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Review: Research Design: Qualitative, Quantitative, and Mixed Methods Approaches by John W. Creswell

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### Introduction

Research design involves the organization or structure of research efforts. It consists of a series of processes that a researcher will implement to learn about and make sense of a phenomenon of interest. Broadly speaking, research designs can be categorized into three approaches: qualitative, quantitative, and mixed methods. A qualitative research design is one that attempts to understand and make sense of a phenomenon through the subjective perspectives and interpretations of its constituents. The qualitative researcher systematically collects and analyzes text or visual data to answer a question about some social or personal phenomenon. A quantitative research design, on the other hand, is one that attempts to understand and make sense of a phenomenon through precise, objective, and quantifiable data or variables that permit statistical analysis. A mixed methods research design is one that attempts to understand and make sense of a phenomenon through the systematic qualitative or quantitative collection and analysis of both qualitative and quantitative data.

The approach to research design is important because it constitutes a frame of reference and sensitivity that guides the researcher in the design and conduct of the work and in the interpretation of results. Logical considerations underlie this concern with consistency within a research design. On the one hand, research is concerned with generalizing based on opportune observations of instances. On the other hand, a generalization is as good as the sample of instances on which it is grounded. When the sample is random with respect to the circumstance of interest, a generalization makes sense. However, if the sample is not random, the generalization is meaningless. Likewise, the question of variance and reliability is dissociated from one's preference for either quantitative or qualitative design. In research using either type of design, great care must be exercised to ensure that the variance of observations is the consequence of the sampling design and not of blunders in assessment techniques.



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### **Importance of Research Design**

Research design is the plan for research and the blueprint for the collection, measurement, and analysis of data. It is about making decisions regarding the set of study objectives. In broad terms, research design can be taken to deal with the organization of an investigation, the manner in which information about an organization is gathered, the techniques or procedures to be employed for the collection of information, the sources of data to be surveyed, and the specification of the population. There are three basic types of research designs to choose from (quantitative, qualitative, and mixed methods designs). The research design is important because it facilitates the smooth working of the various research operations, thereby resulting in the timely completion of the project within the budget.

There are three basic types of research designs to choose from (quantitative, qualitative, and mixed methods designs). Each of the designs has relevant issues and sub-issues or subareas to deal with, leading to questions that need to be answered based on the design type chosen. In qualitative research design, research objectives are broad and invite open-ended responses from respondents rather than restricting them to a certain extent. These broad objectives make qualitative designs exploratory, adopt a friendly and informal style of conversation, and create an environment conducive to the free exchange of views between respondents and interviewers. Penetration into the subject matter is very deep and detailed and fosters rapport building, clarifying doubts, and examining inconsistencies in responses. However, qualitative designs are time-consuming and costly, require great patience, and oftentimes critically depend on the skill and experience of interviewers.

Key research design components include research questions, methods (types of questions, participants, context, data collection, analysis, and presentation), and the steps to operationalize the methods (sampling, recruitment, piloting, ethics, training, and fieldwork). Research design concerns the overall strategy, or blueprint of the investigation, with the goal of enhancing understanding of the phenomena and thus enabling appropriate decisions on the strategy achieved. Poor research designs lead to uninformative studies that impede understanding and result in inappropriate decisions. Decision-makers may also fail to capitalize on informative opportunities because they adopt inappropriate designs.

The design components, their constituent elements, and related decisions are now presented using a tabular format. This format has been used because it permits clear and straightforward presentation of complex information. It allows a 'bird's eye view' of the design component and the options available for each, with the degree of subjectivity required across the components being indicated using a Likert-type scale. Research questions are singled out



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for attention because they determine the methods to be adopted and the form of the research design. The initial formulation of research questions is outside the domain of design and methodology because, although methodologies influence how questions are expressed, it is formulating research questions that represent the first and most critical step in the design process.

## **Qualitative Research Design**

Qualitative research design centers on exploring and understanding individuals' subjective and complex experiences of a social phenomenon. Its epistemological underpinning stems from constructivism based on the belief that reality is socially constructed and the knower and the known interactively co-construct meaning. A qualitative research design attempts to answer questions of what and how rather than how many or how much. The goals of qualitative research design center on understanding a social phenomenon from the participant's points of view. It enables the collection and presentation of detailed information about an individual participant or a small group of participants. People's individual and collective social interactions, beliefs, thoughts, and perceptions are analyzed and described in the study.

Qualitative researchers study participants' perspectives using interactive strategies (observation and interviews) and non-interactive strategies (use of documents). Qualitative research strategies are flexible, responsive, and ongoing and typically see an emergent design as the case. Decisions about data collection strategies are made during the study rather than prior to the study. In qualitative research design, the researcher refrains from an expert role where the researcher assumes possession of a superior theoretical understanding of the social phenomenon being studied. Rather, the participants are the experts and interaction with them dictates an evolving design. In qualitative research, participants are more or less put in charge of how the research would proceed as much as possible. Qualitative researchers become immersed in the situation and in the phenomenon being studied. This research is grounded in the German term verstehen, which means empathetic insight.

#### **Characteristics and Principles of Qualitative Research**

Qualitative research is a means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem. The qualitative researcher seeks to understand how people make meaning of their experiences and describes that meaning through a collection of words. As such, qualitative research differs from quantitative research in several important ways. Qualitative research relies on the researcher as the instrument of data collection. The research process is emergent—in other words, it is flexible and not tightly prestructured. Qualitative research assumes that the researcher and the participant are interdependent and that their relationship shapes what is learned about the phenomenon being



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studied. Qualitative data is typically testimony collected in the language of the participant; that is, it is not transformed, quantified, translated into numbers, or subjected to statistical analysis. Qualitative research typically confronts the researcher with an overwhelming information load or data glut that has to be carefully investigated, analyzed, and interpreted in order to address the research questions.

It is useful to understand qualitative research and its underlying assumptions. Qualitative research is based on a constructivist paradigm, which assumes that individuals seek an understanding of the world in which they live and work, develop subjective meanings of their experiences, and that these meanings are social and experiential products (Pyo et al., 2023). Research in this tradition seeks to rely on the participants' views of the situation being studied and explore the meaning of a phenomenon. The corresponding principles guiding qualitative research follow from this paradigm: the researcher is the key instrument in data collection; qualitative data is usually collected in the participant's setting; the researcher builds a complex, holistic picture of the phenomenon being studied; and the researcher tries to make sense of and interpret the meaning of the participants' experiences. Since the purpose of qualitative research is to capture participants' experiences and increase their understanding of the phenomenon being studied, it is necessary that participants have some awareness and experience to share.

### **Types of Qualitative Research Designs**

Several forms of qualitative research designs are represented in the literature. This section focuses on four common forms of qualitative research designs: phenomenology, ethnography, grounded theory, and case study design.

### Phenomenological Design

A phenomenological design describes the essence of the lived experience of a phenomenon for a small number of individuals. The main research question is general and open-ended. Data collection occurs through in-depth, unstructured, or semi-structured interviews with a small number of individuals (normally 5–25) who have experienced the phenomenon. Interviews are transcribed and analyzed for significant statements, meaning units, and themes of the experience (patterns of the experience that are shared by the individuals). The final report describes the essence of the experience, represents the individual voices, reflects the researchers' interpretations, and includes enough detail to convey the experience to others.

## **Ethnographic Design**

An ethnographic design studies an intact cultural group in a natural setting over an extended period of time. The main research question asks what (or how) a culture-sharing



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group's shared patterns of behavior, beliefs, and language are. The data collection methods include participation in the group and observations, interviews, documents, and the researcher's personal experiences and insights (a cultural portrait). The analysis consists of descriptions, themes, assertions, and interpretations. The report describes the culture-sharing group, its context, issues in connection with the culture, and the researcher's reflections on the study in light of the broader culture.

### **Grounded Theory Design**

A grounded theory design uses a theoretical sampling strategy to derive an explanatory theory about a process that occurs in individuals, groups, or organizations. The main research question is broad, and data collection occurs through interviews with individuals who have experienced the substantive area of interest. Data collection, analysis, and constant comparative processes occur simultaneously. Early categories guide additional sample selection, data collection, and analysis, culminating in a substantive theory that explains behavior in terms of the conditions, actions/interactions, and consequences of the behavior. The final report describes the settings, participants, data collection, analysis, theory, and researcher's reflexivity.

## Case Study Design

A case study design examines an entity in-depth and within its context. The unit of analysis is one or more cases. The main research question is how or why; it can also be descriptive or exploratory. The data collection methods include in-depth interviews, observations, document reviews, participant journals, and artifacts. Prior to data collection, a theoretical framework guides the proposition focus. The analysis consists of within-case and cross-case analyses; the narrative conveys the case story, research context, and case integration. The report describes the case's axis, research project, and theoretical framework. Alternative understandings are included, and participant reflections on the findings are presented.

## **Quantitative Research Design**

In the section of the publication "Review of Research Design: Qualitative, Quantitative, and Mixed Methods Approaches", the specific focus is on the characteristics and principles of quantitative research. This section offers an in-depth exploration of the specific characteristics of quantitative research, the principles of quantitative research, and the assumptions of experimental or true research designs. The section clearly addresses the key attributes of quantitative research methods, offering valuable insights into its approach.

A discussion of the characteristics of quantitative research is offered, beginning with a summary of the focus on testing a theory and investigation of casual (or covariational) relationships among variables. The principles of quantitative research are discussed afterward and include a number of key insights that are vital in understanding the fundamental principles of quantitative research as articulated. The section concludes with a discussion of the



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assumptions of experimental or true research designs, addressing such values as these activities are characterized by standards of objectivity, openness, and integrity in the conduct of research.

## **Types of Quantitative Research Designs**

There are four statistical subtypes of quantitative research design: experimental, nonexperimental, descriptive, and correlational designs. Creswell suggests that researchers choose an approach based on fit with the problem the study attempts to address, the questions it seeks to answer, and its intended audience. Experimental: Randomized Experimental Designs; Quasi-experimental Designs. These designs involve the manipulation of an independent variable or treatment and random assignment to groups. The most common type of experiment involves randomly assigning participants to either experimental or control groups. Nonexperimental: Causal-Comparative Designs; Correlational Designs; Survey Designs. These designs are used when the manipulation of the independent variable is infeasible or unethical. Descriptive. These designs describe the characteristics of a population or phenomenon.

## **Mixed Methods Research Design**

The section on Mixed Methods Research Design in Review of Research Design: Qualitative, Quantitative, and Mixed Methods Approaches by John W. Creswell provides an overview of the process of combining qualitative and quantitative methods in research. It explores the benefits and challenges of using mixed methods and offers guidance on how to integrate the two approaches to produce comprehensive and robust research findings.

Chapter 2 of Review of Research Design: Qualitative, Quantitative, and Mixed Methods Approaches by John W. Creswell presents a clear and concise overview of the process of doing mixed methods research. The chapter provides reasons for doing mixed-methods research and explores the types of mixed-methods research designs available. It describes the components of a good mixed-methods research design and addresses the criticisms associated with doing mixed-methods research (Almeida, 2018). Using mixed methods research combines qualitative and quantitative methods in a single research project. Emerging in the 1990s as a way to demonstrate the integration of qualitative and quantitative components, mixed methods research is also ideal for collecting both types of data simultaneously or sequentially. There is considerable diversity in the approaches, applications, and understandings of mixed methods. However, disputes about definitions are settling with researchers increasingly adopting a pragmatic approach regarding the question under investigation rather than a puritanical adherence to either qualitative or quantitative paradigms.



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## **Characteristics and Principles of Mixed Methods Research**

In this Review of Research Design, the author explores the characteristics and principles of mixed methods research, including its development, paradigmatic considerations, philosophical assumptions, and specific principles for its implementation. With an increased interest in mixed methods research, it is essential to understand its guiding principles and adherence to best practices. Mixed methods research employs both qualitative and quantitative approaches to gain a deeper understanding of a research topic. Both qualitative and quantitative approaches stem from different philosophies, worldviews, and paradigms. However, it can be challenging to conduct qualitative and quantitative approaches alone. Thus, researchers have considered the combination of both as a third approach called mixed methods. Like qualitative and quantitative approaches, mixed methods research also fits within a broad paradigm. It should be rooted in an overall conceptual framework that defines methodological and philosophical assumptions.

The desire to curb the divide between qualitative and quantitative approaches and obtain a broader perspective on research problems has led to the emergence of mixed methods research in the social, health, and education sciences. Importantly, just as qualitative and quantitative research emerged from philosophy, so did mixed methods research. Like qualitative and quantitative paradigms, mixed methods research is not value-free. Methodological pluralism is a key feature of mixed methods; it is a means of obtaining broader perspectives on a research problem. Mixed methods provide an increased credibility of research findings by addressing questions about ontological, epistemological, and methodological aspects of knowledge. Mixed methods address a research problem from multiple vantage points, permitting no single view of reality to dominate.

### **Integration of Qualitative and Quantitative Approaches**

Qualitative and quantitative approaches are frequently integrated in many studies. Such a mixed methods approach has advantages and difficulties. This chapter identifies ten benefits and ten challenges. The figure illustrates various strategies for integrating qualitative and quantitative data at the levels of research design, data collection, analysis, and interpretation. The discussion concludes with five actions researchers can take when integrating qualitative and quantitative approaches within studies.

All studies are products of human thought and interpretation, and they are often collaborative efforts that reflect the values, biases, and assumptions of the individuals and groups designing, conducting, and reviewing them. Interpretation profoundly influences what is studied, how it is studied, and how the results are presented. It is, therefore, essential for researchers to be explicit regarding their intellectual position. Priceless market research on high-protein food, for example, has driven research on plant ingredients. Investor-driven



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research credibly poses public good questions, while academic research credibly poses novelty questions (**Almeida**, 2018).

Many aspects of qualitative research design relate to how qualitative research is informed by implicit or explicit theory. This relates to design elements such as the selection of research questions, philosophical and methodological approaches, sampling strategies, data collection, and data analysis. Qualitative research can inform the development of theory in both inductive and deductive ways. In progressive research programs, qualitative activity can be positioned as Exploratory Qualitative Research that generates contextually and historically contingent hypotheses, propositions, constructs, or theories.

## **Comparative Analysis of Research Designs**

Understanding the strengths and weaknesses of qualitative, quantitative, and mixed methods designs can inform the research process. To what extent does the researcher need to compare, contrast, and determine the appropriate design? This question can be addressed by examining the nature of the study and the design alternatives available. Using the analogy of choosing a solution to a problem, the first step is to know the nature and size of the problem. Each design choice may solve the problem in a different way but requires additional consideration to choose amid these options. The advantages and limitations of each alternative can then be compared in a format such as a table. In preparing the comparative analysis of the qualitative, quantitative, and mixed methods designs, key factors such as the types of research questions and data can be identified to help compare the designs. Concludes this discussion with advice on how to inform the subsequent actions in the research process.

Important differences exist among the qualitative, quantitative, and mixed methods designs. These differences are seen in distinct philosophies and approaches to the collection and analysis of data. Each comparison has advantages and limitations that can inform research decisions. There are philosophical differences about what it means to "know" about the world and how best to conduct inquiry. The qualitative approach embraces an interpretivist worldview, which holds that meaning is socially constructed and context-specific. The quantitative approach embraces a post-positivist worldview, which holds that there is an objective reality that can be measured. The mixed methods approach embraces a pragmatic worldview, which holds that the research problem should guide the use of qualitative, quantitative, or both approaches to inquiry. There are different approaches to the collection and analysis of data. Qualitative researchers collect open-ended, emergent data, whereas quantitative researchers collect closed-ended, predetermined data. Mixed methods researchers collect both open-ended and closed-ended data. This comparison of the design can inform the process of choosing a particular qualitative, quantitative, or mixed-method approach.



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## Strengths and Limitations of Qualitative, Quantitative, and Mixed Methods Approaches

The following sections summarize the strengths and limitations of qualitative, quantitative, and mixed methods approaches, as outlined in a book chapter. In addition to outlining the strengths and limitations of each of the approaches, links to additional resources are provided for further information. Three handouts are also included that summarize the presentation content on this topic. Each of these resources can be used to deliver training on qualitative, quantitative, and mixed methods approaches. Each approach has unique strengths and has the potential for limitations depending on how it is utilized.

## **Qualitative Approaches Strengths**

- Allows for in-depth, first-hand knowledge. Addresses issues that cannot be quantified. Provides a way to be exploratory and generates hypotheses. Interpretation of results is contextualized and acknowledges complexity. Outcome is a deep understanding of a specific phenomenon. Unearths new perspectives, patterns, ideas, and hypotheses. Focuses on a relatively small population of interest. Provides a way for exploration of sensitive topics. Limitations
- The timing of the study and results can be long, and results are generally not immediate. A large amount of information is collected, which can take considerable time to sort through.
- Generating results requires a level of information synthesis, understanding, and interpretation. The researcher is central to the process, and thus, researcher bias can be a concern. A move away from strict quantitative methods may not be easily accepted by management. Results are difficult to generalize and may not apply to other locations or situations.

### Quantitative Approaches Strengths

- Provides a visual representation of results for clear understanding. Allows for measurement of phenomena and precision (numbers can be manipulated). Addresses issues that can be quantified. Provides a means to check on, dismiss, or strongly support important underlying assumptions. Replicability of the research process allows for independent verification of results. Recommendations can be made with more certainty. Outcome is a statistical summary and model that incorporates important predictors. Provides a way to draw conclusions on large numbers of objects and/or events efficiently (Almeida, 2018). Limitations
- •Numbers do not describe reality directly, only indirectly. Facilitates understanding of complexity by representation only; cannot interrogate the representation. This may lead to a false sense of security through the precision of numbers, which is an essential determinant of reality. Requires strict experimental design, which in turn generates artificial situations.
- Overemphasis on operationalization at the expense of understanding underlying mechanisms. Quantification of something that is better left unquantified; making something quantifiable that cannot or should not be quantified.



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### **Applications of Research Design**

This chapter discusses the applications of qualitative, quantitative, and mixed-methods research designs. Most researchers begin inquiry in a discipline such as education, sociology, psychology, and so on. They know more about the traditions and approaches of the discipline than other disciplines. As a result, they approach research design from a disciplinary perspective. Common research problems investigated in education might include studies that evaluate mathematics or reading scores on standardized tests by using gender as a variable or studies that investigate teachers' perceptions of a new curriculum. Common research problems investigated in sociology might include studies that examine how working mothers are viewed by others or studies that see how volunteerism serves as a social control process among collective behavior. Common research problems investigated in psychology might investigate the effectiveness of a computerized program to reduce test anxiety or see how maternal drug use affects infant cognitive development (Almeida, 2018).

It is recommended that in the discipline-based research design, first familiarization is attained with the paradigms, approaches, and traditions of the discipline. Second, one desires to design the proposed study within these familiar perspectives. The tradition or approach might need to be reformulated to respond better to the proposed study's problem. Third, it should be understood that discipline-based research design is a constraining circumstance; it may not result in the best response to a specific research question or problem. Examples presented in these disciplines provide illustrations of how research questions and problems differ across disciplines and how the tradition, paradigm, or approach dictates data collection, technique, sample selection, and analysis (Mwansa et al., 2022).

### **Research Design in Various Disciplines**

In section 6.1 of "Review of Research Design," Creswell presents a discussion of research designs in various disciplines. Each field of study submits some unique considerations when designing and conducting research. Those considerations include such things as the subject(s) to be studied, the locational environments, participant protections, writing styles, and what constitutes acceptable evidence. Highlights are included here for schools of education, psychology, sociology, health care, audience research, and children's research.

A fair number of research designs can be said to exist for schools of education, such as qualitative, quantitative, phenomenological, case study, grounded theory, mixed methods, evaluation, and action. They come from unique fields of study; some are newer, with roots in disciplines not traditionally associated with schools of education. Such designs are different in terms of philosophical assumptions, the conception of research questions, ways of



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knowing, the purpose of the research process, reliance on evidence, writing styles, and criteria for trustworthiness.

The research designs of interest here would be those from schools of education- a long-established field of study that relies on designs from many disciplines. The initial assumption would be that schools of education conduct research similar to what has been done in those other fields but with education-related topics. Therefore, the next step would be a review of the state of the art in research design in those other fields, with the hope that other researchers could glean some insights for the improvement of educational research design.

### Real-World Examples of Research Design

At the end of each chapter, real-world examples of the various research designs are identified. These studies illustrate how the different qualitative and quantitative approaches, along with mixed methods, are used in actual research. Each example includes a reference citation and a description of its qualitative design (i.e., approach, tradition, and justification) or its quantitative design (i.e., descriptive, casual-comparative, correlational, developmental, or experimental). These examples assist in the evaluation of the clarity of the designs in terms of the need to describe the design, including the ten major sections, the research approach, and the defense of the choice of the tradition.

The purpose of this chapter is to provide an overview of qualitative, quantitative, and mixed methods approaches to research. Qualitative research is an inquiry process of understanding based on distinct methodological traditions of inquiry that explore a social or human problem. The investigator builds a complex, holistic picture, analyzes words, reports detailed views of informants, and conducts the study in a natural setting. Quantitative research is an inquiry process of testing a theory or a hypothesis composed of variables measured with numbers and analyzed using statistical procedures. The investigation employs a narrow meaning of the variables, measures them with instruments, and collects the data in predetermined settings and places. Mixed methods research is an inquiry process of collecting, analyzing, and "mixing" quantitative and qualitative data in a single study or in a longitudinal program of research to understand a research problem (Almeida, 2018).

## **Ethical Considerations in Research Design**

Research Design, Review of Research Design: Qualitative, Quantitative, and Mixed Methods Approaches by John W. Creswell addresses important ethical considerations. Institutional Review Boards (IRBs) are to protect the rights of participants. Administrative Review Boards make judgments on research studies and the material prepared to receive approval. IRB decisions also concern the lives of subjects (authors refer to participants in an art study about how still photographs might influence the perception of performance in the moving picture medium). IRB applications consider the risks of research, the probable



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benefits, the selection of subjects and related matters, the treatment of confidential data, and the voluntary nature of participation. Participants are treated at arm's length. They get, generally, information about the goals and methods of the research and, free of coercion, agree to take part. During this process, researchers provide the subjects with adequate reading ability for the participants on background information and clarifications of how they agreed to take part.

Discussion and consciousness are encouraged in these forums, and attendees get little guidance, given the potential nature of the material. On the other hand, artists present research or collaborative explorative projects with artists' records and narratives probing image and film performance explorations. It argues that this disparity becomes problematic as the discourse of subjectivity and ethics is built on opposite assumptions while exploring lateral discourses of subjectivity and ethics in artmaking traverses narrative, representation, and equivalence. Subsequently, they engage with a framing of connoisseurship in painting in the midst of an encounter with digital media. Dominant narrative ethics regretfully find themselves obscured as they respond to disjunctive temporalities in still/moving, body/technology, and image/screen. The consideration of art installations dealing with materials leads to suggestions of a move towards an undefined ethics of unestablishable subjectivity.

## **Ethical Guidelines for Research Design**

Research design, or the discipline of strategy, is the disciplined thought process of determining how a study or investigation is to be conducted. It relates to the discipline of inquiry, how and what there is to know, and so it must adhere to the rules, principles, and conventions of a particular discipline. Research design is here understood as being composed of several parts. These are the theoretical framework for the study, the methodology (i.e., the broad strategies), and the methods (i.e., specific tactics) for the collection and analysis of data. Key elements of a research design include the protection of human subjects through research ethics, the definition of the population to be sampled, and concerns about sampling bias and other types of research bias.

Ethics is an important aspect of research. A researcher has a moral obligation to protect the confidentiality, identity, dignity, rights, and welfare of research participants. Researchers also have a responsibility towards the institutions and groups sponsoring the research project, the broader society, and the discipline they represent. Ethics regulates the relationships between the researcher and humans as research subjects and most academic institutions have an ethics review board that presents ethical guidelines for researchers designing research involving human subjects. These guidelines, whilst having a common core, are also considered at a local level, and this results in different codes of ethics within the same discipline.



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## Addressing Ethical Issues in Qualitative, Quantitative, and Mixed Methods Research

Research involves human beings, and researchers have ethical issues related to their research to consider. Ethical issues are a concern for research involving writing narratives of people who have participated in qualitative research projects, often referred to as "sites" in the literary world. There have been signs of concern for the subjects of research since the 1940s, but there have always been violators. The Tuskegee Syphilis Study is one notable example.

Ethical issues in qualitative research like consent, confidentiality, data management, and risk of harm are addressed. Ethical issues in quantitative research are similar to qualitative research, and concerns over drugs are growing. The emphasis on ethical issues in mixed methods is minimal, though ethical issues are described. Different approaches to ethical issues in qualitative, quantitative, and mixed methods are evident in the research literature.

There are ethical issues to address in research involving people, and this concern has a long history. A timeline indicates the repeated violation of human rights. There is a long-established code of conduct for researchers addressing ethical concerns, and Institutional Review Boards (IRBs) have addressed some ethical issues in research. Ethical issues in qualitative research, like consent, confidentiality, data management, and risk of harm, are addressed. These ethical issues in quantitative research are similar to the ethical issues in qualitative research, and concerns related to drugs are intensifying. Ethical issues within mixed methods research are minimally emphasized, though ethical issues are described.

#### Conclusion

In this final chapter, Creswell reviews the key points about research designs and methodologies presented in this text. He relates qualitative, quantitative, and mixed methods approaches to important considerations in designing research.

Research design is the plan, process, and product of research (Almeida, 2018). The plan is the general strategy to be employed, such as ethnography, content analysis, experiments, and surveys. The process is the specific procedures to be followed in planning and conducting the research. The product is the written record of the research project. Research design includes the construction of a written report or proposal comprising the initial consideration of the research question, its background, purpose, and objectives, and how it is to be pursued. Plans for the analysis and interpretation of data have also been formulated. Generally, the design leads to a final document outlining the methods of data collection, analysis, and interpretation to be used. If the study is conducted, the final document provides a record of the project. Research design is a key consideration before undertaking a research



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project since it greatly influences the quality of the data that are obtained. An unscientific design will waste time and money and yield data that do not answer the research questions.

Research design is an expression of the philosophy, methodology, and methods of the research. It articulates how the research is informed by a specific discipline or discipline combination; how and why the subject was selected; what has been written and known about it; what is new; how it is to be conducted; and how evidence is to be evaluated. Research is not an end in itself but rather a starting point for the application of knowledge in decision-making. Thus, the design must include a discussion of the implications of the findings.

#### References

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