

# Surviving Experimental Psychology

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I have put together the following materials to aid you in your Experimental Psychology course. Most courses in Experimental Psychology require as prerequisites the ability to conduct a thorough literature review and the ability to write grammatical English sentences. Understanding that these abilities will likely vary considerably between students, this course pack was designed to help those students that inevitably discover weaknesses in their own knowledge.

This guide is NOT intended as a study guide or aid for any particular assignment or examination in the Experimental Psychology course. Rather, it is to be used as a desk reference or instruction manual for approaching every aspect of the course.

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## 1. Anatomy of a research article (Cozby, 2009)

Your literature search has helped you to find research articles to read. What can you expect to find in these articles? Research articles usually have five sections: (1) an *abstract*, such as the ones found in *Psychological Abstracts/PsycINFO*; (2) an *introduction* that explains the problem under investigation and the specific hypotheses being tested; (3) a *method* section that describes in detail the exact procedures used in the study; (4) a *results* section in which the findings are presented; and (5) a *discussion* section in which the researcher may speculate on the broader implications of the results, propose alternative explanations for the results, discuss reasons that a particular hypothesis may not have been supported by the data, and/or make suggestions for further research on the problem. In addition to the five major sections, you will find a list of all the references that were cited.

### **Abstract**

The abstract is a summary of the research report and typically runs no more than 120 words in length. It includes information about the hypothesis, the procedure, and the broad pattern of results. Generally, little information is abstracted from the discussion section of the paper.

### **Introduction**

In the introduction, the researcher outlines the problem that has been investigated. Past research and theories relevant to the problem are described in detail. The specific expectations of the researcher are noted, often as formal hypotheses. In other words, the investigator introduces the research in a logical format that shows how past research and theory are connected to the current research problem and the expected results.

### **Method**

The method section is divided into subsections, with the number of subsections determined by the author and dependent on the complexity of the research design. Sometimes, the first subsection presents an overview of the design to prepare the reader for the material that follows. The next subsection describes the characteristics of the participants. Were they male or female, or were both sexes used? What was the average age? How many participants were included? If the study used human participants, some mention of how participants were recruited for the study would be needed. The next subsection details the procedure used in the study. In describing any stimulus materials presented to the participants, the way the behavior of the participants was recorded, and so on, it is important that no potentially crucial detail be omitted. Such detail allows the reader to know exactly how the study was conducted, and it provides other researchers with the information necessary to replicate the study. Other subsections may be necessary to describe in detail any equipment or testing materials that were used.

### **Results**

In the results section, the researcher presents the findings, usually in three ways. First, there is a description in narrative form—for example, "The location of items was most likely to be forgotten when the location was both highly memorable and an unusual place for the item to be stored." Second, the results are described in statistical language. Third, the material is often depicted in tables and graphs.

The statistical terminology of the results section may appear formidable. However, lack of knowledge about the calculations isn't really a deterrent to understanding the article or the logic behind the statistics. Statistics are only a tool the researcher uses in evaluating the outcomes of the study.

**Discussion**

In the discussion section, the researcher reviews the research from various perspectives. Do the results support the hypothesis? If they do, the author should give all possible explanations for the results and discuss why one explanation is superior to another. If the hypothesis has not been supported, the author should suggest potential reasons. What might have been wrong with the methodology, the hypothesis, or both? The researcher may also discuss how the results compare with past research results on the topic. This section may also include suggestions for possible practical applications of the research and for future research on the topic.

You should familiarize yourself with some actual research articles. An easy way to find more articles in areas that interest you is to visit the Web site of the American Psychological Association (APA). All the APA journals listed in Table 2.1 have links that *you* can find by going to <http://www.apa.org/journals>. When you select a journal that interests *you*, you will go to a page that allows you to read recent articles published in the journal. Read articles to become familiar with the way information is presented in reports. As you read, you will develop ways of efficiently processing the information in the articles. It is usually best to read the abstract first, then skim the article to decide whether you can use the information provided. If you can, go back and read the article carefully. Note the hypotheses and theories presented in the introduction, write down anything that seems unclear or problematic in the method, and read the results in view of the material in the introduction. Be critical when you read the article; students often generate the best criticism. Most important, as you read more research on a topic, you will become more familiar with the variables being studied, the methods used to study the variables, the important theoretical issues being considered, and the problems that need to be addressed by future research. In short, you will find yourself generating your own research ideas and planning *your* own studies.

## 2. The APA Code of Ethics (courtesy of Dr. James Lampinen)

The APA code of ethics applies to all psychologists who are members of the American Psychological Association. So it applies to Dr. Clark-Foos and to all the experimenters. By extension it applies to you. Although there are many principles, the most important principle is this: *The people who participate in our experiments are volunteers and they deserve to be treated with respect and shown appreciation..* Whenever you interact in an experiment with a subject you should keep that principle in mind.

Principle A: In planning a study, the investigator has the responsibility to make a careful evaluation of its ethical acceptability.

- *Even though the experiments we conduct are approved by the University's Institutional Review Board (IRB) the investigator still has an independent duty to make sure the study is ethical*

Principle B: Considering whether a participant in a planned study will be a "subject at risk" or a "subject at minimal risk" according to recognized standards is of primary ethical concern to the investigator.

- *Risk includes both risk of physical harm and emotional harm.*
- *By minimal risk, the standard means that participating in the experiment is no more risky than you would expect the person's daily life to be.*

Principle C: The investigator always retains the responsibility for insuring ethical practice in research.

- *Even though each of you actively runs the experiments, Dr. Clark-Foos is ultimately responsible for what you do. So keep in mind that the way you act during a session reflects on the lab as a whole.*

Principle D: Except in minimal risk research, the investigator establishes a clear and fair agreement with research participants, prior to their participation, that clarifies the obligations and responsibilities of each.

- *This is the principle that requires informed consent. Informed consent means that people are told as much about the experiment as is necessary for them to decide if they want to participate.*
- *Some populations (e.g. children) cannot offer informed consent on their own and consent must be granted by their guardian. Even in those cases though, they retain the independent right to refuse to participate.*

Principle E: Methodological requirements of a study may make the use of concealment or deception necessary. Before conducting such a study the investigator has a special responsibility to:

1. Determine if deception is justified by the study's possible scientific, educational or applied value
2. Determine whether alternative procedures are available that do not use concealment or deception

3. Insure that the participants are provided with sufficient explanation as soon as possible

Principle F: The experimenter respects the individual's freedom to decline to participate in or withdraw from the research at any time.

- *At any point after signing the consent form a subject can refuse to participate. If that happens, do not make any effort to convince the subject to participate. It is entirely their choice. If that happens you should give them 1/2 credit for every portion of a half hour they have participated.*

Principle G: Subjects should be informed of any risks posed by the experiment.

- *Risk can be physical or psychological. A statement concerning the risk posed by the experiment is included in every consent form.*

Principle H: After the data are collected the investigator provides participants with information about the nature of the study and attempts to remove any misconceptions that may have arisen.

- *Subjects should leave feeling good about themselves. Thus you should let them know that the tasks may be difficult or that their responses were not unusual if this seems to be a concern for them.*

Principle I: Where research procedures result in undesirable consequences for the individual participant the investigator has the responsibility to detect and remove or correct these consequences.

- *If for any reason someone reacts adversely in a study you are conducting you should inform Dr. Clark-Foos.*
- *If a student participant has any sort of complaint you should give them Dr. Clark-Foos's phone number and email address so that they can contact him. Do not try to resolve the issue yourself. Do not argue with the participant. Do not admit any fault. Simply indicate that you'll pass the complaint on to Dr. Clark-Foos and let them know that they too can contact Dr. Clark-Foos to discuss the matter.*

Principle J: Information obtained about the research participant during the course of an investigation is confidential unless otherwise agreed upon in advance.

- *Confidential means confidential. Under no circumstances should you reveal any information to anyone other than your group leader about the participants in your studies. Don't reveal their names. Don't reveal personal information about them. Don't reveal how they did or how they acted. Don't reveal anything to anyone other than your group leader. Failure to follow this principle is a breach of experimental ethics and will result in your expulsion from the lab and an F grade.*

### 3. Helpful Hints for Writing APA Papers

*These hints were compiled from the mistakes of your peers. You should thank them for making these mistakes by making sure you avoid them in the future. Most of the issues below can be handled by a simple proof-reading of your paper.*

#### **Contractions**

Except in cases of possession, try to avoid contractions in formal writing. For example, you should choose to say *do not* instead of the contraction *don't*.

#### **Word Agreement (plurality, verb tense, etc.)**

Be careful to make sure that your sentence is internally consistent. As an example, if you refer to multiple items or participants then the verb and other related words must reflect this plurality (e.g., *There were 39 participants.* NOT *There was 39 participants.*).

#### **Specificity / Clarity**

Always make sure you have fully described any new concepts that you introduce. It is not enough to merely mention the concept without some explanation of how it is related in your paper.

#### **Understanding is Important**

If you do not understand a concept, do not attempt to describe it in vague terms. Your best option is to ask your instructor for more information about the concept. You never want to appear as though you are talking about something you don't understand. It is often better to omit the concept than it is to write it incorrectly.

#### **Run On Sentences**

As a rule of thumb, if your paragraph is only one sentence then you might have a run on sentence (or not enough information to justify its own paragraph). Do not try to fit too many separate clauses into a single sentence. Readability and comprehension will improve dramatically by breaking your run on sentence into two (or more) separate sentences.

#### **APA Style**

- Almost never do we include the year an article was cited in the sentence itself. Simply include the year in the citation, not the text of the sentence. For example, it is better to say "*according to Roediger and McDermott's (1995) results*" than it is to say "*according to Roediger and McDermott's 1995 results.*"
- Page numbers are only included in in-text citations when you are quoting directly.
- Avoid quotations. Remember, you are writing this paper, not your sources. It is almost always better to put it in your own words.
- Avoid mentioning article titles in your paper unless it is essential to your point.
- Methods: Include all *relevant* information. The key here is the word *relevant*. It is not important that your reader knows the study was conducted in the CASL building.

#### **Minor Grammatical Issues**

- *affect* = verb vs. *effect* = noun (in most cases)
- *data* is plural (this is the ONLY context in which you can say "data is")

#### 4. APA Style Citation Guide (Dr. Abel Scribe, 2009)

This handout is based on the 6th edition of the *Publication Manual of the American Psychological Association* (APA), but is not a comprehensive guide. For all rules and requirements of APA citations, please consult the 6th edition of the *Publication Manual of the American Psychological Association*. APA requires that information be cited in 2 different ways—within the text and in a reference list at the end of the paper. The reference list should be on a new page, double spaced, and use the hanging indent method (all lines after the first one are indented). See also:

- *Publication Manual of the American Psychological Association*, 6th ed. Washington, DC: American Psychological Association, 2010.
- *Concise Rules of APA Style*, 6th ed. Washington, DC: American Psychological Association, 2010.

#### **CITATIONS IN THE TEXT:**

APA uses the author-date method of citation. The last name of the author and the date of publication are inserted in the text in the appropriate place.

When referencing or summarizing a source, provide the author and year. When quoting or summarizing a particular passage, include the specific page or paragraph number, as well.

When quoting in your paper, if a direct quote is **less** than 40 words, incorporate it into your text and use quotation marks. If a direct quote is **more** than 40 words, make the quotation a free-standing indented block of text and DO NOT use quotation marks.

#### **One work by one author:**

- In one developmental study (Smith, 1990), children learned...  
OR
- In the study by Smith (1990), primary school children...  
OR
- In 1990, Smith's study of primary school children...

#### **Works by multiple authors:**

When a work has 2 authors cite both names every time you reference the work in the text. When a work has three to five authors cite all the author names the first time the reference occurs and then subsequently include only the first author followed by et al. For 6 or more authors, cite only the name of the first author followed by et al. and the year. For example:

- First citation: Masserton, Slonowski, and Slowinski (1989) state that...
- Subsequent citations: Masserton et al. (1989) state that...

#### **Works by no identified author:**

When a resource has no named author, cite the first few words of the reference entry (usually the title). Use double quotation marks around the title of an article, chapter, or Web page. Italicize the title of a periodical, book, brochure, or report. For example:

- The site seemed to indicate support for homeopathic drugs ("Medical Miracles," 2009).
- The brochure argues for homeschooling (*Education Reform*, 2007).
- Treat reference to legal materials such as court cases, statutes, and legislation like works with no author.

**Two or more works in the same parenthetical citation:**

Citations of two or more works in the same parentheses should be listed in the order they appear in the reference list (i.e., alphabetically, then chronologically).

- Several studies (Jones & Powell, 1993; Peterson, 1995, 1998; Smith, 1990) suggest that...

**Specific parts of a source**

Always give the page number for quotations or to indicate information from a specific table, chart, chapter, graph, or page. The word page is abbreviated but not chapter. For example:

- The painting was assumed to be by Matisse (Powell, 1989, Chapter 6), but later analysis showed it to be a forgery (Murphy, 1999, p. 85).

If, as in the instance of online material, the source has neither visible paragraph nor page numbers, cite the heading and the number of the paragraph following it. This allows the reader to locate the text in the source. For example:

- The patient wrote that she was unimpressed by the doctor's bedside manner (Smith, 2006, Hospital Experiences section, para. 2).

**CITATIONS IN A REFERENCE LIST:**

In general, references should contain the author name, publication date, title, and publication information. Include the issue number if the journal is paginated by issue.

**For information obtained electronically or online include the DOI:**

**DOI** - a unique alphanumeric string assigned to identify content and provide a persistent link to its location on the internet. The **DOI** is typically located on the first page of the electronic journal article near the copyright notice. When a DOI is used in your citation, no other retrieval information is needed. Use this format for the DOI in references: doi:xxxxxxx

If no DOI has been assigned to the content, provide the home page URL of the journal or of the book or report publisher. Do not insert a hyphen if you need to break a URL across lines; do not add a period after a URL, to prevent the impression that the period is part of the URL.

In general, it is not necessary to include database information. Do not include retrieval dates unless the source material has changed over time.

**Book:**

Strunk, W., Jr., & White, E. B. (1979). *The guide to everything and then some more stuff*. New York, NY: Macmillan.

Gregory, G., & Parry, T. (2006). *Designing brain-compatible learning* (3rd ed.). Thousand Oaks, CA: Corwin.

**Chapter of a Book:**

Bergquist, J. M. (1992). German Americans. In J. D. Buenker & L. A. Ratner (Eds.), *Multiculturalism in the United States: A comparative guide to acculturation and ethnicity* (pp. 53-76). New York, NY: Greenwood.

**Journal Article with DOI:**

Paivio, A. (1975). Perceptual comparisons through the mind's eye. *Memory & Cognition*, 3, 635-647. doi:10.1037/0278-6133.24.2.225



**Journal Article without DOI (when DOI is not available):**

Becker, L. J., & Seligman, C. (1981). Welcome to the energy crisis. *Journal of Social Issues*, 37, 1-7.

Hamfi, A. G. (1981). The funny nature of dogs. *E-journal of Applied Psychology*, 2, 38-48.  
Retrieved from <http://ojs.lib.swin.edu.au/index.php/fdo>

**Online Newspaper Articles:**

Becker, E. (2001, August 27). Prairie farmers reap conservation's rewards. *The New York Times*.  
Retrieved from <http://www.nytimes.com>

**Encyclopedia Articles:**

Brislin, R. W. (1984). Cross-cultural psychology. In R. J. Corsini (Ed.), *Encyclopedia of psychology* (Vol. 1, pp. 319-327). New York, NY: Wiley.

Developmental genetics. (2005). In *Cambridge encyclopedia of child development*. Retrieved from [http://0-www.credoreference.com.library.muhlenberg.edu:80/entry/cupchilddev/developmental\\_genetics](http://0-www.credoreference.com.library.muhlenberg.edu:80/entry/cupchilddev/developmental_genetics)

**Technical and Research Reports (often with corporate authors) :**

Hershey Foods Corporation. (2001, March 15). *2001 Annual Report*. Retrieved from <http://www.hersheysannualreport.com/2000/index.htm>

**Book Reviews:**

Dent-Read, C., & Zukow-Goldring, P. (2001). Is modeling knowing? [Review of the book *Models of cognitive development*, by K. Richardson]. *American Journal of Psychology*, 114, 126-133.

*NOTE: For articles that have a DOI, see Journal Article with DOI example.*

**Data Sets:**

Simmons Market Research Bureau. (2000). *Simmons national consumer survey* [Data file]. New York, NY: Author.

**Reprint from Another Source:**

- *Citation in the text:*  
(Newton, 1998/1999).
- *Reference List Citation:*  
Newton, W. (1999). Return to Mars. In C. Mari (Ed.), *Space Exploration* (pp. 32- 41). New York, NY: H.W. Wilson. (Reprinted from *National Geographic*, pp. 2-26, August 1998).

## 5. APA Style: Avoiding Bias in Language (Dr. Abel Scribe, 2009)

**Sensitivity to labels.** A person in a clinical study should be called a "patient," not a "case." Avoid equating people with their conditions, for example, do not say "schizophrenics," say "people diagnosed with schizophrenia." Use the term "sexual orientation," not "sexual preference." The phrase "gay men and lesbians" is currently preferred to the term "homosexuals." To refer to all people who are not heterosexual, the manual suggests "lesbians, gay men, and bisexual women and men" (see APA, 2001, p. 67).

Do not characterize people as victims (e.g., a "stroke victim"), use a descriptive term such as "people who have had a stroke." Avoid the terms "challenged" and "special" unless the population referred to prefers this terminology (e.g., Special Olympics). As a rule, use the phrase "people with \_\_\_\_\_" (for example, "people with AIDS," not AIDS "sufferers" or "victims").

**Avoid gender stereotypes.** For example, the manual suggests replacing "An American boy's infatuation with football" with "An American child's infatuation with football" (see APA, p. 66).

- The term "gender" refers to culture and should be used when referring to men and women as social groups, as in this example from the Publication Manual: "sexual orientation rather than gender accounted for most of the variance in the results; most gay men and lesbians were for it, most heterosexual men and women were against it" (APA, 2001, p. 63).
- The term "sex" refers to biology and should be used when biological distinctions are emphasized, for example, "sex differences in hormone production."

**An ethnic label** can be perceived as a slur if not managed correctly. For example, persons of acknowledged Spanish heritage in the New World may prefer Chicano (Chicana), Hispanic, Latino, Mexican, Mexican American, and so on. Historically, there are no "American Indians," only members of specific nations, tribes, villages, and bands. The term *Native American* is inclusive of American Indians, Pacific Islanders, and Alaskan Natives. Specific group names are more informative, such as *Hopi* or *Lakota*.

- **Color.** Capitalize Black and White when the words are used as proper nouns to refer to social groups. Do not use color words for other ethnic groups. In racial references, the manual simply recommends that we respect current usage. Currently both the terms "Black" and "African American" are widely accepted, while "Negro" and "Afro-American" are not. These things change, so use common sense.
- **Hispanic.** The terms Hispanic, Latino, and Chicano are preferred by different groups. The safest procedure is use geographical references; use "Cuban American" if referring to people from Cuba.
- **Asian.** The term Asian American is preferable to Oriental, and again the manual recommends being specific about country of origin, when this is known (for example, Chinese or Vietnamese). The manual specifies that hyphens should not be used in multiword names such as Asian American or African American.

- **Indigenous.** Some people from northern Canada, Alaska, eastern Siberia, and Greenland often (but not always!) prefer Inuk (singular) and Inuit (plural) to "Eskimo." But some Alaska natives are non-Inuit people who prefer to be called Eskimo, while others are Athabaskans of an entirely different heritage. Difficulty may be avoided by using geographical references. For example, in place of "Eskimo" or "Inuit" one could use "indigenous people from northern Canada, northern Alaska, eastern Siberia, and Greenland."

**Age.** In referring to age, be specific about age ranges; avoid open-ended definitions like "under 16" or "over 65." Avoid the term elderly. Older person is preferred. The AMA (American Medical Association) Manual of Style (1997, p. 263) uses these definitions:

- *Neonates or newborns* are persons from birth to 1 month of age.
- *Infants* are children [sic] aged 1 month to 1 year.
- *Children* are persons aged 1 to 12 years. . . . They may also be referred to as *boys* or *girls*.
- *Adolescents* are persons aged 13 through 17 years; also *teenagers*, *adolescent boys*, or *adolescent girls*.
- *Adults* are persons over 18 years and are referred to as *men* or *women*.

**DO NOT use . . .**

**When you can use . . .**

ethnic labels (e.g., Hispanic)

geographical labels (e.g., Mexican Americans if from Mexico)

"men" (referring to all adults)

"men and women"

"homosexuals"

"gay men and lesbians"

"depressives"

"people with depression"

- In general, call people what they want to be called, and do not contrast one group of people with another group called "normal." Write "we compared people with autism to people without autism" not "we contrasted autistics to normals."

## 6. Editorial Marks &amp; Common Abbreviations

|          |  |        |   |
|----------|--|--------|---|
| sf       | sentence fragment                                  | WW     | wrong word                              |
| pv       | passive verb                                       | d      | diction                                 |
| t        | tense  | k      | awkward (used w/ diction)               |
| ⊙        | period   | awk    | awkward, w.r.t. syntax, longer passages |
| ↵        | comma  | tr     | transpose                               |
| sv       | subject verb agreement                             | ↯      | reverse order, transpose                |
| agr      | agreement  | ⊖      | close up                                |
| rf       | pronoun reference                                  | ✂      | delete                                  |
| //       | grammatical parallelism                            | @      | about                                   |
| IR       | irrelevant   | Df     | define, definition                      |
| sp.      | spelling   | w/     | with                                    |
| ○        | spelling   | unnec  | unnecessary                             |
| ℓ        | lower-case   | w/o    | without                                 |
| <u>a</u> | upper-case   | w.r.t. | with respect to                         |
| idiom    | problem with expression, often w/ prep. after verb | btw    | between                                 |
| rel      | relation, relationship                             | △      | change                                  |
| smthg    | something (also thg)                               | f      | function                                |

## 7. Links

- Guide for Conducting a Literature Review from Adelphi University  
<http://libraries.adelphi.edu/guides/EdLitReview/>
- What's New in the 6<sup>th</sup> Edition of the APA Publication Manual?  
<http://www.apastyle.org/manual/whats-new.aspx>
- APA Style Lite for College Papers  
<http://www.docstyles.com/apacrib.htm>