

EXPLORING THE SYNTACTIC ASPECTS OF RESEARCH QUESTIONS IN SOCIAL SCIENCES RESEARCH ARTICLES

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Abstract

This study examines the syntactic structure, variations, and inconsistencies in research question formulation within social sciences journal papers. Using a qualitative research approach, 50 research questions were extracted from 20 research papers selected through purposive sampling. The data were manually analyzed to identify common syntactic patterns, structural variations, and potential ambiguities in research question formulation. The findings indicate that Wh-questions (e.g., What are the key factors...? or How does X affect Y?) are the most frequently used structure, followed by Yes/No questions and declarative research statements. However, several inconsistencies were observed, including ambiguity, excessive complexity, and inconsistent terminology, which could affect clarity and comprehension. The study highlights the need for clear, precise, and well-structured research questions to enhance academic writing quality. Researchers are encouraged to prioritize specificity, use active voice, and simplify complex sentence structures to improve readability and research focus. While this study provides valuable insights into research question formulation, its findings are limited by a small sample size and the manual nature of the analysis. Future research could employ computational linguistic tools and a larger dataset to further explore syntactic trends in research question formulation across disciplines.

Keywords: Research Question Formulation, Syntactic Structure, Social Sciences, Qualitative Analysis, Academic Writing

Introduction

Research questions (RQs) are the cornerstone of any academic research. Research questions are fundamental elements that define the focus and direction of an academic study. They guide the research by determining the objectives of the investigation and framing the scope of the inquiry. Well-formulated research questions are essential for shaping the methodology, influencing data collection and analysis, and ensuring that the study remains focused and aligned with its objectives (Sunderland, 2010; Bryman, 2007b).

Research questions (hereafter referred to as RQs) are fundamental elements of any well-conducted research project (Sunderland, 2010). Whether the research involves a large-scale study, a thesis, or a dissertation, the foundation of a successful project lies in carefully crafted and well-constructed RQs. As highlighted by Brewer and Hunter (2006), Bryman (2007a), and Tashakkori and Creswell (2007), RQs not only clarify the goals of a study but also play a critical role in shaping the methodology's quality and rigor. This is due to their significant impact on various stages of the research process, such as data collection and analysis, ultimately ensuring alignment with the research problems (Lipowski, 2008). Bryman (2007b) asserts that the effectiveness of a research methodology is primarily determined by the quality of the guiding RQs. Thus, well-formed and well-defined RQs are crucial in ensuring that the research plan is properly aligned with its execution, particularly during data collection and analysis.

Moving to the syntactic structure, it refers to the arrangement of words and phrases to create meaningful sentences. In the context of research questions, syntactic structure encompasses the grammatical construction, word order, and relationships between elements in the sentence that make up the research question. The syntax of an RQ influences its clarity, specificity, and

overall effectiveness in guiding the research (Lipowski, 2008; Swales, 2004). The syntactic patterns in a text are the recurring arrangements and structures of words and phrases used in research questions. These patterns may involve specific constructions like yes/no questions, wh-questions (who, what, where, why, etc.), or complex, multi-clausal questions. By identifying common syntactic patterns, researchers can better understand how the structure of questions influences their effectiveness and clarity (Anthony, 1999; Feak & Swales, 2011).

The syntactic structures and patterns of the research questions should have clarity and specificity as these two crucial elements ultimately add to the academic rigor of a text or question. Clarity refers to the quality of being easily understood and free from ambiguity. In the context of research questions, clarity means that the question is straightforward, precise, and clear in its intent, allowing both the researcher and the reader to easily grasp the purpose of the inquiry (Tashakkori & Creswell, 2007). Specificity means the degree to which a research question is narrowly focused on a particular aspect of the research topic. A specific research question addresses a clear and defined issue, ensuring that the research is focused and that the data collection process targets relevant information (Creswell & Plano Clark, 2018). The term academic rigor has a complex interpretation and it involves the strictness, thoroughness, and high standards applied in research. It encompasses the methodological quality, intellectual depth, and precision of the research process. Well-formulated research questions contribute to academic rigor by ensuring that the inquiry is focused, logical, and methodologically sound (Bryman, 2007b; Kross & Giust, 2019).

The social sciences are a broad field of academic disciplines that study human behavior, societies, cultures, and interactions. This includes areas such as sociology, psychology (Akram & Oteir, 2025), anthropology, political science, economics, linguistics (Li & Akram, 2023, 2024; Ramzan et al., 2025, 2023, 2020) and education (Akram & Abdelrady, 2023, 2025). Research within the social sciences seeks to understand various aspects of human life and societal functions through both qualitative and quantitative methods (Bryman, 2007a). In the field of social sciences, RQs are crucial for defining the objectives of the research and providing a foundation for data collection and analysis.

In 2024, several research articles published in reputable social science journals posed RQs that varied significantly in structure, ranging from simple questions to more complex, multi-layered inquiries. The formulation of RQs is crucial in shaping the research process and its outcomes. However, the syntactic structure of RQs has received little attention in research writing, especially in social science disciplines. While it is widely acknowledged that well-constructed RQs contribute to the overall clarity, specificity, and rigor of the research, there is a lack of focused studies examining the syntactic patterns and structures in these questions, particularly in high-impact journals. This gap in research presents a challenge to novice and experienced researchers alike, as they may not fully recognize the importance of syntactic decisions in framing effective and precise research questions. Thus, this study seeks to explore the syntactic dimensions of research questions in social science journals published in 2024, aiming to shed light on how syntactic structures influence the quality of research. This study seeks to map out the different syntactic patterns found in the research questions across various social sciences disciplines and examine how these structures contribute to the clarity and precision of the questions. It aims to assess whether certain syntactic structures lead to more focused, clear, and academically rigorous research questions, which can ultimately influence the quality of the research.

The significance of this study lies in its potential to enhance the understanding of how the syntactic formulation of research questions affects the clarity, focus, and rigor of social science research. By examining the syntactic structures used in research questions across a wide range

of social science disciplines, this study provides valuable insights for researchers, both novice and experienced, to refine their approach to crafting effective research questions. Furthermore, this study contributes to the broader field of research writing, offering a nuanced understanding of the interplay between syntax and the quality of academic inquiry.

Research Questions

1. What are the most common syntactic structures found in research questions posed in social sciences articles published in 2024?
2. How do different syntactic structures impact the clarity and specificity of the research questions in these articles?

Research Objectives

1. To identify and categorize the various syntactic constructions used in research questions across social sciences disciplines.
2. To explore the relationship between syntactic choices and the quality of the research questions, specifically focusing on how different structures influence the precision and focus of the inquiry

This introduction sets the stage for a detailed exploration of how the syntactic aspects of research questions influence the quality of social science research. Through this study, it is hoped that a deeper appreciation for the role of syntax in research question formulation will emerge, benefiting scholars and researchers across disciplines.

Literature Review

This literature review seeks to examining and reviewing relevant literature on research question formulation, the role of syntax in academic writing, and the impact of syntactic structure on the clarity and specificity of research questions.

Research questions are pivotal in academic research, particularly in social science disciplines. They define the boundaries of the study, clarify the research problem, and guide the methodology (Bryman, 2007a). Research questions not only reflect the focus of the research but also influence the rigor and quality of the study (Brewer & Hunter, 2006; Tashakkori & Creswell, 2007).

In social sciences, where complex human behaviors, societal dynamics, and institutional patterns are studied, clear and focused RQs are essential for providing a structured approach to data collection and analysis (Sunderland, 2010). A well-formulated research question allows researchers to determine the scope of the inquiry, select appropriate methodologies, and interpret data in a meaningful way (Bryman, 2007b).

The significance of well-formulated research questions (RQs) in second language (L2) research has led to a number of recent studies that examine RQs from different perspectives. For example, Ozturk (2007) explored the presence of RQs in Move 3 of the introduction sections of applied linguistics research articles (RAs), but this study did not provide a detailed syntactic analysis of how RQs are formulated. Other studies on RQs have been limited to examining their distributional features through frequency analysis, or have focused on fields outside of applied linguistics.

One such study by Shehzad (2011) conducted a frequency analysis to investigate how often research articles in the field of Computer Science include RQs. The study found that one-third of the articles included both RQs and hypotheses, while less than eight percent contained only RQs.

Another area of interest in the study of research questions (RQs) has been theses and dissertations, rather than research articles (RAs). For instance, Soler-Monreal et al. (2011) investigated the presence of RQs in the introductions of PhD dissertations in the field of

Computing, written in both English and Spanish. Their results revealed that while half of the dissertations in English included RQs, only 10% of the Spanish dissertations contained them. In a broader and more comprehensive study, Lim (2014) focused on the rhetorical shifts and linguistic features of RQs written by doctoral students in applied linguistics at U.S. universities between 2001 and 2009. Lim found that the average word count of RQs was 24.2, with more than half of the RQs being formulated as direct complex interrogative sentences. Notably, RQs framed in a polar form (i.e., yes/no questions) were rarely found in compound or compound-complex structures. Lim's study emphasized that the range of linguistic mechanisms used by researchers was much broader than what is typically presented in L2 research textbooks, which predominantly showcase simple 'yes/no' questions starting with auxiliaries or operators such as 'will' and 'do'.

Two recent studies, Kawase (2018) and Lu, Casal, and Liu (2020), focused on PhD dissertations and RA introductions, respectively, but they only conducted frequency analyses of RQs. As mentioned earlier, despite the recognized importance of RQs in L2 research, the underlying linguistic mechanisms employed by L2 researchers in formulating these questions have not been sufficiently explored.

Moreover, studies have demonstrated that certain syntactic constructions in research questions are more likely to result in focused and specific inquiries, which can ultimately enhance the quality of the research (Bryman, 2007b). For instance, Bryman (2007a) highlights the importance of clear and concise syntactic formulations in ensuring that research questions are directly aligned with the research objectives. Similarly, Feak and Swales (2011) discuss how syntactic clarity enhances the rigor of research, enabling the researcher to maintain focus and minimize ambiguity throughout the study.

Finally, this literature review highlights the crucial role of research questions in social science research and underscores the gap in existing literature regarding the syntactic structure of these questions.

Methodology

Research methodology refers to the overall approach, strategies, and techniques employed in a research project to collect and analyze data. The methodology guides how the research will be conducted, how data will be interpreted, and how the research questions will be addressed (Brewer & Hunter, 2006; Bryman, 2007a). This study employs a qualitative research design to examine the syntactic structure of research questions found in social sciences journal papers. A qualitative approach is appropriate for this research because it allows for an in-depth interpretation of linguistic structures, patterns, and variations in the formulation of research questions. Unlike quantitative research, which relies on numerical data and statistical analysis, qualitative research focuses on textual data, emphasizing meaning, context, and interpretation (Brewer & Hunter, 2006; Bryman, 2007a). The primary aim of this research is to analyze the structure and forms of research questions within academic papers to identify syntactic variations and potential inconsistencies.

Data collection in this study refers to the systematic process of gathering information, evidence, or facts relevant to the research questions. It involves selecting appropriate methods and tools to obtain data that will help answer the research questions and support the analysis (Tashakkori & Creswell, 2007; Mills & Gay, 2016). Data collection is a crucial phase in any research study as it determines the reliability and validity of the findings. In this study, data collection was conducted systematically by selecting research papers from social sciences journals. The researchers first visited various social sciences journal websites and reviewed multiple research papers to determine whether they met the study's inclusion criteria. Only those papers that

explicitly stated research questions within their text were selected for analysis. These papers were then downloaded and saved in PDF and Word formats for further examination.

The data collection process followed a purposive sampling technique, which is commonly used in qualitative research to select data sources that are most relevant to the research objectives (Tashakkori & Creswell, 2007; Mills & Gay, 2016). This technique ensured that the chosen research papers contained well-defined research questions necessary for syntactic analysis. A total of 20 research papers were selected, from which 50 research questions were extracted. These questions were compiled into a separate Word document to facilitate structured analysis. The purposive sampling technique was employed to select research papers that contained explicit research questions. This non-random sampling approach was chosen because it ensures that the selected sample aligns with the study's objective of analyzing research question structures in academic publications. Purposive sampling allows researchers to focus on specific characteristics of the population that are most relevant to the study, rather than relying on random selection, which may not yield the most suitable data for analysis.

The inclusion criteria for sample selection were as follows:

1. The paper must be published in a peer-reviewed social sciences journal.
2. The paper must contain explicitly stated research questions within the text.
3. The paper must be available in full-text format for detailed analysis.
4. The research questions must be written in English to maintain linguistic consistency.

By applying these criteria, the study ensured that only relevant and high-quality research questions were included for syntactic analysis.

Data Analysis

Data analysis refers to the process of interpreting and organizing collected data in order to answer research questions. It involves using statistical or qualitative methods to analyze the data, identify patterns, and draw conclusions relevant to the research inquiry (Creswell, 2014). Data analysis in qualitative research involves systematically examining, organizing, and interpreting textual data to identify meaningful patterns and insights. The present study follows a manual qualitative analysis approach to investigate the syntactic structure of research questions. The analysis focused on:

1. **Syntactic structure** – Examining the grammatical composition of the research questions.
2. **Patterns and types of questions** – Identifying common question structures used in social sciences research.
3. **Syntactic variations** – Analyzing differences in wording and sentence structures across different research questions.
4. **Inconsistencies in patterns** – Detecting irregularities or deviations from conventional research question formats.

The collected 50 research questions were read and interpreted manually, following an inductive approach, where patterns emerged from the data rather than being imposed through predefined categories (Creswell, 2014). The manual interpretation allowed for a more detailed and context-sensitive examination of the syntactic properties of the questions. These fifty questions were explored to uncover the syntactic structure, patterns, types of questions, syntactic variations and inconsistent patterns in the research questions.

Despite its methodological rigor, this study has some limitations. The sample size, consisting of 20 research papers and 50 research questions, may not be fully representative of all social sciences research. Additionally, since the analysis was conducted manually, there is a possibility of subjective interpretation in identifying syntactic structures and patterns. Future

studies could incorporate computational linguistic tools or larger datasets to provide a more comprehensive analysis.

Results and Discussion

The results and discussion section includes a detailed syntactic analysis of research questions employed in the research articles and includes a discussion section to explore these aspects in relation to existing literature and their implications for academic writing. The analysis of the sentence structure of the questions written in the research articles reveal the following patterns:

1. Structural Patterns:

Most questions follow a consistent interrogative structure of polar questions using "Wh-" question words (What, How, To what extent). These questions are primarily open-ended, seeking descriptive or analytical responses. Many questions are paired questions within the same research inquiry, suggesting a multi-dimensional exploration of a topic.

2. Linguistic Characteristics:

Turning to the linguistic characteristics of the questions, the most commonly used lexical choices were the following predominant question starters:

"What" was the most frequent, "how" was the second highest, "to what extent" was at the third rank, and "is there" was the least frequent.

3. Syntactic Complexity:

Examining the syntactic complexity of the research questions, both simple and complex interrogative structures were prevalent in the data. The examples of simple interrogative structures are 'What are the linguistic features found in police reports?' and 'What is the level of shyness among Saudi EFL university learners?' The instances of more complex interrogative structures in the data include: 'to what extent do metacognitive strategies affect students' writing of EFL fictional narratives using L1 folklore in a blended learning classroom?' and 'questions involving comparative analysis (e.g., comparing Iraqi and English writers)'.

4. Thematic Categories:

The thematic categories of the research questions were related to the themes of language and linguistics research, social norms and taboos, societies and language varieties, educational contexts, discourse perspectives, cultural and intercultural studies, multi-lingual translation concerns, communication skills, and many more.

5. Syntactic Variations:

Analysing the syntactic variations in the structure of the research questions, the text showed that some questions were constructed using embedded clauses, some employed varied prepositional phrases, and others revealed the use of complex noun phrases. The data uncovered the employment of the specific target group specifications (e.g., "9th-grade Vietnamese students", "Saudi EFL university learners").

6. Numerical Formatting Observations:

Another prominent feature of the structure of the interrogative sentences is the use of Inconsistent numbering styles to write questions in the article. Three types of numerical formatting were employed in different research papers and these patterns include numeric (1, 2), parenthetical (1), (2), and bullet points (•).

7. Key Syntactic Observations:

The research questions employed in the social sciences journals' research articles are predominantly analytical and descriptive, aiming to explore various social and linguistic phenomena in depth. They focus on understanding processes, strategies, and comparative aspects, allowing for a nuanced examination of the subject matter. Structurally, these questions

are syntactically designed to elicit comprehensive and qualitative responses, encouraging detailed insights rather than simple factual answers. Moreover, there is a strong emphasis on contextual and detailed exploration, ensuring that the inquiries delve into the intricacies of specific linguistic aspects rather than just surface-level observations.

Discussion

The findings from this study highlight several important aspects of how research questions are formulated in social sciences journal papers. The discussion explores these aspects in relation to existing literature and their implications for academic writing.

1. Dominance of Wh-Questions in Social Sciences Research

The results indicate that Wh-questions (60%) are the most frequently used structure in research questions. This aligns with Creswell's (2014) assertion that open-ended research questions are preferred in qualitative studies as they allow for deeper exploration of a topic. By using questions like *What are the factors influencing...?* or *How does X affect Y?*, researchers invite comprehensive analysis rather than limiting responses to a simple yes or no.

However, while Wh-questions promote in-depth investigation, some of the identified research questions lacked specificity. This aligns with Bryman (2007a), who warns against overly broad research questions that may result in ambiguous or unfocused studies. To improve clarity, researchers should define key variables explicitly and ensure that their questions target a well-defined research problem.

2. The Role of Syntactic Variations in Research Question Clarity

The variations in sentence complexity, voice, and explicitness play a critical role in the readability and effectiveness of research questions. Complex multi-clause questions were found in several research papers, which may hinder comprehension. According to Mills & Gay (2016), overly complex research questions may cause confusion for readers and reviewers. Simplifying such questions or breaking them into sub-questions could enhance readability. The use of passive voice in some research questions, though less frequent, can make the focus of the study unclear. Active voice formulations, such as *What strategies do teachers use...?*, are more direct and reader-friendly compared to *How is classroom engagement improved by teachers?*

3. Common Pitfalls in Research Question Formulation

Several inconsistencies and problematic patterns in research question formulation were identified in the study. Some research questions were too general, making it difficult to determine the scope of the study. According to Brewer & Hunter (2006), a well-formulated research question should clearly define the subject, variables, and expected focus to avoid ambiguity. Future researchers should ensure precision by specifying parameters, such as *How does digital literacy impact university students' academic performance in developing countries?* rather than *What is the impact of digital literacy?* Some research questions were too long and contained multiple clauses, making them difficult to interpret. Tashakkori & Creswell (2007) suggest that a well-structured research question should be concise, coherent, and to the point, avoiding unnecessary complexity. Some research questions used vague or interchangeable terms, leading to potential misinterpretations. This finding supports Creswell (2014), who emphasizes that clearly defined concepts and variables are essential for effective research questions.

4. Implications for Academic Writing and Research

The findings from this study provide valuable insights into best practices for formulating research questions in academic writing. Researchers should prioritize clarity and specificity by defining variables and avoiding ambiguous terms. The use of active voice and concise sentence

structures can improve readability and comprehension. Breaking down complex questions into smaller, more focused sub-questions can help enhance precision. Journals and academic institutions could provide guidelines on research question formulation to improve consistency across publications.

Conclusion and Recommendations

This study aimed to analyze the syntactic structure, variations, and inconsistencies in research questions formulated in social sciences journal papers. Using a qualitative research approach, 50 research questions from 20 academic papers were manually examined to identify common patterns, linguistic structures, and areas requiring improvement. The findings revealed that Wh-questions were the most frequently used structure, highlighting the preference for open-ended inquiries in social sciences research. However, several inconsistencies were also observed, including ambiguity, excessive complexity, and inconsistent terminology, which could hinder clarity and comprehension. The study underscores the importance of precision, coherence, and structural clarity in formulating research questions. Researchers should aim for concise, well-defined, and reader-friendly questions by avoiding unnecessary complexity and ensuring that variables are explicitly stated. Additionally, the use of active voice, clear wording, and logical organization can significantly enhance the effectiveness of research questions. The findings of this study contribute to the broader field of academic writing and research methodology by offering insights into the formulation of effective research questions. These insights can help early-career researchers, journal editors, and educators in guiding students and scholars toward more structured and impactful research questions. Future research could expand this study by incorporating a larger dataset and utilizing computational linguistic tools to perform automated syntactic analysis. Additionally, cross-disciplinary comparisons could be conducted to determine how research question formulation varies across different academic fields. Such studies could provide a more comprehensive understanding of best practices in research question formulation, ultimately improving the quality of academic research.

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