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How the form of asking what are the three preferred brands of the respondents can change results

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How the form of asking about the three preferred brands of respondents can change results

ABSTRACT: In surveys, different results can be obtained depending on the form which is used to obtain information from respondents. A lot is already known about the impact of some characteristics of the scales. However, little is known about others. In this note, we investigate the impact of asking respondents to select their three preferred brands from a list in different ways. Using data obtained from the Netquest online panel in Spain, Mexico and Colombia, we show that significant differences can be observed when the different forms are used. However, the causes of these differences are not clear. It is also hard to say whether any particular one of the forms performs any better than the others: i.e. provides results which are closer to reality. However, researchers should be aware that even small changes in the form of asking for information can have a big impact on the results. Therefore, more time and effort should be dedicated to questionnaire design.

KEYWORDS: Questionnaire design, Brand ordering, Web surveys, Variations in answers, Netquest.

Cómo la manera de preguntar las tres marcas preferidas de los respondientes cambia los resultados.

RESUMEN: En encuestas, se pueden obtener diferentes resultados dependiendo de la forma utilizada para preguntar la información a los respondientes. Ya se sabe mucho sobre el impacto de algunas características de las escalas. Sin embargo, poco se sabe sobre otros aspectos. En este artículo, investigamos el impacto de preguntar a los respondientes de elegir sus tres marcas preferidas en una lista. Utilizando datos del panel online Netquest en España, México y Colombia, mostramos que hay diferencias significativas para varias formas. Sin embargo, las causas no son claras. Es también difícil decir cuál de las formas es la que da los mejores resultados, es decir los resultados más similares a la realidad. Pero los investigadores tienen que tomar consciencia de que aun cambios pequeños en la forma de preguntar pueden resultar en cambios grandes en los resultados. Así, deberían dedicarse más tiempo y más esfuerzo al diseño del cuestionario.

PALABRAS CLAVE: Diseño de cuestionario, Ordenación de marcas, Encuestas online, Variaciones en respuestas, Netquest.

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1. Introduction

Surveys are frequently used in research in order to collect information about behaviours, facts, opinions, attitudes and feelings. In past decades, the number of surveys in all areas has increased a lot. With the development of software which is very user-friendly in creating Web surveys, more and more people began to conduct their own surveys instead of using a professional survey institution.

This is a very risky strategy, since surveys are not as easy to design as one might think. In 1951, Payne had already shown that survey design is a very complex and long task that requires specific knowledge and expertise. Since then, many scholars have studied the impact on the results of taking one or other decision at particular steps of the survey process.

In this context, it has been shown that respondents do not already have in mind an answer about everything they are asked about in a survey (Converse, 1964; Zaller, 1992; Tourangeau, Rips, and Rasinski, 2000). Instead, for many questions, they form their answer in the heat of the moment, using all the available information.

It has also been shown that respondents often do not try to optimize their answers. The workload involved in answering a survey may be quite high if it is one tries to optimize each answer. The motivation of the respondents as well as their cognitive capacities, in many cases, are not sufficient for them to determine the best answer to each question. Instead, respondents try to satisfy the interviewer meaning that they only seek to meet an acceptability threshold (Krosnick, 1991).

Consequently, changes in the manner of posing the question to respondents can provoke changes in their answers (Schuman and Presser, 1981; Tversky and Kahneman, 1981). The respondents use the question characteristics and the context as extra information to make decisions about their answers.

A lot is already known about how some scales characteristics affect the answers given by respondents (e.g. Alwin, 2007 or Saris and Gallhofer, 2007). However, there is a lack of information concerning the impact of changes in the way of asking for information in the framework of more complex tasks. For instance, what is the impact of asking in different ways to order a list of brands from the most till the least liked? For example, what is the impact of asking in different ways about a list of brands ranging from the least to most liked?

Besides, with the development of new technologies, new possibilities have appeared whose effects are currently impossible to predict. What we want to investigate in this note is the extent to which different interactive ways of asking respondents about their first three preferred brands out of a list can affect their answers.

This is an important topic to study because it is very common in marketing research to ask respondents to indicate a ranking of their preferred first options out of a longer list of items. Besides, the responses to these questions are often directly used to make decisions, not only in the case of brand or product rankings, but also to determine which package or colour or flavour is most appropriate for a given

product etc. If new interactive ways of asking this information change the final ranking, different decisions may be taken. Therefore, obtaining accurate estimates to these questions is crucial.

In the next section, the design of the experiment used to study this problem is presented. Then, some information about the survey is presented and the data analyzed. Finally, the results are shown and discussed.

2. Literature review

The experiment concerns 12 different brands of cars. The questions aim to identify the first, the second and the third brands which the respondents prefer. There are a lot of possible ways of asking about this information to the respondents, mainly in a web survey that allows all kind of new techniques. We seek to focus only on a few of them.

Indeed, for reasons of sample size, the sample could only be divided in three split-ballot groups. Each respondent was randomly assigned to one of these groups at the beginning of the survey. Each split-ballot group was asked to provide the three preferred brands in a different way. Therefore, three different forms could be used. We choose three forms that are taking advantage of the interactivity of web surveys. Three forms were chosen that take advantage of the interactivity of web surveys.

In form 1, the respondents were asked in an initial question to select the three brands they preferred out of a list of 12. In a follow up question, the three brands they selected were evaluated and had to rank them from one to three.

In form 2, the respondents were asked which brand (only one) they preferred out of the same list of 12. In a follow up question, they got the list of brands minus the one they already selected (thus containing 11 brands) and were asked the same question again. Finally the same question was posed a third time, but applied only to the 10 remaining brands.

In form 3 (sometimes called “order by click”), the respondents were asked to click on the brand they preferred. The brand was selected and a message appeared on the same page asking them to click now on the second preferred brand. The brand was then selected and a final message asked them to select the third preferred brand. The complete questionnaire can be found online. Moreover, Appendix 1 provides screen shots of the questions.

Images of the brands’ logos in all three forms were also used. The brand name was always visible together with the logo. The same images were used since the interest was not to study the impact of images but the impact of varying the form in which respondents should complete the task.

It should be noted that in the forms 1 and 2, the list of brands on a computer screen was presented as a matrix of columns and rows(see Appendix 2). On the contrary, in form 3, all the brands appeared in only one column. The order of the brands on the list was not randomized but always kept the same. Again, reference should be made to the online questionnaire (footnote 1) and Appendices 1 and 2 for more details on what the questions looked like.

This change in the visual presentation can be considered as a characteristic of the way of asking the question. Even if it were possible for it to be programmed differently, by default, the software is using a different presentation for the "order by click" form with respect to the other two forms. We wanted to respect this difference because this is what happens in normal surveys done by Netquest – and very probably with those performed by other online fieldwork companies too. It is important to note this because it can have an impact on the answers.

3. The survey

The experiment was part of a survey carried out by Netquest between the 14th of May and the 18th of June 2013. Netquest is an online fieldwork company with panels in 17 countries in Latin America, Spain and Portugal. The panelists are recruited "by invitation only" from a database of users of many websites who agreed to be contacted to do surveys. Once they have agreed to participate in the online panel, the panelists are contacted regularly in order to answer surveys. On average, a panelist completes around two surveys per month. In reward for their participation, Netquest panelists are given points that can be accumulated and exchanged for gifts.

The survey used in this study was carried on in three countries: Spain, Mexico and Colombia, with around 1000 respondents in each. Quotas for age and gender were used in order to get a representative sample from the general population on these key background variables. Within each country, the respondents were split-up into three groups. Each group got a different version of the questionnaire. The assignment to the different forms of the questionnaire was random. The questionnaire was prepared to take around 25-30 minutes to be completed. The main topics were food and beverage consumption, opinions about several brands of cars and media use. The explanatory variables in the models considered here are age, experience, and their interaction term.

4. Analysis and results

4.1 Brand selected as the preferred one

First, we look at the percentage of respondents who selected different brands as the preferred one. Graph 1 shows the results.

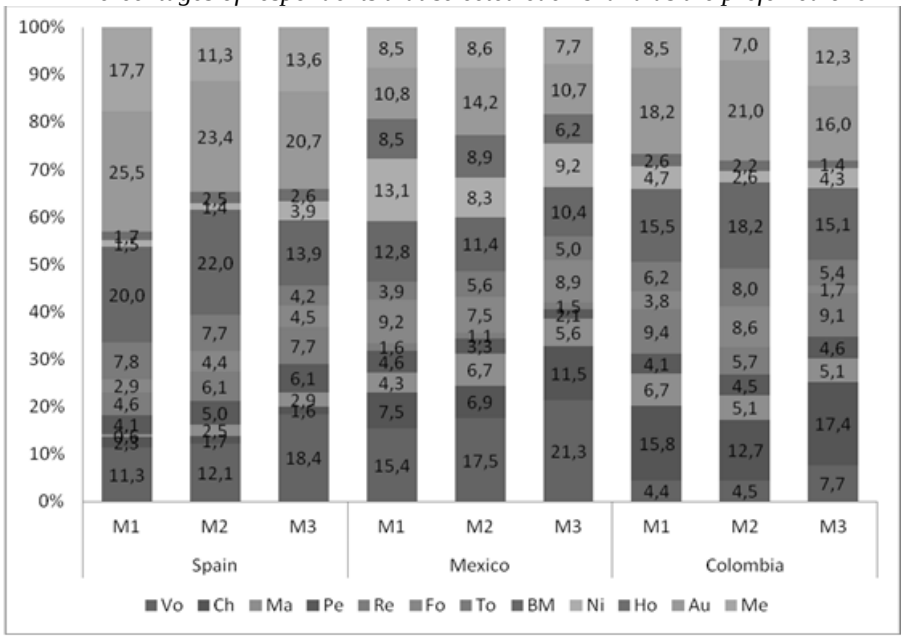
Graph 1 shows that very different results can be obtained depending which form is used to ask the respondents e.g. if one is especially interested in how well or badly the brand Chevrolet is doing in Mexico. When asking the question about the preferred brand using form 3, one obtains a graph in which 11.5% of the respondents who identify this brand as the preferred one. This is the second highest percentage, just after Volkswagen, which is preferred by 21.3%. However, when asking the question using form 2, only 6.9% of the respondents answer that Chevrolet is their preferred brand. This is lower than the percentage of respondents answering that their preferred brand is Volkswagen (17.5%), but also lower than the percentages of respondents answering that their preferred brand is Audi (14.2%), BMW (11.4%),

Peugeot (8.9%), Mercedes (8.6%), Mazda (8.3%) and Ford (7.5%). This places Chevrolet in the 9th position according to the percentage of respondents who say that this is their preferred brand.

Therefore, using form 2 or form 3 gives a completely different picture concerning the market position of the Chevrolet brand in Mexico. The same applies for other brands and countries as can be seen in graph 1: the choice of a particular form of asking the question is crucial because it can completely change the results.

Graph 1

Percentages of respondents that selected each brand as the preferred one



Note: All brands' names are shorten to their 2 first letters

Comparing the percentages of respondents selecting each brand as their preferred one, we can see that some differences are small and even not statistically significant. However, others are quite large and significant at the 5% level. For example in Spain, form 3 leads to a significantly lower percentage of respondents selecting BMW as the preferred brand (13.9% versus 20% in form 1 and 22% in form 2) and a significantly higher percentage of respondents selecting Volkswagen as their preferred brand (18.4% versus 11.3% in form 1 and 12.1% in form 2). However, in Mexico, even if the differences tend towards the same direction for these two brands, they are not statistically significant anymore at the 5% level. Therefore, it seems that there are also differences across countries. The countries vary in terms of car owner ship levels: in Spain, around 88% of the respondents report that they have a car, whereas in Mexico the equivalent graph is around 81% and in Colombia only around 74%. It is to be expected that when the percentage of

respondents that do not have a car is higher, the impact of the method used to ask the information is higher too: we would expect people that have no car to have preferences about cars brands that are less strong. In that way, they are more likely to change their opinion. However, more variations across split-ballot groups within Colombia than within Spain cannot be observed.

In the "order by click" form (form 3), all brands appear in the same column. It means that respondents have to scroll down in order to see all the brands, whereas in forms 1 and 2, they can see the complete list directly. As scrolling down requires some extra effort and we assume that respondents often try to satisfy the interviewer as mentioned in the introduction, some primacy effect in form 3 is to be expected that is not be expected in forms 1 and 2. "Primacy effects occur when placement of an item at the beginning of a list increases the likelihood that it will be selected" (Krosnick and Alwin, 1987: p. 202).

Graph 1 shows that to some extent the brands that appear at the top of the list in form 3 are indeed selected more often in this form. This can be observed, for example, by comparing the cumulative percentages for the four brands that appeared at the top (which are the ones a respondent sees without needing to scroll down on an average size computer screen). In Spain, 18.3% of the respondents chose one of the four first brands in form 1 versus 21.2% in form 2 and 29.0% in form 3. In Mexico, we get respectively 31.7%, 34.4% and 40.5% and in Colombia, 31.1%, 26.8% and 34.8%. This suggests there are some primacy effects, mainly in Spain and Mexico.

If we expect the brands at the top of the list in form 3 to be selected more, we could also expect the brands that appear at the bottom to be selected less in that form than in the other two. Nevertheless, if we consider the four brands at the bottom, for Spain and Colombia, the lowest cumulative percentage of people choosing these four brands is not in form 3 but in form 2 (40.7% in form 3 versus 38.6% in form 2 in Spain and 33.9% in form 3 versus 32.8% in form 2 in Colombia). Only in Mexico the pattern seems to be as expected (40.9% in form 1, 40.0% in form 2 and 33.7% in form 3).

One possible explanation could be that respondents have to scroll down to the bottom of the page in order to click on the "Next" button and go on with the survey. Therefore, one might think that they select more brands at the top (directly visible) but also at the bottom (close to the "Next" button). Less attention would then be paid to the ones in the middle in cases where they would scroll down directly to the bottom of the page instead of scrolling down little by little. It may also simply be that the extremes attract more attention.

Concerning forms 1 and 2, they seem to be more similar in general. However, there are also some significant differences, for instance in Spain for Mercedes (chosen preferred brand by only 11.3% of the respondents in form 2, versus 17.7% in form 1) or in Mexico for Nissan (8.3% in form 2 versus 13.1% in form 1) or in Colombia for Renault (5.7% in form 2 versus 9.4% in form 1).

Finally, we should notice that none of the rankings is probably the true one. Indeed, each form has its limitations. Consequently, the results observed are most of the time different from the reality.

*4.2 Brands selected as second and third **choices***

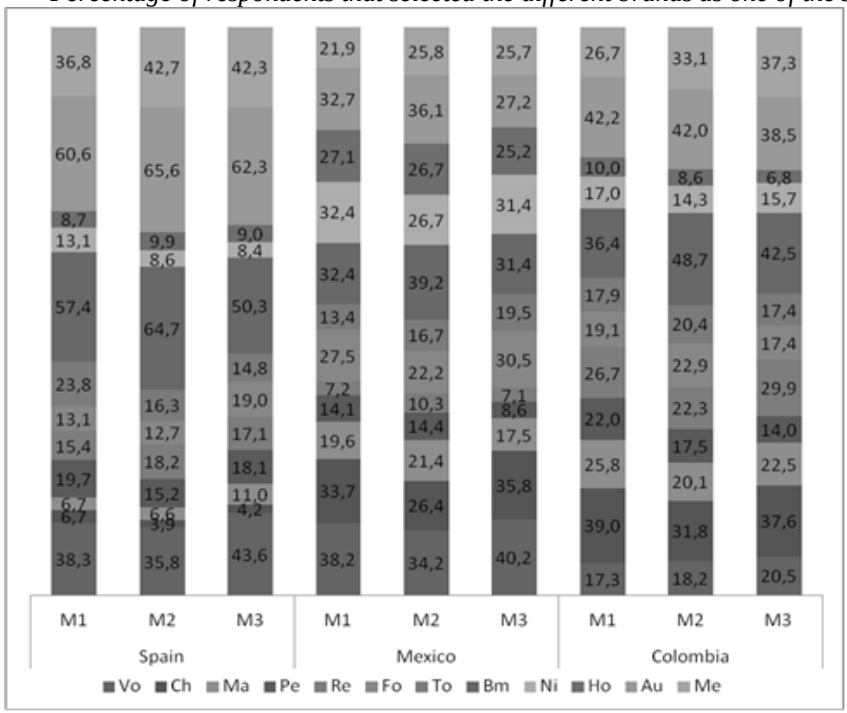
The percentages of respondents that selected the different brands as being the second and third preferred one are not observed. Since the results are very similar, they are provided only in Appendix.

Appendices 3a and 3b again show differences across countries, with some brands showing large significant differences depending on the form used to ask the question. However, there is no clear evidence of a pattern or what could explain these differences.

The visual presentation, which differs in form 3 by being only one column, probably plays a role since form 3 presents somehow more differences with the two others than forms 1 and 2 with each other. However, this is probably not the only mechanism going on.

Graph 2

Percentage of respondents that selected the different brands as one of the 3 first



4.1 Brands selected as one of the three third

In order to try to simplify the problem, we finally look at the percentages of respondents that selected the different brands as one of the first three. In that case, if the brand was chosen as first, second or third does not matter anymore. We expect by looking at the three together to find less differences that maybe can also be understood better. Graph 2 shows the results.

Graph 2 shows clear differences across the three methods within each country. Table 1 summarizes the results of the tests of significance of differences between methods.

First, table 1 shows that out of 108 significance tests, 35 lead to the rejection of the null hypothesis, meaning that there are significant differences in percentages in around 32.4% of the cases. This confirms that there is a huge impact produced by the form of asking the question, even when ignoring the exact order of the three preferred brands.

Second, form 3 does not seem to be the most different anymore. The significant differences are quite spread over the different columns of table 1. There are significant differences between forms 1 and 2, as well as forms 1 and 3, or forms 2 and 3. This suggests that primacy effects are not the main mechanism.

Nevertheless, there is some evidence supporting the importance of primacy effects for form 3, since the brands at the top of the list (first rows in table 1) shows on several occasions a significantly higher percentage of respondents selecting them when form 3 is used (Volkswagen in Spain and Mexico, Chevrolet in Mexico, Mazda in Spain). However, this is not systematic. For instance, in Colombia, there is no evidence of primacy effects for form 3 (no significant differences in the brands at the top).

Table1

Significance and direction of the differences in percentages

	Spain			Mexico			Colombia		
	M1-M2	M1-M3	M2-M3	M1-M2	M1-M3	M2-M3	M1-M2	M1-M3	M2-M3
Vo	NS	NS	**H	NS	NS	*H	NS	NS	NS
Ch	*S	NS	NS	**S	NS	**H	**S	NS	NS
Ma	NS	**H	**H	NS	NS	NS	*S	NS	NS
Pe	NS	NS	NS	NS	**S	**S	NS	**S	NS
Re	NS	NS	NS	NS	NS	NS	NS	NS	**H
Fo	NS	**H	**H	NS	NS	**H	NS	NS	*S
To	*S	**S	NS	NS	**H	NS	NS	NS	NS
Bm	**H	**S	**S	*H	NS	**S	**H	*H	*S
Ni	**S	**S	NS	*S	NS	NS	NS	NS	NS
Ho	NS	NS	NS	NS	NS	NS	NS	NS	NS
Au	NS	NS	NS	NS	NS	**S	NS	NS	NS
Me	*H	NS	NS	NS	NS	NS	*H	**H	NS

Note: * means the differences is significant at the 5% level, ** means at the 10% level, NS means that it is not statistically significant even at the 10% level. H means that the method mentioned as the second one in the top of each column has a higher percentage and S means that the method mentioned as the second one in the top of each column has a smaller percentage.

More generally, some patterns of differences across the forms are similar for the three countries but not many. The two similar effects across all three countries are the following:

- Form 2 leads to a significantly smaller percentage of respondents choosing Chevrolet as one of the three preferred brands

- Form 2 leads to a significantly higher percentage of respondents choosing BMW as one of the three first brands than form 1

However, already for the second one, the position of form 3 with respect to the two others differs in Spain and Mexico on the one hand and Colombia on the other hand.

Overall, we can observe differences between the different scales. Some of them can be explained by existing theories, like the primacy effect, but in many cases, it is not clear how to explain these differences. However, even if we do not know what the origin of these differences is, if we can assess which of the three forms performs better, (in the sense that it produces results closer to the reality) then we would know which form should be used. So the next question is: is one of the three forms reproducing reality better?

5. External validity test

To answer this question, we perform external validity tests by looking at the association between the answers obtained when using each of the three forms and an external variable that is theoretically expected to be strongly associated with the variables of interest and is measured in exactly the same way in all split-ballot groups. The higher the association is, the better the external validity of the corresponding form.

In the survey, the following questions were asked: "If you had to buy a car in the next month, would you consider as an option to buy a car of the brand [name]?" Where [the name] was first Chevrolet, then Renault and finally Nissan. The three questions were asked on a 4-point scale completely labelled with the answer categories: 1) surely yes 2) probably yes 3) probably no 4) surely no.

We can look at the association of these external variables with the dummy variables indicating for each of the three brands (Chevrolet, Renault and Nissan) whether the corresponding brand is part of the three preferred ones. We consider separately each country and method. Cramer V is used as a measure of association because of the nature of the variables for which we want to test the association (dummies and 4-point scales), table 2 presents the results.

Table 2 shows that in Spain form 3 leads to lower Cramer V values for the three brands. This means that form 3 is the one that has the lowest external validity for this country. In Mexico, form 2 leads to lower Cramer V values, except for Renault. In Colombia, to some extent form 2 also leads to lower Cramer V value, except for Chevrolet.

Overall, it seems that there are differences across countries but also across brands. It is very difficult to draw a conclusion about which form performs best. Based on the Cramer V for these variables, there is no clear pattern of one form performing better than the others. Nevertheless, if we should do a survey in the three countries, we might prefer form 1, since form 2 has the lowest external validity in Mexico and Colombia for two brands and form 3 in Spain for the three brands. For sure, all have problems however and none really allow reproducing well the reality.

Table2:
Cramer V for each country, form and brand

Cramer V	Spain	Mexico	Colombia
Form1 - Chevrolet	0.3818	0.4417	0.3989
Form 1 - Renault	0.4653	0.3420	0.4456
Form 1 - Nissan	0.3669	0.4143	0.3763
Form 2 - Chevrolet	0.3487	0.3419	0.4705
Form 2 - Renault	0.4031	0.3968	0.3165
Form 2 - Nissan	0.4152	0.3695	0.2728
Form 3 - Chevrolet	0.3621	0.4626	0.3995
Form 3 - Renault	0.3586	0.2745	0.4272
Form 3 - Nissan	0.3236	0.4022	0.3393

6. Discussion and further research

In conclusion, there are many ways of obtaining information from respondents. Besides, with the development of web surveys, more interactivity and visual features are possible. For instance, it is now easy to ask respondents to pick out one brand from a list, and immediately afterwards to ask them another question using the same list minus the brand selected in the previous question. This seems quite natural nowadays but was not possible in the past. It began to be technically possible with computer-assisted modes. Now that the new technologies are much more developed, it has become ever easier.

In this note, we investigated the effect on the responses of asking respondents in three different ways to give their first, second and third preferred brands of cars out of a list of 12. The three forms used pictures with the logos of the brands and took advantage of the interactivity of web surveys.

Depending on the form used, the percentages of respondents selecting one or the other brand as the preferred one varies quite a lot. As a result, completely different conclusions can be obtained based on the comparison of percentages when one or another form is used.

To some extent, it seems that the visual presentation in form 3 leads to primacy effects in Spain and Mexico, but these were not as strong as expected and not present in the case of Colombia. Moreover, the brands from the end of the list were not less selected, which may be explained by the fact that they are closed to the "Next" button. In that way, the brands from the middle of the list would be the least chosen ones.

Besides the potential primacy effects, we did not manage to identify other patterns of difference, because the differences are often not systematic across countries. The external validity test was also not very successful in finding one form that would perform better than the others. Nevertheless, there is some evidence suggesting that form 3 is the one that performs worse in Spain, whereas it is form 2

in Mexico and Colombia. Therefore, form 1 may be the most suitable in the case of a survey that would be done across the three countries.

However, we should add that all forms come with their own effects. It is not so that there is one which is good and that the others are bad. They all have their limits. This does not mean that we should cease to use survey research. The key is to be aware of the limits of such research and of the effects that different ways of asking about the information may have on the answers, the main goal being to be able then to take these effects into account when analyzing the results in such a way that correction can be made for measurement errors.

We hope this first exploratory study demonstrates how large the effects of the form chosen to ask the question can be; and how little we still know about the effects of certain forms of asking questions, in particular with regard to new kinds of interactive scales with images as the ones considered in the study. More research is clearly needed. A replication of these results would be a good starting point, to confirm if we observe in different surveys and experiments the same kinds of differences. If this is confirmed, then, we should put our efforts in understanding what are the mechanisms going on and why such differences exist.

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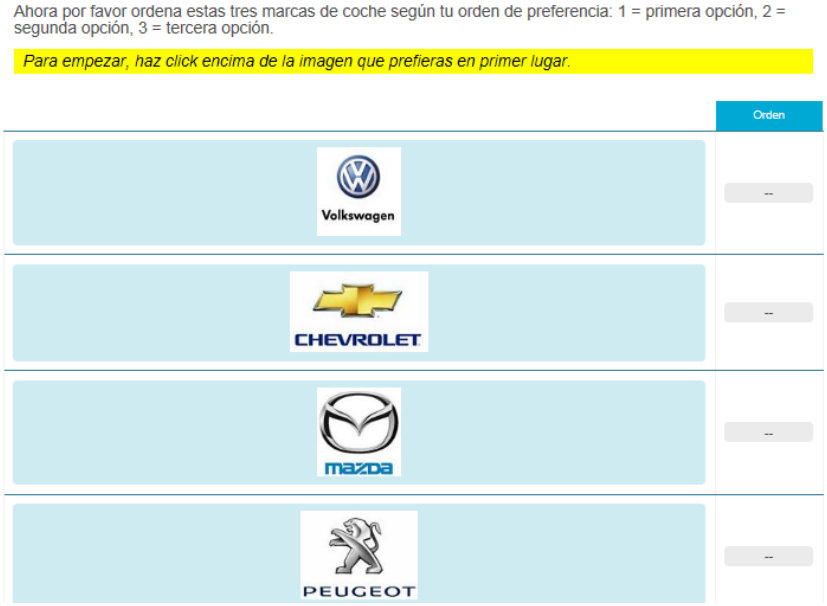
Appendix

Appendix 1: Form number 3, images from the different steps

0 - Before starting:



Etc with all the other brands down in the same way…

1- When you select your first brand:

2- When you select your second one

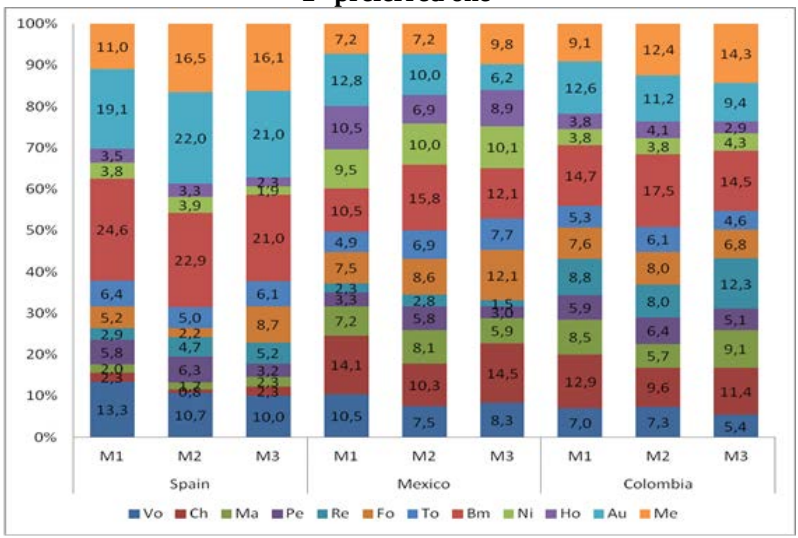
3- When you select the final brand

4- If you try to click on one more brand instead of clicking the “next” button, you get a message explaining you how to unselect your answer and change your ranking.

Appendix 2: Form number 1 and 2, initial presentation of the brands

Appendix 3:

Appendix 3a: Percentages of respondents that selected each brand as the 2nd preferred one



Appendix 3b: Percentages of respondents that selected each brand as the 3rd preferred one