# Review Questions for Chapter 4

1. List the five main parts of an article in order and describe each part.
2. Describe the different kinds of replications and explain why each is useful.
3. Describe three strategies for getting a research idea by trying to improve the validity of an existing study.
4. Describe common strategies for getting research ideas that take advantage of the fact that science involves building on other people's work.
5. Why would most studies benefit from replication?

# Answers to Review Questions for Chapter 4

**Question 1:** List the five main parts of an article in order and describe each part.

1. Abstract: A brief summary of the article. May be hard to interpret because it condenses/abbreviates so much information.
2. Introduction: Sets the stage for the study by explaining why the authors did the study and why you should care. That is, they will tell you why their hypothesis makes sense, why it should be tested, and may suggest that their general strategy for testing the hypothesis is the best way to test the hypothesis. If you understand the Introduction (which may be difficult because, in giving you the background for the study, they will reference other studies), you may be able to predict most of the rest of the article (especially the Method section). You can also look at the Introduction as an ad for the study—but an ad that is targeted at experts. Often, the Introduction follows this kind of structure:
	1. Topic is important/interesting
	2. We know—or think we know—certain things about the topic
	3. But we don’t know this important thing about the topic
	4. This study is the best way to find out this important thing.
3. Method: How they did the study (helpful for researchers wanting to replicate the study; probably the easiest part of the article to understand because provides concrete information about what participants saw and did)
	1. How did they recruit the participants
	2. What did they do to participants and what did they have participants do (so, it contains operational definitions of the key variables).
4. Results: Whether the results support the hypothesis
	1. How participants’ behaviors were converted into scores (if this isn’t clear from the method section)
	2. What analysis was done—sometimes, with an explanation of why that analysis is justified
	3. Whether the results support the hypothesis
5. Discussion: What we have learned from the study/ What’s the big picture?
	1. Summary of major findings and how these findings fit in with previous research
	2. Limitations of the study
	3. Suggestions for future research
	4. Conclusions

**Question 2:** Describe the different kinds of replications and explain how each can be useful.

 **Exact or direct replications** essentially repeat the original study. Such replications help us be more confident that the findings are not due to statistical errors, coincidence, or fraud. Repeated direct replications also increases our belief in the robustness of the findings (i.e., the findings still hold even with slight variations in procedures). If the findings hold in direct replications done in different countries, widely different time periods, or with different participant populations, direct replications may increase our confidence in the external validity of the findings.

 **Systematic replications** involve making minor modifications to the original study. Such replicationscan improve statistical power (by using more participants, more homogenous participants, more controlled conditions, or a more powerful design), external validity (by using more varied participants, less controlled conditions), construct validity (by making the hypothesis less obvious to participants by using blind techniques or a better cover story).

 **Conceptual replications** involve making major modifications to the original study**, often** by using different manipulations or measures, increase our confidence in the construct validity of our findings.

**Question 3: Explain three strategies for getting a research idea by trying to improve the validity of an existing study.**

 1. See if the **internal validity** can be strengthened by converting a nonexperimental (correlational) design into an experimental design. For example, if we find that suicide rates for towns where they play lots of country music on the air waves have higher suicide rates than other towns, we can't conclude that country music causes depression. However, we might want to do an experiment to find out if, in a lab or field situation, country music **causes** people to be less happy.

2. See if the **external validity** can be strengthened or tested. Often, the study will have a small, biased, or unusual sample of subjects; be done in a non-real world setting; use extremely unusual levels of the treatment; and look at the short-term effects. Thus, it may be dangerous to **generalize** the results of the study to other people or other situations. In such cases, you could redo the study using better samples, more realistic settings, more realistic amounts of the treatment, and longer-term effects. Put another way, you might suspect that type of participant (e.g., working versus retired), type of setting (workplace versus lab), amount of treatment, or time might be moderator variables.

3. See if the **construct validity** should be improved. Improving construct validity may involve doing a conceptual replication that uses better measures than the original study used. Alternatively, you might improve construct validity by doing a systematic replication that adds blind techniques to the original design, thereby reducing participant bias.

**Question 4:** Describe common strategies for getting research ideas that take advantage of the fact that science involves building on other people's work.

You can build on the finding that a treatment has an effect by

1. using several treatment levels so that you can map the ***functional relationship*** between how much treatment leads to how much of an effect;
2. looking for variable that ***moderate*** (weaken, strengthen, or reverse) the treatment’s effect;
3. looking for the physiological or mental ***mediating*** mechanism for the effect;
4. looking for practical applications of the findings; or
5. if the treatment has an effect of a measure of a general variable (e.g., the treatment increases IQ), you could use measures that tap specific dimensions of that variable (e.g., vocabulary, short term memory capacity, etc.) to get a clearer idea of which aspect/dimension/component the treatment affects.

**Question 5:** Why would most studies benefit from replication?

 **Exact or direct replications would increase our confidence in the finding, a useful step because many sciences, including psychology, are suffering a “replication crisis” because the findings of many studies do not replicate.** Systematic and conceptual replications are useful because designing a study involves trading off one validity for another or one threat to validity for another. So, if different studies, making different tradeoffs, still obtain the same results, our confidence in the finding is increased.