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Summarizing a Research Article

Research articles use a standard format to clearly communicate information about an experiment. A research article usually has seven major sections: Title, Abstract, Introduction, Method, Results, Discussion, and References. Sometimes there are minor variations, such as a combined Results and Discussion section, or an overall General Discussion section in which multiple experiments are presented in one article. Much of the discussion below is drawn from Pechenik's (2004) excellent book, *A Short Guide to Writing About Biology*.

Reading the Article

Allow enough time. Allot at least half the time that you spend on this assignment to reading and understanding the article. Before you can write about the research, you have to understand it. This takes more time than most students realize. Does the author's study make sense to you in lay terms (could you explain the study to your roommate)? When you can clearly explain the study in your own words, then you are ready to write about it. Here's how to proceed.

Scan the article first. If you try to read a new article from start to finish, you'll get bogged down in detail. Instead, use your knowledge of APA format to find the main points. Briefly look at each section to identify:

- the research question and reason for the study (stated in the Introduction)
- the hypothesis or hypotheses tested (Introduction)
- how the hypothesis was tested (Method)
- the findings (Results, including tables and figures)
- how the findings were interpreted (Discussion)

Underline key sentences or write the key point (e.g., hypothesis, design) of each paragraph in the margin. Although the abstract can help you to identify the main points, you cannot rely on it exclusively, because it contains highly condensed information.

Read for depth, read interactively. After you have highlighted the main points, read each section several times. As you read, ask yourself these questions:

- How does the design of the study address the question posed?
- What are the controls for each experiment?
- How convincing are the results? Are any of the results surprising?
- What does this study contribute toward answering the original question?
- What aspects of the original question remain unanswered?

Plagiarism. Plagiarism is always a risk when summarizing someone else's work. To avoid it:

- Take notes in your own words. Avoid writing complete sentences when note-taking.
- Summarize points in your own words. If you find yourself sticking closely to the original language and making only minor changes to the wording, then you probably don't understand the study (see our handout, "Plagiarism and Student Writing").

Writing the Summary

Like an abstract in a published research article, the purpose of an article summary is to give the reader a brief, structured overview of the study. To write a good summary, identify what information is important and condense that information for your reader. The better you understand a subject, the easier it is to explain it thoroughly and briefly.

Write a first draft. Use the same sequence of information as given in the article, including all of the following:

- State the research question and explain why it is interesting.
- State the hypothesis/hypotheses tested.
- Briefly describe the methods (design, participants, materials, procedure, what was manipulated [independent variables], what was measured [dependent variables], how data were analyzed.
- Describe the results. What differences were significant?
- Explain the key implications of the results. Avoid overstating the importance of the findings. *The results, and the interpretation of the results, should relate directly to the hypothesis.*

For the first draft, focus on content, not length (it will probably be too long). Condense later as needed. Try writing about the hypotheses, methods and results first, then about the introduction and discussion last. If you have trouble on one section, leave it for a while and try another.

Edit for completeness and accuracy. Add information for completeness where necessary. More commonly, if you understand the article, you will need to cut redundant or less important information. Stay focused on the research question, be concise, and avoid generalities. The Methods summary is often the most difficult part to edit. See the questions under 'Reading interactively' to help you decide what is important to include.

Edit for style. Write to an intelligent, interested, naive, and slightly lazy audience (e.g., yourself, your classmates). Expect your readers to be interested, but don't make them struggle to understand you. Include all the important details; don't assume that they are already understood.

- **Eliminate wordiness**, including most adverbs ("very", "clearly"). "The results clearly showed that there was no difference between the groups" can be shortened to "There was no significant difference between the groups".
- **Use specific, concrete language.** Use precise language and cite specific examples to support assertions. Avoid vague references (e.g. "this illustrates" should be "this result illustrates").
- **Use scientifically accurate language.** For example, you cannot "prove" hypotheses (especially with just one study). You "support" or "fail to find support for" them. (See our handout, "Style Points for Scientific Writing")
- **Rely primarily on paraphrasing, not direct quotes.** Direct quotes are seldom used in scientific writing. Instead, paraphrase what you have read. To give credit for information that you paraphrase, cite the author's last name and the year of the study, e.g., "(Smith, 1982)". (See our "APA Citations" handout.)
- **Re-read** what you have written. Ask others to read it to catch things that you've missed.

Reference

Pechenik, J. (2004). *A Short Guide to Writing About Biology, 5th ed.* New York: Harper Collins.

