



OBSERVATIONAL METHODS: THE IMPORTANCE OF OBSERVATIONAL METHODS IN THE STUDY OF HUMAN BEHAVIOUR

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ABSTRACT

Observation is one of the four major techniques used by researchers in the field of developmental psychology. Researchers consistently use observation techniques to describe human as well as animal behavior in natural settings. The main objective of this paper is to identify the different observational methods that can be applied in studying human behaviour. Particularly, it focuses on different types of observational methods, sampling techniques in observational methods, data recording, data analysis techniques, and methodological concerns in different observational methods. The narrative review method data was used to collect the data. Scholarly work pertaining to observational methods, sampling techniques in observational methods, data collection and data analysis methods used in observational research was the exclusive focus of the literature search, which was carried out to find scholarly articles from peer-reviewed journals and books and was analyzed thematically. Depending on the objectives and hypotheses of the study, researchers typically use different observational methods. The advantages of using observational methods include establishing relationships between variables being observed and determining the causes of observed patterns of behaviour. A variety of sampling techniques such as time and event sampling, and situational sampling are employed in observations to collect data. Both qualitative and quantitative data of observed behaviour are recorded using appropriate methods. The process of data analysis involves organizing and summarizing observational records, then utilizing statistical techniques to examine the behaviors that were captured. Findings suggest that the observational method is useful for generalizing the results, despite the fact that it poses some challenges when examining behaviour.

Keywords: *Observational methods, Human behaviour, Recording of observations, Data analysis, Human development*

1. Introduction

Observation is one of the main methods of studying behaviour. The term “observational research” refers to a variety of non-experimental study methods where behaviour is systematically observed and documented. It aims to observe behaviour in a natural or laboratory setting without manipulating variables. The main purpose of observational research is to describe a variable or a group of variables that a researcher plans to examine in his research (Jhangiani et al., 2019). Observation is a method used by both scientists and non-scientists to examine behaviour (Shaughnessy, Zechmeister, & Zechmeister, 2000). The difference between scientific observation and non-scientific observation is explained by the methods used by these two groups. Non-scientists typically observe behaviour informally and are not usually concerned with personal or situational biases that may arise during their observations. On the other hand, scientific observations are conducted and recorded in a systematic and objective manner (Shaughnessy et al., 2000). In many fields, researchers use a variety of techniques to obtain more precise information about their investigations. Among these, observational methods are employed to derive more accurate quantitative and qualitative explanations for observed behaviour (Goodwin, 1998).

Considering the field of psychology, a psychologist is expected to perform several tasks in observations as an observer. First, he aims to describe the behaviour that has been observed in natural settings. Second, he tends to develop a relationship between variables that are being observed. Third, the researcher finds specific explanations for the observed behaviour. Finally, he intends to generate hypothesis regarding the behaviour being observed (Shaughnessy et al., 2000).

Human behaviour is observed and documented using a variety of observational methods in different situations. While some observations are conducted with intervention, some are employed without intervention. The degree of observer intervention in the observational context and the method used to record the observed behaviour determine these classifications. Observational methods used in the field of psychology offer several benefits. They allow researchers to observe human behaviours in their natural environment, which could produce more realistic and accurate data, particularly when examining complex or sensitive research topics. Despite their advantages, observational methods can have methodological issues. Hence, in order to better understand their behaviour

in a given situation, it is crucial to select the most appropriate observational method for observing and recording that behaviour.

2. Objectives

The main objective of this paper is to identify the different observational methods that can be applied in studying human behaviour and the process of human development. Specifically, it aims to explore different types of observational methods, sampling techniques in observational methods, data recording, and data analysis techniques. Further, it focuses on methodological issues in different observational methods.

3. Methodology

The data for this research was collected using the narrative review approach and it was used on secondary sources. The main information sources for this review were ResearchGate, Google Scholar, and other electronic databases. Literature search was conducted to identify scholarly articles from peer-reviewed journals and books. The search was limited to scholarly work pertaining to observational methods, sampling techniques in observational methods, data collection and data analysis methods used in observational research. In order to analyze the data and to identify the key themes relating to the main variables, the thematic analysis method was employed. The review integrated the use of different observational methods and their significance. Further, it discussed advantages and disadvantages of different observational methods, identification of different methods in recording observed behaviour including both qualitative and quantitative assessments, sampling techniques used in observational research, data analysis in observational research, and methodological issues in observational methods.

4. Results and Discussion

4.1. Classifications of Observational Methods

The observational method is one of the four primary ways of measuring constructs, especially in the field of developmental psychology. In addition to the observational method, researchers in this field typically collect data through self-report, physiological-biological measures, and other informants such as parents,

friends, and teachers (Morris, Robinson, & Eisenberg, 2006). There are two major categories of observational methods: observation without intervention and observation with intervention. The degree of observer intervention in the observational setting and the method used to record the observed behaviour determine this classification (Shaughnessy et al., 2000).

4.2. Observation without Intervention (Naturalistic Observation)

One of the observational methods in making observations is naturalistic observation. In naturalistic observation, the observer examines behaviour in natural settings with no intervention (Jhangiani et al., 2019; Poole, Warren, & Nuñez, 2007). A natural setting can be described as an environment in which the behaviour takes place and that has not been organized to record the observed behaviour. The major purpose of the naturalistic observation is to examine behaviour as it normally occurs in the natural setting (Papalia, Olds, & Feldman, 2002; Poole, Warren, & Nuñez, 2007). Naturalistic observation has been used as a method of examining children's development compared to adult development. The advantage of naturalistic observation is that it help understand both children and adults' behaviour in daily life (Sigelman & Rider, 2003). Also, Naturalistic observation aims to understand the relationship among variables that are being observed. In a naturalistic observational setting, the observer becomes a passive recorder of observed behaviour. In this situation, the observer tends to observe and record the behaviour when it normally occurs and does not make any attempt to manipulate or control the events or the behaviour. Another purpose of conducting naturalistic observation is to verify the findings that have been examined in a laboratory. Therefore, naturalistic observation helps assess the external validity of findings that have been conducted in a laboratory setting (Shaughnessy et al., 2000; Goodwin, 1998).

Sometimes, ethical reasons make it impossible to control some behaviour patterns (Shaughnessy et al., 2000). For example, if a researcher intends to examine aggressive behaviour in children, he or she cannot intentionally make children harass others in order to examine their reactions. The researcher may decide to observe children's aggressive behaviour in a natural setting in such a scenario. There may be many occasions where the children are aggressive toward others in natural settings and the researcher may be able to observe their aggressive behaviour in these settings.

4.3. Observations with Intervention

Observations with intervention is another observational method that is used to study behaviour. Observations with intervention can be divided into three categories: participant observation, structured observation, and field experiments. In these types of methods, researchers can use different kinds of interventions based on the objectives of the study and the nature of the behaviour they intend to examine (Shaughnessy et al., 2000). Some of the reasons for researchers to intervene in their observations are listed below.

1. If an event occurs under certain conditions that cause difficulties in observing the event or to cause an event that does not occur very often in nature.
2. If the researcher aims to examine the limits of responses of an organism by changing the qualities of a stimulus condition.
3. If the researcher intends to access to a situation that cannot be observed scientifically.
4. If the researcher arranges conditions in order to control certain important events and to observe outcomes.
5. If the researcher intends to manipulate one or more independent variables and to observe their effects on outcome variables and to establish a relationship between those variables or to establish a comparison of them.

4.4. Participant observation

Participant observation is another observational method used by researchers in data collection. In participant observation, the observer also becomes an active role in the situation in that he observes others' behaviour ((Papalia, Olds, & Feldman, 2002; Poole, Warren, & Nuñez, 2007). Also, participant observation can be very similar to naturalistic observation since it involves in observing individuals' behaviour in their natural settings (Jhangiani et al., 2019). There are two major categories of participant observation: undisguised participant observation and disguised participant observation.

4.4.1. Undisguised participant observation

In undisguised participant observation, the participants in the situation are aware that their behaviours are being observed by the researcher in order to collect observational data (Jhangiani et al., 2019; Shaughnessy et al., 2000). Undisguised

participant observation is the primary method used by researchers use to examine culture and the study group behaviours. For example, anthropologists tend to use the undisguised method of participant observation in order to examine the cultural aspects and individuals' behaviour by living and working with them (Shaughnessy et al., 2000).

4.4.2. Disguised participant observation

In contrast to undisguised participant observation, in disguised participant observation, the individuals who are being observed are not aware that the researcher is observing their behaviour. In other words, in disguised participant observation, the researchers do not reveal their true identity as observers and pretend to be the participants of the social group that they are observing (Jhangiani et al., 2019; Shaughnessy et al., 2000). Mostly, researchers use this observational method when they consider that individuals will change their behaviour if they know that their behaviour is being observed. Researchers use disguised participant observation to collect more naturalistic behaviour patterns in a given situation. However, this method may cause some ethical issues of individuals' privacy and their consent.

4.5. Advantages of Participant Observation

Participant observation is advantageous to the researchers in many ways. One, it provides an opportunity for researchers to access experiences or situations that are not sometimes open to scientific observation (Shaughnessy et al., 2000). Additionally, it allows them to have similar experiences like the individuals who are being observed in the study. These experiences help researchers gain a thorough understanding of the group or the individuals who are being observed.

4.6. Methodological Issues of Participant Observation

Participant observation may create some methodological issues as well. Particularly, the role of the observer may produce some problematic situations in participant observation. That is, the observer may lose the scientific objectivity since he or she is being identified with the individuals who are being observed (Shaughnessy et al., 2000).

The observer must be aware of the threat to objective reporting that occurs as a result of their involvement in the setting in which they observe individuals' behaviours. The observer may influence others' behaviours that are being observed since he or she interacts with others in certain situations such as making decisions, initiating activities and responsibilities. To what degree the observer's intervention influences participants and the experiences or events is a crucial question that must be answered in a situation like this (Shaughnessy et al., 2000).

In addition, it may be challenging for the researchers to generalize the findings of participant observation if the observer's intervention creates some behaviour patterns that are unique to particular situations or events the observer produced. The observer's intervention in participant observation cannot be assessed simply. The type of participant observation (whether disguised or undisguised), the size of the group that is being observed and the role of the observer are some important considerations when assessing the effect of the observer's intervention on the situation (Shaughnessy et al., 2000; Goodwin, 1998).

4.7. Structured observation

Structured observation is another observational method used in studying human behaviour (Poole, Warren, & Nuñez, 2007). This method has been used by researchers to examine behaviours that are difficult to observe in natural settings (Poole, Warren, & Nuñez, 2007; Shaughnessy et al., 2000; Sigelman & Rider, 2003). In contrast to naturalistic or participant observation, structured observation involves the researcher carefully observing one or more specific behaviours in a more structured environment (Jhangiani et al., 2019; Poole, Warren, & Nuñez, 2007). In structured observation, the natural environment is frequently not the setting in which the observations are made. Instead, the researcher may observe individuals' behaviour in a lab setting. Or else, the researcher may observe individuals in a natural setting that has been structured in some ways (Jhangiani et al., 2019). For example, in a classroom setting, the researcher can introduce particular tasks for children to complete and observe their behaviour.

In structured observation, researchers use some control over the events (Sigelman & Rider, 2003), however, the degree of control in structured observations are less than that of field experiments. In structured observations, the researcher intervenes in that particular situation as he wants his intervention to produce an event. The purpose of this intervention is to set up a situation that helps the

observer to record individuals' behaviours easily (Shaughnessy et al., 2000; Goodwin, 1998). Researchers conduct structured observations either in laboratory settings or in natural settings (Jhangiani et al., 2019; Shaughnessy et al., 2000). For example, clinical psychologists use structured observations in laboratory settings to examine behaviour patterns in parent-child interactions (e.g., Hughes & Haynes, 1978). For example, the observer can ask the parent and the child to engage in certain tasks (e.g., game card) then observes their specific behaviour patterns.

Compared to naturalistic observation and participant observation, structured observation place a greater emphasis on collecting quantitative data than qualitative data. The researchers who use structured observation mostly focus on examining specific behaviours rather than recording all behaviours that occur. Therefore, they are able to quantify the behaviours that are being observed (Jhangiani et al., 2019).

Structured observation has become a commonly used method of observation by developmental psychologists. Jean Piaget's (1896-1980) studies on children's cognitive development can be identified as an example for the usage of the structured observation method in the field of developmental psychology. In his studies, first he gave a problem to a child to solve and then he gave the child some variations of the problem in order to examine the limits of understanding the problems. In those observations, Piaget was able to understand the child's reasoning processes; as a result, Piaget developed the Stage Theory of children's cognitive development (Shaughnessy et al., 2000).

The structured observation seems to be more effective than naturalistic observation and participant observation. It is advantageous because the researchers focus on particular behaviour, time and expense can be minimized. Further, since the environment is mostly structured to promote the desired behaviours of interest, it saves researchers time waiting for the desired behaviours to emerge naturally. Lastly, it is evident that researchers can control the environment more effectively with structured observation (Jhangiani et al., 2019).

Some researchers use both unstructured and structured observational methods to examine human behaviour. For example, a study by Cahill, Deater-Deckard, and Pike (2007) utilized both unstructured and structured observational methods to examine warm responsive mother-child interaction. In this study, the researchers

examined whether mother–child warmth and responsiveness would moderate the relationship between self-worth and child’s theory of mind. The researchers videotaped both unstructured and structured observations of mother-child interaction.

4.8. Field experiments

Field experiment is another type of observation with intervention. It can be described as a controlled study, which is conducted in a setting that is part of everyday life (e.g., home environment or school setting) (Papalia, Olds, & Feldman, 2002). In this method, the researchers manipulate one or more independent variables in the natural settings in order to examine the effect of the manipulated variables on behaviour (Shaughnessy et al., 2000). In this condition, observers tend to control the variables preceding the event since they intend to examine the effect of these variables on behaviour systematically. Field experiments are mostly used by social psychologists to examine individuals’ behaviours. In some cases, individuals are unaware that they are participating an experiment, and the researchers create the experimental condition by using confederates—persons who have been trained to act in a particular way during the experiment. In some instances, field experiments provide practical knowledge about behaviour (Shaughnessy et al., 2000). For example, social psychologists who observed bystanders’ reactions to certain behaviours (e.g., a crime) have identified the variables that can influence a bystander’s reaction to help the victim of a crime.

4.9. Recording Behaviour

In observational studies, researchers record behaviours; either comprehensive behaviour or selected behaviour patterns, depending on the purpose of the study. Also, recording behaviour may depend on the type of study (qualitative or quantitative). In qualitative research, findings are presented as verbal descriptions whereas findings of quantitative research are presented with statistical descriptions. Therefore, the way the findings are summarized, analyzed, and presented depends on the way information of behaviours is recorded (Shaughnessy et al., 2000).

4.10. Obtaining qualitative data of observed behaviour

Many studies that use the observational method are more qualitative research. Since qualitative data are non-numerical, statistical methods cannot be used to analyze them (Jhangiani et al., 2019). In observational studies, qualitative data can be collected as narrative records and these narratives can be recorded as written descriptions, audiotapes, and videotapes that include comprehensive records of individuals' behaviour patterns. The researcher's written descriptions are one type of narrative records. Audiotapes provide spoken records of individuals who are being observed and videotapes provide visual records of individuals' behaviour. After obtaining narrative records, researchers classify and organize the data based on their research hypotheses (Shaughnessy et al., 2000). In addition to narrative records, researchers obtain field notes, contemporaneous notes or verbal records that are gathered during observations (Shaughnessy et al., 2000).

It is important for the researchers to decide the contents of narrative records before observing behaviour. Depending on the objectives of the study, narrative records may contain different information. After considering the content of narrative records, researchers can train observers on how to collect information and record them in accordance with the content.

4.11. Obtaining quantitative assessments of behaviour

In observational studies, researchers tend to use quantitative measures of observed behaviour patterns in addition to gathering qualitative data. For example, a researcher may record the number of times a particular behaviour occurs or the length of time a behaviour lasts. Generally, researchers use one of the four levels of measurement scales: nominal, ordinal, interval, and ratio, in order to obtain quantitative measures of behaviour (Shaughnessy et al., 2000). The nominal scale is used to categorize behaviour or events. The ordinal scale is used to order or rank events that are being observed. Researchers use the interval scale to state how far apart two actions are on a given measurement. In observation studies, researchers may use the interval scale to rate certain behaviours or events and to evaluate certain characteristics of individuals or events on certain psychological phenomena. The ratio scale is also used in observational studies to gather information.

Frequency of occurrence is another way of obtaining measurement of certain behaviour patterns (Shaughnessy et al., 2000). Using checklists, researchers obtain information about the frequency of certain behaviours in an individual or a group. An observer can use this checklist in order to record children's behaviour in the classroom setting in repeated intervals (many observations) and then to understand each child's behaviour patterns that can be observed more frequently in that particular setting.

Sometimes, electronic recording and tracking devices are used by researchers in observational studies (Shaughnessy et al., 2000). For example, an observational study on family interactions of depressed women has utilized portable microcomputers to record these women's behaviour within their families (Hops, Biglan, & Sherman, 1987). In addition, researchers use the Experience Sampling Method (ESM) to gather information in observations (Shaughnessy et al., 2000). It is used with different groups such as patients record their subjective experiences in everyday life (Verhagen et al., 2016). This method has high ecological validity because the evaluations are conducted in the natural flow of everyday life (Csikszentmihalyi, Mehl, & Conner, 2013; Shiffman, Stone, & Hufford, 2008).

5. Sampling Techniques Used in Observational Research

In observational studies, sometimes researchers have the opportunity to observe all the behaviour patterns they intend to study (Shaughnessy et al., 2000). However, in some cases, it may not always be possible to observe all behaviour patterns. In these situations, researchers may be able to collect a representative sample of behaviour for analysis. This is important, especially for generalizability and for external validity.

5.1. Time sampling

Considering sampling techniques, there are two methods of sampling; time and event sampling, are used in observations depending on the researchers' interests (Shaughnessy et al., 2000). Time sampling is used when researchers choose time intervals for their observations. This method is used to examine variations between individuals or groups and to estimate the frequencies and proportions of time that real behaviour occurs (Mann et al., 1991). In time sampling method, researchers can make observations either systematically or randomly. For example, in systematic time sampling, if they intend to observe children's

behaviour in school setting three hours each day, they can schedule the time of observations systematically. They can observe children's behaviour in six 30 minutes periods that begin every hour throughout school time. In random time sampling, six 30 minutes periods can be randomly distributed throughout the school time.

5.2. Event sampling

Event sampling is used when researchers intend to observe and examine individuals' behaviours in unpredictable or infrequently occurring events. It aims to examine individuals' experiences and behaviours in addition to everyday occurrences and situational conditions (Sonnentag, Binnewies, & Ohly, 2013). They attend the event that they are interested in observing, when it has happened or when it is close to happen (Shaughnessy et al., 2000). Hence, event sampling becomes a more useful method of sampling individuals' behaviour than the time sampling method.

When using time sampling, researchers may fail to observe or record some important behaviour patterns or events. They may not be able to observe a particular behaviour or an event from the beginning and therefore, they may fail to obtain significant components of the observed behaviour that contribute to the most important part of their observations (Goodwin, 1998). When researchers choose times that are more convenient for them and only observe behaviours when that specific event occurs, event sampling can lead to biases (Shaughnessy et al., 2000; Goodwin 1998).

5.3. Situational sampling

Situational sampling, another technique of sampling used in observations, is used the researchers to observe behaviours in different individuals and examine their behaviour patterns in various situations, locations, and conditions. Situational sampling improves the external validity of the findings of observational studies. Individuals' behaviour patterns can change depending on the context of which they are being observed. In situational sampling, researchers can select very diverse samples by sampling in various occasions. Consequently, this method increases the external validity of observational studies (Shaughnessy et al., 2000).

6. Data Analysis in Observational Research

In observational research, data reduction and observer reliability are two important factors in data analysis. Based on the objectives of the study, researchers collect both qualitative and quantitative data, which they then categorize and summarize data to analyze and interpret the findings. The extent to which the observers agree on their observations is also important for data analysis. Therefore, data reduction and observer reliability can be identified as important factors in the process of data analysis.

6.1. Data reduction

Data analysis of observational studies includes a few steps before interpreting the data. The first step of data analysis is to summarize data through data reduction (Shaughnessy et al., 2000). Narrative records collected in observational studies should be categorized or quantified by coding the observed behaviour patterns or events using a specific coding scheme or criteria. This way, the researchers can categorize behaviours into meaningful information. For example, in Hartup's observational study (1974) on children's aggressive behaviour, the researcher summarized children's behaviour into 758 unites of aggressive behaviour patterns. This categorization was again grouped into different categories. He explained nine categories that classify the nature of aggressive events in children and 18 categories to describe the antecedents of aggressive behaviour. By summarizing data into categories, researchers can identify different aspects of observational behaviour. Additionally, it will make them easier to analyze the data according to the research questions or hypotheses of the observational research.

A process known as "coding" is usually necessary in situations where the observations require the observers' judgement. Generally, coding requires precisely defining a set of target actions (Jhangiani et al., 2019). A coding scheme or a criterion helps researchers categorize behaviours into meaningful information. By summarizing data into different group, they can identify different aspects of observational behaviour. It also helps them analyze data according to their research questions or hypotheses. Researchers can analyze the data by using researchers can use descriptive measures such as relative frequencies, measure of

central tendency and variability to analyze the data once data reduction is complete.

6.2. Observer reliability

It is important to obtain inter-observer reliability of observed behaviour in the process of data analysis. Inter-observer reliability can be explained as the extent to which two or more observers who are involved in observational research come to an agreement in observed behaviour (Shaughnessy et al., 2000; Goodwin, 1998). If inter-observer reliability is low, it may raise questions about observed behaviour and affect generalizability. Low reliability may result from characteristics of observers (e.g., their experience, attitudes, and outcome expectancies), as well as the procedures or the methods of observations.

Inter-observer reliability can be increased by defining the behaviour or events that need to be observed, training observers, and providing feedback to the observers when there is a difference in their observations. The observers' independence from each other's observations is also crucial. Researchers can be confident of their findings if the observers are independent and also agree in their observations (Shaughnessy et al., 2000; Goodwin, 1998).

7. Methodological Issues in Observational Methods

Despite the benefits of observational research method, there are some methodological issues. One is, the observer's intervention may influence participants' behaviour. For example, in structured observation, the observer's intervention may lead to certain behaviour patterns that resulted from the intervention and that are exclusive to that event. This may influence the external validity. Further, participants may alter their behaviour if they are aware of that their behaviours are being observed in order to data collection purposes (e.g., in undisguised participant observation) (Shaughnessy et al., 2000). Thus, the observer may no longer be able to examine the natural behaviour of individuals in a given situation. This can be another issue in observations methods.

Additionally, the role of the observer may cause some issues in observations. For example, if the observer has predetermined ideas or expectations about the behaviour that is being observed that may lead to some errors in observations and recordings. Furthermore, if the observer loses scientific objectivity because they

are being identified with the participants who are being observed (e.g., participant observation) it can pose a threat to the findings of observations (Shaughnessy et al., 2000; Goodwin, 1998).

Moreover, researchers may find problems in interpreting observed behaviour, especially when the observers have not followed the procedures in the same manner. This may occur in structured observations and create issues for data interpretation (Shaughnessy et al., 2000).

Researchers may also experience issues in recording observed behaviour. Particularly, it can occur when recording qualitative information of observed behaviour. If the time between observations and recordings is too long, it may cause loss of important information in observations. The observer may find it difficult to reproduce the actual procedure of observation when the passage of time between observation and recording is too long. Therefore, it is important to record observed behaviour during observations or soon after the observations (Shaughnessy et al., 2000).

Conclusion

In conclusion, observational methods can be identified as one of the key techniques followed by psychologists in examining human behaviour. It is one of the four main approaches used to study different aspects of human behaviour, especially in the field of developmental psychology. Observational methods offer benefits including unbiased data collection, providing insights into natural settings, the capacity to capture individuals' normal reactions to certain situations in the real-world situations and the ability to generalize the findings, despite certain limitations in examining behaviour. Hence, observational methods are considered as useful methods for evaluating human behaviour and development, allowing researchers a better understanding of how people behave, respond and interact with their social environment. They will also assist in understanding developmental processes in real-time and identifying possible causes for certain behaviours.

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