SELF-COMPLETION SURVEY, QUESTIONNAIRE AND FORM DESIGN

IN MARKETING RESEARCH

A THESIS IN
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Presented to the Faculty of the University
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by
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University of Missouri-Kansas City, 2015

ABSTRACT

Surveys have been generally accepted and trusted data collection methods for marketing research for years. The purpose of this thesis is to point out important aspects of survey design process to show what to do and what to avoid while designing surveys. The thesis includes an in-depth literature review, a summary and an analysis of a sample survey and its questions.

Self-Completion Survey, Questionnaire and Form Design in Marketing Research

by

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CHAPTER 1

INTRODUCTION

Surveys and Survey Design

Surveys are extremely important for marketing research. In other words, marketing research cannot be done without surveys. Surveys have been used extensively by marketing research professionals for decades and they will also be used in the future.

Survey design is, basically, the process of creating a survey. It is also an important part of marketing research and research design. Purpose of this thesis is to point out major points of survey design in marketing research and summarize and analyze the survey and its questions that we designed in class according to these points. According to Fowler (1995), "Poor question design is pervasive, and improving question design is one of the easiest, most-cost effective steps that can be taken to improve the quality of survey data."

If research survey is not designed correctly, results are neither reliable nor valid, in some situations, there might not even be results at all, and that's why a lot of attention should be given to survey design. Just like product design stage is crucial to whole production process and mistakes in this stage may lead to major flaws in the product, survey design is crucial for marketing research and mistakes in this stage may lead to serious drawbacks in the survey results.

I chose this topic because even well-regarded survey organizations sometimes do not meet minimum survey quality standards (Fowler, 1995). I believe that a successful

marketing research can only be done with a correct survey, when right questions are asked in a right way.

I am writing this thesis to help fellow graduate students and professionals who are interested in marketing research survey design. I hope this thesis can make researchers stop and think about the question before them one more time.

I want to mention that terms “questionnaire”, “form” and “survey” are used interchangeably and differently in marketing research and research methodology literature. However, there is no difference in meaning between these three in this thesis, they are used interchangeably. In addition, these three words also have different meanings in different areas. In this thesis they all and only mean the form, either electronic or paper-based, which has research questions and answer options, and which is to be filled by respondents.

In addition, terms “market research” and “marketing research” are also used in similar and different ways in literature. I used them interchangeably, there is no difference in meaning between these words in this thesis. Market research and marketing research both mean research on market by surveying customers.

To prevent a misunderstanding I also want to point out that this thesis covers only the design of self-completion questionnaires, surveys and the forms which are used in marketing research. It is not about general surveying or research design. Thesis also does not include interviewer-administered surveys, sampling, measurement and scaling topics which are under research design. I only touched some of these topics to show their relationship between survey design.

Here is how chapters were formed. Chapter 2 was the literature review. I followed Malhotra's questionnaire design process. The process had ten steps and I covered all of

them. In Chapter 3, I briefly explained the research methodology that I used while analyzing the survey and survey questions. In Chapter 4, I summarized the survey and survey questions in detail. In Chapter 5, I analyzed the survey and survey questions in detail. Chapter 6 is the conclusion.

CHAPTER 2

LITERATURE REVIEW

Marketing Research Surveys

Survey in marketing research is “employed to discover more about potential consumers' views and perceptions of existing and proposed new products, and more specifically about the buying intentions of customers.” (Pass, 2006).

Objectives of a Questionnaire

Malhotra (2010) pointed out three objectives of questionnaires; first, translating the information needed into questions, second, uplifting, motivating and encouraging respondents, third, minimizing response error. Marketing research surveys need to be designed with these objectives in mind. All three objectives can only be achieved with a well-designed survey.

Questionnaire Design Process

After mentioning the lack of theory in questionnaire design, Malhotra (2010) presented questionnaire design process in ten steps which are (1) information specification,

(2) interviewing method specification, (3) question content determination, (4) designing in order to overcome inability and unwillingness to answer, (5), deciding on the question structure, (6) determining the question wording, (7) arranging the questions in order, (8) identifying the form and layout, (9) reproducing the questionnaire, and (10) pretesting the questionnaire. He mentioned that he used several books on questionnaire design to form this guide. Mentioned researchers were Vriens, Wedel and Sandor (2001), Jenkins and Solomonides (1999), Gilham (2000), Peterson (2000), Schuman and Presser (1996), Fink (1995), and Fowler, Jr. (1995). I followed Malhotra's process steps in this literature review with slight changes.

Information Specification

As the first step in the research design process, this step is about researcher's aims, what kind of information he or she is seeking (Malhotra, 2010). "It should be clear from the research objectives and the business objectives what information areas the questionnaire needs to cover. This is the principal information such as product and brand awareness, etc." (Brace, 2004, p. 44). In our survey, we aimed to get information about mobile phone usage, so we asked questions to reveal, observe and understand mobile phone users' customer behavior.

Interviewing Method Specification

Second step is specifying interviewing method. In this step, researchers need to decide which surveying method they will use in their research. Every method has its own characteristics and it can limit the type of questions that can be asked, for example, mail surveys can be longer and include more detailed questions while surveys conducted on mobile apps generally are shorter and include less detailed questions.

Self-administered surveys can be divided into two basic types: Paper-based and electronic (web-based) surveys. They have different and similar characteristics as well as advantages and disadvantages. Paper-based surveys can be mailed, e-mailed, faxed or handed to the respondent. Electronic surveys can be conducted on mobile phones, tablets, personal computers and kiosks, etc. In addition, Edith D. de Leeuw and Joop J. Hox pointed out five main types of self-administered questionnaires: "(a) the mail survey, (b) internet surveys and panels, (c) interactive voice response, (d) interviewer introduced self-administered questionnaire, and (e) group administration" (2008, p.240)

Paper-based surveys are generally created with word processors such as Word, Pages, Writer and Abiword, etc. Electronic surveys are generally created using specialized computer and web tools such as SurveyGizmo, SurveyMonkey, Typeform and QuestionPro, etc. In addition, research companies may also create their own software for survey research.

Major characteristic (difference between self-administered questionnaires and structured interviews) of self-administered surveys is that there is no or very limited

presence of an interviewer (de Leeuw&Hox, 2008).Two important advantages of self-administered surveys exist because of this situation. First, absence of an interviewer removes interviewer bias in the responses, second, makes it easier for respondents to be honest (Brace, 2004). On the other hand, absence of an interviewer also creates an important disadvantage. Interviewer helps respondents understand the question, clarify where there are inconsistencies and probe. Without an interviewer, all of this needs to be done by the respondent him or herself with the help of the survey, so survey should also play the role of an interviewer (Brace, 2004).

De Leeuw and Hox (2008) mentioned two critical effects of the absence of interviewers: response rate and data quality. Groves and Couper (1998) found that response rates in self-administered surveys are generally lower than in person and telephone interviews (as cited in de Leeuw&Hox, 2008). Researchers should take this information into account and take necessary actions such as sending well-timed reminders and creating attractive cover letters to achieve a high response rate in self-administered surveys. Additionally, data quality may be lower because of the absence of interviewers who could help respondents when needed or control who completes the questionnaire (de Leeuw&Hox, 2008). To improve data quality de Leeuw and Hox gave the following recommendations.

An important task in designing and implementing a self-administered survey is to ensure that the respondent receives all information that would otherwise be conveyed by the interviewer. In the contact phase, for example in advance letters or calls, this information relates to the survey and its function is to encourage the respondent to participate in the survey. In the data collection phase, this information mainly addresses

the question-answer process and its function is to support the respondent in understanding the questions and providing adequate answers. (p.242)

There is another important characteristic of self-administered questionnaires. Because the respondent sees the questions with associated answer categories, "the visual presentation of questions and the general layout of the questionnaire are far more important in self-administered questionnaires, both on paper and on the computer screen" (de Leeuw&Hox, 2008, p.240). "Professional visual design should facilitate communication, and support the question-answer process in a way that is relevant for the audience and the content of the survey" (de Leeuw&Hox, 2008, p.243).

Content of Individual Questions

Because of certain limitations such as respondent's time, knowledge, patience, and interest, number of question in a survey is limited. Surveys generally do not include more than a hundred of questions.

Question Necessity

According to Malhotra (2010) "Every question in a questionnaire should contribute to the information needed or serve some specific purpose. If there is no satisfactory use for the data resulting from a question, that question should be eliminated" (p. 306). Many

surveys include unnecessary questions and they might be unanswerable or too difficult questions which most of the respondents leave blank or questions which most of the respondents misunderstand or misinterpret and choose the wrong answer, etc.

Researchers need to be sure that the question is necessary. Asking an unnecessary question could waste researchers' and respondents' time. If there is a question in the survey that is very similar to another one then the researcher can consider removing or changing the question.

Several Questions vs. One Question

Researchers might unintentionally ask questions that include more than one question inside them. Kasunic (2005) defined double-barreled question as "compound questions that are separate questions that have been combined into one, yet the respondent is asked to provide a single answer" (p.52). Malhotra (2010) considered *why* questions as double-barreled questions because there are more than one possible answers. These questions should be considered to be omitted or turned into two or more questions. Many textbooks on marketing research provided examples about double-barreled questions, for example, Malhotra (2010), Sudman and Blair (1998), etc. In addition, there are one-and-a-half-barreled questions which were defined by Sudman and Bradburn (1982), as questions that include a question and a presupposition. These questions also might be misinterpreted by respondents that's why presupposition in the question should be eliminated.

Inability and Unwillingness to Answer

Respondents might not be able or willing to answer survey questions and not giving an answer (leaving the question blank) might create a pressure on respondents, and they may give an answer to satisfy the interviewer (Converse, 1964).There might be various reasons behind inability and unwillingness to answer and some solutions were offered in the literature.

Being Informed

Expectedly, informed respondents can provide better answers (Malhotra, 2010), for example, if the respondent is not the person who make laundry shopping (detergents, softeners, etc.), he or she cannot provide a reliable answer about this topic, so questions regarding laundry brands should be asked to the person who is informed about it. When informed respondents are needed (excluding surveys that are about measuring respondents' level of knowledge on a topic), surveys include questions that asks if the respondent is informed about the subject. In our laundry example, a question can be used to find out if the respondent is informed.

Being Able to Remember

If a respondent is not able to remember the event, he or she may not be able to give a proper answer. Malhotra (2010) mentioned three factors that influence the ability to remember: the event itself, the time between now and the event, and other events that would aid memory. According to Iarossi (2006), "Retrospective questions are subject to recall bias". Three types of memory errors were identified by Gaskell, Wright, and O'Muircheartaigh's (2000) survey research: omission which occurs when the respondent forget the event, commission or creation which occurs when the respondent create events that did not occur and telescoping which occurs when the respondent place the events at the wrong time (backward or forward) (as cited in Iarossi, 2006, p. 54).

Effort Required

It is generally accepted that "the question asked should require least possible effort to be answered" (Iarossi, 2006; Malhotra, 2010). Increasing necessary effort may decrease number of responses. Effort required may be affected by question complexity, question difficulty, and question length.

Context

Different meaning in the context may result in different responses. “Respondents' interpretation of a question's intended meaning is further affected by the context in which the question is presented. Hence, a question about drugs acquires a different meaning in the context of health versus a crime survey” (Schwarz, N., Knäuper, B., Oyserman, D., Stich, C., 2008, p.21).In addition, if the respondents find questions inappropriate for the given context, they may not provide a reliable or valid answer because they are unwilling to respond (Malhotra, 2010).

Legitimate Purpose

Respondents may want to understand the purpose of the questionnaire. When the respondents do not see purpose of the questions or cannot make connections between questions and aim of the survey, they are unwilling to give information (Malhotra, 2010). Researchers, interviewers or survey itself need to “explain that the survey serves useful purposes” (Lynn, 2008, p.42).

Sensitive Information

According to Tourangeauand Yan (2007), "survey questions about drug use, sexual behaviors, voting, and income are usually considered sensitive; they tend to produce comparatively higher nonresponse rates or larger measurement error in responses than questions on other topics" (p.860).Malhotra's (2010) sensitive topics list included "money, family life, political and religious beliefs, and involvement in accidents or crimes" (p.310)

According to Peterson (2000), "longer questions provided more accurate answers when sensitive topics were covered". Gerty Lensvelt-Mulders (2008), listed the most important methods that researchers use to deal with the difficulties associated with survey research on sensitive topics (increased nonresponse rates and evasive answer bias, etc.).

> 1. Emphasizing the importance of a respondent's cooperation.
>
> 2. Increasing the respondent's perceived privacy protection.
>
> 3. Adjusting the questionnaire and some specific questions so that they look less threatening.
>
> 4. If the topic is thought to be so threatening that a respondent is unlikely to give an honest answer, a researcher can opt for a special form of survey, designed to overcome these problems.
>
> 5. In really difficult situations collecting additional information from other sources, like registers, is recommended. (Lensvelt-Mulders, 2008, p.466)

Question Structure

Question structure is the first step in question design process. Fowler and Cosenza summarized what a respondent needs in order to answer a question. Questions need to be designed (structured and worded) with these four points in mind.

> To answer a question, a respondent must: (a) Understand the question.(b) Have or retrieve information needed to answer the question.(c) Translate relevant information into the form required to answer the question. (d) Provide the answer by writing it on a form, entering it into a computer, or telling an interviewer (Fowler & Cosenza, 2008, p.137).

Fowler and Cosenza (2008) pointed out five recommendations about question design: (1) "Ask the right question", (2) "Ask questions that are consistently understood", (3) "Ask questions that respondents can retrieve answers to", (4) "Ask questions for which respondents can provide appropriate responses", (5) "Ask questions that respondents are willing to answer accurately" (p.159).

Two main types of questions in marketing research surveys are unstructured (open) and structured (closed) questions (Malhotra, 2010).

Open Versus Closed Questions

Open questions (unstructured, free-response or free-answer questions) can be answered by respondents in their words (Malhotra, 2010) and closed questions (structured

questions) can be answered by respondents by selecting an answer from a set of choices (Krosnick& Stanley, 2010).

Fowler (1995), mentioned five situations where there is a role for open-ended questions in survey research. First, "when the range of possible answers greatly exceeds what reasonably could be provided" (p. 177). Second, "when the answers are virtually impossible to reduce to few words" (p. 177). Third, when there is need to measure knowledge since "asking open-ended questions is among the best ways to measure knowledge" (p. 178). Fourth, "when the reasoning behind a conclusion, a behavior, or a preference is of interest" (p. 178). Fifth, "when asking an open-ended question can be the simplest way to gather systematic information about a potentially complicated situation" (p. 178).

Answers to open questions are not standard, every respondent can give a different answer and in a different way. These answers need to be standardized in order to analyze. Coding schemes are used for this purpose. Creation and application of coding schemes can be costly and time-consuming (Krosnick& Stanley, 2010). In some situations, answers to open questions might not need coding. For example, number of pets, years of employment, etc. In addition, research by Schwarz, Hippler, Deutsch, and Strack(1985), showed that information from closed quantity categories may be biased (as cited in Krosnick& Stanley, 2010, p. 267).

Sometimes an "other" response is also available in addition to a set of choices when researchers want to be sure to cover all possible answers but Lindzey and Guest (1951); Schuman and Scott (1987) showed that this could direct respondents to restrict their answers to explicit choices (as cited in Krosnick& Stanley, 2010, p. 267).

Respondents should be able to find their answer or answers in the closed question's list of choices. Therefore, answer choices need to be comprehensive. If the list is too large, closed question should be changed with an open question (Krosnick& Stanley, 2010).

Number of Points on Rating Scales

Krosnick and Stanley (2010) wrote about ways to design a rating scale. For example, 5 points are used in Likert (1932) scaling. 7 points are used semantic differential of Osgood, Suci and Tannenbaum (1957) and there are 11 points in Thurstone's (1928) equal-appearing interval methods. They also mentioned The American National Election Study surveys which had used 2-, 3-, 4-, 5-, 7-, and 101 point scales (Miller, 1982). They also mentioned Robinson, Shaver and Wrightman's (1999) catalog of rating scales describing 2-, 3-, 4-, 5-, 6-, 7-, 9- and 10-point scales. They concluded their examples with pointing out the lack of standard for the number of points on rating scales and widely varying common practice.

Krosnick and Stanley (2010) showed four conditions that must be met in order to have an effectively working rating scale. These were covering measurement continuum, ordinal appear and no overlapping, precise and stable understanding and agreement in interpretations of the meanings.

> First, the points offered should cover the entire measurement continuum, leaving out no regions. Second, these points must appear to be ordinal, progressing from one end of a continuum to the other, and the meanings of adjacent points should not overlap. Third, each respondent must have a relatively precise and stable understanding of the meaning of each point on the scale. Fourth, most or all respondents must agree in their interpretations

> of the meanings of each scale point. And a researcher must know what those interpretations are (p. 268-269).

Labeling of Rating Scale Points

According to Krosnick and Berent (1993) labeling all points provided more reliability than labeling only some of the points; Dickinson and Zellinger (1980) observed greater satisfaction among respondents when more scale points were labelled verbally; as used by Klockars and Yamagishi (1988), reliability and validity could be maximized by using labels that divide up the continuum into approximately equal units (as cited in Krosnick& Stanley, 2010, p. 267).

General Recommendations about Question Structure

Petra Lietz (2010) provided general recommendations about question structure emerged from her review of research into questionnaire design.

> ■ Questions should be constructed to be as clear, simple, specific and relevant for the study's research aims as possible.
> ■ Questions should focus on current attitudes and very recent behavior.
> ■ More general questions should precede more specific questions.
> ■ A desirable Likert-type response scale length ranges from five to eight response questions.
> ■ The inclusion of a middle option increases the validity and reliability of a response scale slightly.
> ■ The numerical scale should be unipolar with matching verbal labels as anchors at both ends of the scale.

■ All numeric labels should be shown to respondents. (p.265)

Question Wording

Question wording is the second step in question design process. “Question wording is the translation of the desired question content and structure into words that respondents clearly and easily understand” (Malhotra, 2010, p.314). “A number of studies have irrefutably shown that changing even a single word in a question can significantly alter the response distribution and accuracy” (Iarossi, 2006, p.29).

Krosnick and Stanley (2010) summarized following advice on question wording.

> 1. Use simple, familiar words (avoid technical terms, jargon, and slang);
> 2. Use simple syntax;
> 3. Avoid words with ambiguous meanings, i.e., aim for wording that all respondents will interpret in the same way;
> 4. Strive for wording that is specific and concrete (as opposed to general and abstract);
> 5. Make response options exhaustive and mutually exclusive;
> 6. Avoid leading or loaded questions that push respondents toward an answer;
> 7. Ask about one thing at a time (avoid double-barreled questions); and
> 8. Avoid questions with single or double negations. (p.264)

Petra Lietz (2010) also provided general recommendations about question wording.

> ■ Vague identifiers such as ‘frequently’, ‘usually’ and ‘regularly’ should be avoided. Instead, carefully pre-tested response options should specify the number of times per appropriate period (e.g. day, week, month, year) of an event or behavior.
> ■ ‘Extremely’ and ‘not at all’ can serve as most effective verbal intensifiers. (p.264)

Order of Questions and Responses

Order of questions can have positive or negative effects on other questions and whole questionnaire. “Numerous studies demonstrated that preceding questions can influence the answers given to later questions”(Schwarz, N., Knäuper, B., Oyserman, D., Stich, C., 2008, p.28). Krosnick and Stanley (2010) summarized following advice on question order optimization.

> 1. Early questions should be easy and pleasant to answer, and should build rapport between the respondent and the researcher.
> 2. Questions at the very beginning of a questionnaire should explicitly address the topic of the survey, as it was described to the respondent prior to the interview.
> 3. Questions on the same topic should be grouped together.
> 4. Questions on the same topic should proceed from general to specific.
> 5. Questions on sensitive topics that might make respondents uncomfortable should be placed at the end of the questionnaire.
> 6. Filter questions should be included, to avoid asking respondents questions that do not apply to them. (p.264)

> Order of responses may also have effects and “response order effects are most reliably obtained when a question presents several plausible response options” (Schwarz, N., Knäuper, B., Oyserman, D., Stich, C., 2008, p.33). There are two important effects of order of responses: primacy effect and recency effect. “The primacy effect refers to the assumption that respondents will select earlier alternatives more frequently than later alternatives” (Lietz, 2010, p.264). The recency effect refers to the opposite of the primacy effect in which respondents will select later alternatives more frequently than earlier alternatives. “In a visual format, like a self-administered questionnaire, respondents think about the response alternatives in the order in which they are presented” (Schwarz, N., Knäuper, B., Oyserman, D., Stich, C., 2008, p.33). The recency effect, on the other hand, can be observed in a telephone interview. Respondents can select the last alternative read to them because it is

> the easiest to remember. The recency effect can be seen on some web-based surveys if respondents can only see response alternatives one by one. Respondents may tend to choose the last alternative instead of going back and forth multiple times to check all other alternatives which would require more effort and time.

Form and Layout

According to Malhotra (2010), "The format, spacing, and positioning of questions can have a significant effect on the results. This is particularly important for self-administered questionnaires" (p.320).

Iarossi agrees with Malhotra, "Often not enough attention is paid to the physical layout of the questionnaire, which results in a greater likelihood of errors by interviewers, editors, coders, key operators, and ultimately respondents" (2006, p.80).

Sudman and Blair (1998) pointed out seven principles about survey layout that most professionals follow: (1) Using a booklet format for printed surveys, (2) Identifying the questionnaire, (3) Avoiding crowding the questions, (4) Using large, clear type, (5) Numbering all questions and using an outline form for branching, (6) Avoiding splitting questions across pages, (7) Putting special instructions on the questionnaire. Iorassi (2006) added two more principles to this list: (1) Using adequate fonts and formats, (2) Utilizing symbols such as circles, arrows, boxes, etc.

Reproduction of the Questionnaire

After form and layout decisions comes reproduction of the questionnaire. Malhotra (2010) underlined some important points regarding this subject: (1) "The questionnaire should be reproduced on good-quality paper and have a professional appearance", (2) "Each question should be reproduced on a single page", (3) "Vertical response columns should be used for individual questions", (4) "Directions or instructions for individual questions should be placed as close to the questions as possible", (5) Questionnaires should utilize color coding, (6) "Reading the questionnaire should not impose a strain" (p.321).

Pretesting

Pretesting is the final step of the survey process. "Pilot tests or pretests are conducted to expose problems or weaknesses in the questions, questionnaire layout, process and technology (if a web-based questionnaire is used)" (Kasunic, 2005, p.76).

> There are three different methods to conduct the pretesting of a questionnaire: conventional, behavioral and cognitive.
> The conventional method involves a small number of interviews followed by a debriefing in which experiences are shared and problems identified. The behavioral pre-test involves structured interviews monitored by an expert whose role is to identify and code problems. In the cognitive pilot, the respondent is asked to report everything that comes to his or her mind while or after answering the questions. Preliminary experimental results show that each method serves a different purpose. The behavioral and conventional

> methods are more appropriate for detecting problems with both the respondent and the interviewer, whereas the cognitive method assesses the analytical accuracy of the answers by evaluating the questions from the point of view of the effort required to answer. Conventional and cognitive pre-tests also perform well in identifying semantic problems. (Iarossi, 2006, p.87)

In addition to these three methods mentioned above, expert panels are considered the fourth method of pretesting. These are generally conducted in offices by research experts. A research conducted by Stanley Presser and Johnny Blair had following results.

> On average, expert panels were most productive in the number of problems identified. Conventional pretesting and behavior coding were the only methods to identify significant numbers of interviewer problems. By contrast, expert panels and cognitive interviews were the only methods to diagnose a nontrivial number of analysis problems. Expert panels and behavior coding were more consistent than the other methods in the numbers of problems identified across trials, as well as in their distribution of problem types. From the vantage point of the particular problems identified, behavior coding was the most reliable method. Costs of the conventional pretests and behavior coding were about the same, cognitive interviews were somewhat less expensive, and expert panels were considerably cheaper. (Stanley Preser and Johnny Blair, 1994, p.73)

CHAPTER 3

METHODOLOGY

Analysis

The thesis includes an extensive summary and analysis of the survey that we created in the marketing research class.

I analyzed the survey mainly based on the survey design criteria that were mentioned in the literature review chapter. I used following criteria for the survey question analysis: Question wording, number of questions, instructions, order of responses, question necessity, effort required. Following criteria was used for the survey analysis: Layout, data collection media, pretesting, purpose and context, research objectives, order of responses, sensitive information.

The whole survey and every question in the survey was summarized and analyzed. Because every question had similar and different features, I focused on only differences to not to repeat myself.

CHAPTER 4

SUMMARY OF THE SURVEY AND SURVEY QUESTIONS

Summary of the Survey

Our hypothetical technology company called Infinity and Beyond Technologies (IBT), was testing a new mobile technology. The company wanted to gain a better understanding of mobile phone provider usage as well as customer satisfaction and loyalty in the Kansas City market. Therefore, our research survey was created in order to answer marketing research questions about demographics and characteristics of respondents, customer satisfaction, and customer experience and customer loyalty.

Below is the summary of the survey that we created in class. To create the survey, our class was divided into three small teams with three to five members and every team came up with many survey questions. Afterwards, our instructor Evan Wright gathered all the questions and created the final form of the survey. Aim in this chapter of the thesis is to summarize the survey.

Our survey had 15 questions. There was one dichotomous question (Q1) with yes no response choices as our filter question. There were ten categorical questions (Q2, Q6, Q7, Q8, Q9, Q10, Q12, Q13, Q14, and Q15). Number of response choices in these questions ranged between 3 and 10. Only one categorical question (Q10) allowed respondents to choose more than one answer.

There were four scaled questions (Q3, Q4, Q5 and Q11): Satisfy scaled questions with a scale of Very Satisfied, Satisfied, Neither Satisfied nor Dissatisfied, Dissatisfied,

Very Dissatisfied; agree scaled questions with a scale of Strongly Agree, Agree, Neither Agree nor Disagree, Disagree, Strongly Disagree; and finally likelihood scaled questions with a scale from Extremely Likely, Very Likely, Somewhat Likely, Not Very Likely, Not At All Likely.

The survey was created in order to provide information about mobile phone usage and satisfaction in the Kansas City market. That's why our target respondents were mobile phone users living in the Kansas City who had different demographics and characteristics.

Every team had to collect data from 100 respondents to reach a total of 300 respondents, so every member of the team had to collect data from at least 25 respondents. In the end, we were able to reach 284 respondents.

Our main data collection method was web-based self-administered surveys. For this purpose, two members of our team used SurveyMonkey, one used Google Forms and I created a web-based survey myself using PHP, Javascript, HTML and CSS. In addition to web-based surveys, one of our team members also used paper-based version of the survey for older respondents.

No pretesting was involved in our survey design process and funnel technique was used in the survey. Questions were ordered from less specific to more specific and less detailed to more detailed. There were some exceptions which are explained in the analysis chapter.

> Thank you for taking the time to provide feedback. Your responses will be used only for instructive purposes by students and faculty in the Bloch School of Management at the University of Missouri - Kansas City.

Note above was put in the beginning of the survey. Its aim was to make respondents sure that the information provided by them will not be used for any other purposes. University and school name were added to help gain more trust from respondents.

Summary of the Survey Questions

Below is the summary of the survey questions we created in class. My aim in this part of the thesis is to summarize every question in respect to survey and question design.

Q1) Do you use a mobile phone?

- Yes
- No

If No to Q1, terminate survey.

If Yes to Q1, continue.

This was the first question of the survey. It was a filter question. We only aimed mobile phone users, so getting information from nonusers was not necessary. We wanted to be sure that respondents currently were using a mobile phone. If question was answered "No" then survey needed to be terminated, if only the answer was "Yes", the respondent could continue to the survey.

Q2) Which company provides your mobile phone service?

- AT&T
- Cricket
- MetroPCS
- Sprint
- T-Mobile

- TracPhone
- Verizon
- Other (please specify):

The second question was about mobile phone service providers. 7 providers were listed in the question, which include major providers (AT&T, Sprint, T-Mobile, and Verizon) and minor providers. Aim in this question's list of choices was to spot as much provider as possible, but not too many that could distract respondents or make their providers hard to find. In addition, a major provider was followed by a minor provider, if it was not like that, respondents might have chosen major provider instead of minor provider, since some minor providers are parts of major providers or the respondents might not be able to find their provider easily. Last answer "Other" was provided for respondents whose provider was not listed. We received following providers: Boost, U.S. Cellular, Virgin Mobile, H2O Wireless, StraightTalk and Republic Wireless.

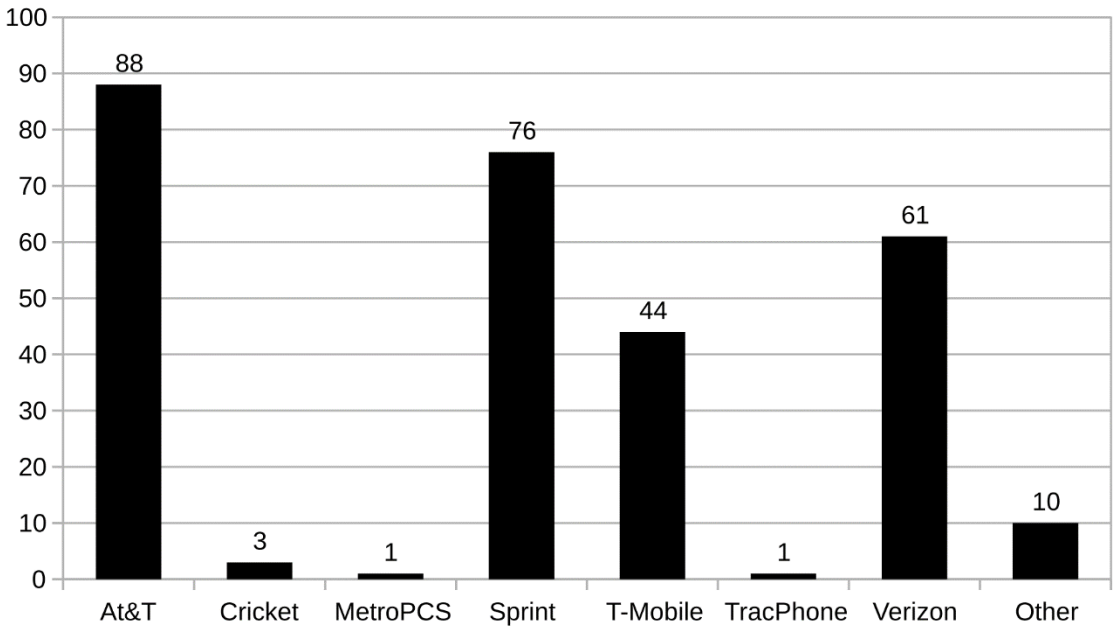

Figure 1. Frequency distribution of Q2.

Q3) Please rate your overall satisfaction with your mobile phone service provider by placing a mark in the appropriate box.

Very Satisfied	Satisfied	Neither Satisfied nor Dissatisfied	Dissatisfied	Very Dissatisfied

The third question included a 5-point Likert scale from “Very Satisfied” to “Very Dissatisfied”. The question was included to measure overall satisfaction with mobile phone service provider. The question came after mobile provider question; respondents would associate their satisfaction level with the provider name in their mind which might help them in their decision.

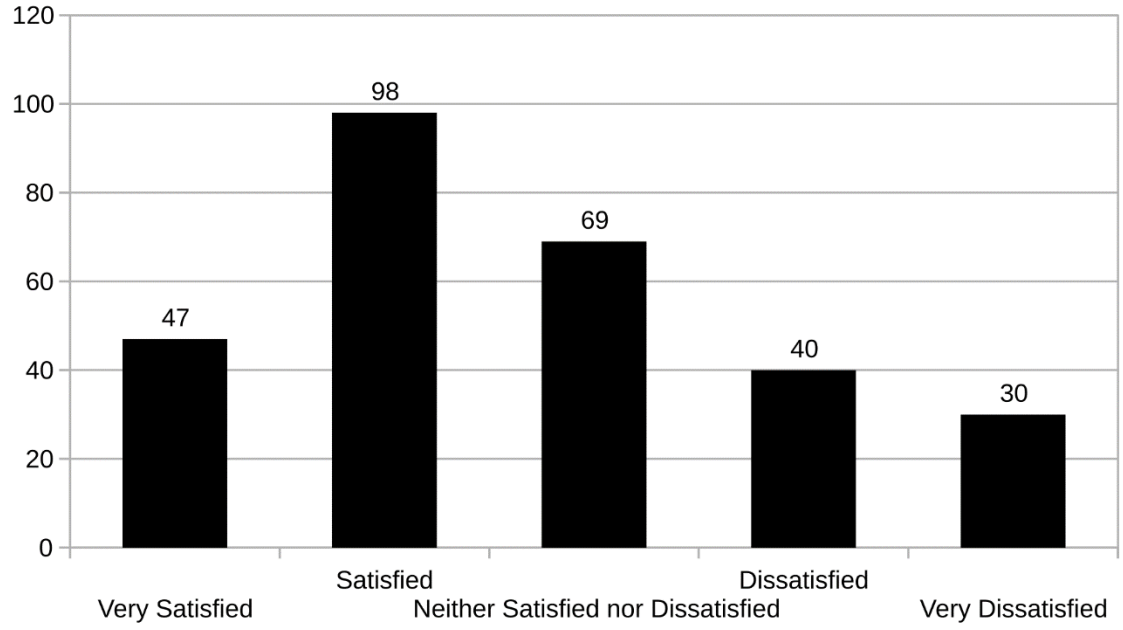

Figure 2. Frequency distribution of Q3.

Q4) Please select how much you agree or disagree with the following statements about your mobile service provider:

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Network data connections are fast. (If you do not use internet on your phone, leave blank.)					
Network connections are reliable.					
The length of contract requirements is reasonable. (If this does not apply, leave blank.)					
Customer service personnel are knowledgeable.					
Customer service personnel are helpful when I have a problem. (If you have not sought help, leave blank.)					
Has a variety of service plans that fit my needs.					
Offers a great selection of mobile devices.					
The people I talk to the most use the same mobile service provider.					
The price of my service plan is a good value.					

This was the most complicated question in the survey. It consisted of 9 questions with a 5-point Likert scale from “Strongly Agree” to “Strongly Disagree”. 3 questions (first, third and fifth) could be left blank by the respondents.

The first question was about network data connections. It is especially important for respondents who use Internet on their phones. Fast connections mean faster downloads

and faster surfing. This question was about Internet and we knew that there were respondents who did not use Internet on their phone. A note in parentheses was included to these respondents informing that they could leave the question blank.

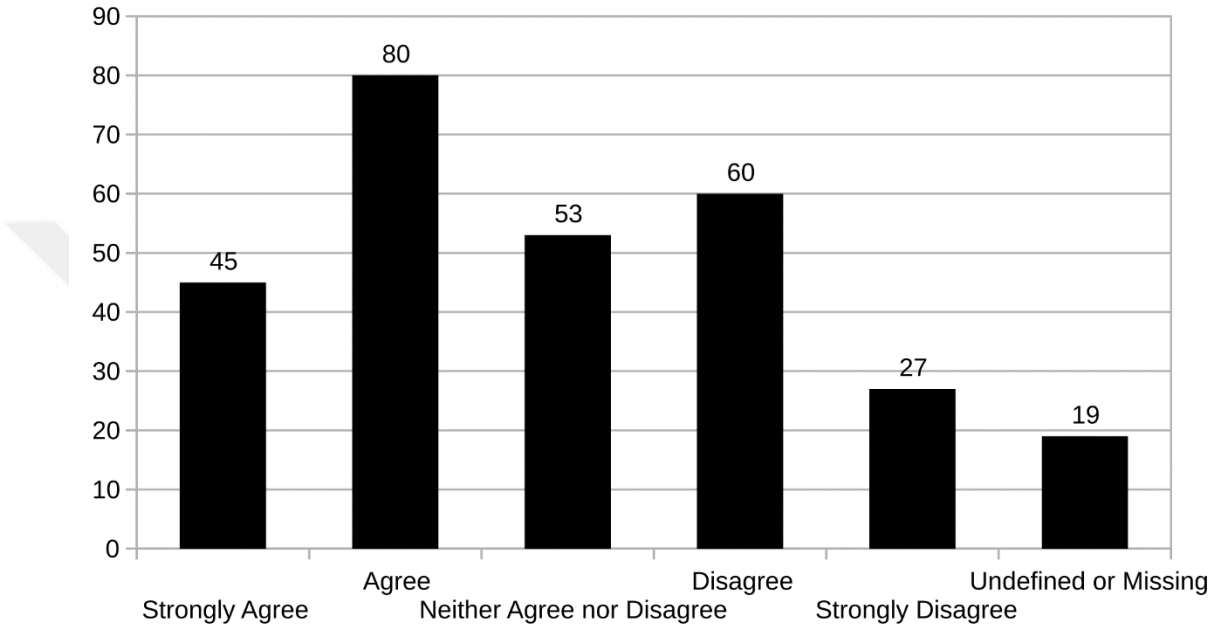

Figure 3. Frequency distribution of Q4_1.

The third question was about the length of contract requirements. Contracts might affect buying behavior: some customers like short contracts to feel that they can change their mind easily, while others choose longer contracts to take advantage of lower prices. Because there were no-contract respondents, this question was provided with a leave blank option.

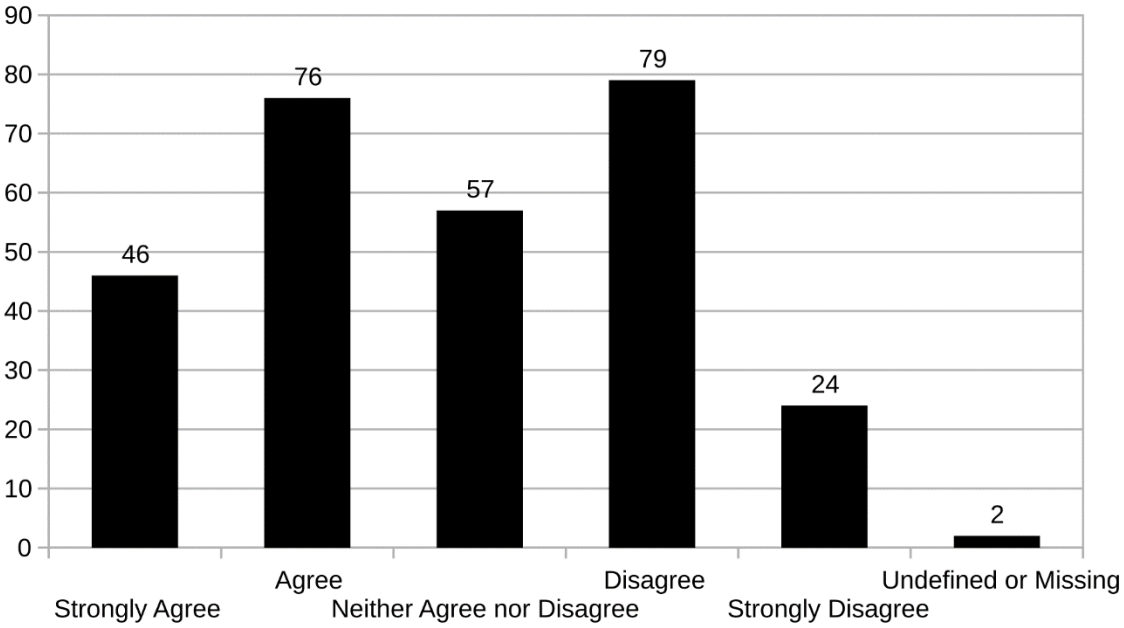

Figure 4. Frequency distribution of Q4_2.

The third question was about the length of contract requirements. Contracts might affect buying behavior: some customers like short contracts to feel that they can change their mind easily, while others choose longer contracts to take advantage of lower prices. Because there were no-contract respondents, this question was provided with a leave blank option.

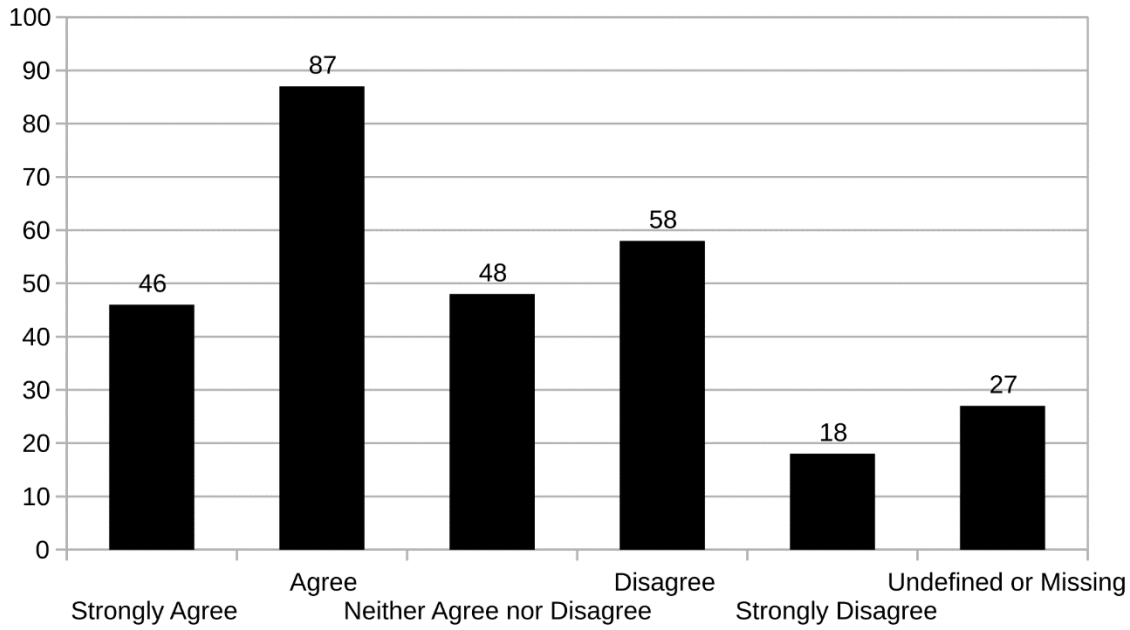

Figure 5. Frequency distribution of Q4_3.

The fourth question was about customer service personnel knowledge. Network providers give customer service via channels such as in-person, telephone, and Internet. This question was asked to measure respondents' opinion on service personnel's knowledge. We assumed that knowledgeable customer service personnel could help the respondents effectively or solve their problems faster. Leave blank option could have been added to this question too, since customers can buy their cell phones and sim cards, sign contracts online with no interaction with customer personnel.

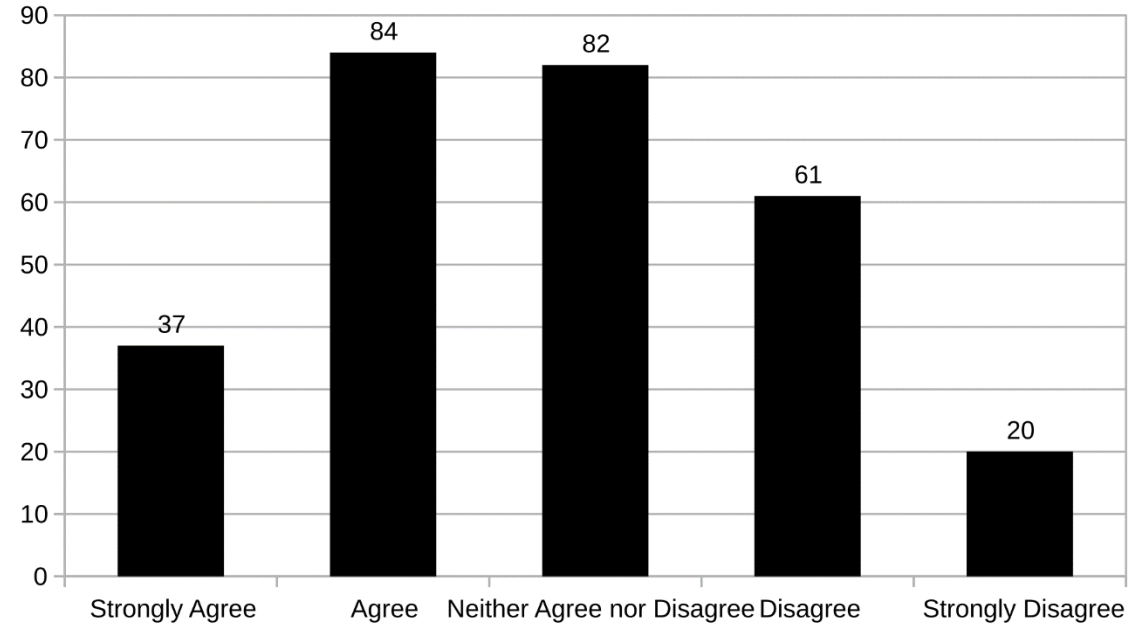

Figure 6. Frequency distribution of Q4_4.

The fifth question was about helpfulness of customer service personnel when the respondents had a problem. Since not all respondents got in touch with the personnel, a leave blank option was put. We wanted to know that if the respondents were satisfied with the quality of the service they got.

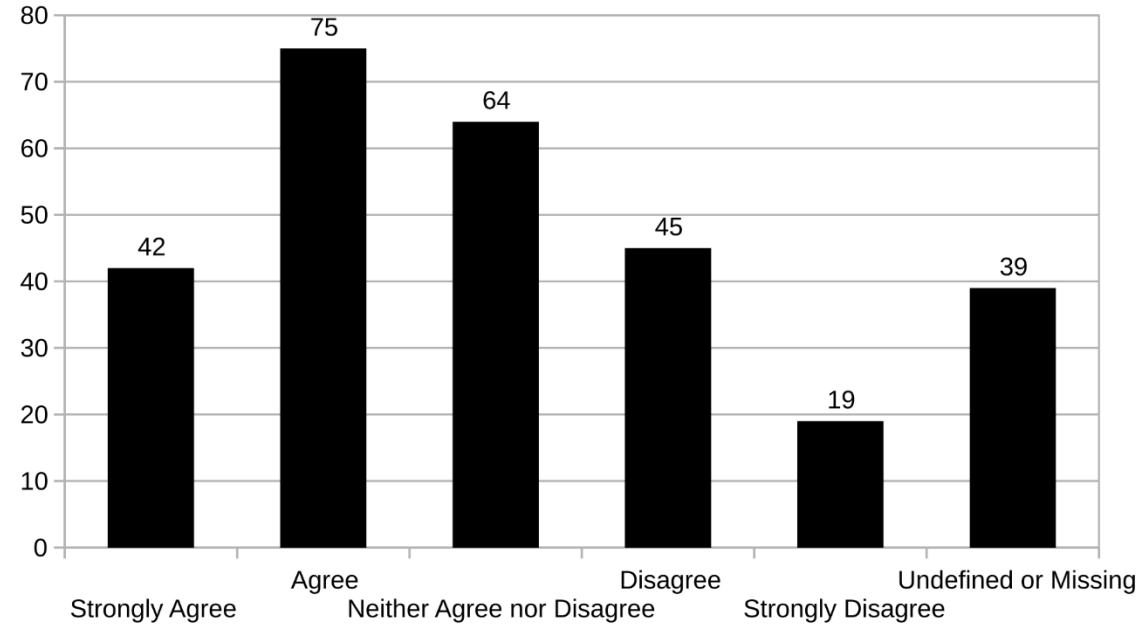

Figure 7. Frequency distribution of Q4_5.

The sixth question was about service plans. Service plans basically can range from limited to unlimited talk, text and data. Many providers try to create more flexible plans to reach more customers. Variety may mean flexibility, more choices, etc.

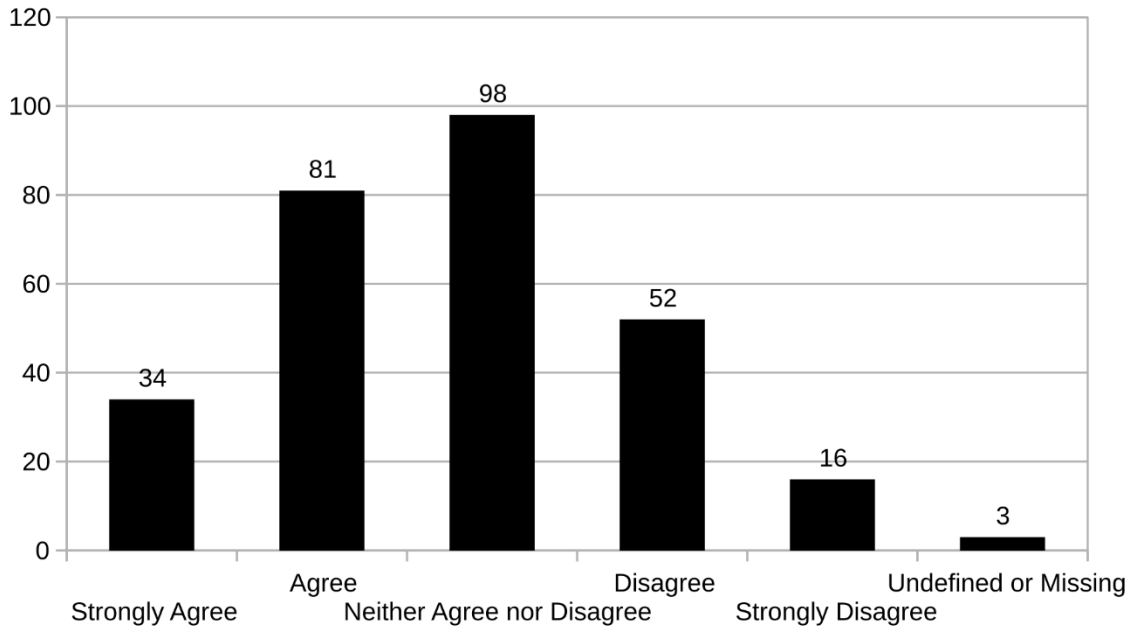

Figure 8. Frequency distribution of Q4_6.

The seventh question was about selection of mobile devices offered by the mobile network provider. Many cell phone manufacturers have agreements with network providers to reach more customers (basically customers of network providers). Additionally, network providers want to keep their customers with the help of new devices. Selection of mobile devices may affect buyers' behavior, that's why this question was included.

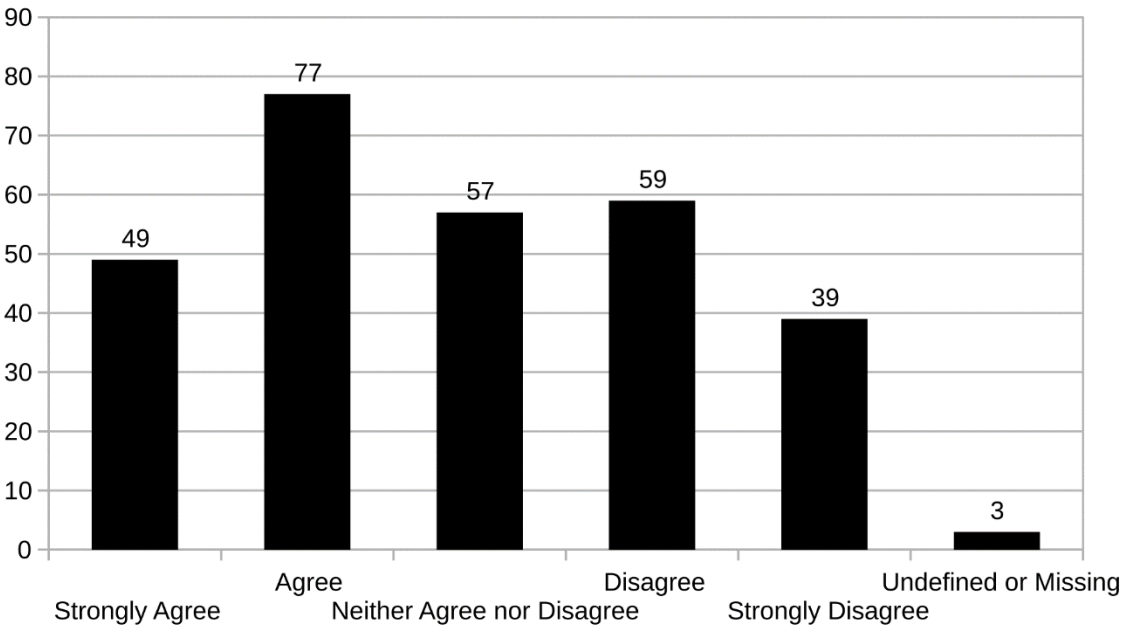

Figure 9. Frequency distribution of Q4_7.

The eighth question was about to whom respondents most talk. We wanted to know if the respondents also used the network that their family members or friends use. Customers may be affected by choices of their friends, colleagues, family, etc. We wanted to know if there were any traces of a herd behavior among the respondents.

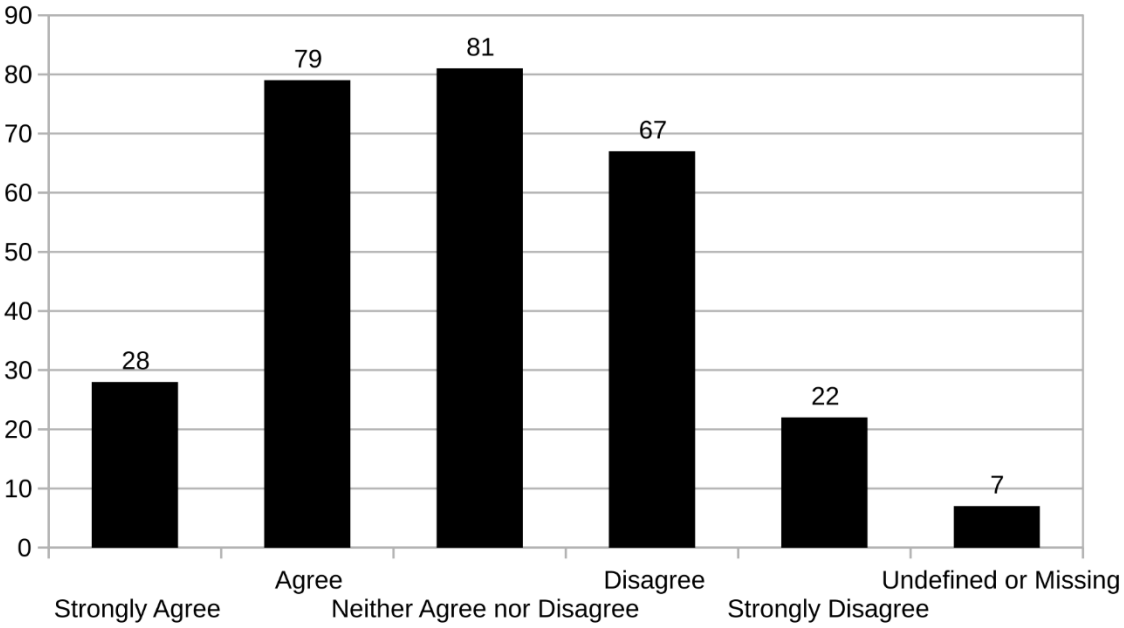

Figure 10. Frequency distribution of Q4_8.

The last question was about price of the service plan. Price also may play an important role on buying behavior. We wanted to measure if the respondent thought that the price was a good value or not. Sometimes, their opinion about price do not affect their buying behavior. They continue with their service provider even if they think that the price is not right. We wanted to observe if there were such customers.

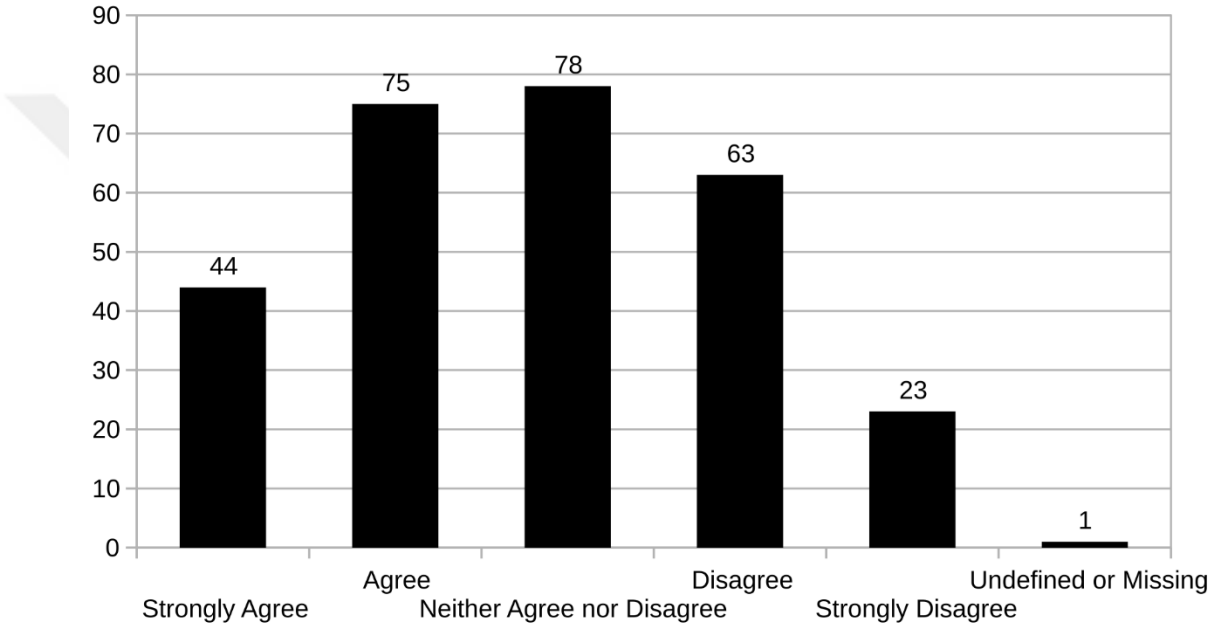

Figure 11. Frequency distribution of Q4_9.

Q5) What is the likelihood that you will…

	Extremely Likely	Very Likely	Somewhat Likely	Not Very Likely	Not At All Likely
Switch to a different provider in the next 6 months or when your contract expires?					
Recommend your mobile service provider to friends or family in the next 6 months?					

The fifth question consisted of two questions. The first question was about switching to a different provider. Switching to a new provider may mean lacking satisfaction with the previous provider or advantages of the new provider. We wanted to know if the respondent had a plan to switch.

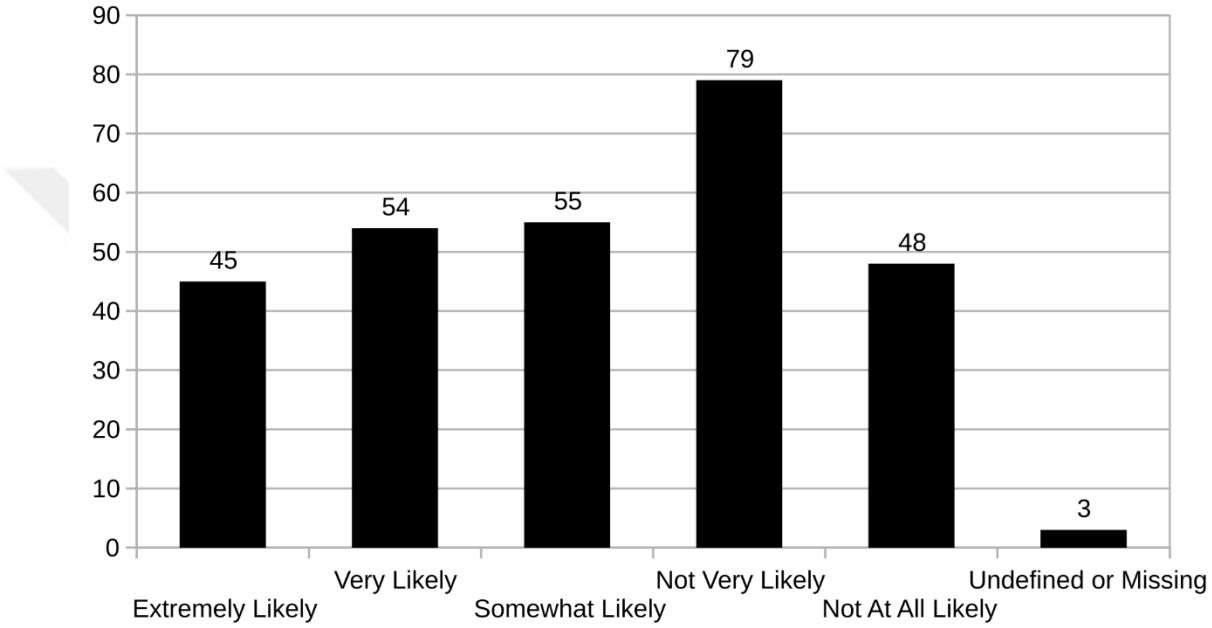

Figure 12. Frequency distribution of Q5_1.

The second question was about recommendation of the mobile phone service provider to friends and family in the next 6 months. When customers are satisfied with the service they receive, they may share their opinions with others. We wanted to know if the respondents thought that their service provider worth recommending to others.

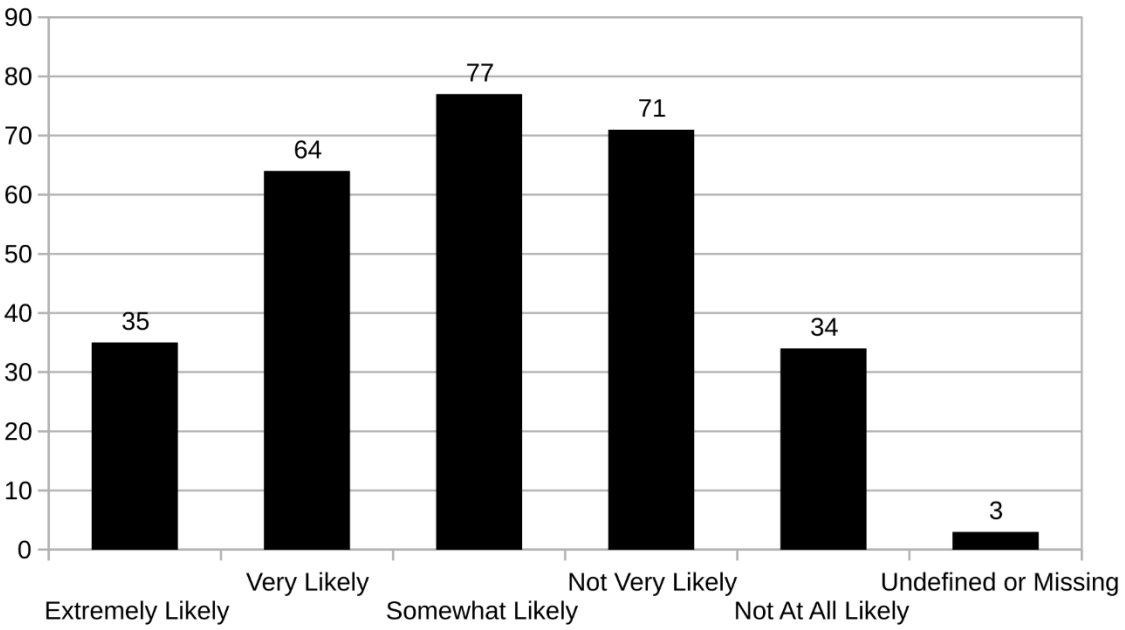

Figure 13. Frequency distribution of Q5_2.

The fifth question was another question with 5-point Likert scale from "Extremely Likely" to "Not At All Likely". In the scale "Not Very Likely" could be written as "Not Likely", and "Not At All Likely" could be written as "Extremely Unlikely" or "Highly Unlikely."

Q6) How many times in the past 12 months, have you visited a store location of your mobile service provider?

- 0
- 1
- 2
- 3
- 4
- 5 or more

The sixth question was asked to know how many times respondents visited their service providers' store locations in the last 12 months. We wanted to know if our respondents visited stores. There is a trend from brick and mortar stores to online stores.

After this question, we could have added a similar question asking about frequency of visiting online stores. Finally, there were 6 answer choices starting from “0” to “5 or more”.

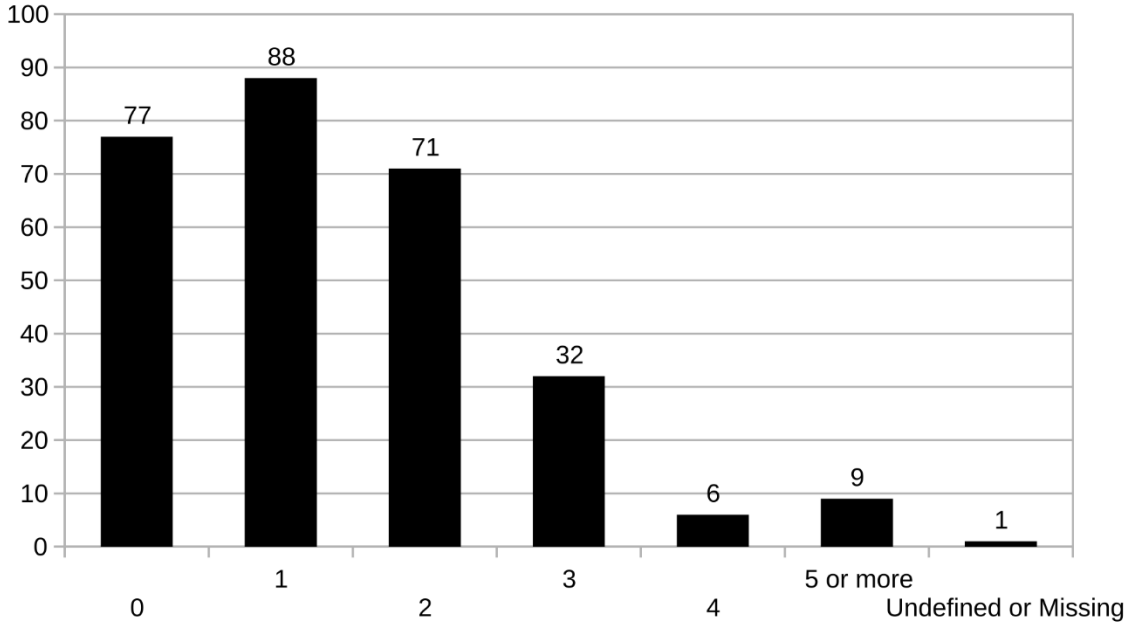

Figure 14. Frequency distribution of Q6.

Q7) For how many years have you used your mobile service provider?

- Less than 6 months
- Between 6 months and 1 year
- Between 1 and 2 years
- Between 2 and 4 years
- Between 4 and 7 years
- Between 7 and 10 years
- More than 10 years

If Q7 is greater than 1 year, skip Q8 and Q9.

The seventh question was also a filter question. We asked how many years the respondents used their mobile service provider. There were 7 answer choices, and Questions 8 and 9 were to be skipped if the respondent’s answer to this question was greater

than 1 year. We wanted to ask Questions 8 and 9 to new customers only. Answer choices ranged between “Less than 6 months” to “More than 10 years”.

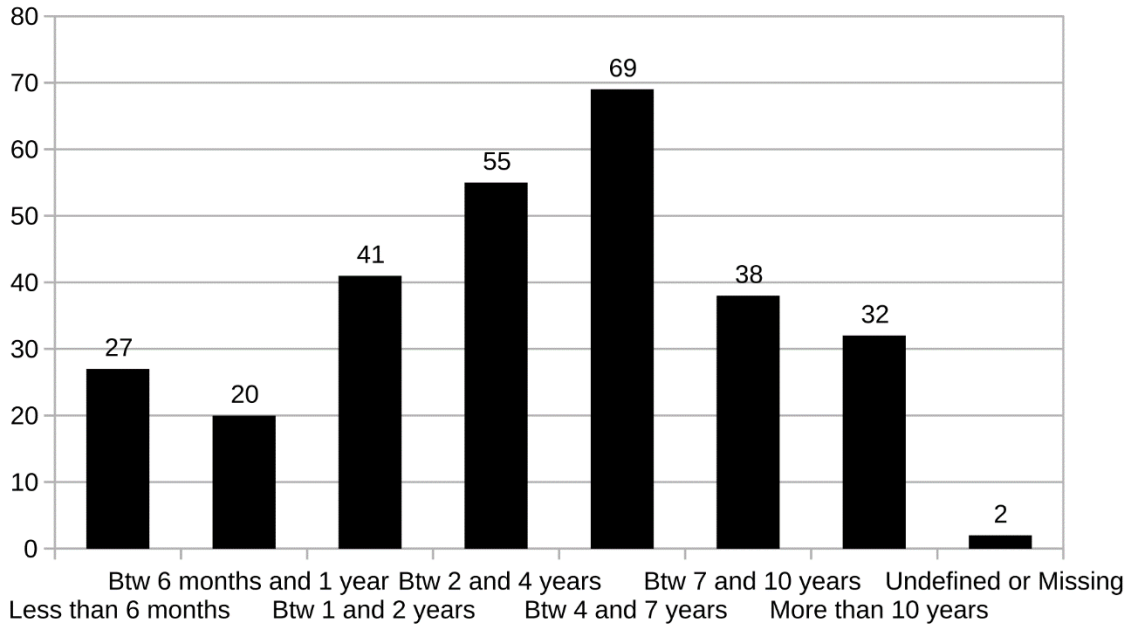

Figure 15. Frequency distribution of Q7.

Q8) Before using your current mobile service provider, which of these providers did you use most recently?

- AT&T
- Cricket
- MetroPCS
- Sprint
- T-Mobile
- TracPhone
- Verizon
- Other (please specify):

The eighth question was to be answered by respondents who recently switched to a different provider. We wanted to know their previous provider, so the same answer choices as in the Question 2 were provided here with an “Other” option.

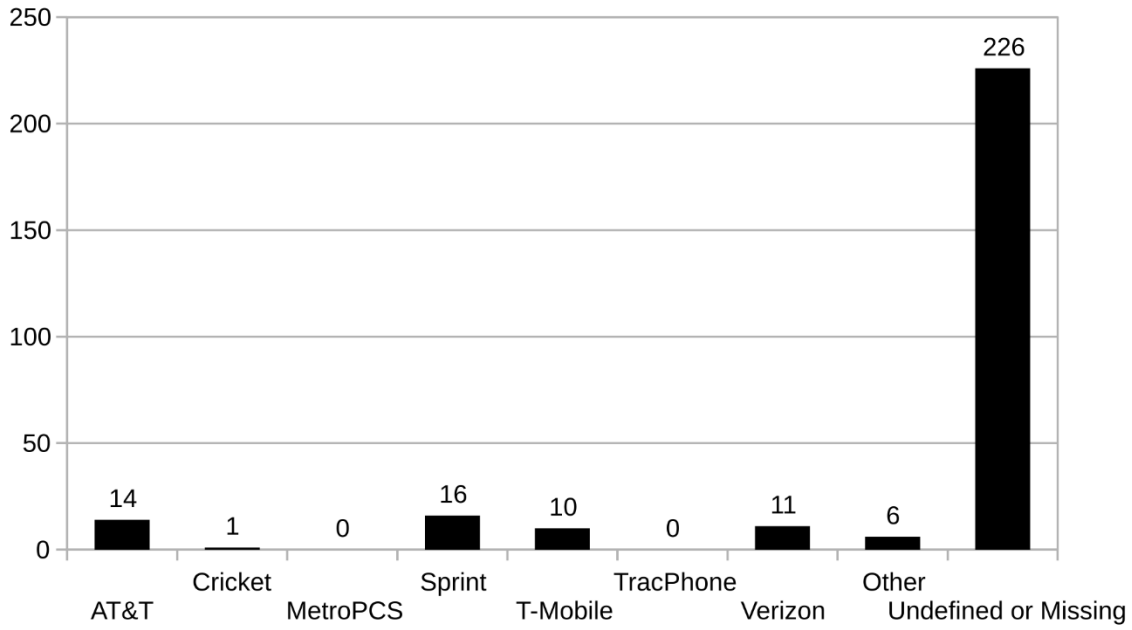

Figure 16. Frequency distribution of Q8.

Q9) What was the primary reason for switching providers?

- Speed of cellular connection
- Reliability of cellular connection
- Length of contract requirements
- Knowledge of customer service personnel
- Helpfulness of customer service personnel
- Service plans that fit my needs
- Selection of mobile devices
- Provider my friends/family use
- Price of service plan
- Other (please specify):

The ninth question was about the primary reason for switching providers. There might be tons of reasons, but in order to keep the list of choices as short as possible, we only listed major reasons for switching. The choices were also asked to respondents in question forms before in the survey. Respondents actually saw all the choices before this question, so they are familiar with the answer choices. An "Other" option was provided for respondents who had other reasons for switching which were not listed.

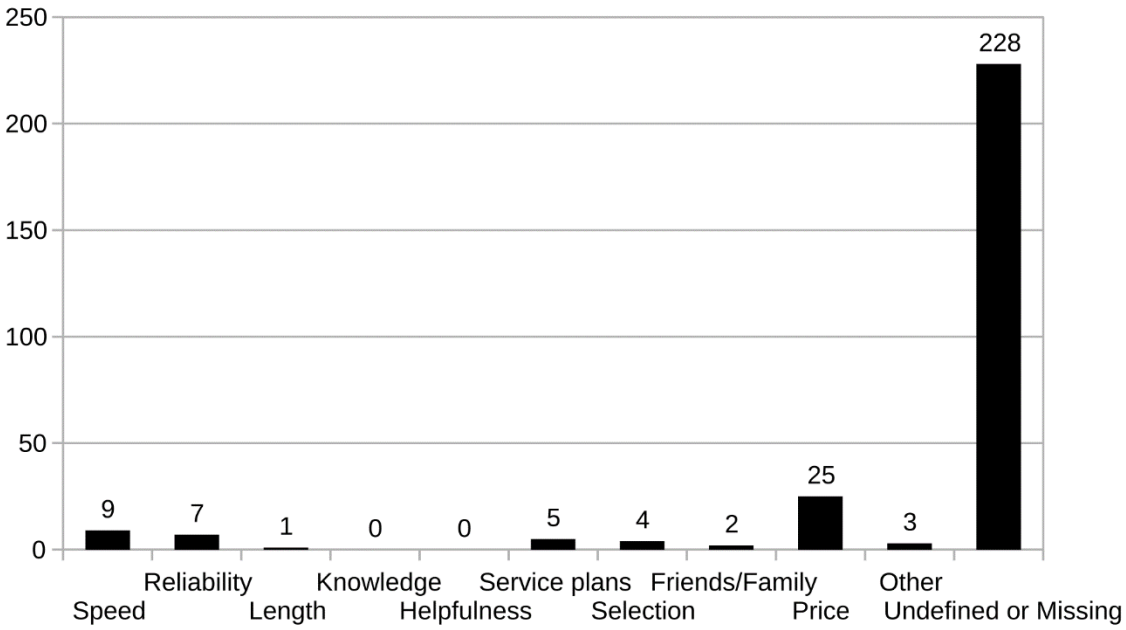

Figure 17. Frequency distribution of Q9.

Q10) Which of the following do you do when using your phone? (Select all that apply.)

- ☐ Talking
- ☐ Text messaging
- ☐ Browse the internet
- ☐ Use social media
- ☐ Play games
- ☐ Pay bills
- ☐ Watch videos
- ☐ Listen to music
- ☐ Other, please specify:_____

The tenth question was about what respondents do when using their phones. 8 multiple options were provided which respondents could choose more than one option, this question was the only question that allowed the respondents to select more than one answer. Of course, an "Other" option was provided for respondents that used their phones for other purposes.

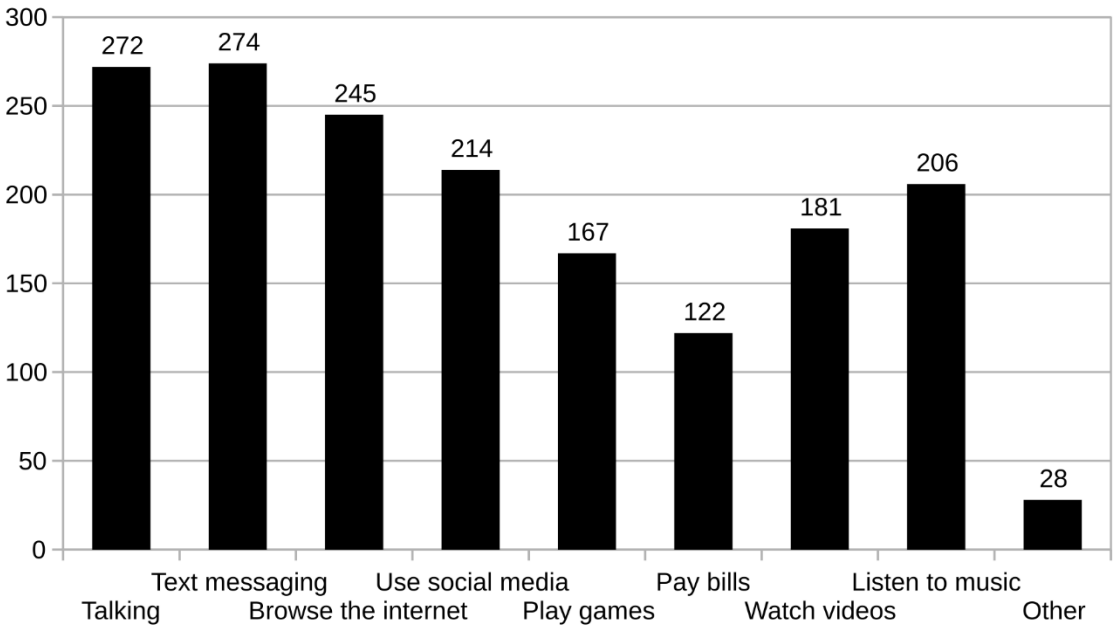

Figure 18. Frequency distribution of Q10.

Q11) Please select how much you agree or disagree with the following statements about your usage of mobile technology:

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
I make sure to find out about new technology products as soon as they are released.					
I only buy new technology products from brands that I already use.					
I buy new technology products only after they improve upon the first design.					

In the eleventh question, 5-point Likert scale was provided from “Strongly Agree” to “Strongly Disagree”. The question consisted of three questions. The first question was about how fast the respondents react to the new technology.

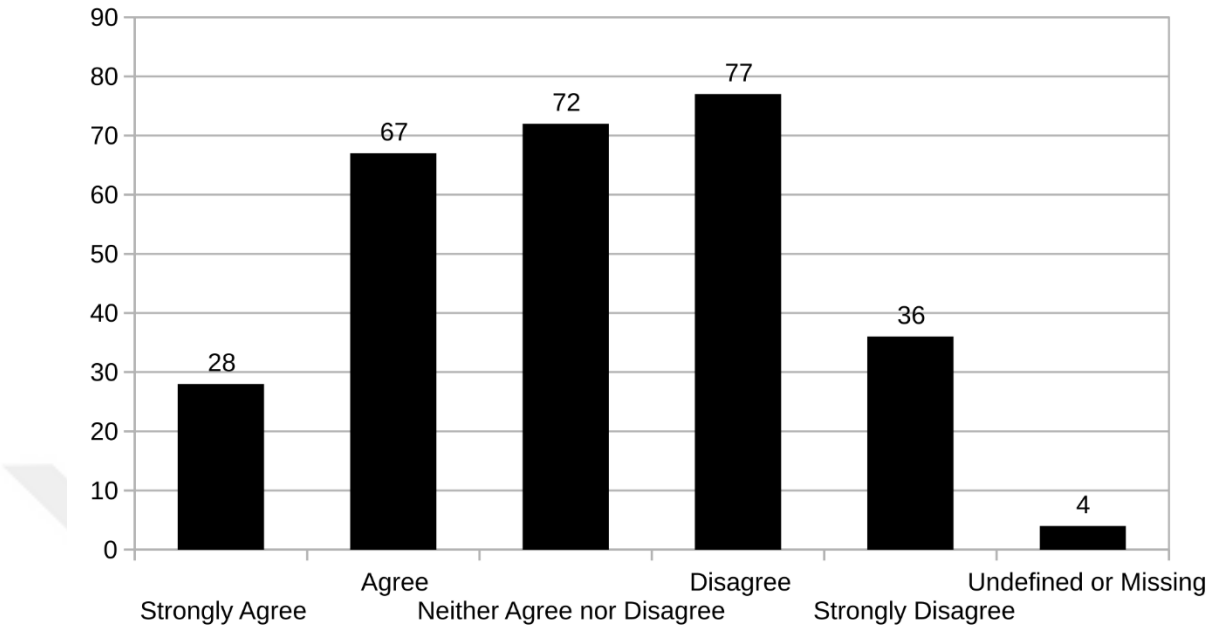

Figure 19. Frequency distribution of Q11_1.

The second question was about trust in brands. Respondents were asked if they only buy new technology products from brands that they already use, in other words they do not try or hesitate to try other brands' technology products.

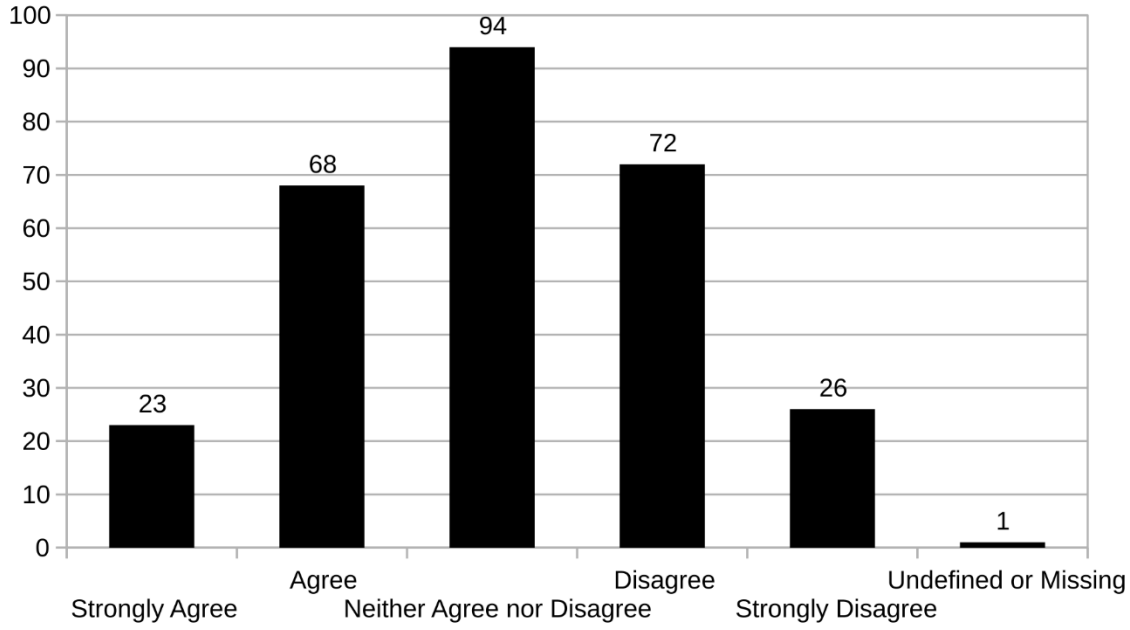

Figure 20. Frequency distribution of Q11_2.

The last question was about if the respondent always wait for the new technology product to improve upon the first design. If they chose “Strongly Agree” or “Agree” that could mean that they were part of late majority and/or laggards; if they chose “Strongly Disagree” or “Disagree” that could mean that they were early adopters and/or early majority.

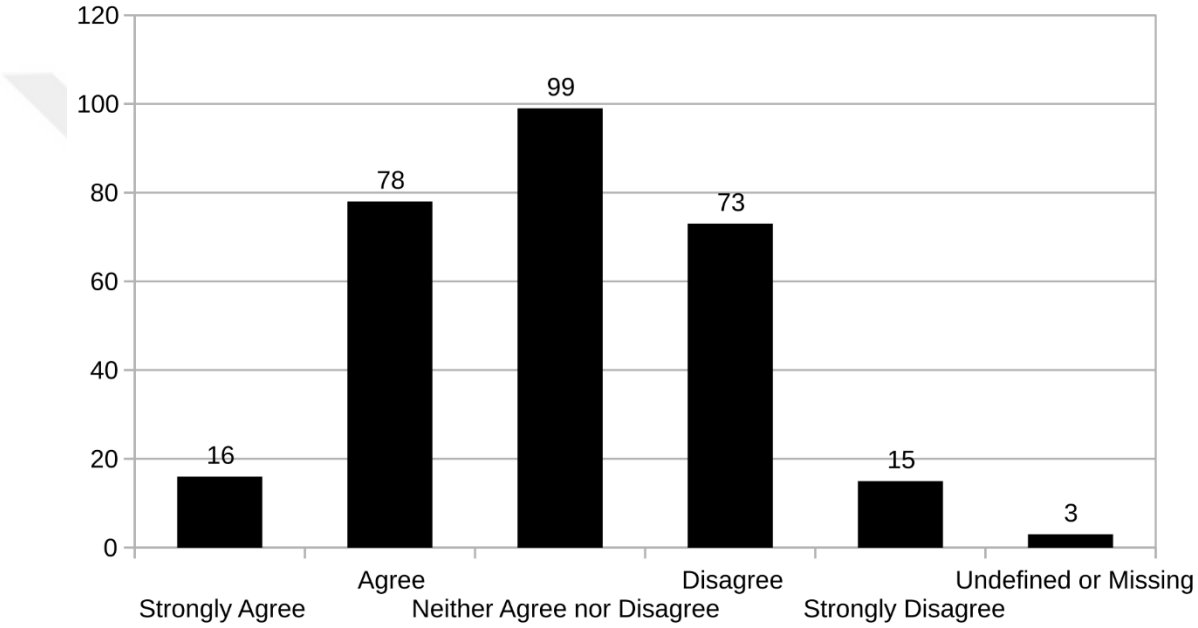

Figure 21. Frequency distribution of Q11_3

Tell us about yourself. These responses are for classification purposes only.

Q12) Please indicate your gender:

- Female
- Male
- Prefer not to answer

Starting from the Question 12 to the rest of the survey questions were about demographics. An additional note was provided to inform respondents that the responses to questions below were for classification purposes only. Every question included a “Prefer

not to answer" option in case the respondent might find the question sensitive. The twelfth question was about gender. Two options were provided. This question could be used in our data analysis to find out if there were any relations between gender and other variables.

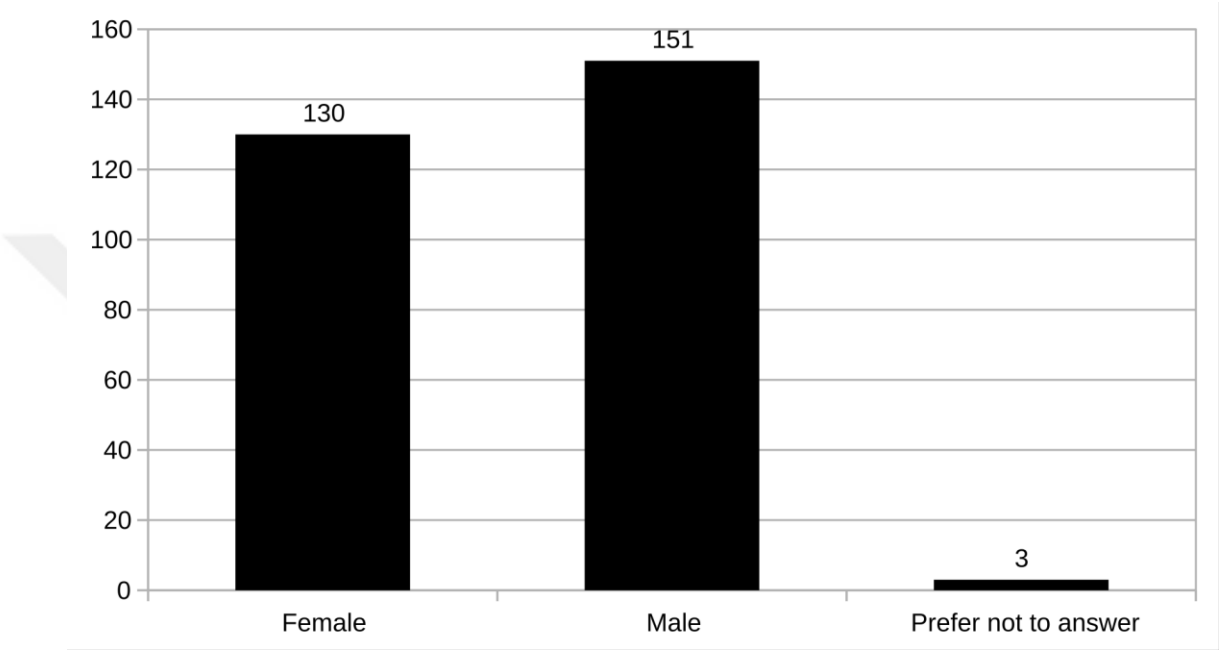

Figure 22. Frequency distribution of Q12.

Q13) Please indicate your age:

- Under 18 years
- 18 to 24 years
- 25 to 44 years
- 45 to 64 years
- 65 years or older
- Prefer not to answer

The thirteenth question was about age. 5 options were provided starting from "Under 18 years" to "65 years or older". Since 25 to 44 years was an important and long time period, we could have divided it into two equal answer choices. This question could

be used in our data analysis to find out if there were any relations between age and other variables.

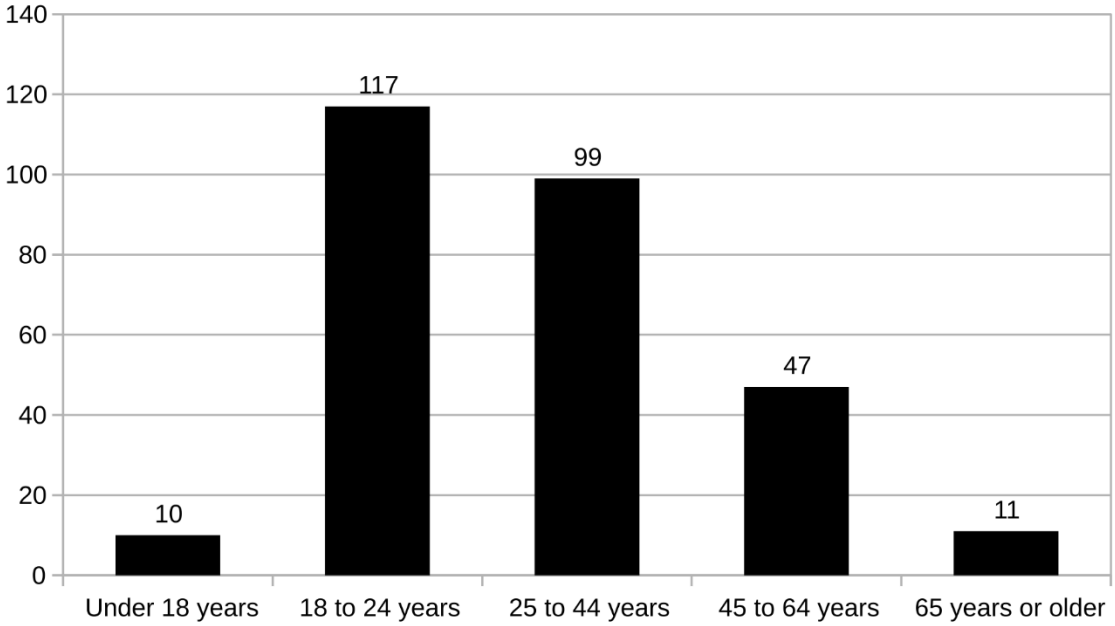

Figure 23. Frequency distribution of Q13.

Q14) Please indicate your annual household income:

- Less than $20,000
- $20,000 to $39,999
- $40,000 to $59,999
- $60,000 to $79,999
- $80,000 to $99,999
- $100,000 or more
- Prefer not to answer

The fourteenth question was about annual income. Six options starting from "Less than $20,000" to "100,000 or more" were provided. We chose increments of $20,000. This question could be used in our data analysis to find out if there were any relations between annual income and other variables.

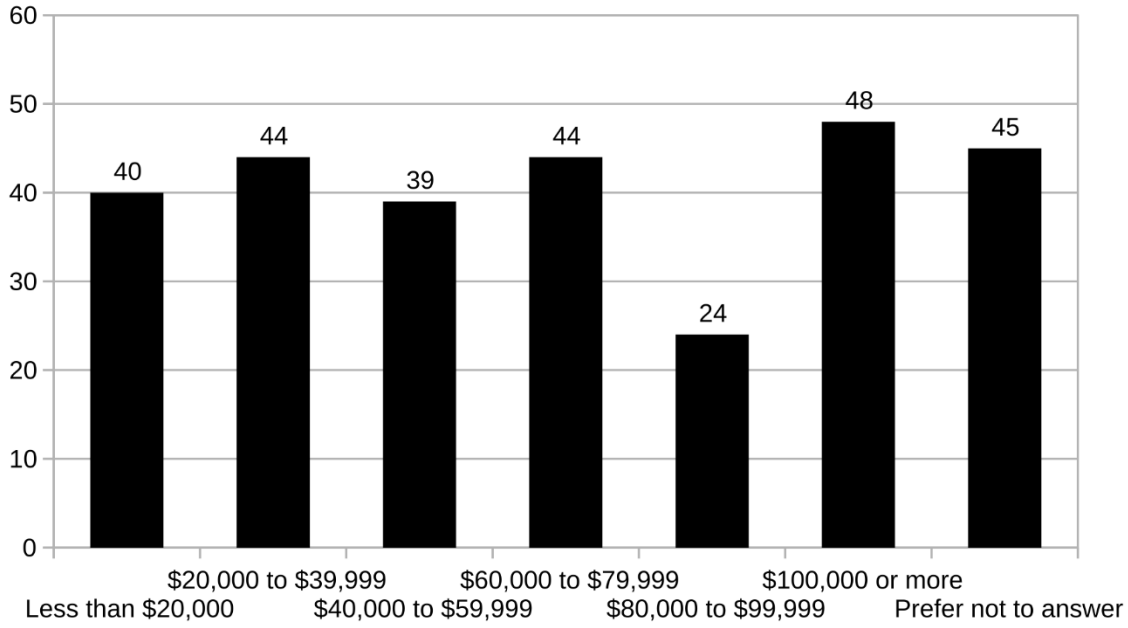

Figure 24. Frequency distribution of Q14.

Q15) Please indicate which of the following best describes your background:

- White or Caucasian
- Black or African American
- Hispanic or Latino
- American Indian or Alaska Native
- Asian or Pacific Islander
- Other
- Prefer not to answer

The final question in our survey was about the race of the respondent. Five race options were listed, in addition, an “Other” option was provided. This question could be used in our data analysis to find out if there were any relations between race and other variables.

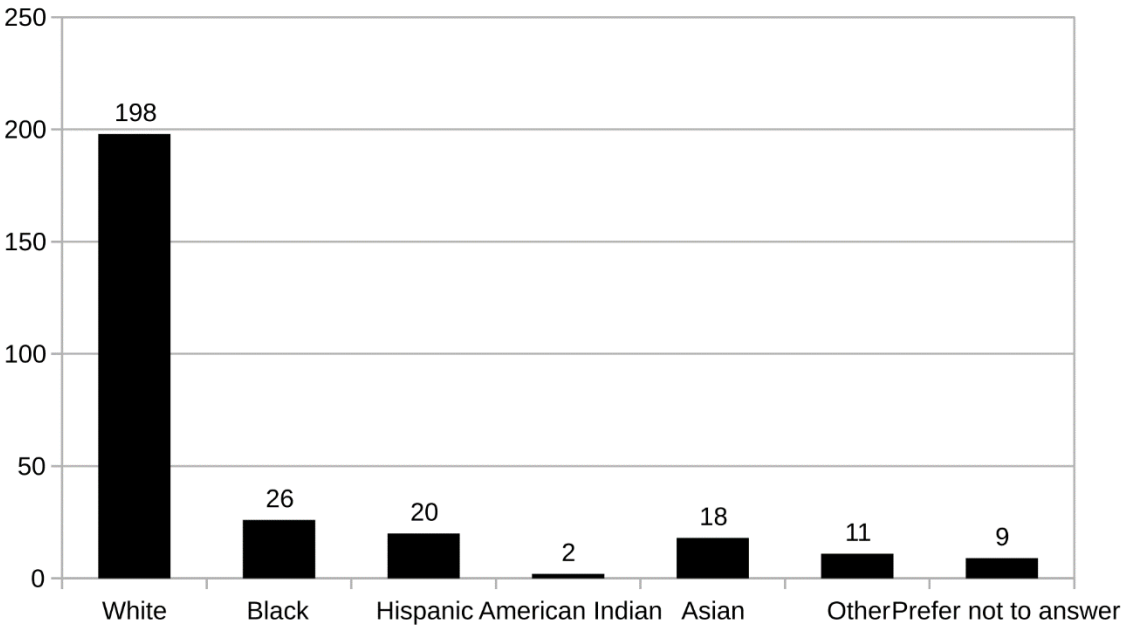

Figure 25. Frequency distribution of Q15.

CHAPTER 5

ANALYSIS OF THE SURVEY AND THE SURVEY QUESTIONS

Analysis of the Survey

This survey aimed informed mobile phone users. It was assumed that respondents had enough knowledge and experience about their phones and mobile phone network providers, and they made buying decisions and were willing to answer our survey questions. Questions were assumed to be self-explanatory and respondents were assumed to understand, analyze and answer all the questions.

Effort

I analyzed the effort required for questions based on three parameters. First, effort index, which is product of number of response choices in the questions and number of questions in the question. Second, reading level based on Dale-Chall readability formula. Third, number of words in the question.

TABLE 1

EFFORT INDEX TABLE

Number of response choices in the question (N1)	Number of questions in the question (N2)	Effort Index (N1 * N2)

Q1	2	1	2
Q2	8	1	8
Q3	5	1	5
Q4	5	9	45
Q5	5	2	10
Q6	6	1	6
Q7	7	1	7
Q8	8	1	8
Q9	10	1	10
Q10	9	1	9
Q11	5	3	15
Q12	3	1	3
Q13	6	1	6
Q14	7	1	7
Q15	7	1	7
Total	93	26	148

From the table above we can see that Q4 required most effort in the survey. Q11 came after Q4 with an effort index of 15, Q5 and Q9 had an effort index of 10. The rest of survey consisted of questions which required lesser effort.

TABLE 2

EFFORT REQUIRED BASED ON ALTERNATIVE CRITERIA

	Number of words	Number of characters	Number of sentences	Average number of word per	Average number of character per	Reading Level (based on Dale–Chall

	in the question	in the question	in the question	sentence in the question	sentence in the question	readability formula)
Q1	6	26	1	6	26	7-8th Grade
Q2	7	49	1	7	49	9-10th Grade
Q3	19	119	1	19	119	College Student
Q4_1	16	91	2	8	46	9-10th Grade
Q4_2	4	33	1	4	33	College Graduate
Q4_3	14	89	2	7	45	11-12th Grade
Q4_4	5	45	1	5	45	College Student
Q4_5	18	105	2	9	53	7-8th Grade
Q4_6	10	49	1	10	49	11-12th Grade
Q4_7	7	43	1	7	43	College Graduate
Q4_8	13	67	1	13	67	7-8th Grade
Q4_9	10	45	1	10	45	< 4th Grade
Q5_1	22	119	1	22	119	11-12th Grade
Q5_2	21	118	1	21	118	College Student
Q6	19	104	1	19	104	College Student
Q7	11	63	1	11	63	9-10th Grade
Q8	16	102	1	16	102	College Graduate
Q9	8	52	1	8	52	College Student
Q10	15	80	2	8	40	5-6th Grade
Q11_1	34	197	2	17	99	11-12th Grade
Q11_2	30	180	2	15	90	11-12th Grade
Q11_3	31	190	2	16	95	11-12th Grade

Q12	4	28	1	4	28	College Student
Q13	4	25	1	4	25	7-8th Grade
Q14	6	45	1	6	45	College Graduate
Q15	10	70	1	10	70	9-10th Grade
Total	360	2134	33	282	1670	

Our survey had 15 questions but some questions consisted of more than one question, respondents had to answer 26 questions in total. Based on Dale–Chall readability formula (1948), there were 4 college graduate and 6 college student reading level questions in the survey. These questions (Q3, Q4_2, Q4_4, Q4_7, Q5_2, Q6, Q8, Q9, Q12 and Q14) can be considered as the most difficult to understand questions in the survey. Rest of the questions could be answered by high school graduates.

Number of words in questions may also have effect on understandability of the questions. More words in a question may increase the level of difficulty of the question. Based on number of words, Q11 was the most difficult (most effort required) question in the survey, followed by Q5. Q1, Q2, Q4_2, Q4_4, Q4_6, Q4_7, Q4_9, Q9, Q12, Q13, Q14, Q15 were the easiest questions of the survey with less than 11 words.

Time

Number of words in the survey may also determine time required for finishing the survey. To read all of the survey questions and response choices, approximately 2 minutes

40 seconds were required. This calculation was based on the average reading speed that is around 200 words per minute (Rayner, Slattery & Bélanger, 2010). In addition, approximately as much time was required to answer all of the questions. Together, a respondent needed five to six minutes to finish the survey.

TABLE 3

SURVEY TIME TABLE

	Time required to read and answer	Percent of total survey completion time
Question 1	2 seconds	0.67%
Question 2	4 seconds	1.34%
Question 3	14 seconds	4.71%
Question 4	68 seconds	22.89%
Question 5	24 seconds	8.08%
Question 6	12 seconds	4.04%
Question 7	22 seconds	7.40%
Question 8	10 seconds	3.36%
Question 9	24 seconds	8.08%
Question 10	16 seconds	5.37%
Question 11	38 seconds	12.79%
Question 12	4 seconds	1.34%
Question 13	12 seconds	4.04%
Question 14	12 seconds	4.04%
Question 15	16 seconds	5.37%

Instructions	19 seconds	6.39%
Total	158 seconds	100%

Time required for reading and answering survey questions can also affect effort required from respondents. Graph above shows effort required based on reading time.

Order of Responses

TABLE 4

ORDER OF RESPONSES TABLE

	Number of Response Choices	Ordering Method
Question 1	2	Positive to Negative
Question 2	8	Alphabetical
Question 3	5	Positive to Negative
Question 4	5	Positive to Negative
Question 5	5	Positive to Negative
Question 6	6	Ascending
Question 7	7	Ascending
Question 8	8	Alphabetical
Question 9	10	Random
Question 10	9	Highest to Lowest Possibility
Question 11	5	Positive to Negative

Question 12	3	Alphabetical
Question 13	6	Ascending
Question 14	7	Ascending
Question 15	7	Highest to Lowest Possibility

Responses were ordered adequately with few exceptions. Response choices of the ninth question could have been ordered alphabetically or thematically. Scaled responses were ordered from positive to negative. They could have been ordered negative to positive.

Data Collection Media

We chose web-based self-administered survey as our main research method for our marketing research project. We assumed that we could reach our target respondents (mobile phone users in Kansas City) via web surveys. However, this assumption had disadvantages in reaching respondents. First, there were potential respondents who did not use the Internet frequently, so they could not see our email invitation or even if they saw it they would not have time to spend on our survey. Second, there were others who did not trust web-based surveys or other kind of transactions because of personal security issues. To solve this problem, we could have used paper-based surveys which also has its own advantages and disadvantages. One of our team members used paper-based surveys and we were able to reach older and wealthier respondents. If there is such need to reach certain type of respondents and web-based surveys are limited for this purpose, then paper-based surveys can also be involved in the project.

Research Objectives

Our client company IBT decision makers would like to better understand who the customers of each network provider were, what elements of the customer experience were the most important in driving customer satisfaction and loyalty and how well each provider was performing on those elements. Every question in the survey was created with these questions in mind and they were satisfactory. There was no unnecessary question in the survey.

Order of Questions

Charts below show the questions based on effort required. Effort Index, reading level, number of words, and reading time were basis for these charts. These charts gave us a chance to see if questions were ordered based on difficulty.

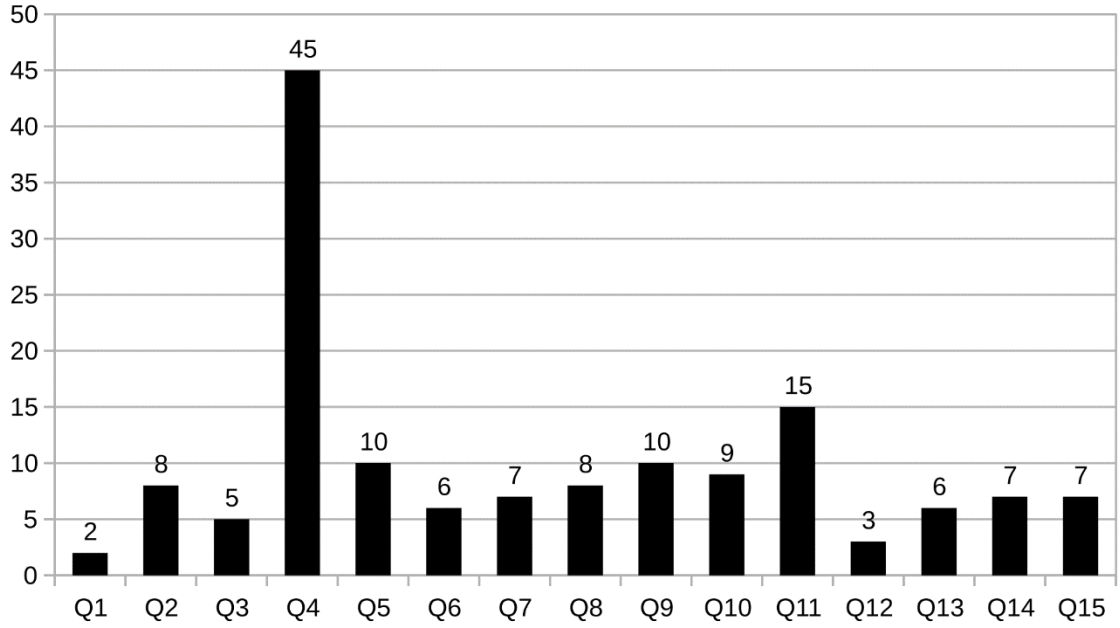

Figure 26. Questions based on effort required (Effort Index).

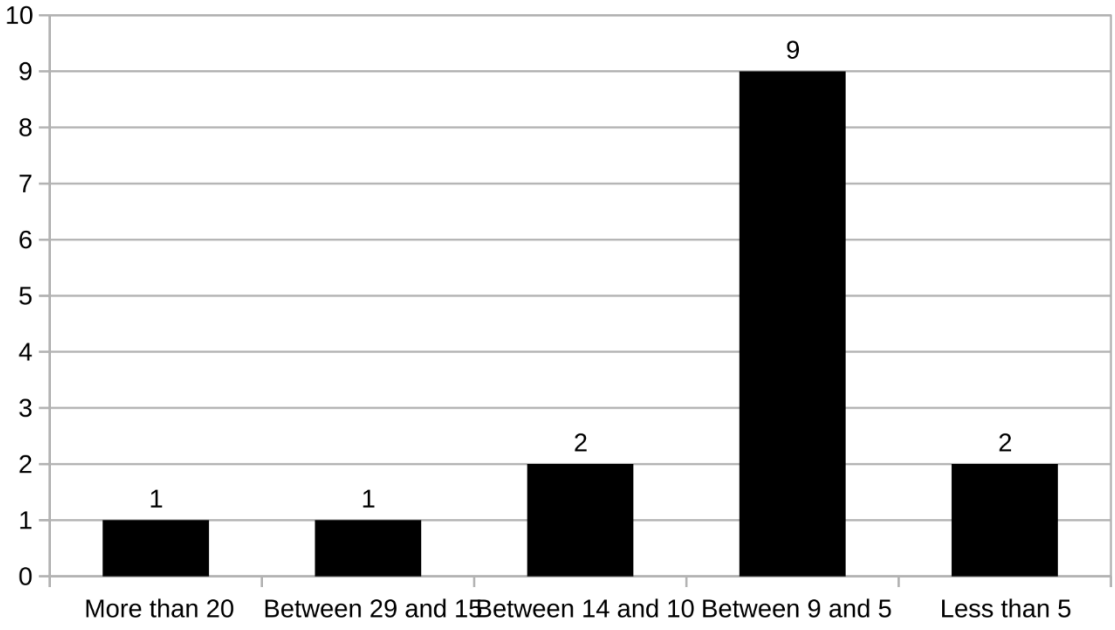

Figure 27. Frequency distribution of questions based on effort required (Effort Index).

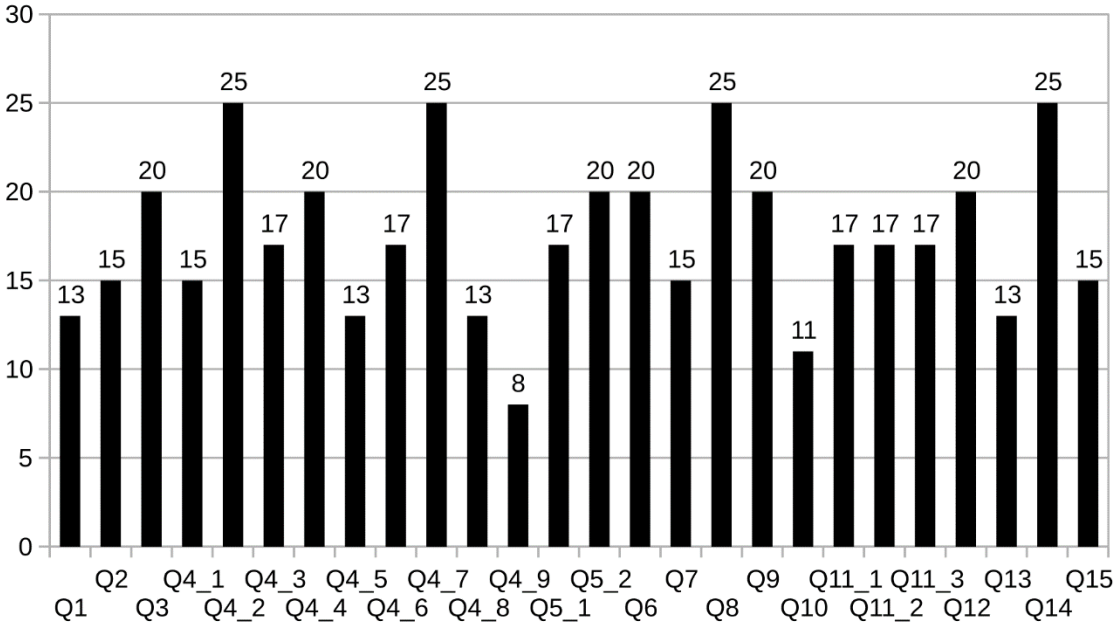

Figure 28. Questions based on effort required (Reading Level).

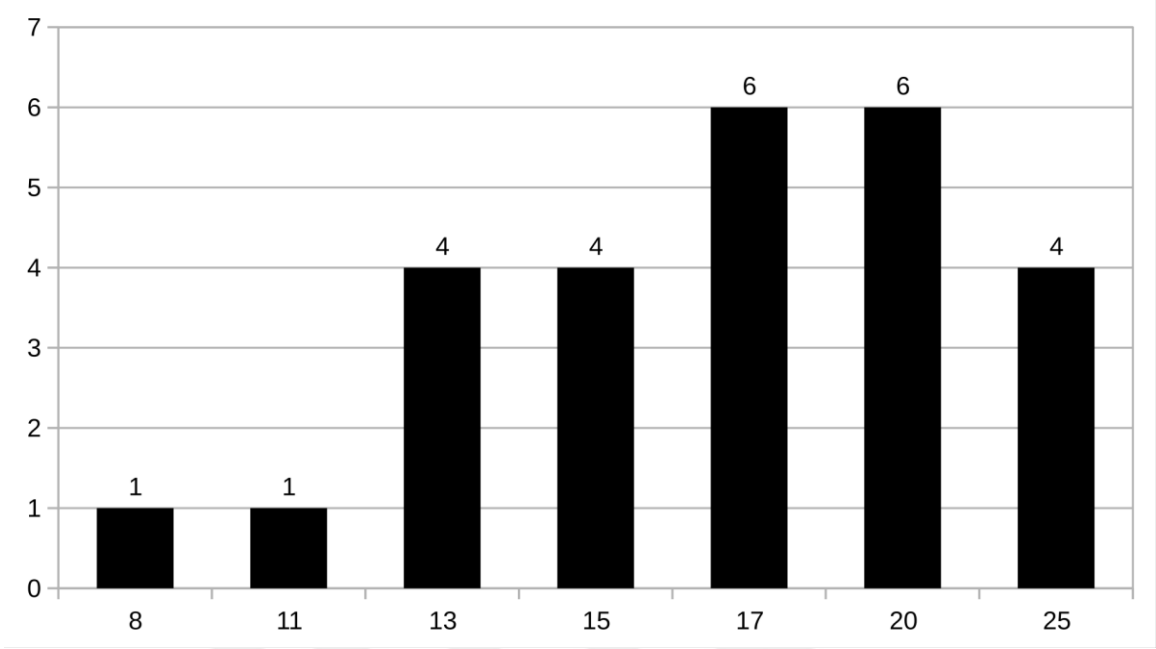

Figure 29. Frequency distribution of questions based on effort required (Reading Level).

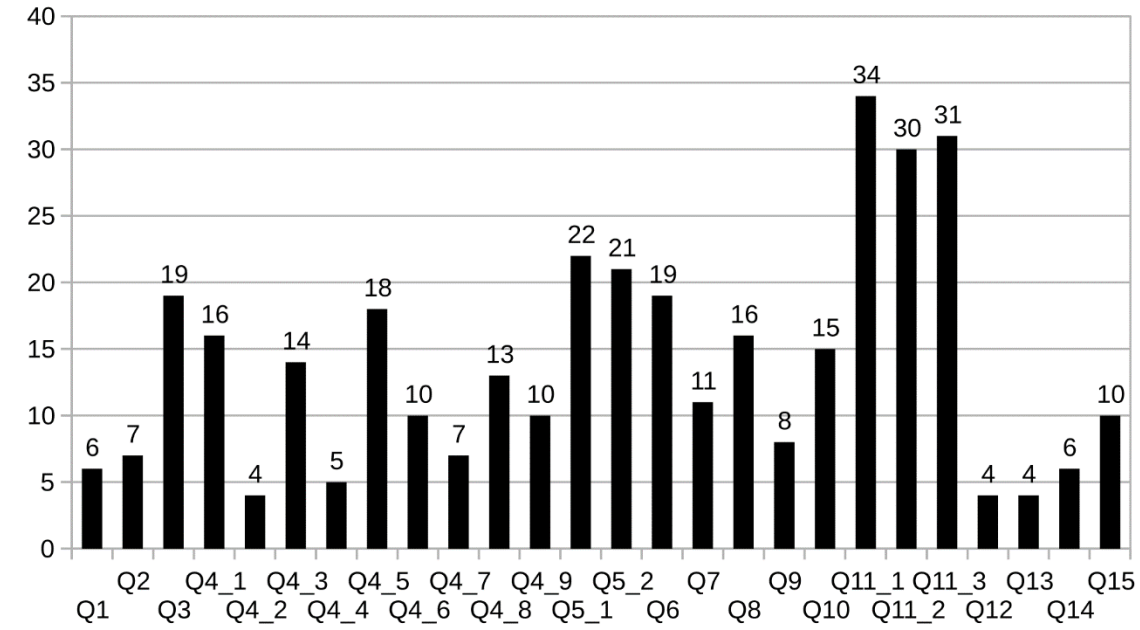

Figure 30. Questions based on effort required (Number of Words).

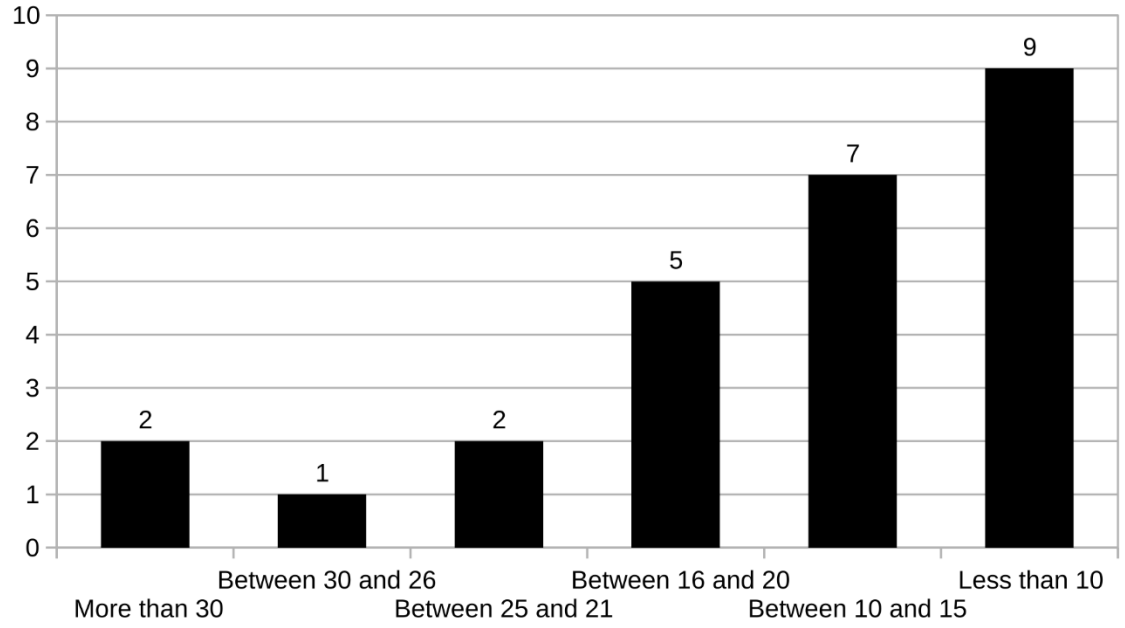

Figure 31. Frequency distribution of questions based on effort required (Number of Words).

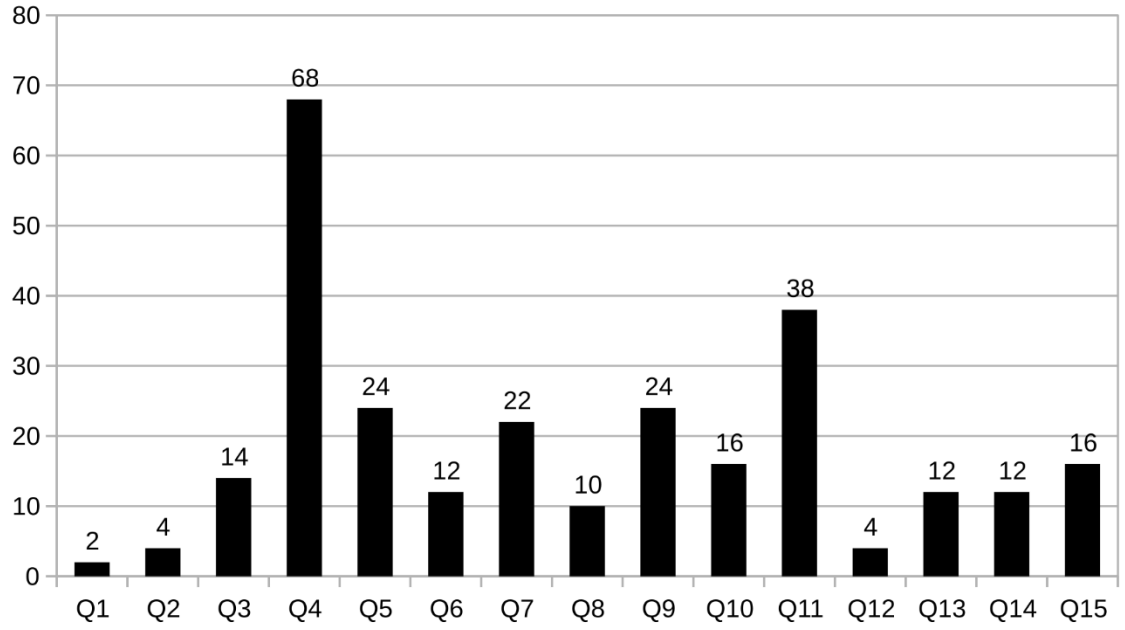

Figure 32. Questions based on effort required (Reading Time).

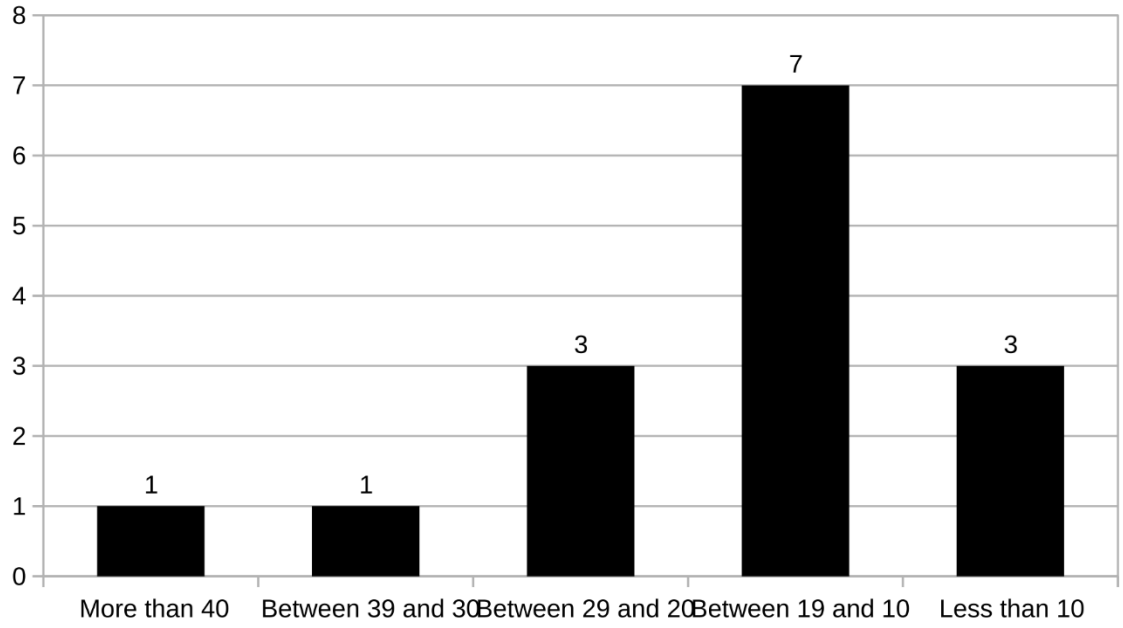

Figure 33. Frequency of distribution of questions based on effort required (Reading Time).

So, our order of questions in the survey was not ideal but also not very far from it. There were more difficult, more time consuming and more demanding questions in the beginning section of the survey. Our survey did not flow as smoothly as possible. To prevent this situation, such questions should be asked later in the survey. This would give respondents time to get acquainted with the survey and get ready for these questions.

Instructions

Instructions on surveys may lead respondents positively and negatively. There was an instruction in the beginning of our survey informing respondents that the survey was for instructive purposes only. So, respondents immediately know that it was not a "real" survey

conducted for “real” companies. This might lead respondents to undervalue of the survey and they might not want to take the survey. To test this assumption, we could create three different versions of the survey with different instruction notes. First would stay the same, second would be same as the first one but include information about Infinity and Beyond Technologies to create a pseudo real atmosphere, and third would hide real purpose and say that it was a “real” survey conducted for “real” companies. After analysis of responses from these three surveys, we could have made a more scientific conclusion on instructions.

Even though it would make questions longer and seem intimidating, before every question a small instruction note could be added. For example, after a question about network data question: “Network data connections affect surfing and downloading speed.” or after a question about network connections “Reliable network means that your network is always ready when you need it” notes could be put. This would inform the respondents what he or she needs to take into consideration in answering this question.

Pretesting

If there was one mistake that we did in our survey design process, it was lacking of pretesting of the survey questions. We could have learned and have benefitted too much from pretesting. For example, after analysis we learned that younger respondents gave high importance to customer service. We did not anticipate that before the survey. If we piloted our survey and saw that, we could have asked one detailed question about customer service to reveal what kind of questions the respondents asked to customer service or what kind of

help the respondents sought for. So, IBT could have known what kind of questions were more important to answer for customer satisfaction.

In addition, we could have seen which questions were left blank most often, how much time the respondent spent on a particular question and inconsistencies in the answers, etc.

Pretesting takes time, it could have taken one or two weeks of our class time which we could not tolerate losing. That was the only reason behind the decision of no pretesting. But, if we had more time, we would definitely have done pretesting.

Layout and Reproduction

Our team used SurveyMonkey, Google Forms to create the survey and I created my own web survey script and used that. Other teams also used similar services. This might have created an inconsistency because of different layouts. Layout has an effect on surveys. Since we all took advantage of professional online survey services and I created my survey based on these, we minimized occurrence of any layout related problems. But still, we can assume that some layouts might seem more professional than others. It might be wiser to stick with one layout and reproduction of the survey.

Context and Purpose

Every question in the survey was about mobile phone usage but the last four questions which were about demographics.

In terms of context and purpose, the survey could be considered as successful. Respondents could trust the survey, see the purpose easily, therefore the survey did not leave suspicious questions in respondents' minds.

Sensitive Information

Demographics questions (Q12, Q13, Q14, Q15) were the only question that could be considered as sensitive questions in the survey. The respondents were informed about the purpose of these questions and every question had a “Prefer not to answer” choice allowing respondents to leave the question blank.

Remembering and Recalling

Question six, seven and eight required respondents to remember and recall information. Respondents might not be able to remember and recall, and they might easily choose the wrong answer. There could be a “Don't Know” or “Don't Remember” option for those respondents. On the other hand, such answer choice might retain respondents to

think about the question and recall it. Instead of it, they might choose the “Don't Know” answer.

In addition, these three questions could be considered as difficult because of the extra effort they required from respondents to remember exact dates, companies, and reasons.

Strengths and Weaknesses of the Survey

Strengths

- We used professional web survey services such as SurveyMonkey.
- Our reproduction and layout was indistinguishable from professional marketing research surveys.
- The survey was short and it only required around five minutes to finish.
- The survey coincided with the objectives of the research project.

Weaknesses

- The survey design process was lacking of pretesting.

Analysis of the Survey Questions

Below is the analysis of survey questions. Analyses come after survey questions. Questions were analyzed using various criteria such as necessity of question, effort required to answer the question, context, order of responses, etc. Not every criteria was used for all of the questions, only most notable ones for the question were used.

Q1) Do you use a mobile phone?

- Yes
- No

If No to Q1, terminate survey.

If Yes to Q1, continue

This question was necessary to be sure that the respondent uses a mobile phone but the question could be asked in a different way. Because we aimed mainly smart phone users, we could have optionally added "smart" to the question. In addition, we could also add "currently" to make sure that the respondent presently use a mobile phone. Finally, we could also add "(cell phone)" because there were respondents who refer mobile phones as cell phones. So, the final form of the question could be "Do you currently use a smart mobile phone (cell phone)?"

Q2) Which company provides your mobile phone service?

- AT&T
- Cricket
- MetroPCS
- Sprint
- T-Mobile
- TracPhone
- Verizon
- Other (please specify):

This question could be shortened into “Which is your mobile phone service provider?” Response choices covered all the important service providers in the USA. Only 3.5% of the respondents chose other.

Order of responses were alphabetically ordered and stayed consistent throughout the whole survey. Company logos could be put next to company names as a visual aid in the hope of decreasing answering time and easing the respondents' job.

Q3) Please rate your overall satisfaction with your mobile phone service provider by placing a mark in the appropriate box.

Very Satisfied	Satisfied	Neither Satisfied nor Dissatisfied	Dissatisfied	Very Dissatisfied

This question also included an instruction note. Respondents were informed about placing a mark in the box. Although this information was necessary, it should not be inside of the question. Instead, instruction note could be put before the question.

The question could be shortened into “Are you satisfied with your mobile phone service provider?”

Q4) Please select how much you agree or disagree with the following statements about your mobile service provider:

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Network data connections are fast. (If you do not use internet on your phone, leave blank.)					
Network connections are reliable.					

The length of contract requirements is reasonable. (If this does not apply, leave blank.)					
Customer service personnel are knowledgeable.					
Customer service personnel are helpful when I have a problem. (If you have not sought help, leave blank.)					
Has a variety of service plans that fit my needs.					
Offers a great selection of mobile devices.					
The people I talk to the most use the same mobile service provider.					
The price of my service plan is a good value.					

This question was the longest, most time consuming, most complicated, most demanding and most difficult question in the survey and it was the fourth question. The question could be moved further back in the survey but that would not be enough.

Respondents saw too many questions at the same time, so his or her answers could be affected by other (previous or next) questions and answers. In addition, there were four different question subjects which also made the question more difficult to answer. Respondents had to think about price, data connections, customer service, service plans, mobile devices, etc. and judge them based on their satisfaction.

That's why this question should be divided into at least four question sections: First two questions together under the title of network, fourth and fifth together under the title of customer service, third, sixth seventh and ninth together under the title of service and eighth question alone.

Instructions could help respondents answer the question. Every question inside of this question could have had short, one sentence instructions to make it clearer.

Q5) What is the likelihood that you will...

	Extremely Likely	Very Likely	Somewhat Likely	Not Very Likely	Not At All Likely
Switch to a different provider in the next 6 months or when your contract expires?					
Recommend your mobile service provider to friends or family in the next 6 months?					

Both of the questions inside of the fifth question was relatively easy to understand and answer. However, because we asked about an assumption neither we nor the respondent could be very sure about the answer.

We had two more assumptions about the answers. First, satisfied customers tend to share their opinions with other customers. Second, unsatisfied customers tend to switch to another provider. This question gave us a chance to test these assumptions.

Q6) How many times in the past 12 months, have you visited a store location of your mobile service provider?

- ○ 0
- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5 or more

Remembering and recalling the answer could be an issue for the respondents for this question. Customers never record their visits to a store and it is very difficult for them

to remember every single visit. That's why this question should be considered as an estimate of number of visits.

Response choices could be changed to 0, 1 or 2 times, 3 or 4 times, 5 or more times. It would make the question easier for the respondent to answer and make the results more reliable for us.

Q7) For how many years have you used your mobile service provider?

- Less than 6 months
- Between 6 months and 1 year
- Between 1 and 2 years
- Between 2 and 4 years
- Between 4 and 7 years
- Between 7 and 10 years
- More than 10 years

If Q7 is greater than 1 year, skip Q8 and Q9.

This was also a difficult question to answer. Respondents may or may not remember exactly how long they have been a customer of the respective company.

In addition, the question was a little vague because respondents might use the same provider for other devices and miscalculate the time. In the question or in an instructional note, it should be noted that the respondent should take into consideration only the time for mobile phone network service.

Finally, this question could also benefit from a “Don't Know” response choice.

Q8) Before using your current mobile service provider, which of these providers did you use most recently?

- AT&T
- Cricket
- MetroPCS
- Sprint

- T-Mobile
- TracPhone
- Verizon
- Other (please specify):

Relative to question six and seven, it seemed as an easier question, because it asked for only a company name. We assumed that it was easier and required less effort to remember the name of a network provider than frequency of visits to a store or relationship length.

Interestingly, this was the question that we had highest rate of non-response. We could not get any information from almost 80% of the respondents. A "Don't Know" answer choice might be helpful for this question, too.

Q9) What was the primary reason for switching providers?

- Speed of cellular connection
- Reliability of cellular connection
- Length of contract requirements
- Knowledge of customer service personnel
- Helpfulness of customer service personnel
- Service plans that fit my needs
- Selection of mobile devices
- Provider my friends/family use
- Price of service plan
- Other (please specify):

This was also an overwhelming questions for our respondents. We received 80% non-response rate. The reason behind this situation might be the number of response choices. There were ten choices which could be reduced to five: "Cellular Connection", "Service Plan and Devices", "Customer Service", "Friends/Family", and "Other". This could help reduce non-response rate.

Another way to reduce non-response rate would be allowing respondents to choose more than one answer and changing “primary reason” to “main reasons” in the question. Both of the methods could have been tried if we had had pretesting.

Q10) Which of the following do you do when using your phone? (Select all that apply.)

- ☐ Talking
- ☐ Text messaging
- ☐ Browse the internet
- ☐ Use social media
- ☐ Play games
- ☐ Pay bills
- ☐ Watch videos
- ☐ Listen to music
- ☐ Other, please specify:_____

The question could be shortened to “What do you do on your phone?” for more simplicity. Additionally, if needed, answer some choices also could be shortened: “Texting”, “Internet Browsing”, “Gaming”, “Social Media”, etc.

We covered most of the answer choices that's why we received very low rate of “Other” responses.

Q11) Please select how much you agree or disagree with the following statements about your usage of mobile technology:

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
I make sure to find out about new technology products as soon as they are released.					
I only buy new technology products from brands that I already use.					

I buy new technology products only after they improve upon the first design.					

This question could be considered as one of the best questions in the survey. Both of the three statements were very easy to understand, they contained familiar and simple words and used simple syntax.

Tell us about yourself. These responses are for classification purposes only.

Q12) Please indicate your gender:

- Female
- Male
- Prefer not to answer

Q13) Please indicate your age:Under 18 years

- 18 to 24 years
- 25 to 44 years
- 45 to 64 years
- 65 years or older
- Prefer not to answer

Q14) Please indicate your annual household income:

- Less than $20,000
- $20,000 to $39,999
- $40,000 to $59,999
- $60,000 to $79,999
- $80,000 to $99,999
- $100,000 or more
- Prefer not to answer

Q15) Please indicate which of the following best describes your background:

- White or Caucasian
- Black or African American
- Hispanic or Latino
- American Indian or Alaska Native
- Asian or Pacific Islander
- Other
- Prefer not to answer

Both of the four questions above were asked to get information about demographics of respondents. They were very easy to answer. Because no remembering or recalling was necessary, the questions required the least effort.

The questions' wording was very understandable, straightforward, and simple. Respondents had a chance to leave the questions blank, so there were no pressure on them.

Strengths and Weaknesses of the Survey Questions

Strengths

■ Always one question was asked. There were no double-barreled questions in the survey.

■ Wording in the survey was nearly excellent with minor flaws.

■ There were no uncessary questions in the survey.

■ All of the questions were contextually bound with the purpose of the survey.

■ Most of the response choices were adequately ordered.

Weaknesses

■ Instructions were insufficient. With adequate instructions, we could have better response rates and more reliable results.

■ Some questions required so much effort while others required almost none.

■ Some questions required remembering and recalling which resulted in high non-response rate.

CHAPTER 6

CONCLUSION

Lessons Learned

Analysis of the survey and the survey questions gave me the opportunity to see what we did right and wrong in our survey design process and I learned important aspects of developing a successful market research survey.

There are six points worth mentioning in the conclusion.

■ Researchers have to gather as much information as they can get about target respondents, especially information about demographics and characteristics of the respondents.

■ The research and business objectives should be determined before the survey design process begin and should not be changed during the survey design.

■ The whole survey and every survey question should be analyzed by different researchers and their feedback should be taken into consideration.

■ The survey should be tested on some respondents before it goes public and the feedback should be used in order to remove flaws of the survey.

■ There are many ways to ask the same question but most of them are not good enough.

■ Researchers should not assume that every respondents is informed and can understand and answer questions in the same way.

APPENDIX A

SAMPLE SURVEY

Thank you for taking the time to provide feedback. Your responses will be used only for instructive purposes by students and faculty in the Bloch School of Management at the University of Missouri - Kansas City.

Q1) Do you use a mobile phone?

- ○ Yes
- ○ No

If No to Q1, terminate survey.

If Yes to Q1, continue.

Q2) Which company provides your mobile phone service?

- ○ AT&T
- ○ Cricket
- ○ MetroPCS
- ○ Sprint
- ○ T-Mobile
- ○ TracPhone
- ○ Verizon
- ○ Other (please specify):

Q3) Please rate your overall satisfaction with your mobile phone service provider by placing a mark in the appropriate box.

Very Satisfied	Satisfied	Neither Satisfied nor Dissatisfied	Dissatisfied	Very Dissatisfied

Q4) Please select how much you agree or disagree with the following statements about your mobile service provider:

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Network data connections are fast. (If you do not use internet on your phone, leave blank.)					
Network connections are reliable.					
The length of contract requirements is reasonable. (If this does not apply, leave blank.)					
Customer service personnel are knowledgeable.					
Customer service personnel are helpful when I have a problem. (If you have not sought help, leave blank.)					
Has a variety of service plans that fit my needs.					
Offers a great selection of mobile devices.					
The people I talk to the most use the same mobile service provider.					
The price of my service plan is a good value.					

Q5) What is the likelihood that you will...

	Extremely Likely	Very Likely	Somewhat Likely	Not Very Likely	Not At All Likely
Switch to a different provider in the next 6 months or when your contract expires?					
Recommend your mobile service provider to friends or family in the next 6 months?					

Q6) How many times in the past 12 months, have you visited a store location of your mobile service provider?

- ○ 0
- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5 or more

Q7) For how many years have you used your mobile service provider?

- ○ Less than 6 months
- ○ Between 6 months and 1 year
- ○ Between 1 and 2 years
- ○ Between 2 and 4 years
- ○ Between 4 and 7 years
- ○ Between 7 and 10 years
- ○ More than 10 years

If Q7 is greater than 1 year, skip Q8 and Q9.

Q8) Before using your current mobile service provider, which of these providers did you use most recently?

- ○ AT&T
- ○ Cricket
- ○ MetroPCS
- ○ Sprint
- ○ T-Mobile
- ○ TracPhone
- ○ Verizon
- ○ Other (please specify):

Q9) What was the primary reason for switching providers?

- ○ Speed of cellular connection
- ○ Reliability of cellular connection
- ○ Length of contract requirements
- ○ Knowledge of customer service personnel
- ○ Helpfulness of customer service personnel
- ○ Service plans that fit my needs
- ○ Selection of mobile devices
- ○ Provider my friends/family use
- ○ Price of service plan
- ○ Other (please specify):

Q10) Which of the following do you do when using your phone? (Select all that apply.)

- □ Talking
- □ Text messaging
- □ Browse the internet
- □ Use social media
- □ Play games
- □ Pay bills
- □ Watch videos
- □ Listen to music
- □ Other, please specify:_____

Q11) Please select how much you agree or disagree with the following statements about your usage of mobile technology:

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
I make sure to find out about new technology products as soon as they are released.					
I only buy new technology products from brands that I already use.					
I buy new technology products only after they improve upon the first design.					

Tell us about yourself. These responses are for classification purposes only.

Q12) Please indicate your gender:

- Female
- Male
- Prefer not to answer

Q13) Please indicate your age:

- Under 18 years
- 18 to 24 years
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- 45 to 64 years
- 65 years or older
- Prefer not to answer

Q14) Please indicate your annual household income:

- Less than $20,000
- $20,000 to $39,999
- $40,000 to $59,999
- $60,000 to $79,999
- $80,000 to $99,999
- $100,000 or more
- Prefer not to answer

Q15) Please indicate which of the following best describes your background:

- White or Caucasian
- Black or African American
- Hispanic or Latino
- American Indian or Alaska Native
- Asian or Pacific Islander
- Other
- Prefer not to answer

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VITA

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