Paper Review Assignment

Choose a peer-reviewed journal article that satisfies the following constraints.

• The publication date of the article is 2004 or later.

• The paper is a research article of 5 to 15 printed pages, not a review article, a “letter” or short contribution, or a research report from Science or Nature.

• Based on your current intentions for a final project, this paper will be one of the references you cite in your project. It does not have to be one of the papers that you used as references in your project proposal.

• The paper must be sufficiently cited by others since publication that you are able to find the papers needed for parts I.3 and I.5 below, so you should read ahead in the instructions before you choose your paper.

Using this paper as a starting point, you will answer a series of questions.

Your answers to both parts of this assignment can be in one word-processing document. Your submission will have two parts written by you and an electronic copy of the article you reviewed. (If you have difficulties with the electronic cut and paste needed for I.4 and I.5, you may need to upload four more articles: two that cited it, and two that it cited). **Due Wednesday, March 10,** uploaded to Sakai.

**Part I. Scavenger hunt.** In this series of questions, you will do some counting, computer searching, categorizations, and visual scanning to analyze how this paper uses references and figures, and how others have used this paper.

1. List the references cited just by their short author-date tags. Identify for each reference the type of publication that is being referred to (list of possibilities starts on p.3). End this section with a table summarizing how many references are in each category.

2. Characterize each figure from a graphics point of view (list of types starts on p.4).

3. Choose two references from the paper that are from peer-reviewed journals, in which none of the authors of the cited paper is an author of the paper you are analyzing. They will also need to be papers you can find within the time-frame of this assignment – effectively, they have to be papers subscribed to by the UD library, preferably as electronic journals.

4. For each of those cited papers, find the spot in your paper where they are cited (indicate page, paragraph, line, figure caption, whatever is needed to find the first use of the author-date citation). Write a short description (a sentence or two) of what kind of information should be in the cited paper, based on what is said about the citation in the paper you are reviewing. (In this case, it would be OK to have a short quote from the paper you are reviewing if the authors describe the results from the cited paper fairly directly. In other words, this part of the assignment will be easiest if you choose papers from the early, library-review segment of the paper where the authors are summarizing previous, related work.) Find the two papers you have chosen, and search in the abstract, introductory paragraphs, or concluding paragraphs for a short passage that justifies how
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they are cited by the paper you are reviewing. “Cut” a paragraph or so out of the PDF of the cited paper and include that with your description of the citation, identifying its location fairly precisely (e.g., like “p.282, left column, near bottom). (If for some reason you cannot accomplish the cut-and-paste needed to do this, you can identify the location precisely in your writeup and upload the paper.)

5. Look up your paper in the Web of Science and find two papers in peer-reviewed journals that cite your paper, neither of which has any authors in common with the authors of your paper, and both of which are available to you via UD Library. Look in each of those papers, find where they cite the paper you are reviewing, and cut-and-paste a short piece of the paper showing what they say about your reviewed paper. Identify the location, as in I.4.

Part II. Essay. Write a short essay (2–3 pages) summarizing the paper, using sentences not found in the abstract, introductory paragraphs, or conclusions. The following items are not specific questions that must be answered in the order presented, but are items that you could fill in as your preliminary outline. The points follow the order of the classic scientific method, and you should try to fit your paper into that rough outline within your essay, but some papers will not fit this outline well.

1. What problem does this paper seek to solve and why should anyone care enough about that problem to read this paper?
   a. Try to discern the “incremental” nature of science, in terms of what closely related result has been previously found in other paper.
   b. What does this paper add to previously known results?
   c. If the paper states a specific hypothesis to be tested, report that.
   d. Look for larger-scale implications for human society – what great and important unknown is this paper trying to answer at least by a tiny fraction? (E.g., a local climate response study might be a piece of the whole global warming problem.)

2. Describe the scientific inquiry activity described in the paper – the “work done” to get new results not previously reported in the scientific literature.
   a. What basic background materials had to be gathered? These could be as diverse as stock chemicals, archived data, greenhouse specimens, old soil and rock samples, and many other things.
   b. What tangible hardware or equipment was needed? Microclimate instrumentation, chromatographic analyzers, greenhouse space, a bulldozer, or any other equipment needed to gather or analyze data. Basic desktop computing equipment is ubiquitous and not noteworthy, but some large modeling projects require allocations of time on massive computer systems. Similarly, most software (spreadsheets, stat packages, GIS) is not noteworthy, but a large modeling project may have created new software. Ship time is also a tangible equipment asset, but is allocated as the privilege of setting the ship’s agenda for a period of time, not as ownership of the vessel.
   c. What new data or information were generated by the experiments. These would be the measurements from the experiments or the field program, if there were measurements. In a modeling project, model output is analogous to data. In a data mining project, there may be no new data, only new forms of data reduction.

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d. How were data reduced to results? This could be as simple as a few means of measurements compared between control and perturbed experiments, and it could as complicated as inventing new statistical techniques for analysis. Describing the level of mathematics and computing used in the data reduction may be useful.

3. Summarize the paper’s conclusions. Do the authors think that the conclusions are visible from figures, data tables, and other direct presentations of the experimental data, or do the conclusions require a great deal of trust in the interpretations of the authors?

Publication categories. (Use these to characterize the references.)

Scientific literature

1. Peer-reviewed journal articles.
2. Peer-reviewed symposium volumes.
3. Symposium volumes, “preprints” or not peer-reviewed.
4. Books that appear to be primarily intended as textbooks.
5. Monographs (single-topic book, single-authored, or continuous-flow if authored by a group).
6. Multi-authored books—peer-reviewed contributions around a theme.
7. Multi-authored books—invited chapters with no apparent peer review beyond editor’s discretion.
8. Technical reports from a peer-reviewed series may be government documents.
9. Technical reports released by an institution for its own purposes (government or otherwise) without apparent peer review.
10. Data reports—a form of technical report primarily intended to either present or document a dataset. Recent ones may be electronic media or web sites. May be government documents.
11. Unpublished. Some journals require that unpublished manuscripts be treated as a form of personal communication, whereas certain widely circulated manuscripts are cited as unpublished. Some journals consider Ph.D. and master’s theses as unpublished.
12. Personal communication. This is a catchall category that includes the fact that scientists still send each other personal letters and emails, and they talk to each other at conferences, and some useful information is exchanged that needs to be credited. It also includes some unpublished manuscripts that are circulated. Normally, personal communication is mentioned only in in-text citations—they are not included in the references list.

Popular literature

15. Magazine articles, advocacy sources, possibly including newsletters.

Electronic media (this is a sufficiently novel category that you may need to be creative about categorizing these).

17. Data sources. May be web sites, may be CDs available for purchase.
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18. Papers, web sites, or downloadable information files that are available only on the
    Internet, as opposed to online copies of paper publications, but that are not online
    journals.
19. Online, peer-reviewed publications, available only electronically and not as a mailed,
    paper subscription.
20. Commercial web sites. (Will be rare in journals—I have used some in grant proposals to
    document software availability.)
21. Other?

Types of figures. (Use these to characterize the figures.)

1. One-dimensional plots
   a. Pie charts.
   b. Bar graphs.
   c. Histograms or other frequency diagrams.
   d. Other graphical presentations of a single variable.

2. Two-dimensional $xy$ plots.
   a. Axis variables
      i. Time series—one axis is a time coordinate.
      ii. One axis is spatial (height or distance).
      iii. Both axes are nonspatial.
   b. Plot style
      i. Connected curves (smoothed, jagged, or stepped)
      ii. Scatterplot
      iii. Fitted plot (scatter plot with fitted regression line or higher-order curve)
      iv. Box and whisker plot
      v. Mixed and others

3. Maps (any scale from global to mapping a 1 m$^2$ sample plot)
   a. Pure locational, showing where objects are in relation to others.
   b. Thematic using contours, needles, or three-dimensional perspective to show a
      continuous field.
   c. Thematic using choropleths (shaded regions) to show a field that can only be defined
      in discrete area blocks.
   d. Thematic showing connections and flows and connections, perhaps via arrows.
   e. Other, mixed.
4. Three-dimensional plots other than maps (contour or shaded plots not representing a
   horizontal plane).
   a. Spatial diagrams that are not maps, such as vertical cross sections
   b. Nonspatial diagrams.
5. Schematics, flowcharts, box diagrams: graphical representations of a model or process.
6. Photographs (possibly annotated).
7. Other.
## Paper Review Grading Rubric

<table>
<thead>
<tr>
<th>Part 0: 10 points.</th>
<th></th>
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<tbody>
<tr>
<td>The paper was an appropriate choice for this assignment</td>
<td>(10)</td>
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<tr>
<th>Part I: 40 points</th>
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<tr>
<td>Citation type table is complete and accurate</td>
<td>(10)</td>
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<tr>
<td>Graphics type table is complete and accurate</td>
<td>(10)</td>
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<tr>
<td>Cited reference 1 found and explained</td>
<td>(5)</td>
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<tr>
<td>Cited reference 1 found and explained</td>
<td>(5)</td>
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<tr>
<td>Paper 1 citing this one found and identified</td>
<td>(5)</td>
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<tr>
<td>Paper 2 citing this one found and identified</td>
<td>(5)</td>
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**Part I Subtotal**

<table>
<thead>
<tr>
<th>Part II: 50 points</th>
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<tbody>
<tr>
<td>Consistency of grammar and spelling, following the rules.</td>
<td>(10)</td>
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<td>Consistency of flow, active voice, unambiguous phrasing.</td>
<td>(10)</td>
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<tr>
<td>Finding the statement of problem (II.1)</td>
<td>(5)</td>
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<tr>
<td>Describing the scientific work (II.2.a,b,c)</td>
<td>(10)</td>
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<td>Describing the analysis (II.2.d)</td>
<td>(5)</td>
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<tr>
<td>Characterizing the conclusions (II.3)</td>
<td>(5)</td>
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<tr>
<td>Readability</td>
<td>(5)</td>
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**Part II Subtotal**

**Total**

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