**A research paper’s structure**

Although reading an academic article can be difficult, it can be made easier and not require you to spend much time on reading if you know how it is structured.

**Introduction** [THEORETICAL = GENERAL]

The **Introduction** section answers the question **WHY DID THEY CONDUCT THE STUDY?** and usually provides the following information:

•General background (theoretical background)

•Definition of key terms/concepts

•Survey of the literature

•Gap in the literature

•Purpose

•Hypothesis/es / research question(s)

**Method** [EMPIRICAL = SPECIFIC]

The **Methods** section answers the question **WHAT DID THEY DO & HOW?** and usually contains the following parts:

•Measures (tools)

•Participants / subjects / sample

•Procedure / Manipulation (steps in the research)

•Method of data analysis

**Results** [EMPIRICAL = SPECIFIC]

The **Results** section answers the question **WHAT DID THEY FIND?** and usually covers the parts listed below:

•Specific detailed findings

•Statistics and numbers

•Graphs, charts, tables

**Discussion** – [THEORETICAL = GENERAL]

The **Discussion** section answers the question **WHAT IS THE MEANING OF THE FINDINGS?**

It presents conclusions and possible answers to the hypotheses / questions raised in the introduction and usually contains the following parts:

• Summary of research findings (+ purpose)

• Explanations / reasons for findings

• Comparison of findings to previous research

• Limitations of the research

• Directions for future research

• Implications of findings

**What happens when women and men work together?**

*Northwestern-led study of 6.6 million papers finds gender-balanced teams produce more innovative, impactful work*

1. Though more women are working as scientists, mixed-gender research teams remain rarer than would be expected if teams formed randomly. But a new Northwestern-led study offers evidence that those mixed-gender teams that do form tend to produce research that is significantly more innovative and impactful on average than that of same-gender teams.
2. To conduct the study, Northwestern behavioral scientists used an algorithm to infer the gender of thousands of scientists who had authored papers in thousands of research journals from medicine to geography since the year 2000 from their names and quantified the gender ratio of each paper’s authorship team.
3. They then evaluated each of the papers on two key metrics: novelty, or the degree to which each paper combined existing ideas in new, innovative ways, and impact, which was measured by the total number of citations. The results [were published in August 2022](https://www.pnas.org/eprint/4IGZFMNEF42XY3FFMKNE/full) in the Proceedings of the National Academy of Sciences.
4. They found that mixed-gender teams produced work that was significantly more novel and more impactful on average, and that teams with gender-balanced ratios close to or equal to 50:50 had the highest likelihood of novel and impactful results. Mixed-gender teams of six or more were 9.1% more likely to publish novel work than the base rate, and 14.6% more likely to be among the most highly cited papers.
5. “These are interesting and important findings, not only for recognizing the contributions of women in science — and women and men working together — but also for improving science,” said Brian Uzzi, the Richard L. Thomas Professor of Leadership and Organizational Change at Northwestern’s Kellogg School of Management. “Chances are, if we had more mixed-gender teams working on pressing issues, we'd have faster breakthroughs.”
6. Uzzi, who was the senior author of the study, said that he and his team took pains to control for several other factors that might have explained why mixed-gender teams had stronger results overall. These included the degree of the authorship team’s interdisciplinarity, past success, career stages, degree of internationalization, and the size and diversity of authors’ collaboration networks.
7. However, none of those factors fully explained the performance advantages of mixed-gender teams, suggesting that the finding was robust: Gender balance — or an unknown factor that is very tightly correlated with it — does play a role in improving research performance. The finding was generalizable across 45 medical subfields, a focus of the research given pressing world health concerns, as well as for 18 other scientific disciplines, Uzzi said.
8. The superior performance of mixed-gender teams did not depend on the gender of the team’s leader. Mixed-gender teams outperformed same-gender teams regardless of whether the leader of the mixed-gender team was a woman or a man. Finally, though other research indicates that male scientists tend to cite other male scientists more often than female scientists and vice versa, mixed-gender teams were cited equally frequently by others in their fields, suggesting another benefit of gender balance.
9. Uzzi added that it is difficult to speculate about what features of mixed-gender teams might drive their higher propensity for novelty and innovation, but one possible explanation is that such teams might have an ideal interpersonal dynamic, a “Goldilocks level” of divergent thinking balanced by communication processes that promote both listening to and building off each other’s ideas.
10. In the future, scientists in both academia and corporate research might want to think critically about ensuring gender-balance when possible, Uzzi said, because they stand to benefit, along with the rest of the world. “If we believe that the aim of science is to solve problems, from emerging infectious diseases to climate change, this is good evidence that diversity and inclusion aid science and innovation, fairness and equality,” he said.
11. In addition to Uzzi, authors of the study “Gender-diverse teams produce more novel and higher-impact scientific ideas” include Yang Yang of the Mendoza College of Business at University of Notre Dame; Yuan Tian of New York University; Teresa Woodruff of Michigan State University; and Benjamin F. Jones of Northwestern’s Kellogg School of Management.

Assignment: **Read the article carefully and summarize the details** of the study reported in it. In your answer cover the following factors: research questions/hypotheses, procedure (including sample size, duration, manipulation), results, and conclusions. When addressing the research conclusions, refer to the researchers’ interpretations of their results and to possible limitations of the study.

**Start by assigning each paragraph/[paragraph part into the relevant paper section.**