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Experiments, Survey Research, and Quantitative Data Analysis are the next couple of topics discussed by Russell K. Schutt, PhD in his text "Investigating the Social World: The Process and Practice of Research". Each of these topics holds a significant role in the social science research process. Schutt provides reliable information based on his individual experience with social science research as well as providing information from other scholarly sources. He breaks down the individual aspects of different types of experiments as well as the impact, validity and reliability of survey research in regards to social science research, and a deeper understanding of quantitative methods. Schutt's was able to coherently develop his examples and explanations allowing for the text to be easier to understand and comprehend.

In regards to Social Science, true experiments can be defined as an experiment where the "subjects are assigned randomly to an experimental group that receives a treatment or other manipulation of the independent variable, and a comparison group that does not receive the treatment or receives some other manipulation." (Schutt 2012) True experiments are a particular experimental design that is composed of 3 features; having two groups, having any change or variation within the independent variable, and having a random assignment of two (or more) comparison groups. The reasoning behind making sure all these elements are present is because it allows for higher/ greater chance of validity compared to most other designs.

Quasi-Experimental designs are slightly different from a true experiment. This research design

can be explained as one “ in which there is a comparison group that is comparable to the experimental group in critical ways, but subjects are not randomly assigned to the comparison and experimental groups” (Schutt 2012). Although there are a couple differences between the two experiment designs the main difference between these two designs would be that a Quasi-Experimental design does not randomly assign participants to a control group or treatment group (The Regents of the University of Michigan 2021).

In life everything that has pros most likely has a couple of cons as well. This is also true in social science research because there can be a lot of ethical dilemmas/ concerns in regards to the reliability and validity of the information. Within an experimental design there are two main ethical concerns; Deception, and Selective Distribution of Benefits. Deception is used within this specific experimental design because it is believed to actually depict a more practical standpoint in regards to treatments. Schutt reintroduced the Milgram experiment in 1965 in which Milgram was studying the topic of obedience to authority. You can see the deception within this experiment through the lies that the researchers were telling the participants. The second ethical concern was the concept of selective distribution of benefits. This concern was in regards to how much influence a researcher can have on the benefits the subjects receive during the study (Schutt 2012). Both of these can definitely be seen as major concerns because there in some way or another is a fabrication of the truth or a manipulation of variables which in turn could lead to a fabrication and manipulation of results. It can also be seen as an ethical issue if the manipulation and fabrication begins to cause harm to the participant in any way. Deception can only be used if it does not cause harm to the subject as well as if it was approved to be used by a specific institutional/ review board. I think that it is very important to make sure that deception is something that is not used all the time because at times people may not know where

the limit is drawn and may go overboard. An example of ethical deception would probably be if a group of individuals were being studied on their behavior and body language to certain questions and they were being watched through a one-way mirror. This is not intentionally causing any harm but they are also aware of the fact that the researcher is not the only person watching them therefore on some level this can be seen as an ethical deception.

Going back into the topic of a true experiment into more depth some of the elements of a true experiment would include; manipulation, control, random assignment and random selection (U.S. Department of Health and Human services n.d.). Each of these elements factor into the results of a true experiment but the control and manipulation elements can be seen as more impactful compared to the rest. If you break down the meanings of both of these terms you can see as to why this previous statement is true. Manipulation within an experiment is when a researcher is purposely adjusting or tweaking a certain variable(s) whereas control is mostly used as a preventative measure so that there is little to no outside influence involved. This is very beneficial if you are looking for a specific result to happen you may want to manipulate and control specific variables so that you may see if there is a direct correlation between the manipulation and the result.

Survey Research is a method that has become more popular in recent years. This method involves the use of polls, questionnaires, tests etc. to obtain/ collect data pertaining to people, their thoughts, preferences and behaviors (Bhattacharjee n.d.). Survey research is used more often when research is analyzed from a quantitative perspective. Surveys can be conducted in different ways such as in-person, over the phone, mail/ paper pencil surveys, individual administered surveys etc. There are a bit more advantages to conducting an in-person survey rather than conducting a survey any other way. For example a face-face interview could allow for

a bit more accuracy in regards to data collected about gender, race, age if this were done online or over the phone some people could sometimes lie to gain a reward, or even accidentally input the wrong information ultimately resulting in incorrect data being collected. These types of surveys also allow for nonverbal communication to occur (reading body language). At times if one was doing an electronic survey or over the phone survey you wouldn't be able to tell if certain questions caused some type of negative or positive emotion. Also with conducting in-person surveys it allows for there to be little to no distractions where as a digital survey can take an individual the entire day to complete due to the various things going on within their home. Now electronic surveys are not all that bad they do have their advantages as well such as a higher response rate, convenience, real-time access, flexibility, and of course no -in person contact. Online surveys are very beneficial when individuals have very busy lives or prefer to do things on their own timing.

When answering surveys the main concerns that most individuals primarily have is the concept of anonymity and confidentiality of the survey. Some may try and use these terms interchangeably but there are slight yet distinct differences between the two. Anonymity in regards to a survey can be defined as something provided by the researcher stating that there is in no way personal/intimate identifiable information that can in some way connect the individuals to the response in the survey whereas confidentiality can be defined as something provided by the researcher that the information gathered within this study will only be used by the researcher and assigned personnel for research purposes only. In regards to confidentiality there are certain exceptions such as the report of abuse, neglect or illegal activity.

So we talked about what exactly a survey is and the different types of surveys but now let's get into what a good survey questionnaire entails. There are two major types of questionnaires

called Exploratory Questionnaire and Formal standardized questionnaires. Exploratory surveys measure things within a qualitative point of view contrary to formal standardized questionnaires where it is measuring quantitative data. Depending on the data that you would like to collect is how you would pick which type of survey you would like to conduct. But regardless of the type of survey the qualities of a good survey remain the same. Some good surveys/questionnaires would include exclusive options, objective questions, accommodating answers, a couple open ended questions to help invoke thoughts etc. There are numerous good characteristics of a survey but the best quality would be the ability to non personalize the survey to achieve maximum anonymity and confidentiality (The InMoment Team 2009). Non-response in regards to a survey has its pros and cons, it can be beneficial for the subject because it allows them to have options but then also not responding to certain questions can skew the results. A better alternative to this would be to provide a separate question option for those who choose not to participate in that specific question.

Surveys can be considered a type of quantitative research method, furthermore the next topic discussed was quantitative data analysis. This type of research is “the process of collecting and analyzing numerical data. It can be used to find patterns and averages, make predictions, test causal relationships, and generalize results to wider populations.” (Bhandari 2020) When conducting quantitative research statistical analysis begins to get involved, especially measures of central tendency. Normal distribution can also be referred to as the Bell curve. This is typically the type of data/ graph one will see when doing research analysis of nature and psychology (McLeod 2019) The properties of normal distribution would consist of mean median and mode at a shared equal value. Mean, median, and mode are all considered descriptive statistics. They allow researchers to to give a summary of the data collected such as averages

(mean) the most frequent occurrence (Mode) as well as the middle score for a particular set of data (median). Depending on the variable's level of measurement would allow the researcher to decide which type of central tendency would be the most beneficial to their research. (Lund Research Ltd 2018)

Variability is important in regards to a research study because it allows for researchers to see the possibility of unlikely/ unusual events. Variation can be broken down into four measures; range, interquartile range, and standard deviation. Each of these individually play a role in being able to calculate the variability of certain things. The range is one of the easier concepts to grasp because it just calculates the difference between the largest and smallest values within a dataset. So as one would be able to increase the sample size there is a higher chance of achieving a maximal value. Group frequency distributions could be a great example of when range could be beneficial. GFD's are considered to be better at times because it allows for data to be displayed based on the interval value when the range of data is very large. The IQR is quite similar to the median of a data set but it is half of the data set. This measure of variability is the best for skewed data distribution. Standard deviation is determined based on the variance of data, this is best used for normally distributed data. This measure of variability is the most common combined with the mean (Frost 2020) When conducting these types of research one must make sure that the statistics are not unethically manipulated because then this allows for inaccurate results. These statistics need to be gathered correctly without error to be able to be considered reliable and valid.

Overall the main thing that one can learn from reading these chapters is that when conducting research you must know what you are looking for and come up with a set method of how you will obtain this information. There is a high importance placed on maintaining

anonymity and confidentiality while still remaining true to the participants responses. Schutt did a very good job on laying down the importance of each of these topics and allowed for a lot of interaction to be done between the reader and the text.

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