Observational Methods of Research

Curtis M. Kularski

Fayetteville State University

College of Arts and Sciences

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Dr. Marciea M. McMillian-Robinson

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Abstract

Observational research is the key to non-experimental research. There are several methods of observational research that may be used, each with its own concerns for validity as well as ethical feasibility in its implementation. Observational studies often take place outside the confines of a laboratory, forcing a large number of confounding variables. With the relative imprecision of observational studies, there are still protocols that must be followed.

Observational Methods of Research

Observational research is a non-experimental method for collecting information on behavior. This research method employs a number of techniques for collecting information. Each method has its own perils that affect reliability, and some have concerns for ethics. One of the most important distinctions between observational and experimental research is that no variable is controlled; all behaviors are allowed to occur naturally.

Direct observation (overt/reactive observation) presents a situation where the researcher is in plain view and there is no deception to those being observed. In direct observation there is a high risk, at least initially, of the presence of the researcher causing the subjects to change their behavior. If sufficient time can be invested into the research, this will eventually be eliminated as the subjects become more accustomed to the presence of the researcher and it becomes possible to establish external validity. Direct observation also has the detriment that because the subjects know they are being observed they have a right to ask the researcher to stop observing them (Bernard, pp452-453).

Direct observation can be conducted as either continuous monitoring or as time allocation observation. In a continuous monitoring situation the subjects are observed continuously during the relevant period of time (Bernard, 413-415). There is the greatest concern for subjects being aware and changing their behavior during a continuous monitoring situation. This effect, called the Hawthorne Effect, only impacts research involving human subjects (Diaper, 1999). For time allocation studies, random locations and times for observation are used. This provides some element of surprise and allows data to be collected more organically. Time allocation can be

more difficult because it often requires a larger sample size and careful control over observation timings and other factors to ensure that each subject is monitored uniformly (Bernard, 430).

Unobtrusive observation requires a researcher to either hide completely from a situation he/she is observing (covert observation) or become a part of the group being observed (participant observation). Both pose ethical concerns on the aspect of informed consent, and the methods that involve joining the group pose additional concerns as to the accuracy of the data collected and the amount of bias that the researcher may add to the research as a result of membership in the group (Montgomery, pp304). Anytime a researcher participates in a group, he may no longer be considered objective. The unobtrusive observation category also includes "trace" research, which includes such things as analyzing what people throw out, or leave behind. Trace research requires a lot of interpretation of the evidence, which may introduce bias (Bernard, pp444-450). Some trace research has more of an impact on the subjects than others. If the garbage of a group of people was to be analyzed and they were aware of such analysis, their garbage may change to be more "appropriate", or they may protest the analysis all together. However, if a study was to be conducted in which wear patterns in the floors of a store or museum were to be analyzed, the participants would be unaware and most likely take comfort in the anonymity of the group (Webb, pp2).

Disguised field observations allow more direct contact than trace studies, and thus require less interpretation. It is possible to conduct this type of field observation in complete secrecy or as a participant observation. Participant observation allows the observer/researcher to become a member of the group being studied, or otherwise integrate themselves into the research in some way for the purpose of conducting covert research.

Observational research may be qualitative or quantitative, depending upon the behavior being studied (Gall, pp476). The outcomes of a qualitative observational study may be descriptive, inferential or evaluative. Descriptive studies seek to record the performance of a subject in a given situation, or a response to a particular stimulus. The descriptive method leaves very little room for the researcher to input their own opinion into the results. Inferential studies rely on the researcher to collect the information and then infer a conclusion from the data collected. In the evaluative study the result is in the form of both interference and a judgment about the data. For an evaluative study, the researcher may form an inference about what was observed and then make an assessment of whether what the data portrays is good or bad, or positive or negative (Babbie, pp138-141). Quantitative reports are much like those for experimental research, providing statistics and key numbers as part of the report (Gall, pp478).

There are obvious benefits to using observational research methods, such as being able to record behaviors that are difficult or impossible to observe in the confines of a laboratory experiment. There are also some problems with using observational research, such as its subjectivity, context constraints (which lead to external validity difficulties) and overall unpredictability which may impede attempts at reproducing the experiment (Tochim, 2006).

There are a lot of areas where it is quite impossible to replicate settings required for a behavior in a laboratory, and observational methods provide a mechanism for such behaviors to be observed. A strong example of this is the mating behavior of any species. While it is possible to observe this in some species in a confined environment, the results may be affected by the available mate selection or other factors that may include part of the natural environment for such behaviors to occur normally. In humans it is exceptionally difficult to monitor any social behaviors in a controlled environment, merely because the subject knows they are being

observed, and additionally because humans adapt their social behaviors to match the situation. Any artificial situation will likely incur an artificial behavior (Montgomery, pp306).

Covert observation or any type of research that is conducted in a way that leaves the subject unaware that they are being monitored creates a situation where there is a lack of informed consent. It requires a determination of the level to which the subject's privacy is being invaded to determine if informed consent is required for the research being conducted (Babbie, pp64).

Critical Analysis 1, Covert Observation

A number of studies implement the available methods of observational research in different ways. An example of covert observation in a natural setting is a recent study following the patterns of hand-washing with restroom use. The study utilized wireless monitoring devices on both the entry door as well as on the soap dispensers in a highway service station restroom. The devices were installed in the restroom for both genders. The authors of the study believed that they were able to obtain a good sample of people with the location they selected for their study. The study was conducted as a continuously monitored situation with the electronic sensors, but was also enhanced by some randomly selected interviews during the daylight hours. The research design allowed for complete anonymity of all of the participants in the electronically controlled portion of the study, and the participants who were interviewed were informed of the study and participated in the interview voluntarily, but their identities were not recorded (Judah, 2009). The study implemented a highly accurate, but yet highly anonymous method for recording behavior. The study was protected from contamination by keeping the researchers completely concealed. The researchers were able to monitor the variables they wished to monitor effectively by defining certain tasks that would have to be performed to

accomplish the goal behavior (washing hands, with soap). It was determined that monitoring the entrance count to the restroom with the number of times the soap dispenser was used would give good enough data. The percentage of uses of soap that did not coincide with hand washing was determined to be low, and multiple uses of soap per person were eliminated by a timer and motion sensor on the soap counting device to filter such anomalous counts. Earlier studies attempting to measure the same information relied on an estimate of number of people (by an observing using tallies), and a weight-based measure of soap (Judah, 2009). The older method allowed for much more error than the electronically controlled version that monitors continuously. It is difficult to state for certain the level to which the study by Judah and associates would have external validity as only one service station on one highway in the United Kingdom was surveyed. There are numerous factors that could affect hand washing, including hermits that will not travel because of risk of illness that would wash considerably more frequently, or individuals who would have alternate means of relieving themselves on long trips. For general restroom populations, the study is likely valid.

Critical Analysis 2, Participant Observation

It is possible for there to be some knowledge of the research effort in an observational study, as long as the contamination from such knowledge is kept small. In a study conducted involving the attitudes of children in day camps, the campers were asked to write self-disclosure essays before entering the camp and right before the camp concluded. Campers were not informed that the results of their self-disclosure would be given to researchers, but they were told that the counselors and their parents would not see what they wrote, leaving them free to express themselves how they wished. The objective of the study was to determine a quantitative change in the attitudes and emotions of the campers (Taylor, 2005). The study is fairly simple and

straight forward in design. The initial self-disclosure essay is designed as a control, to create a baseline for each camper before they entered the camp, and the concluding self-disclosure is to measure the post-camp levels. Through the use of volunteer transcribers the disclosures were entered in a computer-readable format to allow a statistical writing analysis software to read the disclosures and score each one based on use of emotional words (positive and negative emotional indicators), cognitive process statements and social process statements (Taylor, 2005). No human directly involved in the study was in contact with the disclosures or was able to read them. This places considerable faith in the abilities of the software to process the self-disclosures of each camper. The privacy of each individual is preserved, but there is no guarantee that the campers responded to the self-disclosure writing prompt in the way it was intended, and it is possible that it did not receive the intended feedback. From a statistical standpoint there is a clearly fair process for evaluating each response, as the software analyzes each response identically and provides a consistent feedback each time based on its own algorithms for determining such indicators within writing that it is designed to score. The researchers admit that this is the first time the software has been applied to a situation like the one being studied. Other than software concerns, it is worth noting that the experiment was only conducted at one camp that enrolled only one race of camper (African American) during the period of the study, and therefore, as a result of the limitations of the sampling frame, may not apply more generally (Taylor, 2005).

Critical Analysis 3, Direct Observation

Direct observation is somewhat more risky, but in some situations is the more practical approach to conducting an observational study. One study sought to understand the preparations of a pre-service physical education instructor assigned to teach physically disabled students during a practicum. For this study a direct observation of a single participant, a case study, was

used to obtain the required results. A case study was selected due to the difficulty of studying more than one participant in this type of environment. The participant was selected because both academic and psychological evaluations placed him as being a normal pre-service educator. The study followed the participant for 7 weeks as he taught a physical education class to 5 groups of physically disabled students of varying grade levels. The study was conducted as observation, formal interviews and informal interviews at various times throughout the study. The study sought to create a descriptive report of the preparations, which means the selected choice of observational method was more than adequate to select the required data. It is possible that because of the visible presence of the researchers there was some skew in the performance of the educator, but it would be highly unlikely at the end of the seven week study. As a case study there is no guarantee that the data is able to be generalized to other pre-service educators or that the results are even typical. A more general study would have to be conducted to validate the findings of this particular study; however, the researchers for this study are satisfied with their results and satisfied that the results do reflect the experiences of a typical pre-service educator in the field of physical education (Rust, 2010).

Conclusion

There are many ways to conduct research, and an observational study is no more or less valid than a formal experiment. It is important to select the appropriate type of study for the subject of research.

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