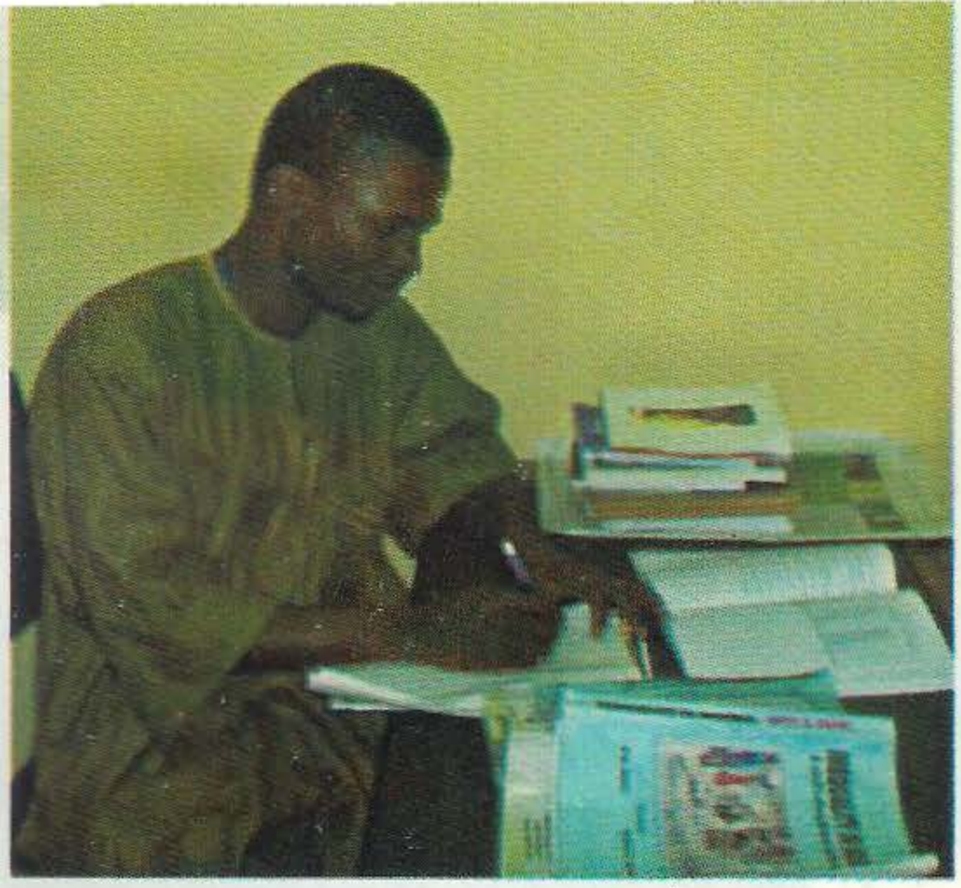

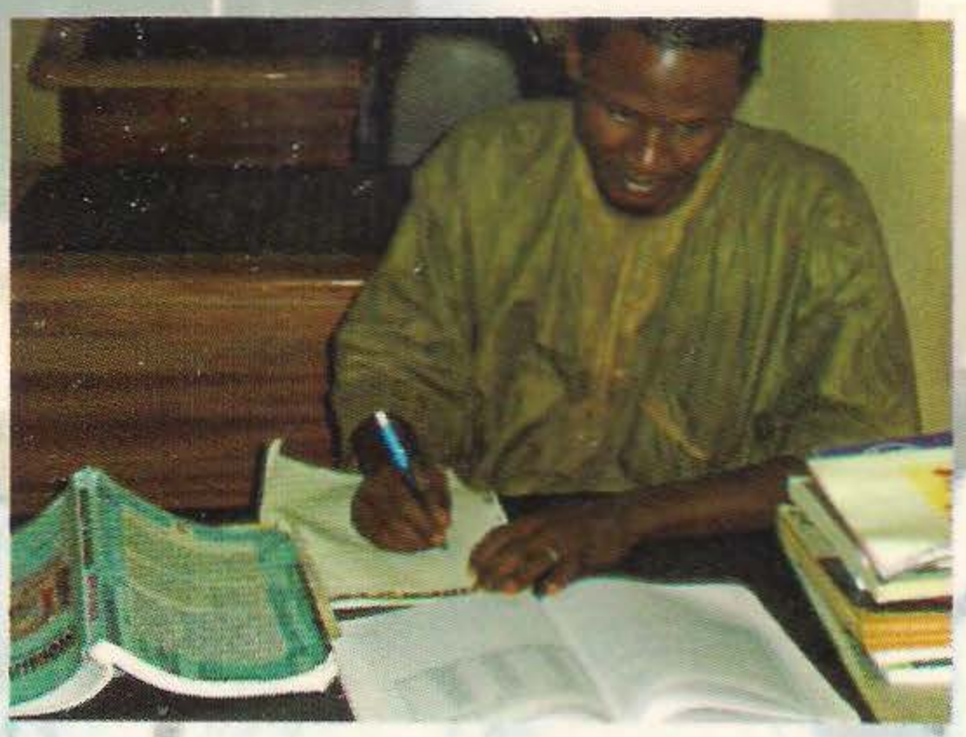

READINGS

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Contents

CHAPTER 7

QUALITATIVE, QUANTITATIVE AND MIXED RESEARCH MEDOLOGIES

Abdalla Uba Adamu PhD*
(auadamu@yahoo.com, auadamu@gmail.com)

Introduction

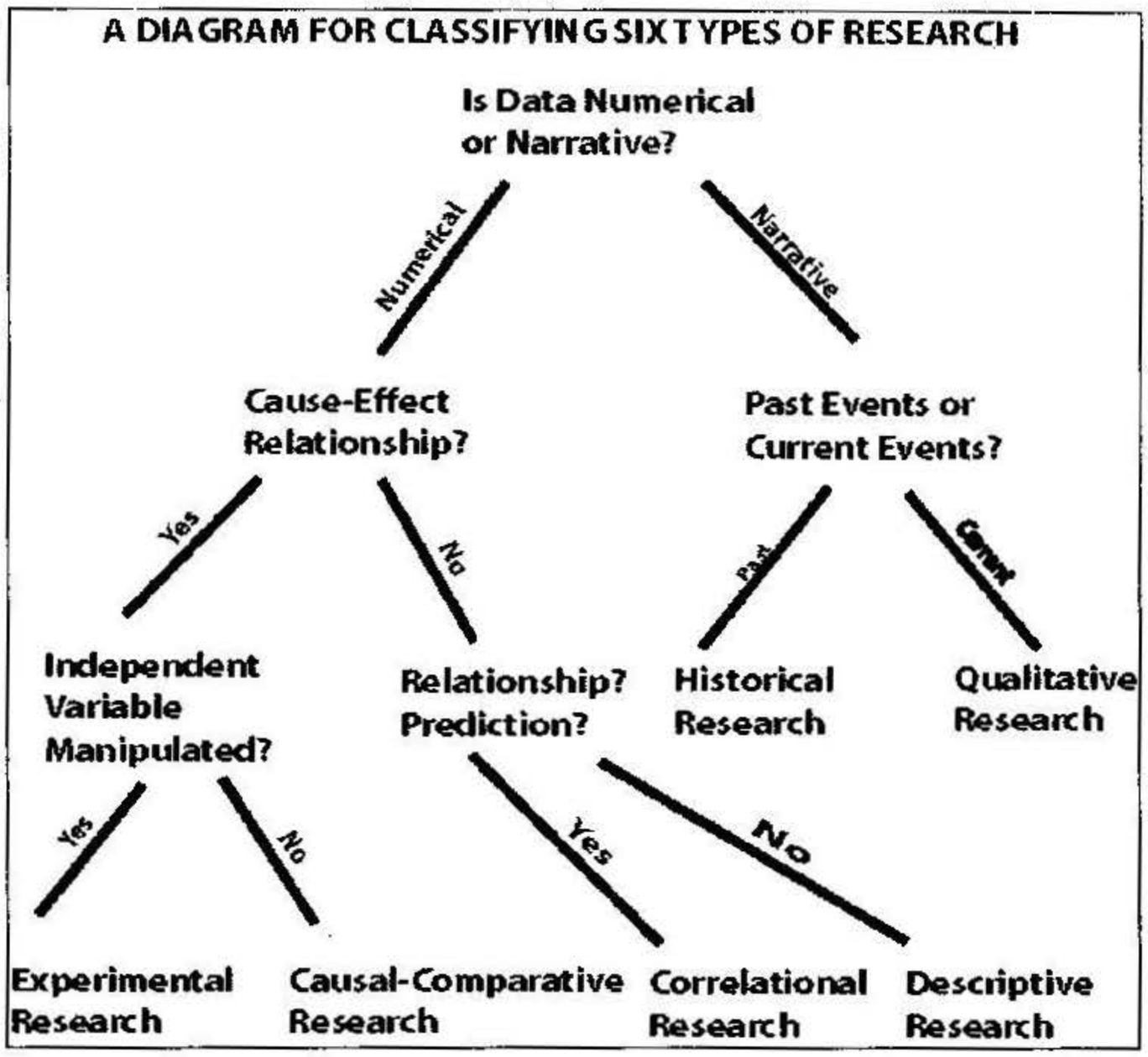
This chapter introduces the three research methodology paradigms in the social sciences and education. A paradigm is a perspective based on a set of assumptions, concepts, and values that are held by a community of researchers. For the most part of the 20th century, the quantitative paradigm was dominant. During the 1980s, the qualitative paradigm came of age as an alternative to the quantitative paradigm, and it was often conceptualized as the polar opposite of quantitative research. Finally, although the modern roots of mixed research go back to the late 1950s, it truly became the legitimate third paradigm with the publication of the *Handbook of Mixed Methods in Social and Behavioral Research* (2003, by Tashakkori and Teddlie). At the same time, mixed research has been conducted by practicing researchers throughout the history of research.

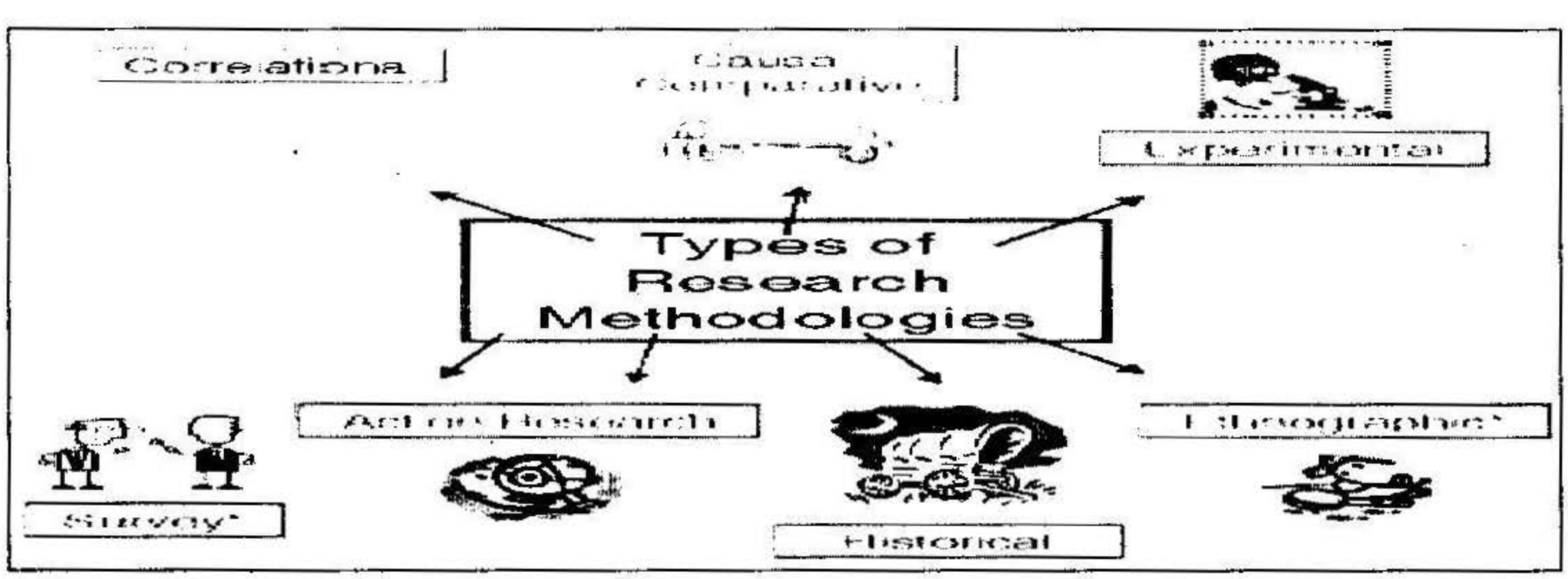
Characteristics of the Three Research Paradigms

There are currently three major research paradigms in education and in the social and behavioral sciences. They are quantitative research, qualitative research, and mixed research. Here are the definitions of each:

- *Quantitative research* – research that relies primarily on the collection of quantitative data.
- *Qualitative research* – research that relies on the collection of qualitative data.
- *Mixed research* – research that involves the mixing of quantitative and qualitative methods or paradigm characteristics.

* Abdalla Uba Adamu is a Professor of Science Education at the Bayero University, Kano and the Chairman of the Centre for Hausa Cultural Studies, Kano





In order to further undertand the distinctions between qualitative and quantative research, the following table outlines the fundamental features of each approach:

Predispositions of Quantitative and Qualitative Modes of Inquiry

Quantitative Mode	Qualitative mode
Assumptions	**Assumptions**
▪ Social facts have an objective reality ▪ Primacy of method ▪ Variables can be identified and relationships measured ▪ Etic (outside's point of view)	▪ Reality is socially constructed ▪ Primacy of subject matter ▪ Variables are complex, interwoven, and difficult to measure ▪ Emic (insider's point of view)
Purpose	**Purpose**
▪ Generalizability ▪ Prediction ▪ Causal explanations	▪ Contextualization ▪ Interpretation ▪ Understanding actors' perspectives
Approach	**Approach**
▪ Begins with hypotheses and theories ▪ Manipulation and control ▪ Uses formal instruments ▪ Experimentation ▪ Deductive ▪ Component analysis ▪ Seeks consensus, the norm ▪ Reduces data to numerical indices ▪ Abstract language in write-up	▪ Ends with hypotheses and grounded theory ▪ Emergence and portrayal ▪ Researcher as instrument ▪ Naturalistic ▪ Inductive ▪ Searches for patterns ▪ Seeks pluralism, complexity ▪ Makes minor use of numerical indices ▪ Descriptive write-up
Researcher Role	**Researcher Role**
▪ Detachment and impartiality ▪ Objective portrayal	▪ Personal involvement and partiality ▪ Empathic understanding

Quantitative Research Methods

Quantitative research is based on statements such as anything that exists exists in a certain quantity and can be *measured*. The ideals of quantitative research call for procedures that are public, that use precise definitions, that use objectivity-seeking methods for data collection and analysis, that are replicable so that findings can be confirmed or disconfirmed, and that are systematic and cumulative—all resulting in knowledge useful for explaining, predicting, and controlling the effects of teaching on student outcomes.

Thus quantitative research uses methods adopted from the physical sciences that are designed to ensure *objectivity*, *generalizability* and *reliability*. These techniques cover the ways research participants are selected randomly from the study population in an unbiased manner, the standardized questionnaire or intervention they receive and the statistical methods used to test predetermined hypotheses regarding the relationships between specific variables. The researcher is considered external to the actual research, and results are expected to be replicable no matter who conducts the research.

A quantitative research methodology is appropriate where quantifiable measures of variables of interest are possible, where hypotheses can be formulated and tested, and inferences drawn from samples to populations (see chapters 6 & 19).

The strengths of the quantitative paradigm are that its methods produce quantifiable, reliable data that are usually generalizable to some larger population. Quantitative measures are often most appropriate for conducting needs assessments or for evaluations comparing outcomes with baseline data. This paradigm breaks down when the phenomenon under study is difficult to measure or quantify. The greatest weakness of the quantitative approach is that it decontextualizes human behavior in a way that removes the event from its real world setting and ignores the effects of variables that have not been included in the model.

Assumptions Underlying Quantitative Methods:

- reality is objective, "out there," and independent of the researcher – therefore reality is something that can be studied objectively;
- the researcher should remain distant and independent of what is being researched;
- the values of the researcher do not interfere with, or become part of, the research – - research is value-free;
- research is based primarily on deductive forms of logic and theories and hypotheses are tested in a cause-effect order; and
- the goal is to develop generalizations that contribute to theory that enable the researcher to predict, explain, and understand some phenomenon.

Three general types of quantitative methods are:

- *Experiments* –True experiments are characterized by random assignment of subjects to experimental conditions and the use of experimental controls.
- *Quasi-Experiments* – Quasi-experimental studies share almost all the features of experimental designs except that they involve non-randomized assignment of subjects to experimental conditions.
- *Surveys* – Surveys include cross-sectional and longitudinal studies using questionnaires or interviews for data collection with the intent of estimating the characteristics of a large population of interest based on a smaller sample from that population.

The quantitative approaches involve the collection of numerical data in order to explain, predict, and/or control phenomena of interest. Data analysis is mainly statistical (deductive process). The processes include:

1. Descriptive research
2. Correlational research
3. Causal-comparative research
4. Experimental Research

Descriptive Studies

Descriptive studies are also called **observational**, because you observe the subjects without otherwise intervening. The simplest descriptive study is a **case**, which reports data on only one subject; examples are a study of an outstanding athlete or of a dysfunctional institution. Descriptive studies of a few cases are called **case series**. In **cross-sectional** studies variables of interest in a sample of subjects are assayed once and the relationships between them are determined. In **prospective** or **cohort** studies, some variables are assayed at the start of a study (e.g., dietary habits), then after a period of time the outcomes are determined (e.g., incidence of heart disease). Another label for this kind of study is **longitudinal**, although this term also applies to experiments. **Case-control** studies compare **cases** (subjects with a particular attribute, such as an injury or ability) with **controls** (subjects without the attribute); comparison is made of the **exposure** to something suspected of causing the cases, for example volume of high intensity training, or number of alcoholic drinks consumed per day. Case-control studies are also called **retrospective**, because they focus on conditions in the past that might have caused subjects to become cases rather than controls.

A common case-control design in the exercise science literature is a comparison of the behavioral, psychological or anthropometric characteristics of elite and sub-elite athletes: you are interested in what the elite athletes have been exposed to that makes them better than the sub-elites. Another type of study compares athletes with sedentary people on some outcome such as an injury, disease, or disease risk factor. Here you know the difference in exposure (training vs no training), so these studies are really cohort or prospective, even though the exposure data are gathered retrospectively at only one time point. The technical name for these studies is **historical cohort.**

Correlation studies

Correlation studies also investigate the likelihood of a relationship between two variables but they are interested in identifying associations rather than cause and effect. For example, is there a relationship between social group and the number of times a person consults a doctor? A correlation study might find that patients from a certain social group are more likely than patients from other social groups to visit the doctor for certain kinds of health problems. A correlation study does not prove that the patient is going to the doctor because he is from a particular social group. The findings are limited to demonstrating that there is

an association. That is, those patients from that group are more likely to consult the doctor. Correlation studies collect quantitative data, which are subjected to statistical tests that calculate the strength of the link, the correlation.

Causal-Comparative

Causal-comparative research attempts to establish cause-effect relationships among the variables of the study. The attempt is to establish that values of the independent variable have a significant effect on the dependent variable. This type of research usually involves group comparisons. The groups in the study makes up the values of the independent variable, for example gender (male versus female), preschool attendance versus no preschool attendance, or children with a working mother versus children without a working mother. These could be the independent variables for the sample studies listed below. However, in causal-comparative research the independent variable is not under the experimenters control, that is, the experimenter can't randomly assign the subjects to a gender classification (male or female) but has to take the values of the independent variable as they come. The dependent variable in a study is the outcome variable.

Experimental Studies

Experimental studies are also known as **longitudinal** or **repeated-measures** studies, for obvious reasons. They are also referred to as **interventions**, because you do more than just observe the subjects.

In the simplest experiment, a **time series**, one or more measurements are taken on all subjects before and after a treatment. A special case of the time series is the so-called **single-subject design**, in which measurements are taken repeatedly (e.g., 10 times) before and after an intervention on one or a few subjects.

Time series suffer from a major problem: any change you see could be due to something other than the treatment. For example, subjects might do better on the second test because of their experience of the first test, or they might change their diet between tests because of a change in weather, and diet could affect their performance of the test. The **crossover** design is one solution to this problem. Normally the subjects are given two treatments, one being the real treatment, the other a control or reference treatment. Half the subjects receive the real treatment first, the other half the control first. After a period of time sufficient to allow any treatment effect to wash out, the treatments are crossed over. Any effect of retesting or of anything that happened between the tests can then be subtracted out by an appropriate analysis. **Multiple crossover** designs involving several treatments are also possible.

If the treatment effect is unlikely to wash out between measurements, a **control group** has to be used. In these designs, all subjects are measured, but only some of them—the **experimental group**— receives the treatment. All subjects are then measured again, and the change in the experimental group is compared with the change in the control group.

If the subjects are assigned randomly to experimental and control groups or treatments, the design is known as a **randomized controlled trial**. Random assignment minimizes the chance that either group is not typical of the population. If the subjects are **blind** (or **masked**) to the identity of the treatment, the design is a **single-blind** controlled trial. The control or reference treatment in such a study is called a **placebo**: the name physicians use for inactive pills or treatments that are given to patients in the guise of effective treatments. Blinding of subjects eliminates the **placebo effect**, whereby people react differently to a treatment if they think it is in some way special. In a **double-blind** study, the experimenter also does not know which treatment the subjects receive until all measurements are taken. Blinding of the experimenter is important to stop him or her treating subjects in one group differently from those in another. In the best studies even the data are analyzed blind, to prevent conscious or unconscious fudging or prejudiced interpretation.

Ethical considerations or lack of cooperation (compliance) by the subjects sometimes prevent experiments from being performed. For example, a randomized controlled trial of the effects of physical activity on heart disease may not have been performed yet, because it is unethical and unrealistic to randomize people to 10 years of exercise or sloth. But there have been many short-term studies of the effects of physical activity on disease risk factors (e.g., blood pressure).

Survey

The survey is a non-experimental, descriptive research method. Surveys can be useful when a researcher wants to collect data on phenomena that cannot be directly observed (such as opinions on library services). Surveys are used extensively in all disciplines to assess attitudes and characteristics of a wide range of subjects, from the quality of user-system interfaces in libraries, to attitudes of parents to education of their children. In a survey, researchers *sample* a *population* which is any set of persons or objects that possesses at least one common characteristic. Examples of populations that might be studied are (1) all year 1999 graduates of Economics from Bayero University, Kano (BUK) or (2) all the users of BUK General Library. Since populations can be quite large, researchers directly question only a *sample* (i.e. a small proportion) of the population.

Qualitative Research Methods

The qualitative research methodology encompasses a whole array of evolving techniques and strategies. These include:

1. Participant-Observation	7. Natural Experiment
2. Ethnography	8. Case Study
3. Photography	9. Unobtrusive Measures
4. Ethnomethodology	10. Content Analysis
5. Dramaturgical Interviewing	11. Historiography
6. Sociometry	12. Secondary Analysis of Data

We can cluster them into five major categories of qualitative research: phenomenology, ethnography, case study research, grounded theory, and historical research. All of the approaches are similar in that they are qualitative approaches. Each approach, however, has some distinct characteristics and tends to have its own roots and following. Here are the definitions and an example of the different types of qualitative research (see chapters 5, 16 & 17).

Ethnography

Ethnography is a form of qualitative research. It is used to investigate cultures and population subgroups and seeks to explore, describe and explain cultural behaviour, e.g. understanding of mental illness within a particular Nigerian sub-group. In primary health care, ethnography helps health care professionals to develop cultural awareness and adapt existing services to develop new approaches to meet patients' needs. As a form of qualitative research, ethnography requires the collection of in depth information through face to face contact with individuals over a period of time. Analysis of data concentrates on understanding and describing the situation from the perspective of the culture or sub group under study.

Phenomenology

Phenomenology literally means the study of phenomena. It is a way of describing things that are part of the world in which we live: events, situations, experiences or concepts. Phenomenological research investigates individuals' lived experience of events. It asks questions like "what does it mean to the individual to be involved in this situation, what effect does it have on that individual's life, their feelings and their behaviour?" One example of phenomenological research would be an investigation into the experience of caring for someone with severe disability. The study would consider the meaning of caring in that context, the components of caring and the impact - negative and positive - it has on carriers' lives.

Grounded theory

This is a form of research that goes beyond collecting and analysing data to add to the existing body of knowledge. In grounded theory the emphasis is on developing new knowledge and new theories about the topic being investigated. For an example, you might collect data from parents who have pulled their children out of public schools and develop a theory to explain how and why this phenomenon occurs, ultimately developing a theory of school pull-out.

Case studies

Case studies are in depth investigations of a single or small number of units. The unit may be individual people, patients, groups or organisations. One of the most common uses of the case study method is evaluation of a service. For example, a drop-in facility that provides advice and support for teenagers. Another example would be an examination of team building in one or a small number of primary health care teams. Case studies involve the collection of qualitative or quantitative information or a combination of both.

Historical research

This is research about events that occurred in the past. As an example, you might study the use of corporeal punishment in Qur'anic schools in the 19th century.

Mixed Research Methods

- ***Mixed research*** is a general type of research (it's one of the three paradigms) in which quantitative and qualitative methods, techniques, or other paradigm characteristics are mixed in one overall study. Now the two major types of mixed research are distinguished: mixed method versus mixed model research.
- ***Mixed method research*** – is research in which the researcher uses the qualitative research paradigm for one phase of a research study and the quantitative research paradigm for another phase of the study. For example, a researcher might conduct an experiment (quantitative) and after the experiment conduct an interview study with the participants (qualitative) to see how they viewed the experiment and to see if they agreed with the results. Mixed method research is like conducting two mini-studies within one overall research study.
- ***Mixed model research*** – is research in which the researcher mixes both qualitative and quantitative research approaches within a stage of the study or across two of the stages of the research process. For example, a researcher might conduct a survey and use a questionnaire that is composed of multiple closed-ended or quantitative type items as well as several open-ended or qualitative type items. For another example, a researcher might collect qualitative data but then try to quantify the data.

The Advantages of Mixed Research

Mixed research has a series of advantages over the use of either quantitative or qualitative research approach alone.

First of all, we advocate the use of mixed research when it is feasible. We are excited about this new movement in educational research and believe it will help qualitative and quantitative researchers to get along better and, more importantly, it will promote the conduct of excellent educational research.

- Perhaps the major goal for researcher who design and conduct mixed research is to follow the *fundamental principle of mixed research*. According to this principle, the researcher should mix quantitative and qualitative research methods, procedures, and paradigm characteristics in a way that the resulting mixture or combination has complementary strengths and nonoverlapping weaknesses.
- When different approaches are used to focus on the same phenomenon and they provide the same result, you have "corroboration" which means you have superior evidence for the result. Other important reasons for doing mixed research are to complement one set of results with another, to expand a set of results, or to discover

something that would have been missed if only a quantitative or a qualitative approach had been used.

- Some researchers like to conduct mixed research in a single study, and this is what is truly called *mixed research*. However, it is interesting to note that virtually all research literatures would be mixed at the aggregate level, even if no single researcher uses mixed research. That's because there will usually be some quantitative and some qualitative research studies in a research literature.

I will illustrate the differences between qualitative and quantitative research methods using the main analytical tools in research, which are *research questions* and *hypotheses*.

Research Questions

In qualitative research, the research problem is phrased in a research question. Research questions may be (a) interrogative or (b) declarative.

a) Interrogative questions identify a gap in knowledge, e.g.,
   - "What is the relationship between government campaigns and change in health behaviour?"

b) Declarative questions define the purpose of the study by declaring the intention to investigate a particular event, phenomenon or situation e.g.,

   - "The purpose of this research is to investigate the relationship between government campaigns and change in health behaviour."

Research questions are often translated into the aims of the study, but the question comes first.

- "Good" research questions are short, sharp and specific and clearly state or imply a relationship between two or more variables. The variables must be empirical i.e., capable of being observed and measured.
- "Good" research questions are free from value judgments and bias in order to achieve "scientific objectivity".

Research questions enable the progression of a study to be planned and efficient, focusing thoughts and efforts.

Hypothesis

Where the research problem is to be addressed in a quantitative (as opposed to qualitative) manner, it is usual to present the research "problem" as a hypothesis rather than a question. Thus

- a hypothesis is a statement or explanation that is suggested by knowledge or observation but has not, yet, been proved or disproved.

A type of prediction which is usually derived from a survey and analysis of previously published research. E.g., "If 'x' is done to these patients then 'y' will follow" OR, more correctly, "If 'x' is not done, 'y' will not follow.

Note the last line of the description of the hypothesis refers to the fact that it is more correct to state that if something is not done, a particular consequence will not follow. This is in line with the view that research can *prove nothing*; research sets out to *disprove theories* or notions. Consequently, we find that much research of a quantitative nature is preceded by a null hypothesis rather than an hypothesis. A null hypothesis is:

- Statement/explanation which predicts that there will be no significant differences between observations. E.g., Health promotion activity by the government has no significant effect on health behaviour.

Thus the research problem can be stated in the form of a hypothesis (quantitative research) or a research question (qualitative research).

Guide and Practical Considerations

Qualitative or quantitative research?

Choose a more quantitative method when most of the following conditions apply:

- The research is confirmatory rather than exploratory i.e. this is a frequently researched topic, and (numerical) data from earlier research is available..
- You are trying to measure a trend (almost impossible with qualitative research).
- There is no ambiguity about the concepts being measured, and only one way to measure each concept.
- The concept is being measured on a ratio or ordinal scale.

And choose a qualitative method when most of these conditions apply:

- You have no existing research data on this topic.
- The most appropriate unit of measurement is not certain (individuals? households? organizations?)
- The concept is assessed on a nominal scale, with no clear demarcation points.
- You are exploring the reasons why people do or believe something.

Two extreme examples:

- You are studying the trends in weather in the town where you live. There aren't many variables: temperature ranges, wind speed, rainfall, barometric pressure, and perhaps a few others. Most of the variables are measured mechanically, and a lot of historical data exists. You wouldn't even *consider* doing qualitative research on this.

- You have invented an entirely new type of product that has a mix of positive and negative environment effects, which would be sold to large organizations, but not directly to the public. However public feelings about the product might be strong enough that organizations would be deterred from buying it. The product is very complex, and takes a long time to explain. You find it difficult to pose a clear question, but it would be something like "To what extent might public resistance deter organizations from buying this product?" Though you could do a survey and get a result, it would be very misleading. This problem has so many unknowns that it clearly calls for qualitative research.

In reality, most topics of research fall between the two extremes. Our position, in general, is that it's best to take both approaches. Quantitative data enumerates, and qualitative data explains.

Resource Guides

1. Exercise on classifying research by type

As an exercise, classify each of the following as primarily:

A. Historical Research,
B. Qualitative Research,
C. Descriptive Research,
D. Correlational Research,
E. Causal-comparative Research, or
F. Experimental Research

1. Relationship between creativity and achievement
2. Prediction of success in physics based on a physics aptitude test
3. Effect of birth order on academic achievement
4. Self-esteem of males versus females
5. Attitudes of parents toward lowering the mandatory school attendance age from 16 to 14 years of age.
6. The ethnography of Parent-Teacher Association Meetings.
7. Opinions of principals regarding decentralization of decision-making.
8. Effects of assertive discipline on the behavior of hyperactive children.
9. Relationship between time to run the 100-yard dash and high jumping performance.
10. Effectiveness of daily homework with respect to achievement in Algebra I

And the answers are:

1. D. Correlational Research
2. D. Correlational Research
3. E. Causal-comparative Research

4. E. Causal-comparative Research
5. C. Descriptive Research
6. B. Qualitative Research
7. C. Descriptive Research
8. F. Experimental Research
9. D. Correlational Research
10. F. Experimental Research

2. Guide to Conceptual Framework

If your thesis or dissertation (or even a paper) is going to be based on ***Quantititave Research*** methods, then it should look like this:

An **Introduction** that

- states the problem to be investigated
- contextualizes the research by describing the underlying theoretical framework and reviewing previous studies
- defines the variables and ***research hypotheses***

A **Method Section** that describes

- the participants (e.g., demographics, selection criteria, and group assignment)
- the materials (e.g., task[s], equipment, instruments, including a discussion of their validity and reliability, if appropriate)
- the procedures employed in the study such as treatment(s)

A **Results Section** that includes

- graphs and tables that help to present and explain the results
- descriptive and inferential statistics used to analyze the data, including the following:
  - name of the statistic used and in the case of an uncommon statistical procedure, a reference to a discussion of the procedure
  - statistical significance of the results obtained
  - measures of effect sizes
  - how all necessary assumptions were met

A **Discussion Section** that includes

- an interpretation of the results
- an explanation of the results, including alternative explanations when appropriate
- a statement relating the results obtained in the study to original hypotheses
- theoretical implications
- limitations of the study

A **Conclusion** that includes
- general implications of the study
- suggestions for further research

References

Appendices of instrument(s) used

If your thesis or dissertation (or even a paper) is going to use ***Qualitative Research*** methods, then it should look like this
- Statement of the ***research question*** examined in the study
- Description of the ***theoretical framework(s)*** underlying the research question
- Description of the ***methodological tradition*** in which the study was conducted
- Relationship between the study and ***previous work*** in the area under investigation
- Detailed description of the ***participants*** and ***research site***
- Detailed description of ***data collection and analysis*** procedures
- Report of ***findings***
- ***Limitations*** of the study
- ***Implication(s)*** of the study

References

Balnaves, M., & Caputi, P. (2001). *Introduction to Quantitative Research Methods: An Investigative Approach*. Sage Publications: Thousand Oaks, California.

Bernard, R. H. (1999). *Social Research Methods: Qualitative and Quantitative Approaches*. Sage Publications: Thousand Oaks, California.

Black, T. R. (1999). *Doing Quantitative Research in the Social Sciences: An integrated approach to Research Design,Measurement, and Statistics*. Sage Publications: Thousand Oaks, California.

Converse, J.M., & Presser, S. (1986). *Survey Questions: Handcrafting the Standardized Questionnaire*. Sage Publications: Thousand Oaks, California.

Creswell, J. W. (2002). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (2nd ed.). Sage Publications: Thousand Oaks, California.

Glesne, C., & Peshkin, A. (1992). *Becoming Qualitative Researchers: An introduction*. Longman: White Plains, New York.

Goodwin, W. L., & Goodwin, L. D. (1996). *Understanding Quantitative and Qualitative Research in Eearly Childhood Education*, Teachers College Press: New York.

Gorard, S. (2001). *Quantitative Methods in Educational Research: The role of Numbers Made Easy*. Continuum: New York.

Krathwohl, D. R. (1997). *Methods of Educational and Social Science Research: An Integrated Approach c*(2nd ed.). Allyn & Bacon: Hempstead, England.

Light, R. L., Singer, J. D., & Willett, J. B. (1990). *By Design: Planning Research on Higher Education*. Harvard University Press: Massachusetts.

Lincoln, Y.S., & Guba E.G. (1985). *Naturalistic Inquiry*. Academic Press: Beverley Hills, California.

Linn, R., & Erickson, F. (1990). *Quantitative Methods Qualitative Methods: A project of the American Educational Research Association, Vol. 2*. Macmillan Publishers Ltd: London, England.

Marshall, C. & Rossman, G.B. (1999). *Designing Qualitative Research*. Sage Publications: Thousand Oaks, California.

Mason, J. (1996). *Qualitative Research*. Sage Publications: Thousand Oaks.

Miles, M.B. & Huberman, A.M. (1994). *Qualitative Data Analysis: An Expanded Sourcebook*. Sage Publications: Thousand Oaks.

Mouton, J. (1996). *Understanding Social Research*. Van Schaik Academic: Pretoria.

Nardi, P. M. (2002). *Doing Survey Research: A guide to Quantitative Research Methods* (1st ed.). Allyn & Bacon: Hempstead, England.

Patton, M.Q. (1990). *Qualitative Evaluation and Research Methods*. London: Sage Publications.

Sherman, R & Webb, R. (1988). *Qualitative Research In Education: Focus and Methods*. Falmer Press: London, New York.

Smit, G.J. (1995) *Research: Guidelines for Planning and Documentation*. Southern: Halfway House.

Strauss, A.L. (1990) *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. Sage Publications: Newbury Park, California.

Taylor, S.J. (1997). *Introduction to Qualitative Research Methods: The Search for Meanings*. Wiley: Chichester.

Tesch, R. (1990). *Qualitative Research: Analysis Types and Software tools*. Falmer Press: New York.

Wall, D.K. (1997). *Measuring outcomes: Data analysis Made Easy* (1st ed.). Precept Press: Chicago.

Weisberg, H., Krosnick, J. A., & Bowen, B. D. (1996). *An Introduction to Survey Research, Polling, and Data Analysis* (3rd ed.). Sage Publications: Thousand Oaks, California.

Wolf, F. M. (1986). *Meta-Analysis: Quantitative Methods for Research Synthesis*. Sage Publications: Thousand Oaks, California.