Market Research Survey Project

Feb 19, 2021

Overview

Customer satisfaction is a primary aspect of marketing. What leads to customer satisfaction is central to marketing research. For this project, develop and computer administer an on-line marketing research survey for a specific product that provides information to explain and understand customer satisfaction.

> Assess Customer Satisfaction of a product or service. Explain what drives this perceived Dissatisfaction/Satisfaction, primarily in terms of Product Attributes.

Choose a Product or Service and develop a survey to assess some aspect of marketing. The deliverable is a report that describes the research. The report should be formatted nicely, but do not worry about making things perfect as you would for a formal presentation. Always interpret *each* analysis that you present.

Work by yourself or in groups of 2 or 3, as you choose. If you work in a group, some part of your project grade is a participation score by your group mates, on a scale from 0 to 100.

Data Source

Use any source of people for which you have access, such as from social media, or other students in the class. The primary constraint is that the people who respond to your survey need to know about and understand the corresponding product.

Report Format

1. *Title Page*: Title, name(s), course and date.
2. *Introduction*: Describe the product and specify what should be accomplished with this project.
3. *Sample*: How it was gathered and the population from which it was obtained.
4. *Analysis*: The bulk of your project, the results and the interpretation of each result in plain English. Divide the analysis write-up into specific and labeled sections, one for each analysis, named according to the substantive topic of interest to the manager, *not* by the name of the statistical analysis. Each section includes the *relevant* and *specific* computer output that is the basis for the corresponding interpretation.
5. *Conclusion*: Summarize the findings, in plain, non-technical English.
6. *Appendices*: Data in the form of a worksheet, and the survey.

Content of the Survey

A general guide to the item content is Outcome Variables and their Analysis in Survey Research, http://web.pdx.edu/~gerbing/460/Resources/SFGsurveyItems.pdf, which describes potentially four types of items on your survey: Demographic, Screening, Product Attribute and Outcome. The Screening type of item may or may not apply, but all surveys will contain at least one item of each of the other three item types.

1. Between 8 and 10 items.
2. Can use different response formats, Likert, Behavioral Intention or special scales with Qualtrics such as a slider.
3. Item Types
   - At least one Demographic item, such as Gender
   - At least one general Outcome assessment item: General Satisfaction on the Disagree/Agree continuum or Behavioral Intention
   - A minimum of three Product Attribute items, each assessed on a continuum with a numeric response format such as Disagree to Agree
4. At least one categorical variable has exactly two alternative responses, such as Gender. [Note that on your survey, provide at least one alternative to Male and Female, such as Other. In your responses, you are likely to obtain few or no such responses. If you had more, you could analyze them. Regardless, you can proceed with the analysis of the Male/Female comparison.]

Whenever possible, evaluate the responses to each item on a *numerical scale*, usually a Likert scale or a bipolar scale. Numerical scales, such as 6-pt Likert scales or the slider from 0 to 100, provide more information than corresponding multiple-choice items, rankings or simple Yes-No items. When constructing the survey with Qualtrics in Edit Survey mode, two good question types to choose are what Qualtrics calls Multiple Choice and Matrix Table. You can experiment constructing different item types in Qualtrics and then, before administering the survey, delete anything you do not like, including after previewing the survey.

NOTE: Usually better to avoid multiple-choice items with the “multiple answer” type of question. These questions can be appropriate in some situations, but be aware that the data for such items does not occupy a single column, but rather necessarily a column for each response alternative.

Produce the survey using portlandstate.qualtrics.com. When your survey is complete, print as a pdf from within Qualtrics as part of the package of information you submit. To do this, from the Edit Survey tab, choose the Print Survey icon and then print to a pdf file. Or choose the Advanced Options menu drop-down in the upper right and Export to Word.

Gather and Code Data

1. *Post*. When you post a Qualtrics survey, Qualtrics provides a web link from which others can access and take the survey. If you are using other students as your data source, email the Qualtrics web link to me and I will post on the home page of our class web site. Or, if you have people outside of class who would complete your survey, email them the link or post on a web page, Facebook, etc. Obtain at least 20 respondents, more is better.

2. *Download*. Data from Qualtrics is downloaded as a .csv file, the first option provided in the download section.

3. *Edit*. Open the data file with a worksheet such as MS Excel or LibreOffice Calc.

   (a) Approximately the first 10 columns of the data file can be deleted as these columns contain information not part of the survey per se, such as the IP number of the computer network from which the person answered the survey.

   (b) The first row of the data file contains the "variable names". The downloaded Qualtrics data table is *not* a standard data table. Instead of data, the second row of the .csv file contains the items themselves, which can be considered "variable labels". Use Excel to delete.

4. *Save and Read*. Save the revised data file from your worksheet as a .csv or .xlsx file and read into R. When you read a data file from your own file system you can enter the full path name instead of a web address, but the easiest is to browse for the file.

```
d <- Read("")
```

This is how we read the data file you constructed for the first Worked Problem in HW #1.

Turn-In

There is no page limit. On the contrary, better to be concise than overly verbal, which is a guiding principle of business communication. For visualizations, for example, a bar chart need only take up a small amount of a page.

Your write-up of your project is basically a marketing research report. By their nature, the writing is concise. Not looking here for pages and pages of writing. Two paragraphs or so introduction to the problem, then the analyses – bar chart for each item, one two-variable bar chart (the cross-tabulation), and, for Track ABC, also scatterplot, t-test, and multiple regression of satisfaction (or related) upon the product attributes.

Break the computer output – text and graphics – into relevant pieces for each analysis, not just one big computer dump. Always include at least some interpretation with any computer output, even the bar charts if only a sentence or two for each. Also, scale the graphics so that

they are not so large. You could get 8 bar charts on a single page, for example. Do not need that small, but certainly not just one per page.

A marketing research report accompanies each analysis with a corresponding **interpretation**.

> Include some interpretation for each provided analysis, the results of which are presented in small chunks.

A research report never includes a raw dump of computer output. The output is selectively presented piece-by-piece with relevant sections posted near the corresponding commentary and interpretation.

Then at the end, a couple of paragraphs or so summarizing what you found, or did not find, and maybe a suggestion of where to go next. I know that in many classes you are rewarded for writing much.

What is important here is not volume, but that you interpret the results, including the hypothesis tests and confidence intervals for Track ABC students. As you know, each such interpretation can be done in a sentence or two.

Visualizations

1. Each visualization of the responses to an item also contains the item's content, either on an axis or as the title.

2. Purely optional. You can expand color themes beyond the lessR default `"colors"`. The full range of choices are `"lightbronze"`, `"darkred"`, `"gray"`, `"rose"`, `"green"`, `"gold"`, `"red"`, `"dodgerblue"`, `"blue"`, `"purple"`, `"brown"`, `"sienna"`, `"orange"`, and `"gray"`. Particularly for presentations via an overhead projector add a `sub_theme="black"` to the call to the color theme, illustrated below.

```
style("orange", sub.theme="black")
```

Analyses

Before beginning an analysis, make sure you have downloaded numeric data and not the character labels.

1. *Tabulate*: To view how people responded to each item, tabulate the responses to *each* variable (i.e., item). Tabulate item responses with either a histogram for continuous data, or a bar chart or pie chart for categorical data. If you have Likert data, such as on a 5-point Disagree/Agree scale, you can use a bar chart or a histogram. If you choose a histogram set *bin_width=1* and *bin_start=0.5* to center each bin over the value of the corresponding response. [*All students*]

2. *Cross-Tabulate*: Analyze at least one relationship between two variables of your choice with their cross-tabulation table. (As we learned, a cross-tabulation table applies only to categorical variables such as Gender and/or Likert type items with a limited number of response categories, such as 5 or 7.) [*All students*]

3. *Mean Difference*: Run one independent groups t-test of the mean difference for one response variable, using your nominal variable with two levels, such as Gender. [*Track ABC and Track BC only*]

[Use the template for the mean difference (HW #4) to guide your answers, though you do not need to literally write a., b., c., etc, as if you were answering a homework problem, nor do you show computations in a marketing research report. You write a narrative that includes the basic information for the analysis.]

4. *Scatter Plot*: Analyze the relationship with a scatterplot and correlation between an outcome variable and one of the product attributes. (As we learned, a scatterplot applies best to continuous variables with many values, but a bubble chart version of a scatterplot (HW #7) can be applied to categorical variables.) [*Track ABC only*]

5. *Regression*: Run a multiple regression analysis. For the response variable, use a general outcome variable such as Overall Satisfaction or Purchase Intention and then explain the values of this outcome variable such as with various product attributes. Drop the predictor variables with low p-values, then re-run and interpret the more parsimonious model. [*Track ABC only*]

   [Use the template for multiple regression (HW #9) to guide your answers, though you do not need to literally write a., b., c., etc, as if you were answering a homework problem, nor do you show computations in a marketing research report. You write a narrative that includes the basic information for the analysis.]

Label each of the following sub-sections with its own heading. Do *not* use the label of the specific statistical analyses, as shown below. Follow the typical marketing research format and label each analysis according to the managerial issue addressed by the analysis. That is, why do this analysis? What question is being answered? For example, instead of

t-test

as a heading, write something such as:

Satisfaction of Men and Women in terms of ...____

Keep the size of each visualization relatively small, usually 1/4 of a page or less. Marketing research reports should be concise.

Place the emphasis on interpretation for each analysis, descriptive or inferential.

Appendices: Information from which the Analyses Proceed

1. *Appendix A*: Your data in Excel or similar worksheet. Copy your data from Excel and paste into Word. It becomes a table, usually too wide to fit across the page. Go to the Table menu and select Table Properties... . Then specify a column width of 10 in, or whatever allows the table to fit on the page.
2. *Appendix B*: The survey as presented to the respondents, exported from Qualtrics.

Other

Plain computer output that was requested but presented without interpretation is scored as a zero, that is, as if not done at all. Also, do not include output that you are not going to interpret. A marketing research report is not a place to dump raw computer output without interpretation.

All output must be interpreted.

You are free to use any computer application(s) for which to analyze the data.

Turn in one project per group, under the name of one of the group members in D2L. If you are a group member not turning in the project, then turn in a brief document that contains the project title, the group members, and any optional comments regarding the participation of the other group members.