

Critical Review Paper

The Assignment

The critical review paper is not meant to be a difficult or onerous assignment. Your paper should be three double spaced pages in length (i.e., about 1000 words), not including the title page. In this short paper I want you to critically analyze and interpret a research article that is relevant to the study of navigation. (See [below](#) for suggestions on what to look for.) In many respects you can consider this assignment as nothing more than a "book review", which practically everyone has had to write at one time or another. The only difference is that in this case you are not reviewing an entire book, but only a single journal article.

Purpose

The purpose of this assignment is three-fold. First, it will expose you to the process of critically reading a scientific journal article. Journal articles are the primary means by which scientists communicate with one another. If you continue on in the sciences you will spend a great deal of time reading journal articles. It sounds cliché, but the sooner you start reading journal articles with an eye towards considering the validity of the authors' conclusions, the easier and more productive it will be in the long run. Incidentally, even if you are not planning on continuing in the sciences, the ability to evaluate a journal article critically is of great use. People tend to be overly trustful of statements made by "authority" figures. While the majority of scientists do not purposefully attempt to "dupe" the public, occasionally errors are made in research. More often other people (generally those without a background in science) incorrectly interpret or paraphrase a researcher's work. If you know how to read a scientific paper critically you can go directly to the source and determine for yourself the accuracy of a statement.

The second purpose of this assignment is to give you, the student, an opportunity to practice your writing skills (and to get feedback from me prior to handing in your major research paper assignment). Unfortunately, due to the large class sizes of many psychology courses most students do not have an opportunity to develop their writing skills, multiple choice exams being the far more common means of student evaluation. Multiple choice exams, however, are exceptionally rare outside of the undergraduate course curriculum. With the growth and development of computer based communication systems more and more employers are expecting a higher level of writing competence. Fortunately, a small seminar class, such as this one, provides students with a chance to practice their formal writing abilities.

The third purpose of this assignment is to get you familiar with the library system and the various journals that publish articles relevant to the field of navigation. These skills will be important when you start work on your major research assignment (the research presentation and paper).

Picking an Article

You can choose any article you want to review, with only three caveats.

1. The article must have something to do with the study of *navigation* (if you are unsure, check with me).
2. The article must be a *research* article (as opposed to a review article).
3. The article *may not* be an article that is being covered in class (i.e., the article may not be on any of the class reading lists, including articles that may be chosen for the critical review oral presentations).

Please hand in a photocopy of the article you are reviewing along with your critical review paper.

Assessing the Article

Here are a few (but by no means all) things to look for when critically evaluating a research article. When

reading the Introduction section, ask why the research was carried out. Was there a theory that was being tested? Did the author(s) notice some gap in previous knowledge that required experimental validation? Was the research an attempt to replicate an earlier experiment? Does the Methods section provide you with enough information to duplicate the research if you wanted to? Are there any obvious flaws, such as lack of controls, extraneous variables, placebo effects, chances for distortion in self-report, demand characteristics, or sampling and experimenter bias? Think about what you would change if you could, but also keep in mind the reasons why certain procedures were carried out the way they were (e.g., cost, availability of subjects, space and time constraints, etc.). In the Results section, is there sufficient analysis of the experimental data? How is the information presented? In graphs, statistics, tables? Does the author incorrectly draw inferences about data in the Results section? Is there a test or comparison that you think should have been carried out but wasn't? Were the results significant? Was the appropriate statistical analysis conducted? Is the research reliable and valid? In the Discussion section what conclusions are made? Are the conclusions justified? Can the research be fit into a theoretical context? Does the work advance the field of study? Can more research be derived from it?

Writing your Critical Review Paper

One of the things you will have to tell me is what article you are reviewing. This seems like an obvious thing, but you'd be surprised how many people forget this little detail. I'll also need to know who the authors were, when it was published, in which journal the article appeared, the pages, and the title of the article. That is all the information I *have* to have. What else you do with the paper is up to you. *Keep in mind that a critical review paper doesn't have to be entirely negatively critical.* It doesn't have to be negative at all, really. If you are reviewing the perfect article, the most brilliant article that has ever been written, the article that sets the standards for all other articles to follow, let me know. I'll want to read it. Tell me about the good things as well as the bad. Scientists read articles not only for the information they contain about the results, but also to get ideas about how to conduct research of their own.

As I said, you can write this paper in whatever fashion you see fit. However, many review articles include a brief summary of the article(s) they are reviewing before going into the critique. This helps to put the work in context. You may want to go through the article sequentially, section by section, or you might address issues you feel are most important first, progressing through to the less significant points. As I have said, this is a chance for you to learn some skills and practice your writing style. See what works.

In terms of the technical mechanics of your paper, I require the paper to be typed. With respect to spelling, I will have you know that I am possibly one of the worst spellers in Canada. However, I have discovered a nifty little invention called the "spell checker". I suspect that all computer word processor packages come equipped with one. Please take five minutes to run your paper through the spell checker or have somebody else read through your paper for mistakes. Sometimes it is very hard to self-check your own work for spelling and grammatical mistakes because you know what it should say and, therefore, miss silly little mistakes (I do this all the time). Also, as this is designed to allow you to practice your written communication skills, try to make your work easily understandable. There is a quirky little theory in some literary circles that suggests that the more obtuse and obscure a piece of writing is the more profound and important it must be. Wrong! In science if you make something any more complex than it has to be you are just wasting everybody's valuable time. (This is not to say that everything always has to be easy; sometimes complex ideas can only be explained in a complex manner.) Look at it this way: *you* wouldn't want to have to spend extra time trying to read a piece that is poorly worded and obfuscating. Neither do I. Which brings me to another point. Words like "obfuscate" are great. They sound cool. However, don't be suckered into using obscure words when a more common word will do. For example, I could have used the word "convoluted" instead of "obfuscate". It is not the size of the words you know that will impress me, but the caliber of the information you can convey to me through your words. (But "obfuscate" really *is* a great word, isn't it?)

Oh, one other point: "its" is the personal possessive of "it", whereas "it's" is the contraction of "it is". Do not confuse these two similar words. Also, it is generally considered bad form to use contractions in formal papers.

Finally, if you have any questions about the paper, do not hesitate to ask me.

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