

Research designs in second language acquisition: An overview

Mandvi Singh

Dept. of English, Banasthali University, Banasthali
Email: mandvi.chauhan2008@gmail.com

ABSTRACT

Acquisition of various elements of English syntax in second language learners of English has been examined through various methodologies. The purpose of the present paper is to provide a brief summary of the various research designs that have been widely used by the researchers in this field. It is believed that a discussion of research design will be very useful for research scholars who want to pursue research in this field; therefore, some key methodological issues will be examined in detail. The paper consists of two sections: two main strategies for research in general are described in the first section; the second section provides a discussion of various types of research design used in the field of Second Language Acquisition (SLA, hereafter).

Keywords: Qualitative research design; Quantitative research design; SLA Research Designs.

Introduction

Designing a research strategy and determining appropriate method of investigation is a difficult task. In understanding a research, the first goal is to understand research strategy. Research strategy is generally regarded as broad orientation to research. Basically two types of research strategy or paradigms have been discussed in the literature of research methodology: Qualitative and Quantitative. However, triangulation method is also popular these days. In the triangulation method the same pattern or example of behavior is sought in different sources. In a way triangulation is a mixture of qualitative and quantitative strategies

Qualitative and quantitative

There is much debate about the value of qualitative and quantitative approach to research. The issues are complex and a great deal has been written on the topics. It is not within the scope of this paper to provide an extended discussion of the ongoing debates. The paper will briefly describe what the meaning of these approaches is. A simple distinction is that quantitative research employs measurement and qualitative research does not. However different researchers have interpreted it in different ways. Bryman (2008) compares these two paradigms on three dimensions: ontology, epistemology and methodology. Seliger and Shohamy

(1989) compare these two paradigms on the basis of 4 parameters. They are of opinion that in qualitative research synthetic or holistic approach is taken, it is heuristic in nature and control is low, whereas in quantitative research approach is analytic, it is deductive in nature and control is high. A much more clear definition is given by Larsen-Freeman and Long (1991). For them, “The prototypical qualitative methodology is an ethnographic study in which researcher do not set out to test hypothesis but rather to observe what is

present with their focus, and consequently the data, free to vary during the course of observation. A quantitative study, on the other hand, is best typified by an experiment designed to test a hypothesis through the use of objective instrument and appropriate statistical analyses” (Larsen-Freeman and Long 1991:11).

However, in this connection, Reichardt and Cook (1979) provide a useful summary of the attributes of qualitative and quantitative paradigms.

Table 1: Attributes of qualitative and quantitative paradigms

| | Qualitative Paradigm | Quantitative Paradigm |
|-----|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| 1. | Advocates the use of qualitative method | Advocates the use of quantitative method |
| 2. | Concerned with understanding human behavior from the actors own frame of reference | Seeks the facts or causes of social phenomena with little regard for the subjective states of individuals. |
| 3. | Naturalistic and uncontrolled observation | Obtrusive and controlled observation |
| 4. | Subjective | Objective |
| 5. | Close to the data; the insider perspective | Removed from the data; the outsider perspective |
| 6. | Grounded, discovery-oriented, exploratory, expansionist, descriptive and inductive | Ungrounded, verification-oriented, confirmatory, reductionist, inferential and hypothetico-deductive |
| 7. | Process oriented | Outcome oriented |
| 8. | Valid; real, rich and ‘deep’ data | Reliable; hard and replicable data |
| 9. | Ungeneralizable; single case studies | Generalizable; multiple case studies |
| 10. | Holistic | Particularistic |
| 11. | Assumes a dynamic reality | Assumes a stable reality |

(Based on Larsen-Freeman and Long, 1991:12)

Further, Reichardt and Cook point out that “these paradigms are inflexible and a researcher has to make a choice between the two only” (Reichardt and Cook 1979,

cited in Larsen-Freeman and Long 1991: 12). However, Larsen-Freeman and Long criticize this assumption and say that the attributes of paradigm are not logically

linked to one methodology and they explain this with the distinction between longitudinal and cross sectional studies.

Longitudinal and Cross-sectional Studies

Longitudinal approach, i.e. a Case study design, is a study in which the same child is studied through various age levels over an extended period of time. Length of the study in L2 acquisition research has ranged from 4 to 18 months, although Brown's (1973) L1 study spanned four years. Frequency of data collection has also varied from once a week to once a month. No specific minimum guidelines have been set for sample size, frequency of data collection, length of the language elicitation sessions or length of the study. However longitudinal studies involve a small number of subjects studied over an extended period of time, requiring a long term commitment on the part of the researcher and the subject. Since the data collected in a longitudinal study represent the speech of the learner actually developing over some period of time, the order obtained should reflect the true acquisition order of the subjects, if data collection and analysis are conducted properly.

In a cross-sectional study data is collected from a relatively large sample of learners at one point in time. Such a design simulates actual development over time by including many learners who are at different stages of development. If the sample is adequate and appropriate analytical requirements are used then the language data collected may be analyzed to the characteristics of language systems developing over a period

of time. Sample size ranges from 24 to over 1,200. An instrument of some kind is developed for data collection. Data collection activity may take from say a day to a week or even a month, depending on the number of subjects and the availability of subjects to conduct interviews. Various researchers have argued for or against both longitudinal and cross-sectional approaches, and it is fair to say both have their inner strength and weakness.

Most early studies were descriptive, relying heavily on qualitative analysis, while most cross-sectional studies relied on the use of quantitative analysis. This is in the line with the claim of Reichardt and Cook (1979) that researchers must use the only one of the methods of inquiring and that being the one associated with a paradigm to which they subscribed. But many recent researchers are fulfilling the shortcomings by devising more workable methods. Further, despite the apparent differences between these two approaches, the methodological distinction is not categorical, therefore for the purpose of acquisition pattern research; some methods exemplified in one research can be used in the other. For example, it is possible to incorporate instruments such as artificial tasks in a longitudinal approach. In her acquisition of English Vocabulary by Japanese-speaking child study Yoshida (1978) used artificial task along with a longitudinal approach. Besides longitudinal observation of the subject for seven months she used PPVT (Peabody Picture Vocabulary Test) for testing the comprehension and production of vocabulary in that child. Also

unlike early descriptive case studies, in recent studies most researchers have quantified their data using longitudinal approaches. In their nine month longitudinal study of acquisition of negation in English by a Chinese immigrant, Shuhua et al. (2008) used frequency analysis to show the developmental sequences of English

negatives.

From the above examples it is clear that these paradigms are not universal paradigms which cannot be violated. So instead of discussing various methodologies individually they will be discussed along a continuum with two paradigms at either pole.

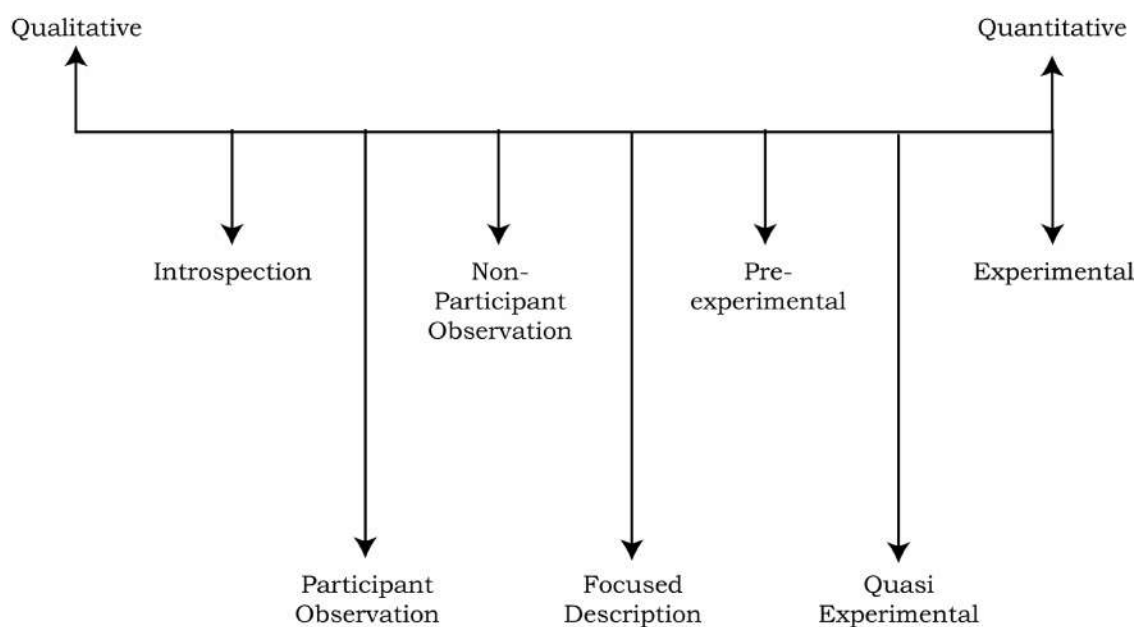


Figure 2.1: Qualitative-Quantitative Continuum of Research Methodologies (Based on Larsen-Freeman and Long, 1991:15)

Research Designs

1. Introspection

Perhaps the ultimate qualitative study is an introspective one in which, with guidance from the researcher, learners examine their own behaviours from insights into SLA. Seliger and Shohamy (1989) define it as the kind of research which requires “subjects to observe the working of their minds when

involved in a particular task and report on them as occur” (p.170). However, Larsen-Freeman and Long (1991) discuss the pros and cons of this kind of research with examples taken from SLA research. Some suggest that their use should be limited to affective variables (e.g., attitude, motivation), whereas others argue that observations by the researcher cannot provide access to a learner’s conscious

thought processes.

2. Participant Observation

Observations have always been considered a major data collection tool in qualitative research. In second language acquisition research, observations are most often used to collect data on how learners use language in a variety of settings to study language learning and teaching processes in the classroom and to study teachers' and researchers' behavior. The main use of observation is for examining a phenomenon or behaviour while it is going on. In participant observation, the researchers take part in the activities they are studying. "They do not approach the study with any specific hypotheses in mind; rather they take copious notes on whatever they observe and experience" (Larsen-Freeman and Long, 1991:16). Usually the notes are recorded immediately after the activities so as to allow the researcher full participation in them. The period of observation is long and the number of subjects small. A good example of this kind of study in SLA context is the study by Bailey (1983) of her experience of learning French as a second language (ibid).

3. Non-participant Observation

The other kind of observation found in qualitative research is non-participant observation in which the researcher is not part of the group which he is studying. The researcher observes activities without engaging in them directly and data is usually collected by taking notes and making tape recordings during the

observation itself. In SLA field, this type of non-participant observation is usually known as a longitudinal study. Leopald's (1939-49) study of his daughter's simultaneous acquisition of English and German is an example of this kind of study. This is a four-volume work, which provides the most complete record of a child's acquisition of two languages simultaneously (Leopald 1939-49, cited in Hatch 1978: 23-32).

4. Focused Description or Descriptive Research

Further along the continuum we find focused, descriptive research. This type of research shares characteristics with both qualitative and experimental research design. It is similar to qualitative studies in that it is also descriptive in nature and deals with naturally occurring phenomena. It differs from qualitative research in that it is often deductive rather than inductive and begins with a pre-conceived hypothesis and a narrower scope of investigation. Researchers who use a focused descriptive methodology do so because they wish to narrow the scope of their study to a particular set of variables, a particular system of language (e.g., morphology, syntax), or to explore a particular issue (e.g., the influence of age on SLA or the effect of socio-economic condition on SLA).

An example of a focused descriptive study which aims to order data is Dulay and Burt's (1978) and Bailey, Madden and Krashen's (1978) study of morpheme acquisition by children and adults respectively. Both

studies used a cross-sectional approach and an instrument Bilingual Syntax Measure (BSM) for data collection. Dulay and Burt found that some 250 Spanish and Chinese-speaking children aged six to eight learning English in an SLA situation showed similar order in the acquisition of eleven morphemes.

Focused descriptive studies are usually less time-consuming than observational studies and they can use a fairly good number of subjects in any one study. Since this type of study uses more subjects, the researchers can feel confident about the generalizability of their findings. But even then, this kind of study has some limitations, for example, since it is focused, it cannot capture the complexity of the SLA process.

5. Pre-Experimental Design

Next, as we further move along the continuum we encounter designs that approximate, to an increasing degree, true experiments. In a true experimental design, the researcher's goal is to establish a cause and effect relationship between two phenomena. The researcher aims to establish that one variable, the independent variable, causes changes in a dependent variable. This can be shown as:

Independent variable → affects a dependent variable (Johnson 1992:165)

For conducting true experimental research, two criteria should be fulfilled: (1) two groups should be there, a control group and an experimental group; and (2) the subjects must be randomly assigned to these groups.

A research design which does not fulfill these two criteria is called pre-experimental. In a pre-experimental design there is only one group. Thus, subjects in one group serve both as control group and as experimental group. The comparison here is between its performance without treatment and its performance with treatment; that is why it is also known as one group pretest + post-test design.

Another type of design which uses one group is called time-sampling design, which is a time-series design, because a number of samples or observations are taken over a period of time. They are different from non-experimental longitudinal research because they have a controlled treatment inserted after a number of observations or measurements. They also use just one group for experimentation and the subjects of the groups are not random. One of the advantages of this type of research design is that a number of observations of the subject population before and after treatment allow us to ascribe any changes in the subjects' performance to the treatment with greater assurance. That is why it is sometimes known as a Quasi-experimental design.

6. Quasi-Experimental Design

Quasi-experimental research is conducted under conditions in which it is difficult to control many of the variables and in which subjects cannot be assigned to special groups for the purpose of the research. Quasi-experimental design is closer to true experimental research in the sense that it

uses one or more control groups and an experimental group but does not require random assignments of subjects to groups. Time-series or sampling designs are different from quasi-experimental design as they take one group for the study. Nevertheless, as Larsen-Freeman and Long (1991) suggest, time-series designs are quasi-experiments since they improve upon the one-group pretest-post-test design that is classified as pre-experimental.

7. Experimental Design

Experimental research is usually conducted to find out the cause and effect relationship between two variables. Experiments have two criteria: (1) there are at least two groups included in the study, a control group and an experimental group; and (2) the subjects are randomly assigned to one of those groups. The purpose of having two groups is that if one group is treated in one manner and another in a different manner and their post-treatment behaviour differs, we can conclude that this difference is because of the different treatment. This is possible only when we have two equivalent, comparable groups to start with. For this reason the subjects are randomly assigned to one of those groups. This random group assignment allows the researcher to assume that they have two comparable groups for the experiment. SLA researchers have investigated a wide variety of issues in classroom L2 learning through experimentation.

As we have travelled the continuum between the qualitative and quantitative poles it is

clear that there is no clear distinction between one methodology and other. There is no reason why the combination of these two parameters cannot result in hybrid methodologies. For example, focused descriptive studies can use focused introspection to probe some features of language acquisition. Also, there are pieces of qualitative research in which quantification of data takes place after data of general nature has been collected and perhaps categorized. A classic example of a combination of approaches is found in Brown (1973), in which many procedures typically found in qualitative research such as observation, tape recordings and manual transcription were used. So mixing of methodology is possible in field of SLA.

Another type of methodology which is basically conducted as a large-scale undertaking is **Multisite, Multimethod, large scale** research. In Johnson's definition, "Multisite, Multimethod, Large-scale research refers to large scale studies in which a team of collaborating researchers collect data from a number of sites and employs a variety of both qualitative and quantitative data collection and analysis strategies" (Johnson, 1992:221).

Conclusion

Once the researcher decides on a particular design, the next step is to decide how to collect data. For this he selects the appropriate data collection procedure, which is followed by analysis, results and interpretation. Another important element in reporting any type of research is the

information about the reliability and validity of the procedures used to collect data so that another researcher attempting to replicate the research is able to do so.

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Editor's Note: This article, which was originally published in JELT in 2015 (Vol. 57/4 – July-August 2015, pp. 1219) has been reprinted here, as we felt that an overview of research designs would help our members in planning, conducting and reporting evidence-based, quality research. We also felt that this would follow from Dr Mohanraj's tips on research and research reporting published in the last issue of our journal. We hope the readers benefit from both the pieces.]