



PARADIGM SHIFT FROM POSITIVISM TO POST-POSITIVISM: IMPLICATIONS FOR RESEARCH DESIGN, DATA COLLECTION AND ANALYSIS

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ABSTRACT

The shift from positivism to post-positivism is an important development in research, especially in the field of education and social sciences. Positivism based on ideas of, believes that reality is fixed, objective and can be understood through observation and measurement. It mainly uses quantitative methods such as surveys, experiments and statistical analysis. The aim is to produce accurate and generalizable results. However, overtime, researchers realized that human behavior and social situations are complex and cannot always be explained using only numbers and fixed methods. This led to the development of post-positivism. Post-positivism accepts that reality exists, but it cannot be understood perfectly because of limitations in human thinking, measurement errors and different contexts. It also recognizes that the researcher may influence the research process. This paper discusses how the shift from positivism to post-positivism has changed the way research is conducted. It explains the differences between the two approaches and focuses on their impact on research design, data collection and data analysis. Under positivism, research design is usually structured and fixed, while post-positivism supports flexible and mixed-method designs. In data collection, positivism uses tools like questionnaire and tests, whereas, post-positivism includes interviews and observations to understand people's experiences. In data analysis, positivism depends mainly on statistical methods, while post-positivism combines both statistical and interpretative techniques. Modern research often uses a combination of both approaches, known as mixed-method research. This helps researchers to understand problems in a more complete way by using both numerical and personal experiences. The study highlights that using both positivist and post-positivist ideas together can improve the quality, depth and usefulness of research.

KEYWORDS

Positivism, Post-Positivism, Approach, Mixed-method, Research

INTRODUCTION

Research is a systematic and organized process of generating knowledge, guided by certain philosophical assumptions known as research paradigms. A research paradigm refers to a set of beliefs and practices that influence how researchers understand reality (ontology), how knowledge is constructed (epistemology) and the methods used to study a phenomenon (methodology) (Creswell, 2014). Paradigms act as a guiding framework that shapes the entire research process including the formulations of research questions, selection of methods and interpretation of findings. In social sciences and education, understanding paradigms is essential because research often deals with complex human behavior and contextual realities.

POSITIVISM

Positivism, introduced by Auguste Comte is one of the earliest and most influential research paradigms. It is based on the assumption that reality is objective, stable and can be observed and measured through scientific methods. Positivist research emphasizes empirical observation, quantification and the use of statistical analysis to establish relationships between variables. The researcher is considered independent and detached from the study, ensuring that the findings are free from personal bias.

The paradigm has significantly contributed to the development of structured research designs such as experiments, surveys and cor-relational studies. It focuses on hypothesis testing and aims to produce generalizable results. Positivism has been criticized for its limited ability to address the complexity and subjectivity of human experiences.

POST-POSITIVISM

Post-positivism introduces the idea that research is influenced by context, values and the perspectives of the researcher. It supports methodological pluralism, encouraging the use of both quantitative and qualitative approaches. This paradigm allows researchers to explore not only measurable aspects of a phenomenon but also the meanings and experiences associated with it. It challenges the notion of absolute truth and objectivity. It acknowledges that while reality exists, it can only be imperfectly understood due to the limitations of human perception and measurement (Karl Popper, 1959).

NEED FOR THE PARADIGM SHIFT

The shift from positivism to post-positivism emerged due to the growing recognition that positivist approaches were insufficient to fully explain the complexity of human behavior and social phenomena. Positivism approach is effective for studying observable and measurable variables. It often overlooks the influence of context, culture and individual experiences. In fields such as education and social sciences, where human interactions and perceptions play a crucial role, purely quantitative methods fail to capture the depth and meaning of real-life situations. Post-positivism approach addressed these limitations by acknowledging that reality exists but cannot be fully understood due to limitations in human observation and measurement. It recognizes that research is influenced by values, context and the researcher's perspective.

This paradigm shift was necessary to allow greater flexibility in research design and to incorporate qualitative methods such as interviews and observations, which provide deeper insights into human experiences (Creswell, 2014). Thus, the need for this shift lies in the demand for more comprehensive, context-sensitive and realistic approaches to research, enabling a better understanding of complex social realities.

POSITIVIST APPROACH TO RESEARCH

The positivist approach to research is one of the earliest and most influential paradigms in scientific inquiry. Positivism is grounded in the belief that reality exists independently of human perception and can be studied objectively using scientific methods.

Assumptions of Positivism

The positivist paradigm is based on several key assumptions.

- a. It assumes that reality is objective, stable and can be measured accurately.
- b. It views knowledge as something that can be discovered through empirical observation and experimentation.
- c. It maintains that research should be value-free, meaning that the researcher must remain neutral and detached from the subject of study,

Research Design under Positivism

Research design in positivism is typically structured and systematic. Common designs include-experimental, quasi-experimental, survey and cor-relational studies. These designs focus on testing hypotheses and identifying relationships between variables. The emphasis is on control, precision and replicability, ensuring that the results are reliable and can be reproduced by other researchers.

Data Collection Methods

Positivist research relies heavily on standardized and structured data collection tools. These include questionnaires with closed-ended questions, structured observations and standardized tests. The aim is to collect numerical data that can be quantified and analyzed statistically. Such methods ensure consistency and minimize researcher bias.

Data Analysis Techniques

Data analysis in positivist research is primarily quantitative. Statistical techniques such as- Mean, Standard Deviation, Cor-relation, Regression, T-Test and ANOVA are commonly used. Hypothesis testing plays a vital role, allowing researchers to determine whether their findings are statistically significant. The focus is on objectivity, accuracy and generalization of results.

Strengths

- Ensures objectivity in research by minimizing research bias.
- Produces reliable and replicable results.
- Uses scientific and systematic methods.
- Allows quantitative measurement of variables.
- Findings are often generalizable to larger populations.
- Facilitates statistical analysis and hypothesis testing.

Limitations

- Ignores human emotions, values and experiences.
- Lacks depth and contextual understanding.
- Assumes reality is fixed, which may not apply to social situations.
- Over-reliance on quantitative data only.
- Cannot fully explain complex social phenomena.

POST-POSITIVIST APPROACH TO RESEARCH

The post-positivist approach to research emerged as a response to the limitations of the positivist paradigm, particularly in understanding complex social realities. This approach argued that knowledge is not absolute but provisional and subject to revision. This paradigm acknowledges the existence of reality but argues that it cannot be fully and perfectly understood due to the limitations of human perception, measurement and context. It challenges the rigid assumptions of positivism and accepts that research is influenced by values, perspectives and situational factors.

Assumptions of Post-Positivism

The post-positivist paradigm is based on several key assumptions.

- a. Critical Realism- Reality exists, but it can only be partially known.
- b. Researcher Influence- The researcher may influence the research process.
- c. Contextual Understanding- Social phenomena are influenced by context.
- d. Use of Multiple Methods- Both quantitative and qualitative methods are important.

Research Design under Post-positivism

Research design in post-positivism is more flexible and adaptive. It allows for the use of mixed-method approaches, combining both quantitative and qualitative techniques. Designs such as case-studies, phenomenology, historical studies, exploratory research and sequential mixed-method studies are commonly used. This flexibility enables researchers to address complex research questions more effectively.

Data Collection Methods

Post-positivist research uses a variety of data collection methods to capture both numerical and contextual data. These include interviews, focus group discussions, observations and open-ended questionnaires. While quantitative tools are still used, they are complemented by qualitative methods to provide a deeper understanding of the research problem.

Data Analysis Techniques

Data analysis in post-positivism involves both statistical and interpretative methods. Quantitative data may be analyzed using statistical techniques, qualitative data is analyzed through thematic, content analysis or coding. This combination allows researchers to interpret findings in a more comprehensive and meaningful way.

Strengths

- Provides a holistic understanding of research problems.
- Recognizes complexity of human behavior.
- Allows flexibility and adaptability.
- Combines strengths of quantitative and qualitative (mixed) methods.
- Suitable for studying complex social issues.

Limitations

- May reduce objectivity due to researcher involvement.
- Findings may be less generalizable.
- Requires more time and effort.
- Possibility of researcher bias in interpretation.
- Difficult to replicate studies exactly.

COMPARISON BETWEEN POSITIVISM AND POST-POSITIVISM APPROACH

Basics of Comparison	Positivism	Post-Positivism
Nature of Reality (Ontology)	Objective, fixed and independent	Subjective, partially knowable
Research Approach	Quantitative	Mixed-method (Quantitative + Qualitative)
Research Design	Structured, Rigid and Pre-defined	Flexible & Adaptive
Human Nature	Pre-determined and Mechanical (Cause-Effect)	Consciousness & Freedom of Choice
Data Type	Numerical	Both numerical and textual data
Data Collection Methods	• Experimental Research • Trend Studies • Cor-relational Research • Survey Research • Explanatory Research	• Phenomenology • Grounded Theory • Ethnography • Case Study • Anecdotal Research • Exploratory Research
Data Analysis Technique	Statistical Analysis (Mean, T-Test, ANOVA)	Statistical Analysis & Content/Thematic Analysis
Generalization	High generalizability	Context-based generalizability

SIGNIFICANCE IN EDUCATION

The paradigm shift from positivism to post-positivism has brought significant changes in the field of education and social science research. In the field of education, positivist approaches have traditionally focus on measurable outcomes such as- test scores, achievement levels and performance indicators. These methods are useful for evaluating large scale educational programmes and ensuring standardization. However, education is a complex and dynamic process influenced by social, cultural, emotional and psychological factors. The post-positivist approach helps in addressing these complexities by allowing researchers to explore students' experiences, teacher perceptions and classroom interactions in a more holistic manner.

One of the major contributions of post-positivism is the promotion of mixed-method research, which combines quantitative and qualitative approaches. This integration enables researchers to not only measure educational outcomes but also understand the underlying reasons behind them. For Example- while quantitative data may show a decline in student performance, qualitative methods such as-interview and observation can help identify the causes. In research this paradigm shift has expanded the scope and depth of inquiry. It has encouraged researchers to move beyond rigid methodologies and adopt more adaptable and context-sensitive approaches. This is particularly important in social sciences, where human behavior cannot be fully understood through numerical data alone.

CONCLUSION

In Conclusion, the shift from positivism to post-positivism reflects a deeper understanding of the complexities involved in research, especially in the study of human behavior and social systems. While positivism laid a strong foundation by promoting objectivity, measurement and scientific rigor, it became insufficient in addressing the dynamic and context-dependent nature of real-life situations. The emergence of post-positivism has expanded the scope of research by accepting that knowledge is not absolute and that multiple perspectives are necessary for a more accurate understanding. This transition has encouraged the use of flexible research designs, diverse data collection methods and integrated analytical techniques. The integration of both quantitative and qualitative paradigms enables researchers to produce more meaningful, reliable and context-sensitive findings.

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