

Empirical Research Papers

an overview

What is empirical research?

Empirical researchers observe, measure, record, and analyze data with the goal of generating knowledge. Empirical research may explore, describe, or explain behaviors or phenomena in humans, animals, or the natural world. It may use any number of quantitative or qualitative methods, ranging from laboratory experiments to surveys to artifact analyses. Empirical research serves as the foundation of knowledge in the natural sciences, the social sciences, the medical and health sciences, and in the fields of engineering and technology. Experts in the humanities may also use empirical research to validate and enrich their disciplines' theoretical knowledge.

What is an empirical research paper?

One of the primary ways that empirical researchers share their findings (and, thus, advance knowledge in their fields) is through publishing empirical research papers in peer-reviewed journals. These articles are typically written for fellow researchers, experts, practitioners, and professionals in the field or discipline, but audiences may also include interested members of the public, college or graduate students, or professionals in related fields. While every discipline has its own conventions and specifications, most empirical research papers range from 3,000 to 10,000 words and use the structure described below.

Typical structure of an empirical research paper:

Empirical research does not happen in a vacuum. Any given study is likely to build upon, deepen, or challenge existing knowledge—or to attempt to fill an important gap in knowledge within a field. The structure of the empirical research paper situates the study fits within that broader scholarly conversation. As social psychologist Daryl Bem has pointed out in his [instructions](#) for writing journal articles, “An article is written in the shape of an hourglass. It begins with broad general statements, progressively narrows down to the specifics of your study, and then broadens out again to more general considerations.” Most empirical research papers follow this structure:

Introduction/ Literature Review

The introduction and literature review are combined into a single section in most empirical research papers. This section establishes the practical and scholarly significance of the research topic. It summarizes previous studies on the topic and highlights the gap in research that the present study fills. The section usually ends by introducing the present study's purpose, research question(s), and/or hypothesis and briefly describing its methods. For a more in-depth overview of this section, [click here](#).

Method(s)

The method (or methods) section of an empirical research paper describes, in detail, how the authors attempted to answer the research question. It describes the study's participants, materials, instruments, experimental protocols, measurements, variables, and/or data analysis procedures—usually in separate subsections. This information should allow readers not only to replicate the study but also to determine the validity of its results. For a more in-depth overview of this section, [click here](#).

Findings/Results

The findings (or results) section provides the answer to the research question(s), explaining whether or not the data confirmed the hypothesis and describing other relevant, interesting, or surprising trends within the data. This section tends to include charts, tables, and/or figures that illustrate key findings. For a more in-depth overview of this section, [click here](#).

Discussion

The discussion section interprets the findings of the study. Here, authors may speculate about why they got the results they did and connect their findings to previous investigations of the topic. They may discuss the practical or theoretical implications of their results, as well as how the findings might be applied or used by professionals in the field. Discussion sections typically include an examination of the limitations of the study, usually toward the end of the section. For a more in-depth overview of this section, [click here](#).

Conclusion

The conclusion may be a separate section in the empirical research paper, or it may appear at the end of the discussion section. In this section, authors emphasize the broader significance of their findings or contribution to the field. They also highlight unanswered questions and possible directions for future research. For a more in-depth overview of conclusion sections, [click here](#).

In addition to these sections, empirical research papers are typically preceded by an **abstract** ([click here](#)) and close with a **reference list** for sources cited in the paper. Many empirical research papers also have **appendices** that include relevant items such as survey instruments, photographs, or supplementary charts and figures.

Stylistic features and considerations:

In addition to following a prescribed structure, empirical research papers—especially those in scientific disciplines—tend to have the following stylistic features:

- **Concision:** Communicate concepts and information succinctly as possible, omitting all needless words. Whenever possible, paraphrase and summarize outside sources instead of quoting them.
- **Straightforward language and simple sentence structures:** Be clear and direct. Avoid ornate descriptions and complicated sentence structures, and limit the use of figurative language.
- **Precision:** Use terms consistently (it's okay if they appear multiple times in a paragraph).
- **Transitions:** Employ transitional words and phrases to help readers navigate between ideas.
- **Objectivity:** Use language that conveys impartiality, and avoid value judgements or expressions of emotion (unfortunately, luckily, disappointingly, etc.).
- **Equitable and person-first language:** Don't objectify participants by calling them "subjects." Beware of sex and gender bias, inherent in terms like "mankind." Use preferred terms when referring to race, ethnicity, sexual orientation, and gender. Use person-first language when describing illness, disability, and social conditions (e.g., "a child on the autism spectrum" as opposed to "an autistic child").

The following considerations vary by discipline, so refer to the appropriate style manual or journal as you make decisions about:

- **Self-reference:** Traditionally, researchers in scientific disciplines avoided referring to themselves in research articles, but that is changing in many disciplines. For example, the American Psychological Association now recommends that researchers use the first-person "I" or "we" in their articles.
- **Passive vs. active voice:** Attempts to avoid self-reference often lead to heavy use of passive voice (e.g. "Participants were recruited from..."). Some disciplines still favor passive voice, while others encourage the use of active voice (e.g., "We recruited participants from..."), which is more concise and engaging.
- **Jargon vs. accessible language:** While all research articles use formal language, some employ highly technical jargon that requires expertise to understand, while others employ language and explanations intended to make the article accessible to a lay audience.

For more information about writing in an academic style, visit this [link](#).

A final tip: Because different disciplines have different writing conventions, take the time to review empirical research papers in your field (and, if applicable, in the journal to which you intend to submit). You may find it useful to "reverse outline" a sample paper or published article for a project similar to yours. Analyze the function of each paragraph and section, and use that outline as a template for organizing your own paper.