# Review Questions for Chapter 15

1. List the five main parts of an article in order and describe the goal of 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?
6. How could you expand on a study that found that changes in Variable A are related to changes in Variable C?

# Answers to Chapter 15 Review Questions

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

1. Abstract: Briefly summarize the article, including its hypothesis, method, results, and conclusions. Ideally, write this section after you have written the rest of the paper so you know what you are summarizing.
2. Introduction: Sets the stage for the study by explaining why you did the study and why the reader should care. Specifically, state your hypothesis, explain why your hypothesis makes sense, why it should be tested, and suggest that your general strategy for testing the hypothesis is the best way to test the hypothesis. To provide the background for the study, you will reference other studies. Often, the Introduction follows this kind of structure:
   1. Topic is important/interesting
   2. Literature review that highlights
      1. What we know—or think we know—certain things about the topic, and
      2. What important thing we don’t know about the topic due to limitations/weaknesses
      3. of existing research, contradictions in existing research, or lack of research
   3. This study is the best way to find out this important thing.
3. Method: How you did the study (helpful for researchers wanting to replicate the study, focusing on what participants saw and did. Composed of at least two parts:
   1. Participants section: How you recruited the participants (who the participants are). In an experiment, you may want to have a “Participants and Study Design” section in which you state the type of design (e.g., simple experiment or factorial experiment), the independent variable(s) and that participants were randomly assigned to condition.
   2. Procedure section: What you did to participants and what they had participants do (so, it contains operational definitions of the key variables). You may want to divide this section into a “Measures” or “Tasks” or “Dependent variables” subsection and an “Independent Variable(s)” or “Manipulation” section in which you highlight differences between conditions.
4. Results: Whether the results support the hypothesis
   1. Preliminary information/ analyses: You may not need this section. In this section, you might include
      1. Results of the manipulation check(s): Indicating that your manipulations were interpreted the way you expected.
      2. Descriptive statistics: Means and correlation coefficients to either describe the sample or to suggest that the measure was valid. If there are more than a couple of numbers, you would probably refer the reader to a table of those numbers rather than put the numbers in the text of your Results section.
      3. How participants’ behaviors were converted into scores (if this isn’t obvious)
   2. Your analysis strategy: What analysis was done—sometimes, with an explanation of why that analysis is justified.
   3. Whether the results support the hypothesis
   4. Other statistically significant results
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—if they get similar results to the original study-- 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. adding treatment levels so that you can map the ***functional relationship*** between how much treatment leads to how much of an effect;
2. adding a variable that might ***moderate*** (weaken, strengthen, or reverse) the treatment’s effect;
3. adding measures to tap physiological or mental processes to find the ***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.

**Question 6:** How could you expand on a study that found that changes in Variable A are related to changes in Variable C?

1. You might do an experiment in which you manipulated A to determine whether A causes C.
2. You might look at conditions under which A is not related to C. That is, you might test the external validity of the finding by adding independent variables that would be potential moderator variables: factors that would limit, reverse, or magnify that relationship.
3. You could try to find out how A affects C by looking for the mediating variable that comes between A and C. If A (a stimulus) does not affect C(the observable response directly), you might look for the B variable that comes between A and C (i.e., A 🡪B🡪C). That is, you might do a process study to find out what hard to observe physiological or mental process is coming between the stimulus and the response. You can do a process study by adding measures to tap those intervening biological or cognitive processes or you can try to see if blocking those processes will block the effect. For example, to study how doing something inconsistent with your attitude changes your attitude, psychologists have sometimes tried to measure the alleged mediating factor (the negative arousal produced cognitive dissonance) to see if that arousal relates to attitude change and have also tried using drugs to block that arousal to see if that blocks the attitude change.