Observation in Research

Observation, as a method of collecting research data, involves observing behaviour and systematically recording the results of those observations.

- Observations are guided by the research questions. Therefore the observations are conscious and planned. They differ from casual everyday observations of behaviour which are often casual, selective, and inaccurate.
- Observations are systematically recorded, often using an observation check list
- Data are analyzed using both quantitative and qualitative data analysis methods

Advantages of Observation

- Observation overcomes one of the key disadvantages of interviews and questionnaires, i.e. that the responses provided may not be accurate. Such inaccuracies occur due to the respondents:
 - Lack of awareness of their own behaviour
 - Lack of an accurate memory of what they did
 - Deliberate lies to make them appear better than they are
 - Desire to tell the researcher what they think the researcher wants to hear
- Observation can be used where it is not possible to collect data using interviews or questionnaires, such as when the study participants are animals, babies, young children, persons who do not share a common language, or persons with some forms of disability.

Disadvantages of Observation

- Observation of behaviour may affect the behaviour the researcher wants to observe, e.g. children in a classroom may behave differently if there is an observer present than when there is no observer in the classroom.
- Many events are not open to observation
 - Behaviour that is private, e.g. activities that take place within private homes
 - Events that are unpredictable, so the researcher does not know when and where to be present, e.g. mob riots
 - o Events that are unsafe for the researcher to attend, e.g. tsunamis, bush fires
- Ethical issues may arise, e.g. lack of informed consent

Direct Observation

Direct observation involves the observation of behaviour as it occurs. Before commencing to observe behaviour the researcher must provide answers to a number of questions. These answers must be included in the application for ethical approval to conduct the research and in the method section of the report of the completed research. The questions include:

- What is the rôle of the observer? There are different possible rôles of the observer:
 - True identity. The observer's rôle might be obviously that of researcher and that rôle might be evident to the objects of the observation. For example, the observer might be introduced to a class as a researcher who is there to observe the class, making the rôle clear to the teacher and the students (the objects of the observation).

- Unobtrusive researcher. The researcher might be someone who is present at a public event where the objects of the research are unaware they are being observed. For example, a researcher attending a sporting event might make observations about the behaviour of the players or the persons watching the match. Many researchers consider that there are no ethical issues involved in data collection at large public gatherings due to the public nature of the behaviour and the relative anonymity of the persons being observed. However, anonymity may be true of the spectators, but not of the players.
- Unobtrusive participant observer. The researcher might become part of a group solely to study that group. For example, the researcher might join a particular church so as to study the behaviour of the members of that church. Participant observation might change the behaviour being studied, especially if the group being joined is a very small group. Further, participant observation has ethical implications as there is no informed consent.
- Who will be observed? The researcher must state the rôles or positions of the persons being observed. For example, if the researcher is in a classroom, s/he must state whether s/he is observing the teacher, or a teacher-student pair when the teacher is interacting with an individual student or all the students so as to observe how many of the students behave in a particular way.
- What will be observed? It is impossible to observe everything that is happening in a group of people as there are hundreds of things that might be relevant, including the number of people, characteristics of the people (age, gender, physical size, group size), the clothing they are wearing (hats or no hats), the groups that seem to have formed, what is being said, what is being done, and people's apparent emotions (happy, sad, cross, angry). Therefore, the researcher must state which specific features of the persons or behaviours that will be observed.
- Which actions will be observed? If the researcher is observing dynamic events, s/he must also define the unit of observation, which might be defined in terms of specific actions or interactions. For example, in observing a game of football these units might include catching the ball, kicking the ball, kicking a goal, pushing another player, running, standing and/or communicating with another player. In a classroom, the unit of observation might include a teacher-student interaction, a specific behaviour by a student (asking a question), student-student interaction (talking), or the entry of another person into the classroom.
- **Repetition of observations.** The researcher must decide whether to rely on one set of observations or whether to have repeated sets of observations. For example, the researcher might observe a single class taken by a specific teacher, or the observer might decide to observe several different classes taken by the same teacher, either with the same group of students or with different groups of students. The researcher might observe the same set of people on different occasions. For example, the class might be observed on different days or whilst taking engaged in different types of class work.

- How will the observations be recorded? It is advantageous to record the observations as they are being made, otherwise it is likely that the observer's memory will select and distort the information that is being recorded. If it is not possible to record the observations at the time, the recording should be done as soon as possible after the event.
 - Paper-based recording. If recording the observations on paper, the researcher might just write down the things that appear to be important, but this is likely to lead to selective observation, and often, to the recording of hypothesis confirming observations. Alternatively, the researcher might develop a checklist onto which to record the observations. In this case, there should also be the option of noting things that seem important whilst making the observations, as often there are things the researcher did not anticipate that might be equally as important as the things that were included in the initial checklist.
 - Video recording. If the researcher decides to use a video recorder, it is still necessary to make many of the same decisions prior to taking the video recording of the behaviours of interest. Often it is also necessary to make additional decisions about how to code the recorded data.
- How will the data be analyzed? The researcher must state whether the data will be analyzed using quantitative methods (as used when there is a behavioural checklist and the numbers of persons or behavioural units are recorded) or qualitative methods which are used if writing detailed descriptions or, in many cases, when using a video recorder. It is insufficient to state that quantitative or qualitative methods will be used; the research must name the specific techniques that will be used and describe the analytical process.

Reliability

When using observation as the primary data collection technique the data can be greatly influenced by the observer's expectations about what s/he is observing which can influence the selection of the specific incidents to which s/he pays attention, which in turn influences the amount and type of information that is recorded. Ways to reduce the impact of the expectations of the observer include:

- Having a well-prepared checklist which lists the specific behaviour to be observed and the times at which they are to be observed
- Using an observer who is not familiar with the aims of the study
- Using two observers and testing for the differences between them in terms of their records of the observations.

Indirect Observation

Indirect observation, often referred to as unobtrusive measures, occurs when the researcher uses evidence of behaviours in order to demonstrate that specific behaviours have occurred. The researcher creates a list of the types of possible evidence of the occurrence of the behaviour of interest. Such observations may include:

- Evidence of wear and tear, e.g. the path that students use to cross the university campus is clearer and wider than paths that are used less often
- Evidence of rubbish or litter that has been left behind, e.g. after a soccer match the amount and type of litter might indicate the amount and type of food and drink that has been consumed.

Possible Example – Private Study on Campus

If the researcher interested in the private study habits of students on campus wanted to include observation as one of the data collection techniques, it would be essential to answer the questions posed above. Some issues to consider:

- Will observations be limited to students studying at the central tables under the tree, or will the observer check all of the outside tables and chairs?
- Will observations only be conducted during daylight, or will the observer collect data about the use of classrooms in the evening?
- Does the observer only want to know the number of students using a particular space, or will the observer record other characteristics, such as male/female, working alone/working with another student, using a computer/not using a computer?
- On how many occasions will data be collected?
- At what times of day will the data be collected? Will student activity be influenced by day of the week, the time of day, the time in relation to the beginning and end of lectures, the week of the semester?
- Will the behaviour be influenced by the weather?
- Will all the observations be made by a single observer or will multiple observers be used? If using multiple observers, will two of these be used at the same time to enable the researcher to collect inter-observer reliability data or will they work at different times of day?
- How will the observations be recorded?
- How will the data be analyzed?

Sample Observation Checklist

Table 1 provides a simple checklist designed to observe students who are working at the outdoor central tables at SJUT. It uses two pseudo independent variables (alone/group, which has two levels; time, which has five levels). The times can be defined as specific times of day, possibly the middle of a lecture period. The data can be analyzed using quantitative techniques. If there is one set of observations, the data obtained will be frequencies. If a statistic is used to assess the rôle of the pseudo independent variables (alone/together; time) the researcher will use a nonparametric statistic, such as a chi-square.

Table 1: Sample check list in which the researcher could record frequencies or means and standard deviations of the observations made of student private study behavior in the court yard at SJUT*

Activity	Time 1	Time 2	Time 3	Time 4	Time 5
Number of students working alone					
Number of students working in groups					

*The times need to be defined by the researcher

The observations can be repeated on different days of the week, using additional copies of the check list. If the researcher makes 20 or more copies of the check list and conducts a large set of observations, the researcher can take the mean score for each cell and present Table 1. Each cell would contain a mean score and the associated standard deviation. The inferential statistic used to assess the rôles of the two pseudo independent variables would be a 2x2 analysis of variance.

However, even with this seemingly simple task, the observations can be difficult as the students are likely to move whilst the observer is trying to decide the cell to which each student belongs and to record the data. If the researcher wants to record the size of the group, or whether or not students are using computers, the checklist becomes more complex, for example as shown in table 2.

Table 2: Sample check list in which the resear	cher could record frequencies of the observations
made of student private study b	pehaviour in the court yard at SJUT*

Activity	Time	Time	Time	Time	Time
	1	2	3	4	5
Number of students working alone with printed					
material					
Number of students working alone with computers					
Number of students working alone with printed					
material and computer					
Number of students working in groups with printed					
material					
Number of students working in groups with					
computers					
Number of students working in groups with printed					
material and computers					

*The times need to be defined by the researcher