

# Scientific perspectives on positivism and hermeneutics



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The purpose of this chapter is to describe the method that how the work will be carried out and what approach we have chosen. The aim of this research design is to answer the main questions. We would also present the overview of the choice of methods used for data collection, analysis and the results of the data.

## **Research perspective**

There are two main scientific perspectives, positivism and hermeneutics. (Ann Lind, 2005), since we want to create comprehension knowledge, a hermeneutic perspective is best for our research.

The aim of the hermeneutic analysis is trying to make sense of the whole, and the relationship between people, the organization, and information technology (Michael D. Myers, 1997). Hermeneutics has been defined as “the theory of the operation of understanding in relation to the interpretation of text” (David L. Rennie, 2006). The text could be any sacred and legal document. “Hermeneutics dealt with two aspects of interpretation which will be encountered again: first, the problems of analyzing texts in a way that looked beyond the surface features (e. g. of a parable), and second, the problems of verifying the analysis so produced” (Wallace, Ross, Davie, 2003). We can say that the hermeneutics deals with the interpretation of any aspect of the technology. Hermeneutics opens the path of protecting the social sciences from the violation of the methodology of the natural sciences, but the main concerns are always the similar as those acknowledged previously: i. e. to what degree are readings to be ordered and to what level are they objectively accurate or subjectively factual to the reader? (Wallace, Ross, Davie, 2003)

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The hermeneutics deals with the difficulties of the text interpretation, analysis of the text and the verification of that analysis. The qualitative study produces some kind of text from the interviews or observation, the produced text needs to be interpretive because “ Texts are not just more or less meaningful, they are also more or less useful.” (Wallace, Ross, Davie, 2003). It will show the objectivity of the text, we think that the hermeneutic approach with qualitative research is better approach to choose. The qualitative research gives chance to the interviewee or respondents to answer in their own opinion and not forcing them to select or answer from preset answers

Every research design has some positive aspects in it beside with some negative sides. It is not possible to say that any research design a perfect design. There are mainly two research designs which are the source of the today’s research, one is qualitative research and other is quantitative research. “ Qualitative researchers aim to gather an in-depth understanding of human behavior and the reasons that govern such behavior.”(Wikipedia, 2010) and “ The objective of quantitative research is to develop and employ mathematical models, theories and/or hypotheses pertaining to phenomena.”(Wikipedia, 2010)

The qualitative research contains the study that consists of: to find the answers of questions by predefined set of measures produces answer that might not be resolute in advance and gathering of the proofs. The Qualitative research shares the characteristics which are described and it helps to recognize any given research problem or subject. Qualitative research is especially efficient in obtaining culturally specific information  
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about the values, opinions, behaviors, and social contexts of particular populations. The qualitative research provides textual metaphors of, how the researcher experience a given research problem. There are three qualitative research methods which are: participant observation, in-depth interviews, and focus groups. The participant observation depends on the observation of the participant to be observed, in-depth interviews depend on the collection of data from the individual personally, and focus groups depend on collection of data from the group of particulars. (Mack, Namey, 2005)

The quantitative approach, on the other hand, has more benefit of generating data that is open to the statistical analysis, and something that is predominantly imperative in a safety context. The quantitative research approach is most of the time is in simpler form, the representation of the data in quantitative structure (e. g. graphs or charts) then the disordered layout of the text in qualitative data. (Wallace, Ross, Davie, 2003)

In this research we have use qualitative research methods with hermeneutic approach, our research design will show how this work will be applied, and why we have chosen the approach that we are going to work with. The research design will be helpful to answer the research question, we will use the procedure of the observations and the interviews in this regard. We will try to explore that what are the requirements of a user (visually impaired people) and how the ticketing machine could be provided by the interface that could be usable for the user. This approach will be relying on the conclusion and results that we gather from the interviews and the observation. We will try to broaden our perspective at the start of the work, because it could be very helpful at the point, when we will be collecting data.

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We will analyze that how a ticket machine system interfaces have an effect on a user who is in need of it.

## **Comparison of quantitative and qualitative research approaches**

### **Quantitative Qualitative**

#### **General framework**

- Seek to confirm hypotheses about phenomena
- Instruments use more rigid style of eliciting and categorizing responses to questions
- Use highly structured methods such as questionnaires, surveys, and structured observation
- Seek to explore phenomena
- Instruments use more flexible, iterative style of eliciting and categorizing responses to questions
- Use semi-structured methods such as in-depth interviews, focus groups, and participant observation

#### **Analytical objectives**

- To quantify variation
- To predict causal relationships
- To describe characteristics of a population
- To describe variation
- To describe and explain relationships
- To describe individual experiences
- To describe group norms

## **Question format**

- Closed-ended
- Open-ended

## **Data format**

- Numerical (obtained by assigning numerical values to responses)
- Textual (obtained from audiotapes, videotapes, and field notes)

## **Flexibility in study design**

- Study design is stable from beginning to end
- Participant responses do not influence or determine how and which questions researchers ask next
- Study design is subject to statistical assumptions and conditions
- Some aspects of the study are flexible (for example, the addition, exclusion, or wording of particular interview questions)
- Participant responses affect how and which questions researchers ask next
- Study design is iterative, that is, data collection and research questions are adjusted according to what is learned

## **Research strategy**

We need to look at the existing method and practices, perhaps to develop and improve them. Once a particular project is underway, we may need to collect information to monitor the program and review its effectiveness. Is it meeting its target? Is it satisfying its customers? (Paul Nichols, 2006). The research strategy we will follow during the research is consisting of the collection of the information through the interviews and the observations

then we will review the effectiveness of the data and try to answer the questions that Nichols asked.

There are two types of research strategy approaches.

- Exploratory research
- Descriptive research

## **Exploratory research**

An explorative study is conducted when the researcher would like to follow a new interest or when the subject area in itself is relatively new and unexplored. The aim for such a study may be to create a better understanding, to test the feasibility of further research or to develop a method for further research.(Ann Lind, 2005) Explorative studies are most important when moving into new territories where they almost always can create new knowledge of the research area. (Babbie, 1995)

## **Descriptive Research**

Descriptive research is also called Statistical Research. The main goal of this type of research is to describe the data and characteristics about what is being studied. The idea behind this type of research is to study frequencies, averages, and other statistical calculations. Although this research is highly accurate, it does not gather the causes behind a situation. (Anto, 2007)

We have chosen the exploratory approach as our research strategy, because we want to follow a new knowledge. This area has been unexplored and is a new one, this area need to be of better understanding for the further exploration in the area. The interviews and the observations are also fits well

with exploratory approach, because they will create better understanding of the problem and towards the solution of the problem. By the application of the exploratory method, will help us to get better understanding and make the interface of the ticket machine system better and usable. By descriptive, we will be able to easily get our principles from theories now days for a design principle of a ticket machine system and the features of visually impaired people.

Once the phase of interviews and the observations will be finished, we will try to build a prototype that will help to book tickets for the visually impaired people for the experimental purpose. Our effort would be to get a better understanding of how users perceive the interface of the ticket machine system and how we can make more improvement in the interface to be useable for the visually impaired people. To come up with better design of the machine to investigate further on to make it more reliable for users. If we noticed and observed that today the system called as self-service systems, always need to be improved and need some kind of updating and upgrading in it to make the performances better, improved and more users friendly.

### **The role of theoretical study**

The role of the theoretical study is to explore the literature related to the material which is relevant about the research topic. According to Oates (2006, page 72) the aim is to gather and present evidence to support your claim that you have created some new knowledge. The theoretical study is used to identify the theory's key points and suggest theories that they might explain the data that, the researcher has collected from the field of study.

The theoretical study provides the base for any kind of research. The <https://assignbuster.com/scientific-perspectives-on-positivism-and-hermeneutics/>



theoretical study is based on the literature resources like books, journals articles, conference papers and catalogues.

In theoretical part we will make a base for the empirical survey, which will later on be implemented. We have inquired the different ways for the conducting of interviews. We have to keep in mind that what is considerable to think about and what we should do to attain, validity and consistency when we carry out the theoretical study. We have read various theories about the usability, ticket machine system, human-computer interaction, and user interface and design principles.

### **The role of Empirical study**

According to Oates, (2006, page 2-3) the research within information system has a long tradition of carrying out field research (often called empirical research) in order to find out what happen, when information system are requested, developed and used by the people. The empirical research's outcome can be utilized as the verification to sustain the valuable development and usage of any information system. When the product is actually implemented in the real world the empirical study can be helpful to find out what happen actually, and if we want to develop the system in a desire efficient way, there should be evidence of empirical study to support the research, the theoretical study will also be enhanced with the help of empirical study. (Oates, 2006)

Our intention is to acquire an enhanced understanding of how the user recognize interface in the ticket machine system and what measurements we can take to make the interface of a ticket machine system better for the

handicapped (visually impaired). This can be done with the help of the empirical study because the role of the empirical study is to verify the results of the theoretical study.

### **Data collection procedures**

For the solution of the problem of design issues of the ticketing machine system for the visual impaired people, we will use the interviews and the observations. During the interviews, we will ask the questions from different visually impaired people about their thinking of such kind of system. The interviews from the normal human beings, who travel regularly, will help us to sort out the availabilities and problems of the current ticketing machine, and to get the idea how they think about the current system to improve to make usable for the visually impaired people. During the observations, we will analyze and argue the different responses given by the interviewer and will try to reach some results.

### **Theoretical study**

Our theoretical groundwork is based on articles, books and literature review as well as material which is relevant to our study in our problem area. The literature review is done by searching for these keywords, usability, interface, human computer interface, information service and user interfaces etc.

### **Theoretical sources**

The theoretical source is a tool of qualitative research, for the theoretical source of the empirical studies, we have selected to go through the comprehensive study of literature that is related to our research, which is

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compose of the journals, books and articles in the research area. We will make analysis of the problem by making predictions, understanding and explaining the matter.

Our theoretical groundwork is comprised of articles, books, internet and literature review as well as material that is relevant to our study in our problem area. The literature review is done by searching for these keywords: usability, interface, human computer interface, information service, user interfaces etc. For these keywords we will definitely consider that the authors are more trustworthy than others. In our theoretical study, this thing will be posed with the web sites, books, articles and journals because this will provide quality in our data.

## **Empiric Survey**

The empirical study is related to balance with what the theory says, here the theory is initial point and the preparation of questions related to interviews is based on it. The empirical study will have observations and interviews will be conducted at different places.

We will also try to collect the data by the interviews from the blind or visually impaired people would be the source of direct quotations from them and also yields their pervious experiences, pervious knowledge, feelings and opinion about the ticketing machine or booking system (Michael Quinn). The observation will provide the handicap people's behaviour, activities actions and their interpersonal interaction with other assistive technologies they have used. The analysis of data from written documents consists of the

analysis of articles, journals and books related to the blind people or people with visual impairment and booking systems.

## **Empirical sources**

The empirical source will be composed of a number of interviews and observations, which will be conducted randomly from normal user on the spot after or before buying ticket from ticket reservation machine, and from the blind or visually impaired people, from Eye center Boras.

According to Briony J Oates (2006, page-202, 203), to observe mean ' to watch' and ' to pay attention to'. Observing is something most of us do a lot most of the time: seeing, hearing, noting, analyzing, formal theories, making inferences, imposing meaning. He further says that, for data generation methods the researchers use observations to find out what people actually do, rather than what they say they do when questioned. Most of the time the observation contains looking and watching, but it can involve the senses other than sight: hearing, smelling, touching and tasting. Briony J Oates presents many different kind of observations that could be for the observations, out of which we will use three kind of observations that includes, short duration observation, record keeping by using simple notes and may be camera as well(if required) and third one is that no feedback is given to the observed people. The people observed would be only the people with the visually impairment disabilities. (Oates, 2006)

Highly systematic observations of pre-defined types of events

Observations of anything and everything

Narrow concentration on particular type of event

Broad focus

Observation takes no part in the proceedings

Observer participates fully in the proceedings

Facts of Observations taking place is known to all

Fact of observation taking place is known to none except the researcher

No explanation, or false explanation, given for presence of observer-researcher

Full explanation given for the presence of the observer-researcher

Short duration-could be as little as 5 minutes

Long duration-possibly years

Record-Keeping uses only note taking

Record-keeping uses technology (e. g audio tape, camera, stop watch, two way mirror, computer program)

No feedback given afterwards to the observed

Full feedback given afterwards to the observed

## **FIGURE 2. 1: Different Kind of Observation (Briony j Oates, 2006)**

We will try to observe and describe the interaction between the handicap people and the ticketing machine or the booking system, and the data and the information which obtained by the means of observations and experiences. We start with a theory as starting point then we will formulate interviews which will base on that theory.

Interviews are defined as a particular type of conversation between people. Usually one person has the purpose of undertaking the interview: they want to gain information from the other(s) ( Briony j Oates, 2006). The purpose of interviews would be to produce useful information for the research. In interviews we will try to do the things that Oates suggested (page-187) like gain detailed information, explore emotions, experiences or feeling that cannot easily be observed and investigate sensitive issues or privileged information, that respondent might not willing to write about on paper for a researcher that they have not met. We will use unstructured interviews; we will start by introducing topic to the interviewee and allow them to develop their own ideas about the topic let the interviewees to speak their mind.

The criteria for the selection of the sources of the interviewer or the person to be observed will be the amount and type of the information required for the empirical study. For example if we want the user requirement we will interview from the users (visually impaired people) and if we need to know that how the ticket machine works normally or for the normal people we will interview general public for that.

For the study of a group of individuals, (visually impaired people) we will be visiting various people with visual impairment disabilities at the handicaps care center in Boras for interviews and observations. The selection criteria for the interview and the observation will depend on the information and data required for the empirical study i. e. the user (visually impaired people) and the regular traveler.

Most part of our observation will be undergo when we will be conducting interviews, because the visually impairment people might not be able to give us a long time for observation. There are very less chances that we found these people personally interacting with ticketing machine as we can find normal people interacting.

### **Data analysis procedures**

At this stage of inspection, we will analyze the data we received from our observations and interviews, and then revise them and compare them between real findings and experience. The evaluation method means to produce a high-quality with the help of evaluation, so we can authenticate all the gathered data in order to get new information. It should be done sooner than we begin with our conclusions.

Interviews will be arranged for the users, who are using the ticket machine systems in association with the observations and unexpectedly different question would be asked from them. We can give the idea of the problem in the user's mind. In this way we will easily reach to our goal of what we need and what are problems in the interface, which might create more problems for the user (visually impaired). Then make a comparison of interviews with

various users' viewpoints, what hurdles they could face during interaction with such interface. At the end we will review of all data that we have collected through the interviews and compare them with our theory.

## **Strategies for validating findings**

According to Collin Robson (2004) evaluation refer to as assessing the value (or worth or merit) of something. The ' something' focused on here is some kind of innovation, or intervention, project, or service. It involves people in one or more ways, perhaps as the provider of the service, or in setting up and running the intervention, almost inevitably as participants in the innovation or project and as client of the service (Collin Robson, 2004).

The evaluation method is used to produce a good grade of the research, which should be of great importance that we evaluated for the quality of the research, So we will able to validate all the material that we collected. There are many methods for the qualitative research as: (Kaplan, Maxwell, 2005)

### **-Validity**

#### **-data quality**

#### **-feedback**

We will also use these evaluation methods in our research, according to Bonnie Kaplan and Joseph A. Maxwell (page-14) validity in qualitative research addresses the necessarily " subjective" nature of data collection and analysis. Because the researcher is the instrument for collection and analyzing data, the study is subjective in the sense of being different for different researchers. Different researchers may approach the same research question by collecting different data or by interpreting the same

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data different ways. We will compare the results of interviews and observations taken from different people. (Kaplan, Maxwell, 2005)

Data quality will reveals us that the data we collected is in detailed and varied enough that it will provide a comprehensive and showing a complete picture of, what is going on and what processes are involved. Data quality will help us to deeply see the whole process and developing some results.

This is the single most important way of ruling out the possibility of misinterpreting the meaning of what participants say and do, or what the researcher have observed (Kaplan, Maxwell, 2005). The feedback will imply the gathering the response about the conclusions from participants. We will try to check that our interpretation makes sense to the visually impaired people; this thing will help us in collecting additional important data if required.

We want to keep the structure of the research flexible and feasible, which would provide easiness and comfort to the reader. We will have empirical aid because of interviews and observations that we would conduct from handicap people and the machine ticket purchasers. The aim is to create consistency in the research so that it becomes easy to see that how the different parts to the research fit together.

On the basis of these two different observations and interview types, we will try to join the results from both scenarios and evaluate the results and try to provide a clear picture of the problem area, that we are studying, from which the future readers can identify and relate their study.

## **Result presentation method**

After analyzing all the observations, interviews and the literature, the research results of our thesis would be presented in the form of mainly prototype to certain extent, along with the small amount of data, model and diagrams as well. We will illustrate our results in form of prototype for the use of handicaps with visually impaired people.