University of Djelfa

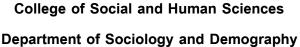**College of Social and Human Sciences**

Department of Sociology and Demography

A publication dedicated to:

Scientific research methodology

Lessons directed towards first-year social science students

Semester: 2 / Credit: 3 / Coefficient: 2 / Evaluation: Exam + continuous monitoring

Prepared by: Toumi Belkacem

Academic Year: 2023/2024

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Introduction

As a Professor of Sociology, my endeavor through this text is to give students a comprehensive understanding of the foundations, methodologies, and influential paradigms of social scientific research. This pedagogical book is designed to guide university students through the complex landscape of social sciences, offering them knowledge and insights and critical analytical skills that will serve their academic and professional futures.

Social sciences explore the intricate dynamics of human behavior and societal structures. The field has evolved from philosophical speculations and theoretical assumptions to incorporate empirical research methodologies that enhance the understanding of complex social phenomena. The transition from mere speculation to empirical verification has significantly shaped the disciplines within social sciences, including sociology, anthropology, psychology, and economics.

The development of social scientific research can be traced back to the Enlightenment era, which emphasized reason and empirical evidence as the cornerstones of knowledge. Pioneers such as Auguste Comte and Émile Durkheim laid down the initial frameworks of systematic study in sociology, advocating for a positivist approach that seeks to understand society through observable, scientific methods. This era also saw the introduction of statistical analysis to the study of social phenomena, a practice that would become a staple in research methodologies.

The philosophical foundations of social scientific research are deeply embedded in the quest to understand and explain human nature and societal interactions. From the positivism of Comte to the interpretivism that emerged as a critique of positivist limitations, the field has consistently wrestled with the tension between objective observations and subjective meanings. This book explores these philosophical debates, providing students with a nuanced understanding of the theoretical bases that underpin various research methodologies.

Methodology in social scientific research encompasses a broad spectrum of techniques designed to investigate various aspects of human societies. Whether through qualitative methods such as ethnography and case studies, or quantitative

approaches like surveys and experiments, researchers aim to glean insights that are both profound and applicable. The integration of mixed methods research has further enriched the methodological landscape, allowing for more comprehensive analyses that leverage the strengths of both qualitative and quantitative approaches. In recent decades, the advent of digital technology has revolutionized social scientific research. The ability to collect and analyze large datasets through computational methods has opened new avenues for understanding complex social structures and dynamics. This book discusses the implications of these technological advancements and introduces students to contemporary methods such as data mining and network analysis, which are becoming increasingly important in the field.

Ethical considerations are paramount in the conduct of social scientific research, particularly when dealing with sensitive subjects and vulnerable populations. This text provides a thorough exploration of the ethical dilemmas researchers may encounter and the standards of practice required to address these challenges responsibly. From issues of consent and privacy to the implications of research findings, students will learn to navigate the ethical landscapes of their research endeavors.

Understanding social phenomena is not merely an academic exercise but a critical endeavor that has real-world applications. From informing public policy to understanding market dynamics, the insights derived from social scientific research have profound implications. This book emphasizes the importance of critical analysis and encourages students to consider the practical applications of their studies, preparing them for roles in policy development, economic planning, and beyond.

The journey through the complex world of social scientific research is both challenging and rewarding. This book aims to equip students with the knowledge, skills, and ethical grounding required to conduct meaningful research that contributes to our understanding of the social world. As they turn each page, students are invited to engage critically with the content, apply their knowledge

through practical exercises, and prepare themselves for the multifaceted roles they will play in a rapidly evolving societal landscape.

Through this text, I aspire not only to educate but also to inspire the next generation of social scientists who will continue to explore, understand, and shape the human condition through rigorous and reflective scientific inquiry. This comprehensive introduction sets the stage for a deeper exploration into the methods, challenges, and impacts of social scientific research, as detailed in the subsequent chapters of this book.

The History of the Development of Scientific Research

The development of scientific research can be traced back through centuries of intellectual thought, philosophical inquiry, and methodological refinement. From the rudimentary studies of natural phenomena in ancient civilizations to the sophisticated empirical investigations in the modern era, the evolution of scientific research is a rich tapestry that reflects broader socio-economic, cultural, and technological trends. This literature review aims to encapsulate the major historical milestones, methodological advancements, and influential theories that have shaped the landscape of scientific research from antiquity to the present day.

Early Foundations (Pre-17th Century)

The origins of scientific inquiry can be found in the works of ancient Greek philosophers. Aristotle's (384–322 BC) empiricism and naturalistic observations laid the groundwork for systematic inquiry. However, it was not until the works of Ibn al-Haytham (Alhazen; 965–1040 AD) in the Islamic Golden Age that we see a methodological approach to experimentation that resembles modern methods (Rashed, 1990).

In medieval Europe, Roger Bacon (1214–1292) advocated for empirical study via experimentation, thereby pioneering early scientific methodology (Crombie, 1953). His work foreshadowed the later more structured approaches that would be formalized by scientists such as Galileo and Newton.

The Scientific Revolution (17th Century)

The 17th century marked a profound shift with the onset of the Scientific Revolution, where empirical evidence became the cornerstone of scientific authority. Francis Bacon (1561–1626) played a pivotal role in formalizing the scientific method, emphasizing induction as a way to acquire knowledge about the natural world (Zagorin, 1998).

René Descartes (1596–1650), with his discourse on method, insisted on deductive reasoning from axiomatic principles, which influenced the logical and mathematical foundation of scientific inquiry (Gaukroger, 1995). The period was dominated by monumental figures like Galileo Galilei (1564–1642) and Isaac

Newton (1643–1727), whose works in physics and astronomy set new standards for what constituted scientific knowledge and evidence (Shapin, 1996).

Enlightenment and Expansion (18th Century)

During the Enlightenment, the development of scientific research expanded beyond the physical sciences, with advances in fields such as chemistry and biology. The systematization of chemistry by Antoine Lavoisier (1743–1794), through his work on the conservation of mass in chemical reactions, introduced quantitative methods to a field previously mired in alchemy and confusion (Conant, 1950).

Similarly, Carl Linnaeus (1707–1778) developed a binomial nomenclature for classifying organisms that facilitated the systematic study in biology (Frängsmyr, 1983). These developments were paralleled by enhanced institutional support through the foundation of academies and societies which fostered scientific communities, such as the Royal Society in England and the Académie des Sciences in France.

The 19th Century: Professionalization and Specialization

The 19th century witnessed the professionalization of scientific activity. Charles Lyell's (1797–1875) principles of geology, which posited that gradual processes over vast periods shaped the earth, and Charles Darwin's (1809–1882) theory of evolution by natural selection, were paradigmatic of the period's scientific landscape (Bowler, 2003).

This era also saw the rise of specialization with the split of natural philosophy into distinct disciplines (Turner, 1971). The establishment of specialized journals and societies facilitated this transformation, along with the growth of universities that began to play a pivotal role in scientific research and education (Rossiter, 1975).

20th Century and Beyond: Big Science and Technological Advancements

The 20th century introduced "Big Science," a term popularized by historian Peter Galison (1992), which referred to the large-scale scientific research in disciplines such as physics, characterized by large expenditures and extensive collaborations, often funded and supported by national governments (Galison & Hevly, 1992).

The historical development of scientific research is characterized by a gradual but inexorable movement towards more precise, systematic, and empirical methods of inquiry. From the philosophical foundations laid by Aristotle and Bacon to the modern empirical methodologies, each period in history has contributed to the evolution of scientific methods and expanded the horizons of human knowledge. As we move forward, the integration of technology and interdisciplinary approaches continues to shape the future of scientific research.

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The History of the Development of Scientific Research in the Social Sciences

The evolution of scientific research within the social sciences has been both diverse and dynamic, reflecting broader intellectual trends and socio-political changes. From the early philosophical inquiries into human nature and society to the sophisticated empirical analyses of the modern era, the development of social scientific methods has been integral to the expansion of this academic domain. This literature review explores the historical progression of methodological approaches in the social sciences, highlighting key theoretical paradigms, seminal works, and the pivotal role of socio-political contexts in shaping research methodologies.

Philosophical Origins and Early Sociology (1600s-1800s)

The roots of social science can be traced back to the Enlightenment era, which emphasized rationality and empirical evidence as the cornerstones of knowledge. Philosophers such as John Locke (1632–1704) and Jean-Jacques Rousseau (1712–1778) contributed foundational ideas about human psychology and social organization, which later influenced sociological thinking (Craib, 1997).

The formal establishment of sociology as a discipline is credited to Auguste Comte (1798–1857), who introduced positivism—the idea that society could be studied using scientific methods akin to those used in the natural sciences (Bryant, 1985). Comte's framework laid the groundwork for later methodological developments and emphasized the potential for sociology to contribute to social betterment.

The Institutionalization of Social Sciences (Late 1800s- Early 1900s)

The late 19th and early 20th centuries saw the institutionalization of the social sciences, with the founding of universities and colleges offering specialized degrees in fields such as sociology, economics, and political science. Emile Durkheim (1858–1917), one of the first to hold a sociology professorship, pioneered the use of statistical methods in the study of society, particularly in his study of suicide (Durkheim, 1897).

Durkheim's contemporary, Max Weber (1864–1920), introduced a more interpretative approach to social science, emphasizing the need to understand the

meanings that individuals attach to their actions—a methodological perspective known as verstehen (Weber, 1904). This period also saw the development of various research methods, including case studies, ethnographies, and the comparative method, which were used to explore complex social phenomena (Lloyd, 1972).

Expansion and Diversification (Mid 1900s)

By the mid-20th century, the social sciences were characterized by remarkable expansion and diversification. The behavioral revolution in political science introduced rigorous statistical methodologies and formal modeling techniques, moving the field towards more quantitative analyses (Easton, 1965).

In sociology, the Chicago School emerged as a major center of innovation, particularly in the areas of urban studies and criminology. Researchers like Robert Park and Ernest Burgess developed ecological models to explain urban social structures, utilizing statistical data and field research to support their theories (Park, Burgess, & McKenzie, 1925).

The period also witnessed the rise of critical and neo-Marxist theories, particularly within the field of sociology and political economy. These perspectives emphasized the role of economic and power structures in shaping social relations and were critical of the positivist orientation of earlier research (Marcuse, 1964).

The Quantitative-Qualitative Debates (Late 1900s-Present)

Ongoing debates between proponents of quantitative and qualitative methodologies have marked the latter half of the 20th century and the early 21st century. Quantitative methods, favored for their precision and capacity for generalization, face criticism for possibly oversimplifying complex social realities. Conversely, qualitative methods are praised for their depth and contextual richness but are sometimes criticized for lacking rigor and generalizability (Bryman, 1984).

The introduction of mixed methods research in the late 20th century aimed to bridge this divide, advocating for using quantitative and qualitative methods to provide a more comprehensive understanding of social phenomena (Tashakkori & Teddlie, 1998).

The Impact of Technology and Globalization

In recent decades, technology and globalization have had significant impacts on social science research. The internet and digital data collection tools have transformed research methodologies, enabling the analysis of vast amounts of data through computational techniques and artificial intelligence (Savage & Burrows, 2007).

Globalization has also expanded the scope of social science research, facilitating more extensive comparative studies and the inclusion of non-Western perspectives, which challenge traditional Western-centric paradigms (Connell, 2007).

The history of the development of scientific research in the social sciences is a testament to the field's evolution from philosophical inquiry to empirical science. This progression reflects an ongoing dialogue between different methodological approaches, each contributing uniquely to our understanding of complex social realities. As the field progresses, it continues to adapt, integrating new technologies and methodologies to understand better and address the increasing complexity of global social dynamics.

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The Concept of Science and Scientific Research in the Social Sciences

The endeavor to define "science" in the social sciences must grapple with the multifaceted and interdisciplinary nature of its methodologies and philosophical underpinnings. Unlike the natural sciences, where definitions of science are often circumscribed to exploring and explaining natural phenomena through empirical evidence and quantifiable data, the social sciences present a more complex landscape. This literature review explores the intricacies of scientific research within the social sciences, investigating how methodologies adapted from the natural sciences are applied to study the qualitative and quantitative aspects of human behavior and social structures.

Defining Science in General

In its broadest sense, science refers to the systematic pursuit of knowledge and understanding of the natural and social world following a methodology based on evidence (Kuhn, 1962). Scientific research involves collecting, observing, and interpreting data to formulate, test, and refine theories (Popper, 1959). In the natural sciences, this often translates to controlled experiments and quantitative measurements designed to test hypotheses under replicable conditions.

Science in the Social Sciences

Conceptualization

In the social sciences, "science" is conceptualized as the application of empirical research principles to investigate and understand human behavior and social systems (Weber, 1904). The goals remain broadly consistent with the general scientific endeavor—description, explanation, and prediction—but are pursued within the complex, variable contexts of human interactions and institutions that are inherently more subjective than natural phenomena (King, Keohane, & Verba, 1994).

Methodological Adaptation

The methodologies employed in social scientific research reflect this complexity. They are broadly divided into quantitative and qualitative strategies (Bryman, 2012):

- **Quantitative methods** include surveys, experiments, and statistical analysis, often aiming to test theories or hypotheses and produce generalizable results that can be critical in policy-making and general societal applications (Smith, 2015).

- **Qualitative methods** such as interviews, ethnographies, and case studies aim to provide deeper insights into the processes behind statistical results, often exploring how individuals and groups perceive and interact with their environments (Denzin & Lincoln, 2011).

These methods are not mutually exclusive and are often integrated in mixed-methods approaches to harness the strengths of both sets of techniques (Creswell, 2013).

Philosophical Underpinnings

Scientific research in the social sciences is also framed by underlying philosophical assumptions—epistemologies that guide the interpretation of social data (Schwandt, 2000). These include:

- **Positivism:** Advocates for the social sciences as an objective science without personal biases influencing the outcomes. It supports using quantitative methods and statistical analyses to predict and control phenomena (Comte, 1830).

- **Interpretivism:** Suggests that rich, subjective insights into people's lives are necessary to understand the complexities of social phenomena. It favors qualitative methods that seek to interpret rather than generalize human behaviors (Geertz, 1973).

- **Critical Realism:** A synthesis approach that acknowledges an objective reality but also recognizes the importance of human perception in understanding this reality (Bhaskar, 1975). It supports the use of both qualitative and quantitative methods to provide a fuller picture of social issues.

Challenges in Social Science Research

The application of scientific methods in social sciences is fraught with challenges not typically encountered in the natural sciences:

- **Complexity and Variability:** Social phenomena are highly complex and influenced by myriad intertwined factors that are difficult to isolate and control (Gerring, 2007).
- **Ethical Considerations:** Research involving human subjects requires rigorous ethical considerations, including consent and the minimization of harm, which can complicate or restrict certain types of studies (Resnik, 2011).
- **Measurement and Operationalization Issues:** Defining and measuring abstract concepts like "social inequality" or "political engagement" involves significant theoretical and practical difficulties (Goertz & Mahoney, 2012).

The concept of science in social sciences encompasses a rigorous, systematic approach to studying human behavior and social structures through methodologies that accommodate the subjectivity and complexity of the social world. This scientific inquiry is not only fundamental to theoretical advancements in social theories but is also critical in applying social research towards solving real-world problems, influencing everything from government policy to community-level interventions. The ongoing evolution of methodological approaches, particularly the rise of big data analytics, promises to further enhance the depth and breadth of scientific research in the social sciences.

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Objectives of Scientific Research in the Social Sciences

Scientific research in the social sciences is distinguished by its goals, which focus on the systematic and comprehensive understanding of human behavior and societal patterns. Unlike the natural sciences, where the primary objectives revolve around predictability and generalization, social sciences cater to a broader spectrum of academic and practical purposes, encompassing exploring social phenomena, testing theoretical frameworks, and developing new theories. This literature review delineates the primary objectives of scientific research in the social sciences, utilizing various academic sources to underscore the depth and diversity of this field's aims.

Understanding and Explaining Social Phenomena

One of the paramount objectives of scientific research in the social sciences is to understand and explain social phenomena. This involves identifying, describing, and systematically analyzing the processes that govern social interactions, institutions, and structures (Weber, 1904). Social researchers strive to uncover the "why" and "how" of patterns and changes in human behavior and societal conditions (Bryman, 2012).

Theoretical Frameworks

Developing and refining theoretical frameworks is essential for explaining various social phenomena. Researchers apply theories from a broad spectrum of disciplines such as psychology, sociology, economics, and political science to understand better and predict social outcomes (King, Keohane, & Verba, 1994). These frameworks not only enhance our understanding but also facilitate the integration of the social sciences with other scientific disciplines, promoting a more comprehensive scientific approach (Kuhn, 1962).

Testing Hypotheses

Closely related to the above is the objective of hypothesis testing. Social scientists formulate hypotheses based on existing theories and conduct empirical research to test these hypotheses (Popper, 1959). This methodical testing, which can either confirm or refute theories, is a critical process that helps refine existing knowledge and contribute to the development of new theoretical insights (Kaplan, 1964).

Predicting Social Behavior

Prediction is a fundamental objective of many scientific disciplines, including the social sciences. By understanding the patterns and laws governing human behavior, researchers can make informed predictions about future behaviors and events (Simon, 1956). This not only tests the robustness of existing theories but also provides valuable insights for policymakers and practitioners in planning and decision-making processes (Boudon, 1974).

Influencing Social Policy and Practice

An applied objective of scientific research in the social sciences is to influence and inform social policy and practice. Research findings are often used to design, evaluate, and refine policies aimed at improving social welfare and addressing issues such as inequality, education, health, and criminal justice (Lindblom & Cohen, 1979).

Program Evaluation

Program evaluation is a critical area where social science research is directly applied to assess the effectiveness of various social programs and interventions. By using rigorous methodologies, researchers can provide evidence-based recommendations that help optimize the outcomes of social programs (Rossi, Lipsey, & Freeman, 2004).

Enhancing Social Understanding and Cohesion

Research in the social sciences also aims to foster greater understanding and cohesion within societies. By examining the cultural, social, and economic dimensions of communities, social scientists contribute to a deeper comprehension of the diverse practices and beliefs that define different groups. This objective is crucial in promoting tolerance, mitigating conflicts, and facilitating more harmonious coexistence (Geertz, 1973).

Fostering Innovation and Interdisciplinary Integration

Finally, an emerging objective in social science research is the fostering of innovation through the integration of various disciplinary perspectives. The complex nature of social issues often requires a multifaceted approach

incorporating insights from economics, anthropology, psychology, and beyond (Sorokin, 1941). This interdisciplinary approach broadens the research scope and enhances the innovation potential within the social sciences.

The objectives of scientific research in the social sciences are diverse and dynamic. They encompass the understanding and explanation of complex social phenomena, the testing and development of theoretical frameworks, the prediction of social behaviors, the influence on social policy and practice, and the promotion of societal understanding and cohesion. As the field evolves, these objectives expand, reflecting the growing complexity of human interactions and societal challenges. Integrating interdisciplinary methods and innovative research techniques continues to be vital for advancing the social sciences.

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Comparative Characteristics of Research in the Social Sciences

The social sciences examine complex social phenomena, primarily focusing on human behavior, social structures, and cultural norms. Unlike the natural sciences, which investigate natural phenomena, and the formal sciences, such as mathematics, which deal with abstract forms and figures, the social sciences explore varied and intricate aspects of human life (Klein, 1990). This review delineates the unique characteristics of social science research, comparing these with methodologies from other scientific domains to highlight both the challenges and the dynamic nature of social scientific inquiry.

1. Philosophical Foundations

1.1 Epistemological Differences

1.1.1 Social Sciences

Social science research is fundamentally interpretative, with an epistemology that often embraces constructivism, recognizing the constructed nature of reality (Crotty, 1998). Researchers in this field focus on the meanings that individuals or groups ascribe to their social world, using qualitative methods to uncover these perspectives (Schwandt, 2000).

1.1.2 Natural Sciences

In contrast, the natural sciences typically adhere to positivism, assuming a fixed, measurable reality that can be objectively studied through experimental methods and quantitative analysis (Hughes, 1983).

1.1.3 Formal Sciences

The formal sciences, such as mathematics and logic, rely on axiomatic systems where propositions are derived from general set rules, independent of empirical evidence (Suppe, 1977).

1.2. Methodological Variations

1.2.1 Social Sciences

Methodologies in the social sciences include both qualitative methods, like case studies, ethnography, and grounded theory, and quantitative approaches such as statistical modeling and surveys (Tashakkori & Teddlie, 2003). Mixed methods

research, combining both approaches, is increasingly popular for its ability to provide a more comprehensive understanding (Johnson & Onwuegbuzie, 2004).

1.2.2 Natural Sciences

Natural sciences commonly utilize experimental methods, controlled testing, and quantitative measures, focusing on causality and generalization (Popper, 1959).

1.2.3 Formal Sciences

Research in the formal sciences primarily involves proof-solving, logical deduction, and abstract problem-solving, which are largely theoretical and non-empirical (Balinski & Laraki, 2010).

2. Ethical Considerations

2.1 Social Sciences

Ethical issues in the social sciences often revolve around the rights and well-being of subjects, including concerns about privacy, consent, and potential harm. These disciplines must navigate complex social dynamics and power relationships that are less commonly encountered in other sciences (Simons & Usher, 2000).

2.2 Natural Sciences

While ethical considerations regarding environmental impact and the welfare of animal subjects are pertinent in the natural sciences, human-centered ethical dilemmas tend to be less complex (Resnik, 2007).

3.3 Formal Sciences

The formal sciences face fewer ethical issues as their research does not typically involve human or animal subjects, focusing instead on theoretical constructs (Harris, 2005).

3. Practical Challenges

3.1 Social Sciences

Social scientists must contend with variables that are difficult to control, such as human emotions and societal changes, which can introduce uncertainty and bias (Flyvbjerg, 2001). Additionally, achieving reliability and validity in measuring complex social phenomena is a persistent challenge (Kirk & Miller, 1986).

3.2 Natural Sciences

In the natural sciences, challenges include maintaining experimental integrity and managing technological limitations that might skew data (Kuhn, 1962).

3.3 Formal Sciences

Challenges for the formal sciences involve ensuring logical consistency and applicability of abstract concepts to real-world problems (Jech, 2003).

The characteristics of research in the social sciences are marked by a complex interplay of interpretive methodologies, ethical considerations, and epistemological underpinnings that distinguish it from the natural and formal sciences. This review highlights the need for a methodologically pluralistic and ethically sensitive approach in social science research, tailored to the nuanced realities of human and societal dimensions. Understanding these differences enriches our overall grasp of scientific inquiry and underscores the unique contributions of the social sciences to a comprehensive scientific understanding.

Below is a revised table comparing the characteristics of scientific research in the social sciences with those of the natural sciences and other scientific disciplines. This enhanced presentation helps to delineate the unique and common attributes across these fields:

Table 1: Comparative Characteristics of Scientific Research in Social vs. Other Sciences

CHARACTERISTIC	SOCIAL SCIENCES	NATURAL SCIENCES	COMPARISON/CONTRAST
EPISTEMOLOGICAL FOUNDATIONS	VARIED: POSITIVISM, INTERPRETIVISM, CONSTRUCTIVISM	MAINLY POSITIVIST: EMPHASIZING OBJECTIVITY AND UNIVERSALITY	SOCIAL SCIENCES EMBRACE A BROADER RANGE OF EPISTEMOLOGICAL VIEWS.
METHODOLOGICAL APPROACHES	QUALITATIVE, QUANTITATIVE, MIXED METHODS	PRIMARILY QUANTITATIVE: EXPERIMENTS, CONTROLLED TESTING	SOCIAL SCIENCES USE MORE DIVERSE METHODOLOGIES TO ACCOUNT FOR HUMAN FACTORS.
NATURE OF INQUIRY	OFTEN EXPLORATORY, AIMING TO UNDERSTAND PERCEPTIONS AND COMPLEX BEHAVIORS	GENERALLY EXPLANATORY, FOCUSING ON CAUSALITY AND LAWS OF NATURE	SOCIAL SCIENCES FOCUS MORE ON UNDERSTANDING THAN EXPLAINING.
DATA COLLECTION METHODS	SURVEYS, INTERVIEWS, FOCUS GROUPS, ETHNOGRAPHY	EXPERIMENTS, OBSERVATIONS, SIMULATIONS	SOCIAL SCIENCES OFTEN USE DIRECT HUMAN INTERACTIONS FOR DATA COLLECTION.

Characteristic	Social Sciences	Natural Sciences	Comparison/Contrast
Variables and Measurement	Variables are often non-physical and abstract (e.g., attitudes, satisfaction)	Variables are physical and concrete (e.g., temperature, speed)	Measuring abstract concepts is more common in social sciences.
Analysis Methods	Statistical, Thematic (Content Analysis, Narrative Analysis)	Statistical, Mathematical Models	Use of thematic analysis is distinctive to social sciences.
Generalizability	Often context-specific with limited generalizability	High generalizability aiming for universal laws	Social sciences findings are usually more contextual.
Replicability	Challenges due to variability of social contexts and human behavior	Easier replicability due to controlled variables and conditions	Replicability is more complex in social sciences due to human factors.
Ethical Considerations	High due to direct human involvement (e.g., privacy, consent)	Variable, often lower except in medical fields (e.g., clinical trials)	Ethical considerations are more prominent and complex in social sciences.
Outcome Implications	Direct impacts on social policies and practices	Impacts are often technological and predictive	Outcomes in social sciences directly affect societal structures.
Theoretical Frameworks	Diverse and evolving (e.g., Critical Theory, Feminism)	More stable and universally accepted theories (e.g., Quantum Mechanics, Evolution)	Social sciences theories are often less universally agreed upon.
Funding and Application	Often publicly funded; applications in policy-making, education, social work	Mix of public and private funding; applications in industry, technology development	Funding sources and applications vary significantly.

The source: Prepared by the researcher based on review and citation from the following references:

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Research Problems in the Humanities and Social Sciences

Human and social sciences research fundamentally differs from natural sciences regarding objectives, methods, and implementations (Nash, 1999). HSS research focuses extensively on human aspects, often subjective and multifaceted (Brewer, 2000). This review examines critical issues such as methodological diversity, ethical considerations, theoretical orientations, and the socio-political context of research practices.

1. Methodological Challenges

1.1. Diverse Approaches and Their Implications

HSS embraces a variety of methodologies ranging from hermeneutic and phenomenological to historical and comparative methods, each presenting unique challenges (Kahlke, 2014). For instance, the accuracy of phenomenological research often suffers from subjective biases (Smith, 2015).

1.2. Integration of New Technologies

Integrating digital tools and data management technologies presents both opportunities and complications, such as privacy concerns and misinterpreting vast digital data sets (Hine, 2015).

1.3. Quantitative vs. Qualitative Dilemmas

While quantitative methods are praised for their objectivity, they are often criticized in HSS for overlooking the context and depth of human behavior (Onwuegbuzie & Leech, 2005). Conversely, qualitative methods are sometimes seen as less reliable due to their subjective nature (Maxwell, 2012).

2. Ethical Considerations

2.1. Research Ethics and Human Subjects

Research involving human subjects requires careful ethical consideration, ranging from consent to confidentiality (Israel & Hay, 2006). The Belmont Report's respect, justice, and beneficence principles must be rigorously applied (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979).

2.2. Plagiarism and Intellectual Property

Plagiarism and the misuse of intellectual property pose significant ethical challenges in HSS, exacerbated by the accessibility of digital resources (Scanlon, 2003).

3. Theoretical and Conceptual Issues

3.1. Theoretical Saturation

The vast array of theories in HSS can lead to "theoretical saturation" where adding more theories offers diminishing returns on understanding (Swedberg, 2016).

3.2 Interdisciplinarity

While interdisciplinary research is touted for its comprehensive approach, it also suffers from "discipline envy" — a lack of consensus on methodological validity among different academic fields (Jacobs, 2013).

4. Socio-political Influences

4.1. Funding and Resource Allocation

Funding biases and resource allocation can profoundly impact research agendas. Studies have shown that funding often favors trending topics rather than necessarily most relevant to societal needs (Hackett, 2005).

4.2. Academic Publishing Pressures

The "publish or perish" culture in academia pressures researchers to prioritize quantity over quality, potentially leading to rushed and less thorough research outputs (Lawrence, 2003).

4.3. Political and Ideological Biases

Research in HSS is not immune to political and ideological influences, which can skew research agendas and outcomes (Smith, 2010).

5. Solutions and Recommendations

5.1. Enhancing Methodological Rigor

Adopting rigorous methodologies and enhancing reproducibility through open science practices can mitigate some of the methodological challenges (Miguel et al., 2014).

5.2 Fostering Ethical Standards

Strengthening ethical standards and enhancing review processes by involving diverse stakeholders can address ethical issues effectively (Banks et al., 2013).

5.3 Theoretical Innovations

Encouraging theoretical innovation and integrating emerging disciplines may help overcome the problem of theoretical saturation (Schwartz-Shea & Yanow, 2012).

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