behavior, and comprehension of two proposed Environmental Protection Agency (EPA) fuel economy labels
- + Specifically, we evaluated perceptions and comprehension of the following:
  - + Vertical Label
  - + Horizontal Label
- + The research data and findings will be used to validate the utility and appeal of these proposed EPA labels, and provide suggestions for possible improvements

## Methodology

- + The information in this report is derived from an online survey of 456 members of the Global Markets Insite (GMI) Consumer Panel
- + The number of interviews completed is shown below:

	<b>Total</b>
<b>Vertical Label</b>	233
<b>Horizontal Label</b>	223

- + To participate in the survey, respondents were screened to meet the following criteria:
  - + Must be over the age of 18
  - + Must be intending to purchase or lease a car within the next 3 years

## Measuring the effectiveness of a document

Siegel+Gale's SimplicityLab™ evaluates the effectiveness of various communications along two fundamental dimensions: Comprehension and Perception.

The **Comprehension Index** measures the recipient's ability to understand factual information that is conveyed in the communication.

The **Perception Index** measures the recipient's response to the document measured on five pillars:

1. **Clarity:** Easy to understand, jargon-free, well-organized, intuitive
2. **Freshness:** Tone, visual appearance, personalized
3. **Honesty:** Straightforward, informative
4. **Usefulness:** Comprehensive, helpful, educates, anticipates questions
5. **Inspiration:** Creates a two-way dialogue, supports action, decision-making, and compliance, respects the user and builds a relationship

# General Information

## When purchasing a new automobile, consumers care about fuel efficiency (MPG) and fuel cost more than any environmental considerations; even when looking at environmental data, fuel efficiency is the most important consideration

Question: “Rank the following attributes based on how important they are to you when purchasing a new automobile, where 5 is “Very important” and 1 is “Not at all important” (Closed-End)

Fuel efficiency or gas mileage (MPG)	86.3
Annual fuel/energy cost in dollars	81.6
Fuel cost savings over five years	79.1
Compares favorably on efficiency within category (e.g. SUV, midsize car)	78.1
Compares favorably on efficiency to all other automobiles	77.4
Low emissions of air pollutants other than greenhouse gases	69.2
Type of vehicle (e.g., electric, hybrid, alternative fuel)	67.9
Low emissions of greenhouse gases	67.9

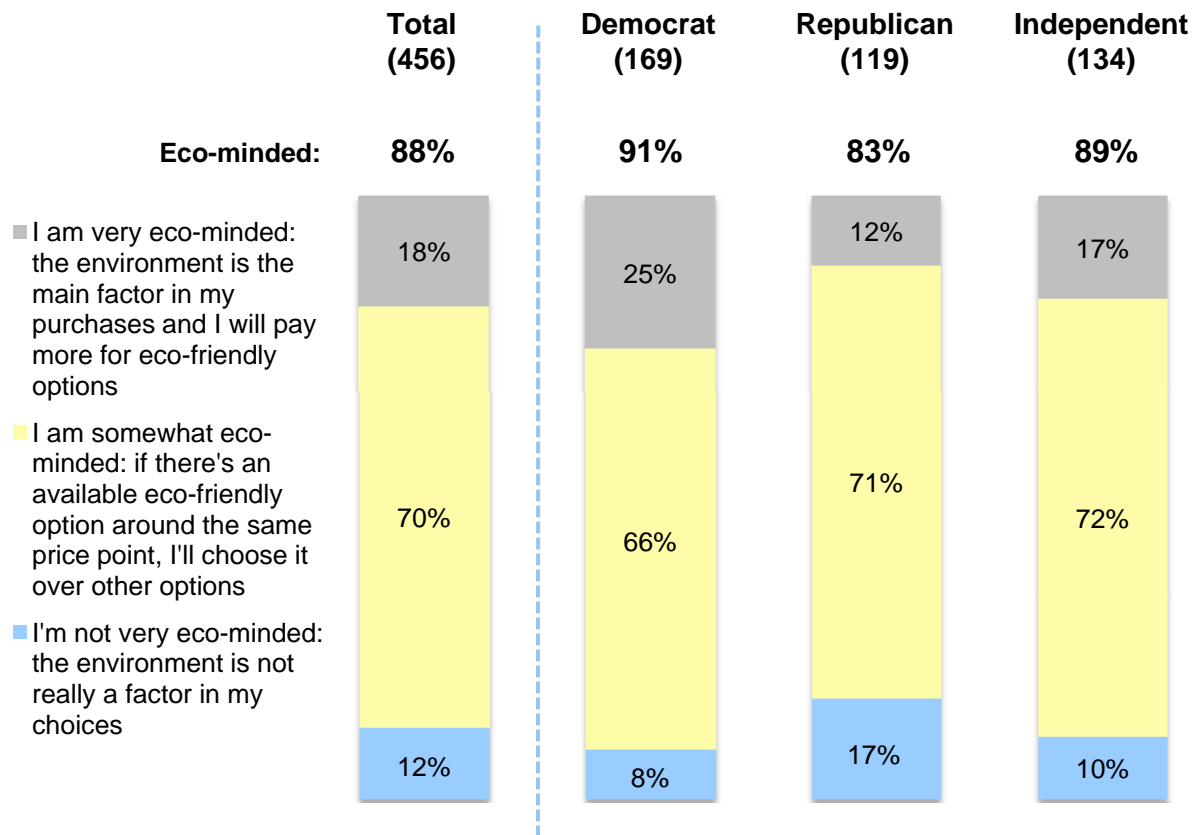
Question: “Rank the following environmental data on how important it is to have available when purchasing a new automobile, where 5 is “Very important” and 1 is “Not at all important” (Closed-End)

Efficiency of fuel combustion inside the engine	76.7
Noise pollution level (how loud the automobile is)	70.9
Emissions of greenhouse gases (carbon dioxide, noxious gases)	70.0
Effect on air quality index	68.9
Emissions of air pollutants other than greenhouse gases	68.3
Environmental cost of manufacturing the automobile	61.8
Amounts of restricted chemicals used during production of the automobile	61.3
Ease of recycling automobile components post-use	59.5

\*Component scores represent the mean agreement scores (1–5 scale) converted to a 100 point scale.

# The majority of consumers say they're eco-minded in their purchases as long as the price points are the same; Democrats are more eco-minded than Republicans and will pay more for eco-friendly options

Question: "Choose the statement that best describes your position on the environment."

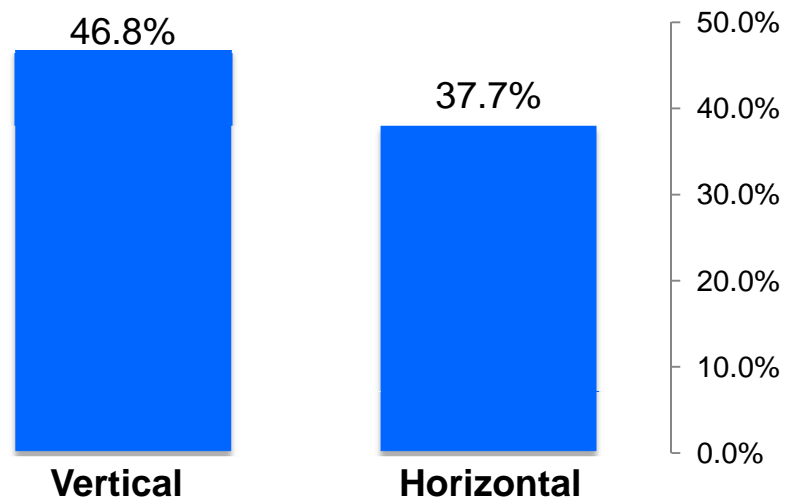


\*=Statistically higher than Total at 95% confidence level

# Performance of Vertical vs. Horizontal Layout

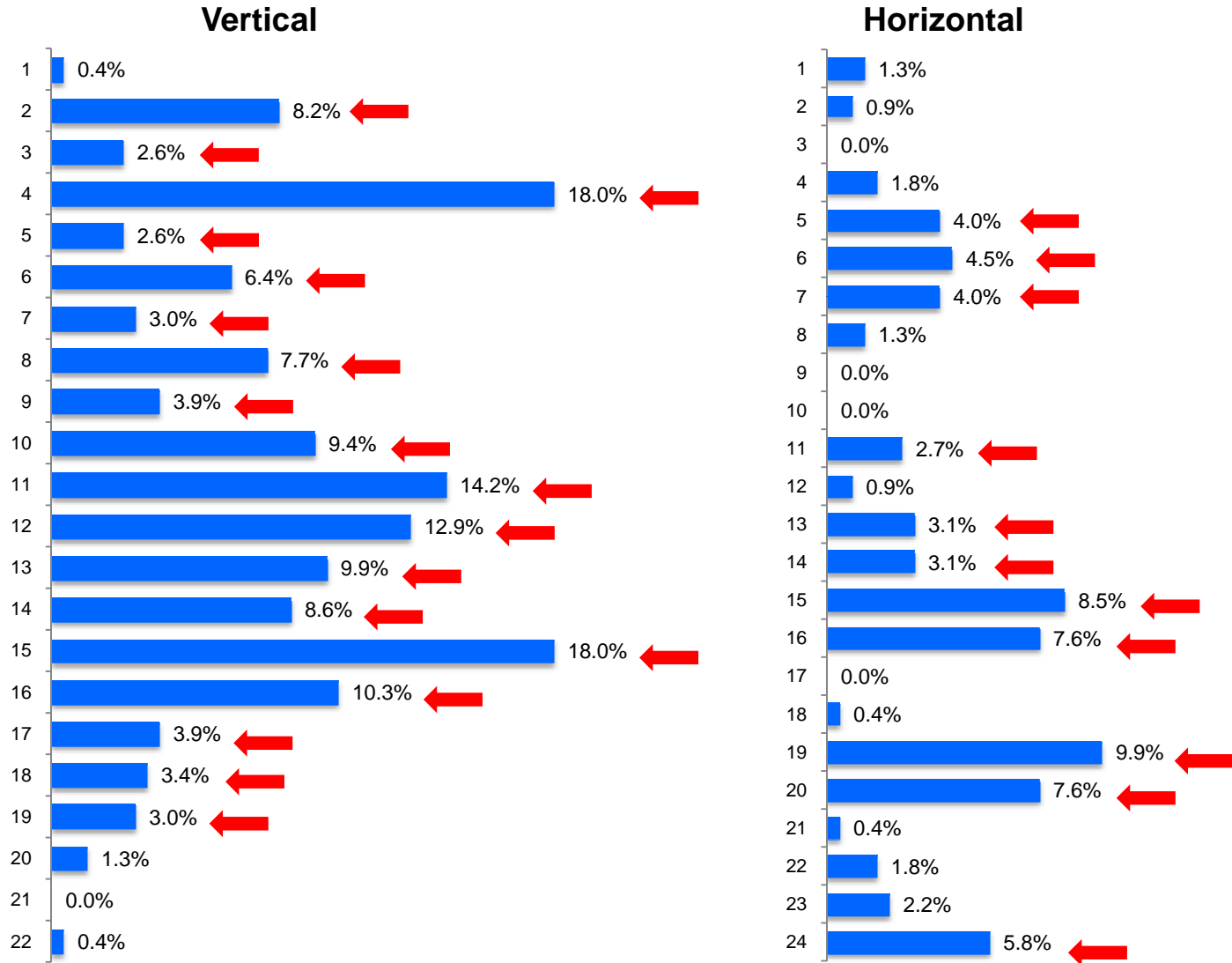
The horizontal label proved to be less confusing to consumers than the vertical layout

**% of respondents confused with label**



Though lesser in overall confusion, some content of the horizontal label was still found to be confusing

Sections found confusing within the labels



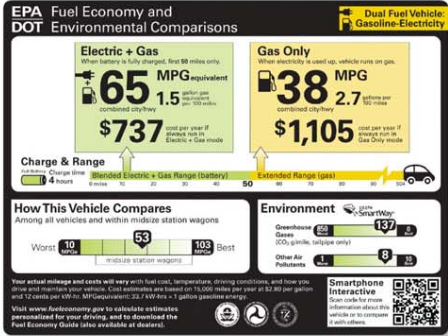
NOTE: Siegel+Gale SimpLab™ standard rule is to further examine any % greater than 2.5%

# Visual heatmap indicating areas of confusion: Horizontal

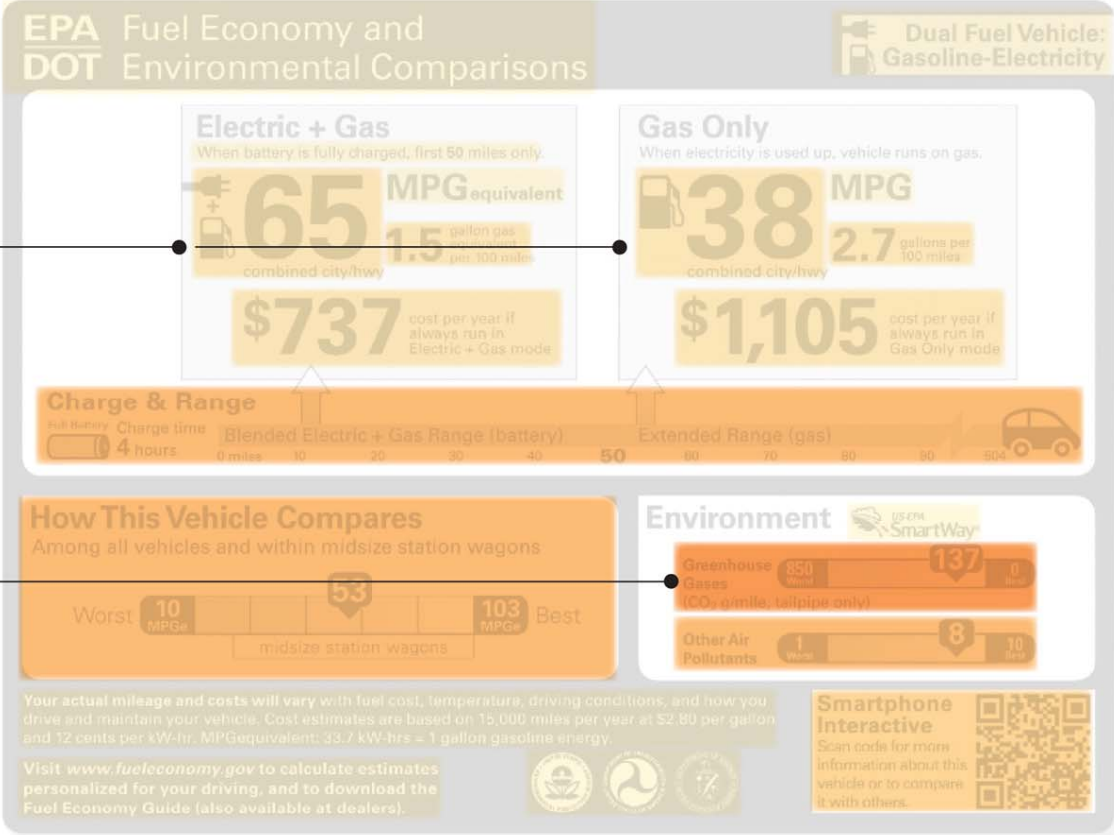
Heatmap indicating areas of confusion

## EPA fuel efficiency labels (horizontal)

COLOR LABEL

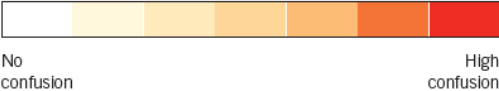


HEATMAPPING



96% of respondents were able to understand the two different MPG ratings and the cost per year estimates in the horizontal layout.

The greenhouse gas table created the greatest confusion.



# Visual heatmap indicating areas of confusion: Vertical

Heatmap indicating areas of confusion

## EPA fuel efficiency labels (vertical)

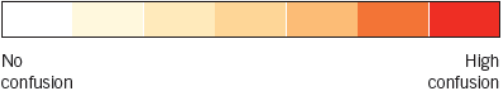


HEATMAPPING



The detailed metrics created most confusion among respondents, as they could not understand them without further explanation.

The same applied to the smartphone barcode, which created much higher confusion in the vertical layout.



# Participants' comments about confusing sections

## Vertical Layout

- + “I don't really know what MPGe means and it didn't make it clear.”
- + “I don't understand what is intended under the blended + gasoline only...what is the duration used to calculate it and why is it so different? I don't know how the ratings are determined.”
- + “The description of what the values was for each was not easily discernable. The spot with the Smartphone emblem did not make sense to me.”
- + “The whole damn thing is confusing due to there being no references for the numbers. If the President has his way with the energy companies it will cost more to recharge the batteries than to fill the gas tank.”
- + “I don't understand what you're trying to say. The breakdown chart is hard to understand and is all over the place.”
- + “I did not know how to relate to the rating of A. I later noticed that the scores are A+ to D, but I still do not know how to relate this grade.”

## Horizontal Layout

- + “I have no idea how you come up with an MPG equivalent and it's not explained...and Smartphone?”
- + “I just don't understand the terminology. It's abbreviations and numbers. I think this paragraph ruins this sticker. It's too much info.”
- + “I did not really understand the table on greenhouse gas.”
- + “I prefer it if there were more words and less graphs.”
- + “I don't know what the Smartphone square is for.”
- + “I would like to know how many of these vehicles get a 103 mpg. The vehicle being described on this label was only at 53 mpg. Is that average for this type vehicle.? The figure 53 could indicate a mediocre rating or an average rating.”
- + “The graph shows rating for air pollutant from worst to best, with 0 being worst. Does it make sense that the less pollution – the better, so shouldn't 0 be the best?”
- + “The MPG equivalent equation doesn't make sense to me.”

## Comprehension questions

Respondents were asked to read the **Horizontal and Vertical labels** and to answer a series of questions based on what they had read. For each question, they were told to refer to the label to find the correct answer.

Comprehension questions were chosen to **test the most complex concepts**:

- + What does “MPG equivalent” refer to?
- + How does the automobile compare to other automobiles in tests for environmental pollutants?
- + **Vertical label:** What is the purpose of the “A” on the top of this label?
- + **Horizontal label:** Why does this label feature two different MPG ratings and cost per year estimates?

## Comprehension measure #1

Only about a third of consumers were able to choose the correct definition for “MPG equivalent” with both labels

Question: “What does ‘MPG equivalent’ refer to?” (Closed-End)

	Vertical	Horizontal
Sample size	233	223
The number of kilowatt hours that equal 1 gallon of gasoline (CORRECT)	31%	38%
How much gas you will use driving 100 miles	46%	38%
How much gas you will use per kilometer rather than per mile	13%	9%
I don't know	10%	15%

## Comprehension measure #2

The vertical label seemed to do a better job of communicating how the automobile compares to other automobiles – likely in large part due to the grading system

Question: “How does the automobile compare to other automobiles in tests for environmental pollutants?” (Closed-End)

	Vertical	Horizontal
Sample size	233	223
Close to best among all tested (CORRECT)	72%*	56%
Average among all tested	15%	33%*
Worse than most among all tested	1%	5%*
I don't know	12%	7%

\*=Statistically higher at 95% confidence level

## Comprehension measure #3

About half of consumers were able to correctly identify why there is an “A” on the top of the vertical label

Question: VERTICAL LABEL: “What is the purpose of the ‘A’ on the top of this label?” (Closed-End)

	<b>Vertical</b>
Sample size	233
To indicate that the automobile has better-than-average fuel economy (CORRECT)	54%
To indicate that the automobile has passed industry tests for emissions, with a rating between 90–100% compliance	34%
To indicate that the automobile is “adaptive”	2%
To indicate the automobile's top speed and handling performance	2%
I don't know	8%

## Comprehension measure #4

Roughly three-quarters of consumers were able to understand why the horizontal label featured two different MPG ratings and cost per year estimates

Question: HORIZONTAL LABEL: “Why does this label feature two different MPG ratings and cost per year estimates?” (Closed-End)

	<b>Horizontal</b>
Sample size	223
The automobile operates on a hybrid electric+gas motor for the first 50 miles only, after that it operates on gas only (CORRECT)	74%
The two ratings apply to different model levels of the vehicle (e.g. LX vs. EX)	12%
The two ratings indicate minimum and maximum performance	9%
I don't know	5%

## Perception/Behavior questions

Beyond comprehension, respondents were asked to describe their perceptions of each label, and asked what behavior or action they would take based on having read each one:

- + VERTICAL LABEL: Thinking back to the label you just saw, with the grading scheme of A+/A/A-/B/C/D, do you think it is possible for non-electric vehicles to receive any of the A grades?
- + VERTICAL LABEL: Is there a grade below which you would not buy the vehicle?
- + HORIZONTAL LABEL: Thinking back to the label you just saw, what was the single most important item of information on the label to you?
- + To what extent does the design and format of the label you just saw make you more likely to read all of the information listed on it?
- + How likely are you to read this label in an automobile dealership?
- + What would you do as a result of seeing this label posted on a new car's window? Mark all that apply:
- + What kind of information would you expect to find at [fuelconomy.gov](http://fuelconomy.gov)? Mark all that apply:
- + In general, when buying or leasing a new automobile, are you more interested in the total fuel cost per year to run that specific vehicle, or the savings you'd get in fuel costs compared to other vehicles?
- + Do you feel this label provides necessary, useful information that consumers should have when they are purchasing a new vehicle?

## The horizontal label showed a significant lead in perceptions over the vertical label, most notably on its clarity

	Vertical	Horizontal	
<b>CLARITY</b>	<b>70</b>	<b>73</b>	
The label is well organized	69	71	+1
It is easy for me to understand the content and wording in the label	62	69	+7
The label is visually clear	74	75	+1
The typeface and type size are easy to read	76	77	0
The label helps me understand what kind of automobile I might buy	67	72	+5
<b>FRESHNESS</b>	<b>69</b>	<b>71</b>	
The tone of the label is better than I expected	64	66	+2
The tone of the label is respectful	73	76	+3
The label looks better than I expected	65	67	+2
The label is relevant to me	69	72	+3
<b>HONESTY</b>	<b>65</b>	<b>67</b>	
The label is straightforward	69	71	+2
The label explains the EPA's ratings and the reasoning behind them	60	62	+2
<b>USEFULNESS</b>	<b>68</b>	<b>71</b>	
The label helps me understand how this automobile compares to others	72	76	+4
The label anticipates my questions	59	61	+2
The label provides an appropriate level of detail	68	71	+4
The label provides factual information for me to base my decision on	72	75	+3
<b>INSPIRATION</b>	<b>70</b>	<b>71</b>	
The label makes me feel that the EPA wants me to be well informed	72	72	0
The label makes me feel that the EPA is working to improve the environment	71	70	-1
The label makes me feel like I can find additional information online if I need it	67	70	+3

Component scores represent the mean agreement scores (1–5 scale) converted to a 100 point scale.  
 \*+/- 3.1 is significant at the 95% confidence interval

## Perception/Behavior measure #1

A little under two-thirds seemed to understand that any type of vehicle can receive A grades, not just electric or hybrid vehicles

Question: VERTICAL LABEL: “Thinking back to the label you just saw, with the grading scheme of A+/A/A-/B/C/D, do you think it is possible for non-electric vehicles to receive any of the A grades?” (Closed-End)

	Vertical
Sample size	233
Yes, any type of vehicle can receive A grades	62%
No, only electric or hybrid vehicles can receive A grades	38%

## Perception/Behavior measure #2

Surprisingly, a third of consumers would go as low as a C before deciding not to buy the vehicle

Question: VERTICAL LABEL: "Is there a grade below which you would not buy the vehicle?"  
(Closed-End)

	Vertical
Sample size	233
Less than an A-	9%
Less than a B	37%
Less than a C	38%
Grade would not matter	16%

# Perception/Behavior measure #3

Consistent with earlier data, MPG once again seemed to be the most important item on the label to consumers, followed by cost per year

Question: HORIZONTAL LABEL: “Thinking back to the label you just saw, what was the single most important item of information on the label to you?” (Closed-End)

	<b>Horizontal</b>
	Sample size 223
Miles per gallon	44%
Cost per year to run vehicle	28%
How this vehicle compares	11%
Charge and range	11%
Greenhouse gas emissions	6%

## Perception/Behavior measure #4

And MPG is the data most likely to be written down/recorded from the label

Question: “What would you do as a result of seeing this label posted on a new car's window? Mark all that apply.” (Closed-End)

	Vertical	Horizontal
Sample size	233	223
Write down the MPG rating(s) of the automobile	55%	57%
Write down or record the particular data I was interested in	53%	60%
Visit the website for more information	45%	45%
Write down the EPA-assigned grade of the automobile	43%	--
Scan the QR code (2-D barcode) with my smartphone	15%	13%
Ignore the label and move on to other available information	14%*	7%
Other	6%*	2%

\*=Statistically higher at 95% confidence level

## Perception/Behavior measure #5

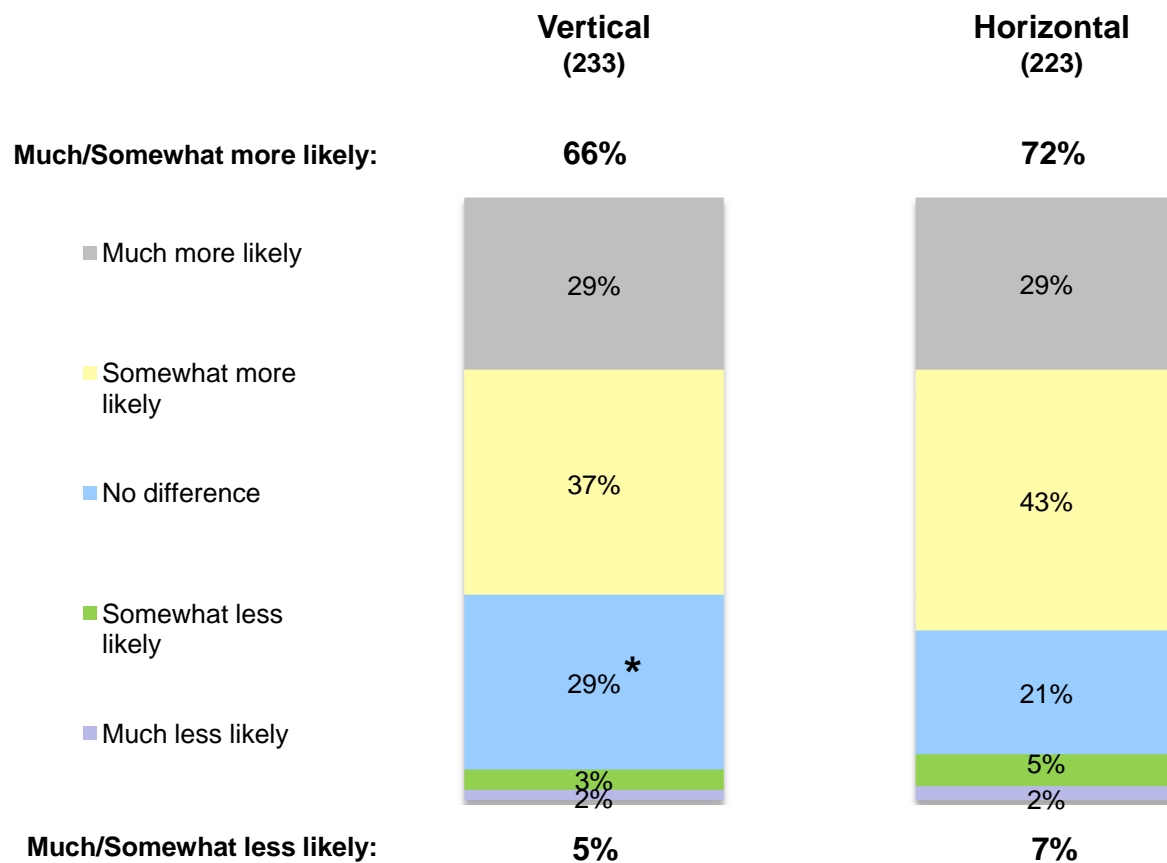
It's expected that fueleconomy.gov will contain a variety of information, though worldwide data is less expected

Question: "What kind of information would you expect to find at fueleconomy.gov? Mark all that apply." (Closed-End)

	Vertical	Horizontal
Sample size	233	223
Fuel cost savings estimates for all American automobiles	64%	65%
Annual fuel costs for all American automobiles	64%	59%
Explanations of the calculations used to compile EPA ratings	63%	58%
A downloadable "Fuel Economy Guide" (PDF)	61%	57%
Environmental data for all American automobiles	60%	55%
A fuel efficiency calculator for your personal driving style	58%	54%
The above data for all automobiles worldwide	32%	33%
Other	2%	1%

# The horizontal label showed directional improvement in terms of being more likely to be read

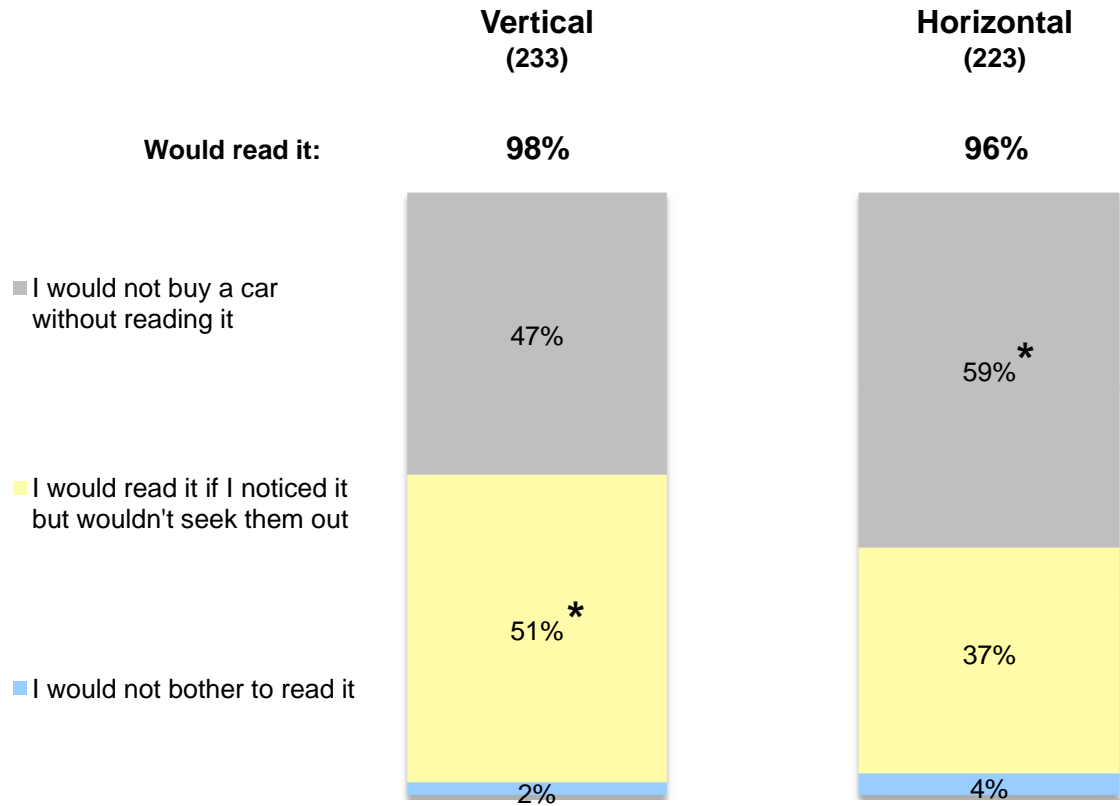
Question: "To what extent does the design and format of the label you just saw make you more likely to read all of the information listed on it?"



\*=Statistically higher at 95% confidence level

Similarly, the horizontal label was seen as more essential, with over half saying they would not buy a car without reading it, a significant difference versus the vertical layout

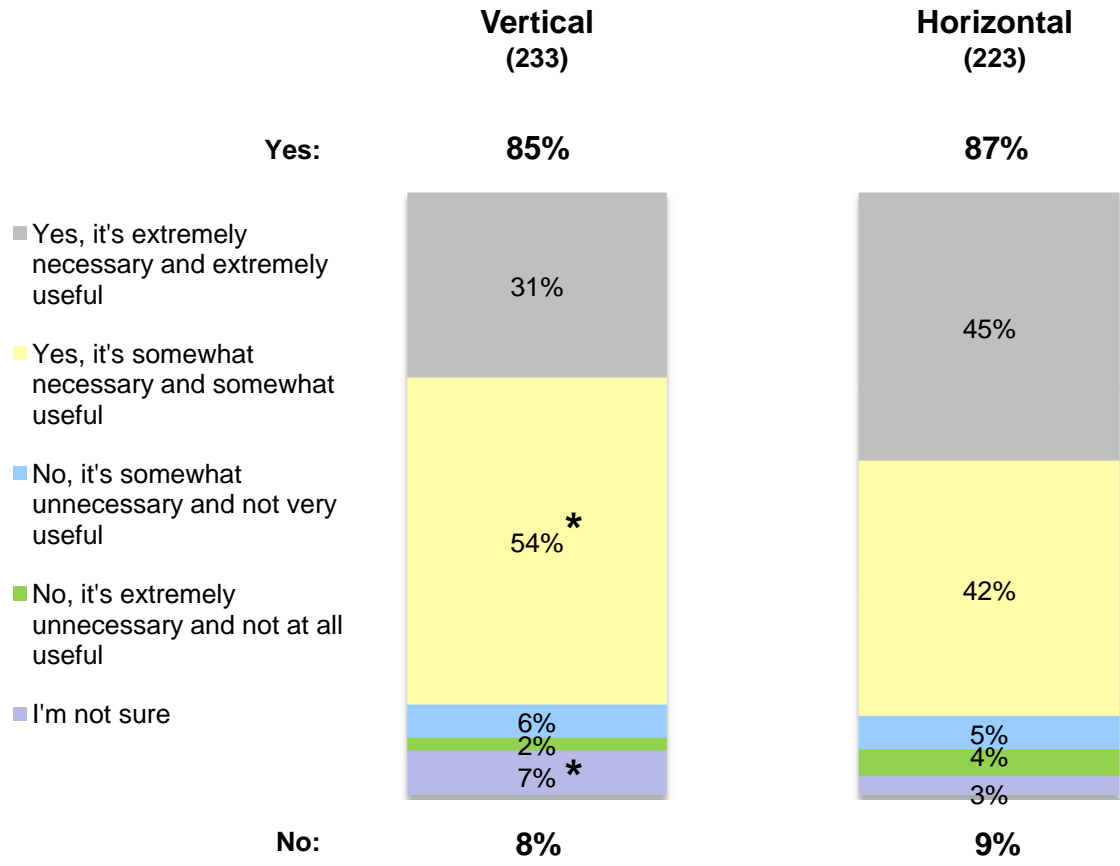
Question: "How likely are you to read this label in an automobile dealership?"



\*=Statistically higher at 95% confidence level

# The horizontal label was also felt to be seen as more necessary and useful than the vertical label

Question: "Do you feel this label provides necessary, useful information that consumers should have when they are purchasing a new vehicle?"

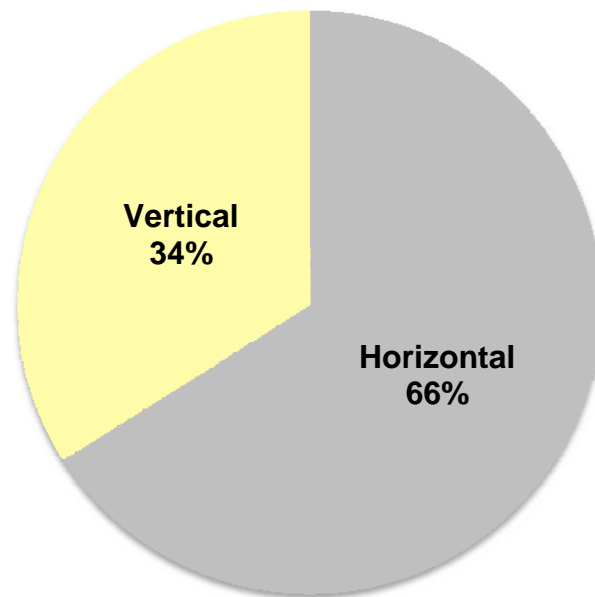


\*=Statistically higher at 95% confidence level

Not surprisingly, consumers preferred the horizontal label two-to-one

Question: "Click on the proposed label that was your favorite."

Vertical vs. Horizontal



The reasons consumers preferred the horizontal label centered around the combined MPG rating and the scales; those who preferred the vertical layout cited the grading scheme

Question: "Why did you prefer the label you chose?" (Closed-End)

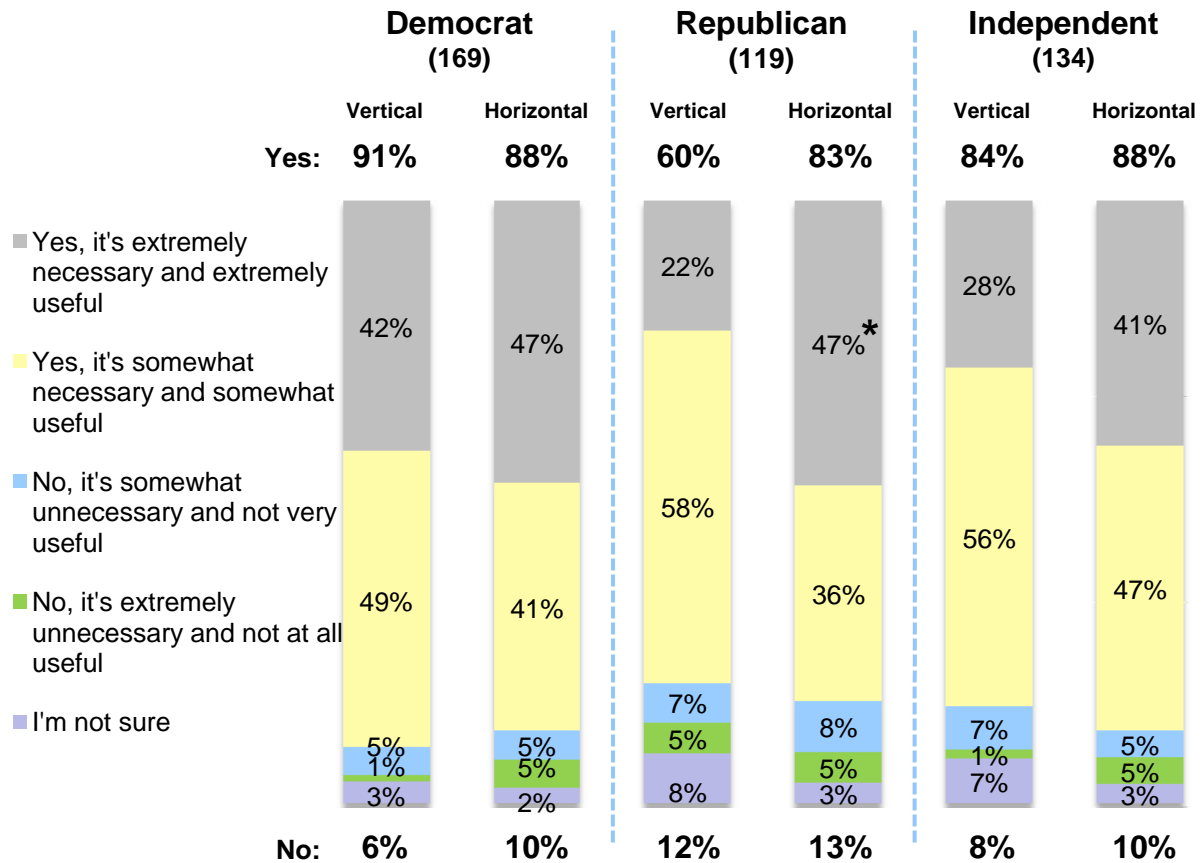
	<b>Vertical</b>
Sample size	157
I preferred the grading scheme	42%
I preferred the vertical layout	22%
I preferred that the cost savings were calculated for me	20%
I preferred the color scheme	7%
I preferred the prominence of the website	4%
Other	4%

	<b>Horizontal</b>
Sample size	299
I preferred the combined MPG rating	26%
I preferred the prominence of the automobile comparison scales	23%
I preferred the horizontal layout	16%
I preferred the display of vehicle "range"	12%
I preferred the prominence of the annual fuel costs	11%
I preferred the color scheme	3%
Other	9%

\*=Statistically higher at 95% confidence level

# Republicans and Independents especially disliked the vertical layout

Question: "Do you feel this label provides necessary, useful information that consumers should have when they are purchasing a new vehicle?"

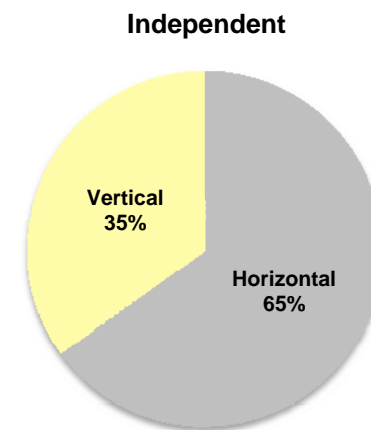
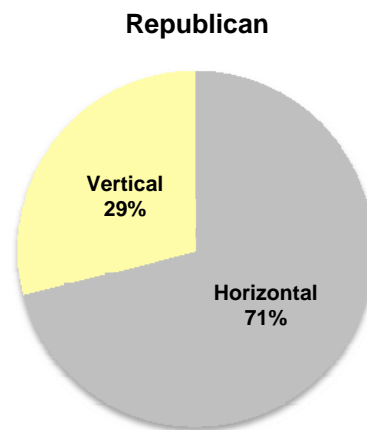
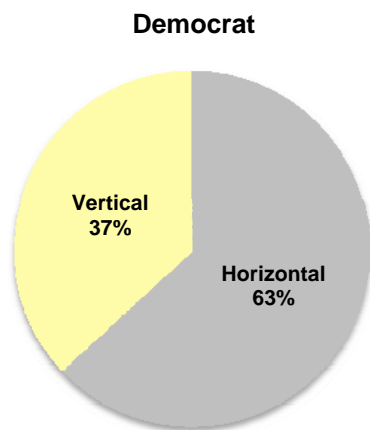


\*=Statistically higher at 95% confidence level

# Which is reflected by stronger preference among Republicans for the horizontal label?

Question: "Click on the proposed label that was your favorite."

## Vertical vs. Horizontal



## A small minority of participants had extremely negative reactions to the labels

- + “Leave the damn thing the way it is and spend the money doing something more important.”
- + “This info is irrelevant to me. I know what car I will buy and this is just another way for the government to get in our face.”

## Participants had very few suggestions for improvement

- + “I think everything necessary was on the label.”
- + “I can't think of anything being left out.”
- + “The level of pollutants is confusing when comparing that with the rank among all other vehicles in the category...it is not clearly defined in the text below.”
- + “I would want to know how the testing is conducted. Was the vehicle full of people and luggage, empty, full of fuel? What are the testing parameters?”
- + “Just give the MPG and leave out the P.C. non-important information.”
- + “The simpler, the better for me. I don't want to be overwhelmed with numbers.”
- + “I also like the letter grade system and I think that could be put on the label along with the MPG ratings. Then you could have a little chart saying how you arrive at the letter grade. That explanation would help a lot.”
- + “I still need to view estimated total annual operating costs; not focus on fuel exclusively.”
- + “Not all people are going to be able to understand the information on these labels. They need to be in more layman's terms. Although this is important information, I still feel safety is the number one concern.”
- + “A key should be included at the bottom that explains the abbreviations.”
- + “I think the ultimate label should have both the MPG combined scale and the grading scale of A+ through D. I found both very useful and am disappointed that both features are not on both label options.”

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simple is smart