Research Methods & Technical Writing

Lesson 6 - Week 6

Data collection methods

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Flashback from Lesson 5

- Measurement scales include categorical (qualitative) or numerical (quantitative) data. Categorical data may be either ordinal or nominal. Numerical data may be either discrete or continuous; further they are classified as being interval or ratio.
- Sources of error in measurement are attributed to four sources: the respondent, the interviewer, the instrument (i.e., the survey questionnaire), and the mode of data collection.
- For a measurement instrument to be accepted as being of the required standard to fulfill the needs of the research it must pass three tests; these are the tests of validity, reliability and practicality.
- The technique of developing measurement tools involves a four-stage process: Concept development, specification of concept dimensions, selection of indicators, and formation of index.
- Scales can be developed using any of the following techniques: arbitrary approach, consensus approach, item analysis approach, cumulative scales and factor scales.
- Scaling techniques can be broadly classified as being either comparative or non-comparative. For comparing two or more variables, a comparative scale is used by the respondents. A non-comparative scale is used to analyze the performance of an individual product or object on different parameters.

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Part 1

Introduction

Introduction

- How are you finding the course so far? We are at the halfway point, can you believe it? So, what have we learnt as far as research methods are concerned?
- We have learnt how to clearly define the research problem, how to formulate both the research design and sampling design, and learnt the measuring and scaling techniques.
- What next? We must now collect the data. This presents us with many questions as well as choices. For instance exactly which data am I collecting for my research and how will I go about it? Do I need to collect data in person or is there existing data out there that can be used for the purposes of answering my research question?
- Secondly and more importantly which data collection tool should I use for my research? As we discussed earlier on in the course, research is not a one size fits all phenomena; the approach used in one research does not work for all other researches. Therefore, careful thought needs to be taken in the choice of data collection tool.
- In this lesson we discuss the different ways available to collect data the issues surrounding them. We also discuss how to determine the best data collection tool for the purpose of your study, as well as data collection best practices.

1.2 Challenges of data collection

- Some of the challenges in data collection are (Simplilearn, 2021):
- Data quality issues: the quality of the data is key, especially since this is the data that will be analyzed and inferences drawn therefrom. Some of the quality issues include the following:
- Inconsistent data - when working with various data sources, it's conceivable that the same information will have discrepancies between sources. The differences could be in formats, units, or occasionally spellings. The introduction of inconsistent data might also occur during firm mergers or relocations. Inconsistencies in data have a tendency to accumulate and reduce the value of data if they are not continually resolved.
- Data downtime – this happens when the data is not prepared or unreliable.
- Ambiguous data – this can happen due to spelling or formatting mistakes which make the data ambiguous or not easy to understand.
- Duplicate data – this happens when there is more than one source of data being utilized and the overlapping data can create problems in both collection as well as analysis…..(cont'd)

1.2 Challenges of data collection (cont'd)

- Data overload – when there's too much data it takes longer to organize; also there is the possibility that some important information may be overlooked.
- Data inaccuracies - Data inaccuracies can be attributed to a number of things, including data degradation, human mistake, and data drift. Worldwide data decay occurs at a rate of about 3% per month, which is quite concerning. Data integrity can be compromised while being transferred between different systems, and data quality might deteriorate with time.
- Finding relevant data
- Deciding which data to collect - We must choose the subjects the data will cover, the sources we will be used to gather it, and the quantity of information we will require.
- Low responses from respondents
- Emerging issues such as big data

1.3 Steps in data collection

- The key steps in data collection are as follows (Simplilearn, 2021):
- Decide what data you wish to gather - We must choose the subjects the data will cover, the sources we will use to gather it, and the quantity of information that we would require.
- Establish a deadline for data collection - We should set a deadline for our data collection at the outset of our planning phase.
- Choose a data selection approach - We will select the data collection technique that will serve as the foundation of our data gathering plan at this stage. We must take into account the type of information that we wish to gather, the time period during which we will receive it, and the other factors we decide on to choose the best gathering strategy.
- Gather information – this is when we go out to gather information based on our data collection plan.
- Examine the information and apply the findings - examine our data and arrange our findings after we have gathered all of our information.

Part 2

Primary data collection

2.1 Introduction

- (Formplus Blog, 2019) describe primary data collection as "the gathering of raw data collected at the source. It is a process of collecting the original data collected by a researcher for a specific research purpose."
- There are several ways of collecting primary data. Formplus blog (2019) divide these data collection methods according to the type of research, namely qualitative or quantitative methods:
  - Qualitative methods – data collection techniques include interviews, online forums, groups, online communities and web survey chats.
  - Quantitative methods – face to face interviews, online, mail, and phone.
- Traditionally most literature focus on some data collection tools while not dwelling on others; the reason for this is that most tools build up from the original data collection tools, thus having knowledge of these actually enable you to understand how to use the rest. Kothari (2004) describe the following data collection tools: observation method, interview method, through questionnaires, through schedules, and other methods which include warranty cards; distributor audits; pantry audits; consumer panels; using mechanical devices; through projective techniques; depth interviews, and content analysis.
- Due to time and space constraints we shall discuss the main data collection tools in detail, while only mentioning the rest.

2.2 Observation

- The term **observational research** is used to refer to several different types of non-experimental studies in which behavior is systematically observed and recorded. The goal of observational research is to describe a variable or set of variables. More generally, the goal is to obtain a snapshot of specific characteristics of an individual, group, or setting. As described previously, observational research is non-experimental because nothing is manipulated or controlled, and as such we cannot arrive at causal conclusions using this approach. The data that are collected in observational research studies are often qualitative in nature but they may also be quantitative or both (mixed-methods). (Pressbooks, 2017)
- This data collection method is classified as a participatory study, because the researcher has to immerse herself in the setting where her respondents are, while taking notes and/or recording. Observation data collection method may involve watching, listening, reading, touching, and recording behavior and characteristics of phenomena. (Dudovskiy, 2019a).

2.2 Observation (cont'd)

- Observation involves three processes namely sensation, attention, and perception. Sensation is gained through the sense organs which depend upon the physical alertness of the observer. The sense organs are receptive to stimuli and get attracted leading to the first stage in observation. Then comes attention or concentration which is largely a matter of commitment and will-power. Adequate training and experience can make it almost a matter of habit. The third is perception which comprises the interpretation of sensory reports. Thus, sensation merely reports the facts as observed but perception enables the mind to recognize the facts. Through this process, observation serves the purpose of (i) studying collective behavior and complex social situations; (ii) following up of individual units composing the situations; (iii) understanding the whole and the parts in their interrelation; (iv) getting the out of the way details of the situation. (Francis, 2012)
- The observation technique is used mostly in the social sciences and is thus a technique associated mostly with qualitative research (in some instances it is used where a mixed approach is more practical). This technique presents the following advantages and disadvantages.

2.2.1 Advantages

- The advantages of observation technique are (iEduNote, 2020):
- **Directness -** The main advantage of observation is its directness. We can collect data at the time they occur. The observer does not have to ask people about their behavior and reports from others.
- **Natural environment -** Whereas other data collection techniques introduce artificiality into the research environment, data collected in an observation study describe the observed phenomena as they occur in their natural settings.
- **Longitudinal analysis -** Since the observation can be conducted in a natural setting, the observer can conduct his or her study over a much longer period than the survey or experiment.
- **Non-verbal behavior -** Observation is decidedly superior to survey research, experimentation, or document study for collecting data on nonverbal behavior. Some studies focus on individuals who cannot give verbal reports or articulate themselves meaningfully. For these subjects, the observational method is indispensable. These include children, crippled, and mentally and physically handicraft people.

2.2.2 Disadvantages

- The disadvantages of observation technique are (iEduNote, 2020):
- **Lack of control -** Despite the advantage of the natural environment, the observation study has little control over extraneous variables that may affect the data. The presence of a stranger (the observer) and the error involved in human observation and the recording of data, which may remain out of the observer's control, are likely to bias the observations greatly.
- **Difficulties in quantification -** Measurement in observational studies generally takes the form of the observer's un-quantified perceptions rather than the quantitative measures often used in the survey and experimental studies.
- **Smallness in sample size -** Because observational studies are generally conducted in-depth, with data that are often subjective and difficult to quantify, the sample size is usually kept at a minimum. Also, the in-depth nature of the observation studies generally requires that they are conducted over an extended period than the survey method or experiments. This feature tends to limit the size of the sample.
- **No opportunity to learn past -** In an observational study, there is no way to know the past. It is also difficult to gather information on intentions, opinions, attitudes, or preferences.

2.2.2 Disadvantages

- Further this technique can generate quantitative or qualitative data but tends to be used more for small-scale exploratory studies than large-scale quantitative studies. This is because it usually requires:
  - Relatively highly skilled observers and analysts
  - Prolonged periods of observation
  - High cost per unit of observation.

2.2.3 Types of observation methods

- . Francis (2012) describes six different types of observation methods:"
- **Casual and Scientific Observation -** Casual observation occurs without any previous preparation. It is a matter of chance that the right thing is observed at the right time and in the right place. Scientific observation, on the other hand, is carried out with due preparations and is done with the help of right tools of measurement, experienced enumerators and under able guidance. Scientific observations yield thorough and accurate data.
- **Simple and Systematic Observation -** Simple Observation. is found in almost all research studies, at least in the initial stages of exploration. Its practice is not very standardized. It befits the heuristic nature of exploratory research. Participant studies are also usually classified as simple observation because participant roles do not permit systematic observation. Systematic observation, on the other hand, employs standardized procedures, training of observers, schedules for recording and other devices to control the observer sometimes even the subject.
- **Subjective and Objective Observations -** In every act of observation there are two components namely, the object (or what is observed) and the subject (or the observer). It may be that some times one may have to observe one's own immediate experience. That is called Subjective Observation or Self-Observation or introspection (*or participant observation*). Prejudices and biases are generally parts of subjective observation…(cont'd)

2.2.3 Types of observation methods

- **…(cont'd):**
- **Factual and Inferential Observation -** In factual observation things or phenomena observed with naked eyes are reported. In inferential observation behavior or psychological aspects are observed.
- **Direct and Indirect Observation -** In the case of direct Observation the observer is physically present and personally monitors what takes place. This approach is very flexible of events and behavior as they occur. He is also free to shift places, change the focus of the observation, on concentrate unexpected events if they should occur. In indirect observation recording is done by mechanical, photographic or electronic means.

2.2.3 Types of observation methods

- **Behavioral and Non-behavioral Observations -** Observation may be either behavioral or non-behavioral. As pointed earlier the concept of observation involves not only watching but also listening and reading. Thus, observation includes the full range of monitoring behavioral and non-behavioral activities and conditions. Non-verbal analysis, linguistic analysis, extra-linguistic analysis and spatial analysis are the four major categories of behavioral observational study of persons. Record analysis, physical condition analysis and physical process analysis are the three major categories of non-behavioral study of persons. Non-verbal behavioral observation includes observation of body movement, motor expressions and even exchanged glances. Body movement, is an indicator of interest or boredom, anger or pleasure in a certain environment. Motor expressions such as facial movements can be observed as a sign of emotional studies. For instance, eye-blink rates are studied as indicators of interest in advertising messages. Finally, exchanged glances might be of interest in studies of interpersonal behavior. Linguistic behavior is a second frequently used from of behavioral observation. One simple type, familiar to most students, is the tally of 'ahs' (or other annoying words or sounds) that a professor emits during a class.

2.2.3 Types of observation methods

- In the psychology domain observations are classified as (Pressbooks, 2017): naturalistic (observing people's behavior in the environment in which it typically occurs), participant observation (researchers become active participants in the group or situation they are studying), structured (investigator makes careful observations of one or more specific behaviors in a particular setting that is more structured than the settings used in naturalistic and participant observation) and case study (an in-depth examination of an individual).
- Kothari (2004) describes controlled and uncontrolled observations. "If the observation takes place in the natural setting, it may be termed as uncontrolled observation, but when observation takes place according to definite pre-arranged plans, involving experimental procedure, the same is then termed controlled observation. In non-controlled observation, no attempt is made to use precision instruments…The main pitfall of non-controlled observation is that of subjective interpretation. There is also the danger of having the feeling that we know more about the observed phenomena than we actually do. Generally, controlled observation takes place in various experiments that are carried out in a laboratory or under controlled conditions, whereas uncontrolled observation is resorted to in case of exploratory researches."

2.3 Interviews

- The interview method of collecting data involves presentation of oral-verbal stimuli and reply in terms of oral-verbal responses. This method can be used through personal interviews and, if possible, through telephone interviews. (Kothari, 2004)
- Seven interviewing methods in research have been described by (Indeed Editorial team, 2023): "
- **Focus group -** One popular research interview method is conducting a focus group interview, which involves a group of individuals interviewed at the same time. Focus group moderators usually encourage participants to interact with one another, and they observe the group to gain insights into real attitudes and perspectives.
- **Structured interview -** Structured interviews are another option. Typically, structured interviews comprise closed-ended questions, which are questions that respondents can answer with "yes" or "no." The interviewer usually asks the exact same questions in the same order to each interviewee.
- **Unstructured interview -** An unstructured interview, also called an informal interview, is the opposite of a structured interview. In unstructured interviews, the interviewer doesn't ask standardized questions of each interviewee. Instead, unstructured interviews rely on open-ended questions …..(cont'd)

2.3 Interviews (cont'd)

- …(cont'd):
- **Semi-structured interview -** You can also use a semi-structured interview method, which combines pieces of both structured and unstructured interviews. Although interviewers might follow a general plan and set of questions, they often have the flexibility to make changes.
- **Personal interview -** A personal interview takes place in person as a one-on-one interaction between an interviewer and an interviewee. Personal interviews are ideal if you want to speak directly to an individual and cater your questions to them.
- **Phone interview -** You can also conduct interviews over the phone. Phone interviews can be an easy way to gather responses. This interview method is also relatively inexpensive, making it ideal if you want to collect data quickly without expending too many resources.
- **Online interview -** Online interviews are another research interview option. Online interviews can involve surveys or video chat applications. In this method, interviewers and interviewees don't have to be in the same location at the same time. This can allow you to collect data quickly from a large group of subjects.

2.3 Interviews (cont'd)

- Further (Virginia Tech, 2018) suggest the following steps in interviews:
- Design interview questions
  - Think about who you will interview
  - Think about what kind of information you want to obtain from interviews
  - Think about why you want to pursue in-depth information around your research topic
- Develop an interview guide
  - Introduce yourself and explain the aim of the interview
  - Devise your questions so interviewees can help answer your research question
  - Have a sequence to your questions / topics by grouping them in themes
  - Make sure you can easily move back and forth between questions / topics
  - Make sure your questions are clear and easy to understand
  - Do not ask leading questions

2.3 Interviews (cont'd)

- Plan and manage logistics
  - Do you want to bring a second interviewer with you?
  - Do you want to bring a notetaker?
  - Do you want to record interviews? If so, do you have time to transcribe interview recordings?
  - Where will you interview people? Where is the setting with the least distraction?
  - How long will each interview take?
  - Do you need to address terms of confidentiality?

2.4 Questionnaires

- This is arguably the most popular way of data collection, especially where big inquiries are concerned. The questionnaire is usually sent (by post, or in today's digital world by email) to the respondents with a request for them to fill it in and return it to the sender.
- The questionnaire consists of a set of questions printed in a certain order and these will be read and filled out by the respondents. Naturally a lot of thought regarding the order and the type of questions to put in the questionnaire is in order.
- As the term generally used. in educational researches, "the questionnaire consists of a sense of questions or statements to which individuals are asked to respond the questions frequently asked for facts or the opinions, attitudes or preferences of the respondents." (Singh, 2006)

2.4.1 Advantages

- The advantages of using questionnaires are described by Kothari (2004) as follows:"
- There is low cost even when the universe is large and is widely spread geographically.
- It is free from the bias of the interviewer; answers are in respondents' own words.
- Respondents have adequate time to give well thought out answers.
- Respondents, who are not easily approachable, can also be reached conveniently.
- Large samples can be made use of and thus the results can be made more dependable and reliable.
- Other advantages include:
- Respondent anonymity (Cleave, 2021)
- Data accuracy (especially with online questionnaires) (Cleave, 2021)
- Uniformity: all respondents are asked exactly the same questions (Dudovskiy, 2019b)
- Possibility to reach respondents in distant areas through online questionnaire (Dudovskiy, 2019b)

2.4.2 Disadvantages

- The disadvantages of questionnaires are (Kothari, 2004):
- Low rate of return of the duly filled in questionnaires; bias due to no-response is often indeterminate.
- It can be used only when respondents are educated and cooperating.
- The control over questionnaire may be lost once it is sent.
- There is inbuilt inflexibility because of the difficulty of amending the approach once questionnaires have been despatched (sic).
- There is also the possibility of ambiguous replies or omission of replies altogether to certain questions; interpretation of omissions is difficult.
- It is difficult to know whether willing respondents are truly representative.
- This method is likely to be the slowest of all (perhaps with the exception of online questionnaires).

2.4.3 Characteristics of a good questionnaire

- The following 10 are the characteristics of a good questionnaire (Singh, 2006):
- 1. The covering letter of the questionnaire is drafted in a befriending tone and indicates its importance to the respondents.
- 2. The questionnaire contains directions which are clear and complete. Important items are clearly defined and each question deals with a single idea defined in unambiguous terms.
- 3. It is reasonable short, through comprehensive enough to secure all relevant information.
- 4. It does not seek information which may be obtainable from other sources such as school records and University results.
- 5. It is attractive in appearance, neatly arranged, clearly duplicated and free from typographical errors.

2.4.3 Characteristics of a good questionnaire

- 6. It avoids annoying or embracing questions, which arouse hostility in the respondent.
- 7. Items are arranged in categories which ensure easy and accurate responses.
- 8. Questions do not contain leading suggestions for the respondents and are objective in nature.
- 9. They are arranged in good order. Simple and general questions should precede the specific and complex ones. Questions that create favorable atmosphere should precede those that are personal and touch delicate points.
- 10. They are so worded, that it is easy to tabulate and interpret the responses. It is always advisable to base them upon a preconceived tabulation sheet.

2.4.4 Types of questionnaires

- (Dudovskiy, 2019b) describes 4 types of questionnaires:"
- **Computer questionnaire**. Respondents are asked to answer the questionnaire which is sent by mail. The advantages of the computer questionnaires include their inexpensive price, time-efficiency, and respondents do not feel pressured, therefore can answer when they have time, giving more accurate answers. However, the main shortcoming of the mail questionnaires is that sometimes respondents do not bother answering them and they can just ignore the questionnaire.
- **Telephone questionnaire**. Researcher may choose to call potential respondents with the aim of getting them to answer the questionnaire. The advantage of the telephone questionnaire is that, it can be completed during the short amount of time. The main disadvantage of the phone questionnaire is that it is expensive most of the time. Moreover, most people do not feel comfortable to answer many questions asked through the phone and it is difficult to get sample group to answer questionnaire over the phone.
- **In-house survey**. This type of questionnaire involves the researcher visiting respondents in their houses or workplaces. The advantage of in-house survey is that more focus towards the questions can be gained from respondents. However, in-house surveys also have a range of disadvantages which include being time consuming, more expensive and respondents may not wish to have the researcher in their houses or workplaces for various reasons….(cont'd)

2.4.4 Types of questionnaires

- **..(cont'd)..Mail Questionnaire**. This sort of questionnaires involve the researcher to send the questionnaire list to respondents through post, often attaching pre-paid envelope. Mail questionnaires have an advantage of providing more accurate answer, because respondents can answer the questionnaire in their spare time. The disadvantages associated with mail questionnaires include them being expensive, time consuming and sometimes they end up in the bin put by respondents."
- A new and emerging popular questionnaire type similar to the computer questionnaire is the **online questionnaire**. With this type of questionnaire a user is sent a link that redirects them directly to the page where the questionnaire is (usually a form). They then fill it out and just click the submit button.

2.4.5 Types of questions

- Questionnaires include the following types of questions:
- Open ended question: this question does not restrict the respondent to a predefined answer. It is left blank (open) for the respondent to fill in the answer that they want; the respondent is thus encouraged to share their thoughts freely and openly.
- Example:
- What is the most important lesson you've learned so far? _____
- What do you think about our new logo? _____
- How does our product help you to meet your goals? _____
- (Blog, 2022)

2.4.5 Types of questions

- Close ended question: this type are used mostly in quantitative studies as they allow for collection of statistical information from respondents. The questions are restrictive in that the respondent has to pick from a selection of predetermined answers.
- Example:
- 1. How do you start your day?
  - With coffee
  - With exercises
  - With meditation
- (Blog, 2022)

2.4.5 Types of questions

- Dichotomous questions: These type of questions gives two options to respondents to choose from
- Example:
- 1. Would you like to have something to drink?
  - Sure
  - Not at all
- 2. Did you enjoy this training?
  - Yes
  - No
- (Blog, 2022)
- Scaling questions: Also referred to as ranking questions, they present an option for respondents to rank the available answers to questions on the scale of given range of values (for example from 1 to 10). (Dudovskiy, 2019b) Fig 1 shows an example of scaling questions (Likert scale), while fig 2 shows an example of both Likert scale and rating scale.

Some examples of "Likert- Type" Scales

	Never	Sometimes	Often	Always
I order at least one meal from an online food delivery app.	1	2	3	4

	Never	Sometimes	Often	Always
I use the product on a monthly basis.	1	2	3	4

	Never	Sometimes	Often	Always
I drink coffee from cafés at least once a day.	1	2	3	4

Fig 1. Example Likert-type scale.
Source: https://qualaroo.com/blog/likert-scale/

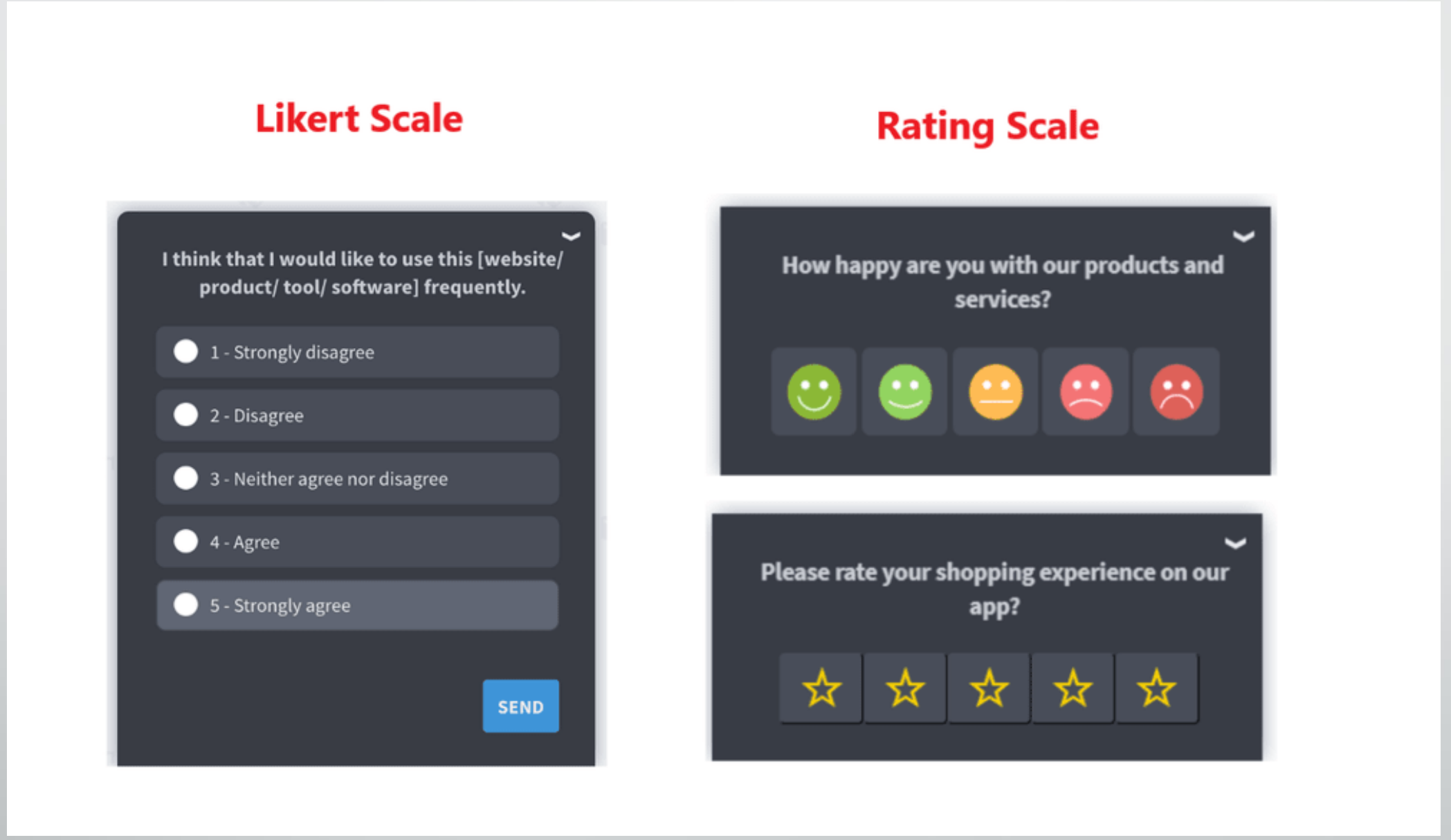

Fig 2. Likert scale and rating scale
Source https://qualaroo.com/blog/likert-scale/

2.4.6 Guidelines for creating a good questionnaire

- (Juneja, 2015) provides a 11 point guideline for the design of a good questionnaire:"
- A good questionnaire should not be too lengthy. Simple English should be used and the question shouldn't be difficult to answer. A good questionnaire requires sensible language, editing, assessment, and redrafting.
- **State the information required-** This will depend upon the nature of the problem, the purpose of the study and hypothesis framed.
- **State the kind of interviewing technique-** interviewing method can be telephone, mails, personal interview or electronic interview
- **Decide the matter/content of individual questions-** There are two deciding factors for this: Is the question significant?, and Is there a need for several questions or a single question?

2.4.6 Guidelines for creating a good questionnaire

- **Overcome the respondents' inability and unwillingness to answer-** in order to address this:
- Place the sensitive topics at the end of the questionnaire
- Preface the question with a statement
- Use the third person technique (For example - Mark needed a job badly and he used wrong means to get it - Is it right?? Different people will have different opinions depending upon the situation)
- Categorize the responses rather than asking a specific response figure (For example - Group for income levels 0-25000, 25000-50000, 50000 and above)
- **Decide on the structure of the question-** whether structured (close ended) or unstructured (open ended).
- **Determine the question language/phrasing-** If the questions are poorly worded, then either the respondents will refuse to answer the question or they may give incorrect answers.

2.4.6 Guidelines for creating a good questionnaire

- **Properly arrange the questions-** To determine the order of the question, take decisions on aspects like opening questions (simple, interesting questions should be used as opening questions to gain co-operation and confidence of respondents), type of information (Basic information relates to the research issue, classification information relates to social and demographic characteristics, and identification information relates to personal information such as name, address, contact number of respondents), difficult questions (complex, embarrassing, dull and sensitive questions could be difficult), effect on subsequent questions, logical sequence, etc.
- **Recognize the form and layout of the questionnaire-** This is very essential for self-administered questionnaire. The questions should be numbered and pre-coded. The layout should be such that it appears to be neat and orderly, and not clattered.
- **Reproduce the questionnaire-** Paper quality should be good. Questionnaire should appear to be professional. The required space for the answers to the question should be sufficient. The font type and size should be appropriate.

2.4.6 Guidelines for creating a good questionnaire

- **Pre-test the questionnaire-** The questionnaire should be pre-tested on a small number of respondents to identify the likely problems and to eliminate them. Each and every dimension of the questionnaire should be pre-tested. The sample respondents should be similar to the target respondents of the survey.
- **Finalize the questionnaire-** Check the final draft questionnaire. Ask yourself how much will the information obtained from each question contribute to the study. Make sure that irrelevant questions are not asked. Obtain feedback of the respondents on the questionnaire.

2.5 Other data collection methods

- Other primary data collection methods worth mentioning but which won't be covered in detail in this course include:
  - Warranty cards
  - Distributor or store audits
  - Pantry audits:
  - Consumer panels
  - Use of mechanical/electronic devices
  - Projective techniques
  - Depth interviews: Depth interviews are those interviews that are designed to discover underlying motives and desires and are often used in motivational research. Such interviews are held to explore needs, desires and feelings of respondents. In other words, they aim to elicit unconscious as also other types of material relating especially to personality dynamics and motivations.
  - Content-analysis

Part 3

Secondary data collection

3.1 Introduction

- "Secondary data is a type of data that has already been published in books, newspapers, magazines, journals, online portals etc. There is an abundance of data available in these sources about your research area in business studies, almost regardless of the nature of the research area. Therefore, application of appropriate set of criteria to select secondary data to be used in the study plays an important role in terms of increasing the levels of research validity and reliability.
- These criteria include, but not limited to date of publication, credential of the author, reliability of the source, quality of discussions, depth of analyses, the extent of contribution of the text to the development of the research area etc" (Dudovskiy, 2008).
- These types of research can be categorized into quantitative and qualitative methods. "Quantitative data gathering methods include online questionnaires and surveys, reports about trends plus statistics about different areas of a business or industry. Qualitative research methods include relying on previous interviews and data gathered through focus groups which helps an organization to understand the needs of its customers and plan to fulfill these needs. It also helps businesses to measure the level of employee satisfaction with organizational policies." (Blog, 2020)

3.2 Questions to ask before conducting Secondary Research

- According to Blog (2020) the following questions should be asked before conducting secondary research:"
- What is the purpose of the research? Again, it is important for every researcher to clearly define the purpose of the research before proceeding with it. Usually, the research purpose determines the approach that would be adopted.
- What is my research methodology? After identifying the purpose of the research, the next thing to do is outline the research methodology. This is the point where the researcher chooses to gather data using secondary research methods.
- What are my expected research outcomes?
- Who collected the data to be analyzed? Before going on to use secondary data for your research, it is necessary to ascertain the authenticity of the information. This usually affects the data reliability and determines if the researcher can trust the materials. For instance, data gathered from personal blogs and websites may not be as credible as information obtained from an organization's website. ..(cont'd)

3.2 Questions to ask before conducting Secondary Research

- …(cont'd) When was the data collected? Data recency is another factor that must be considered since the recency of data can affect research outcomes. For instance, if you are carrying out research into the number of women who smoke in London, it would not be appropriate for you to make use of information that was gathered 5 years ago unless you plan to do some sort of data comparison.
- Is the data consistent with other data available from other sources? Always compare and contrast your data with other available research materials as this would help you to identify inconsistencies if any.
- What type of data was collected? Take care to determine if the secondary data aligns with your research goals and objectives.
- How was the data collected?"

3.3 Advantages

- Blog (2020) opines the following as the advantages of secondary research:"
- Easily Accessible With secondary research, data can easily be accessed in no time; especially with the use of the internet. Apart from the internet, there are different data sources available in secondary research like public libraries and archives which are relatively easy to access too.
- Secondary research is cost-effective and it is not time-consuming. The researcher can cut down on costs because he or she is not directly involved in the data collection process which is also time-consuming.
- Secondary research helps researchers to identify knowledge gaps which can serve as the basis of further systematic investigation.
- It is useful for mapping out the scope of research thereby setting the stage for field investigations. When carrying out secondary research, the researchers may find that the exact information they were looking for is already available, thus eliminating the need and expense incurred in carrying out primary research in these areas. "

3.4 Disadvantages

- Blog (2020) opines the following as the disadvantages of secondary research:"
- Questionable Data: With secondary research, it is hard to determine the authenticity of the data because the researcher is not directly involved in the research process. Invalid data can affect research outcomes negatively hence, it is important for the researcher to take extra care by evaluating the data before making use of it.
- Generalization: Secondary data is unspecific in nature and may not directly cater to the needs of the researcher. There may not be correlations between the existing data and the research process.
- Common Data: Research materials in secondary research are not exclusive to an individual or group. This means that everyone has access to the data and there is little or no "information advantage" gained by those who obtain the research.
- It has the risk of outdated research materials. Outdated information may offer little value especially for organizations competing in fast-changing markets."

Part 4

Which data collection method?

Which method?

- With all the data collection methods already discussed in this lesson is it a wonder that as a learner you're already asking yourself which method to use for your study?
- Fear not. Kothari (2004) provides some very useful insights to guide in the choice of data collection tool/method; he states that you should keep the following in mind:"
- **Nature, scope and object of enquiry:** This constitutes the most important factor affecting the choice of a particular method. The method selected should be such that it suits the type of enquiry that is to be conducted by the researcher. This factor is also important in deciding whether the data already available (secondary data) are to be used or the data not yet available (primary data) are to be collected.
- **Availability of funds:** Availability of funds for the research project determines to a large extent the method to be used for the collection of data.
- **Time factor:** Availability of time has also to be taken into account in deciding a particular method of data collection. Some methods take relatively more time, whereas with others the data can be collected in a comparatively shorter duration.
- **Precision required:** Precision required is yet another important factor to be considered at the time of selecting the method of collection of data."

Part 5

Data collection best practices

Best practices

- (Simplilearn, 2021) suggests the following as best practices for data collection in order to get the best results:”
- Take into account the price of each extra data point - Once we have decided on the data we want to gather, we need to make sure to take the expense of doing so into account. Our surveyors and respondents will incur additional costs for each additional data point or survey question.
- Plan how to gather each data piece - there is a dearth of freely accessible data.
- Think about your choices for data collecting using mobile devices
- Carefully consider the data you need to gather - It's all too easy to get information about anything and everything, but it's crucial to only gather the information that we require.
- Remember to consider identifiers - Identifiers, or details describing the context and source of a survey response, are just as crucial as the information about the subject or program that we are actually researching.
- Data collecting through mobile devices is the way to go - Although collecting data on paper is still common, modern technology relies heavily on mobile devices. They enable us to gather many various types of data at relatively lower prices and are accurate as well as quick. “

Summary

- Some of the challenges in data collection are data quality issues, inconsistent data, data downtime, ambiguous data, and duplicate data, among others.
- Primary data collection is the gathering of raw data collected at the source. It is a process of collecting the original data collected by a researcher for a specific research purpose. Primary data collection methods include observations, questionnaires, interviews, online forums, groups, online communities, face to face interviews, online, mail, and phone.
- Other primary data collection methods worth mentioning but which weren't covered in detail in this course include: Warranty cards, distributor or store audits, pantry audits, consumer panels, use of mechanical/electronic devices, projective techniques, depth interviews, and content analysis.
- Secondary data is a type of data that has already been published in books, newspapers, magazines, journals, online portals etc. There is an abundance of data available in these sources about your research area in business studies, almost regardless of the nature of the research area. Therefore, application of appropriate set of criteria to select secondary data to be used in the study plays an important role in terms of increasing the levels of research validity and reliability.

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