

Guidelines for Laboratory Reports
and Empirical Theses

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A laboratory report follows a different format than that used in an essay. Typically, the format of a research report is guided by the most recent edition of the *Publication Manual of the American Psychological Association* (6th ed., 2009). Some of the important features of a laboratory or research report are introduced below.

Please note that **some instructors may modify these instructions for particular courses.**

How to Write a Laboratory Report or Empirical Thesis Using APA Style

Rules of Presentation

The APA Publication Manual not only specifies a format; it also describes the style that should be followed in a research report. Here are a few important guidelines:

- a. Write in a clear and concise style. Avoid long, awkward sentences.
- b. Use the past tense (e.g., "Smith showed") or present perfect tense (e.g., researchers have shown") in the Introduction section of your paper if you are referring to past events. Use the past tense to describe the procedure and results. Use the present tense to discuss the results (e.g., "the results of Experiment 2 indicate") and to present the conclusions. Typically, the present tense is used with statements that have general applicability.
- c. Do not use personal pronouns in your report: "The following experiment was conducted" is appropriate, whereas "I conducted the following experiment is not."
- d. Avoid sexist language, including generic male nouns and pronouns. For example, "human evolution" is preferable to "the evolution of man."

Style

- a. Your report must always be typed. Print size should be 12-point size, in Courier or Times New Roman font. (Go to Format – Font – Choose the font type and size OR use pull down menus from the editing bar).
- b. The margins should be one inch (2.54 cm) all around. (Go to File – Page Setup (or Format – Document in MSWord for Mac) – Select the Margins tab – Change all margins to 1” (2.54 cm)) but do not justify the margins (select the align left button from the top menu bar (or the center button for titles and some headings).
- c. Everything in the paper including text, tables, figure captions, and references should be double-spaced. (Go to Format – Paragraph – and select Double from the Line Spacing pull-down menu.) Although double-spacing is required for most of the paper, single-spacing is used for footnotes. (If footnotes are use – with the curser at the place in the text where you want a footnote, go to Insert – Reference – Footnote, then select bottom of the page from the pull-down menu, then click Insert. A text box will appear at the bottom of the page where you can write your footnote and the numbering will be done for you.)
- d. The cover page should include a running head, the title, the author's name, the institution to which the report is presented, the relevant course, and the date (see the sample cover page on page 21).
- e. Your research report should be stapled in the top left corner.
- f. Pages are always numbered. The numbers appear at the top right-hand corner of each page and start with the title page. Use Arabic, not Roman, numerals. (Go to Insert – Page Numbers – Choose Top of Page and Right from the pull-down menus – Check the box that says Show number on first page)

- g. All pages should have a header (short version of your paper's title) at ½ inch from the top left in all capitals. (Go to File – Page Setup (or Format – Document in MSWord for Mac) – Select the Layout tab – Change the Header position to 0.5” (1.27cm). Then go to View – Header and Footer –Type your header.) Please note that the header and page numbers appear grey in the page layout format of your working document in MSWord. It will appear in black ink in the printed format.) The header on the first page will be the Running head (see this document's headers. In order to get a different header on the first page from the rest of the document, you must have a section break between the title page and the first page of text. With the cursor at the end of your title page go to “Insert” – “break” – “Section break next page”. Then when you are in the header view (View – Header and Footer) on the second page unselect the “Link to Previous” box. Now you can type different headers on the page 1 (the title page) and on the remaining pages.
- h. All research reports will have at least two levels of headings (the abstract, title, references, etc. and subheadings within the method section). If you have only two levels of headings, each first level heading (Abstract, Title, References, etc.) should be in Title Case and bold. This means all main words are capitalized. They should also be centered on the page (Click on Align Center on the editing menu bar) and bold. Sub-headings should be aligned left (not indented but flush to the left margin) and in bold font with all main words capitalized. (Click on the B button on your menu bar for bold font.) If you have another level of heading (sub-sub-headings), they should be indented ½ inch, bold, in sentence case (only a capital on the first word) and end with a period. Then continue typing on the same line. (See examples throughout this document.) Never leave a heading at the bottom of the page where the text begins on the next page. Use a page break (Go to Insert – Break – Page Break).

Level 1 – Centered, Bold and Title Case

Level 2 – Flush Left, Bold and Title Case

Level 3 – Indented, bold and sentence case ending in a period.

Level 4 – Indented, bold, italicized and sentence case ending in a period.

Level 5 – Indented, italicized, and sentence case ending in a period.

- i. All paragraphs should be indented ½ inch (1.27cm) (except the abstract). Don't leave more than one space between paragraphs. (Go to Format – Paragraph – and select First line from the Special pull-down menu. Make sure it says 0.5” (1.27 cm) in the By box. Make sure the Before and After boxes in the Spacing section both say 0 pt – not automatic or 6 or 12 pt.)
- j. In the text, the numbers zero through nine should be presented in word form EXCEPT IN THE ABSTRACT. Numbers of two or more digits should be expressed as numerals. Any number that begins a sentence should be written in word form.

Example: Twenty-five female and 22 male volunteers participated in the present experiment.

Sections of a Research Report

The report is organised into six major sections. The names and order of these sections are as follows: abstract, introduction, method, results, discussion and references.

- a. The title of each section (Abstract, Method, etc.) should be centred, but not underlined. The Introduction section is titled with the title of your report (not the word Introduction).

- b. Do not begin the method, results and discussion sections on a new page. Simply double space and begin the next section.
- c. Start each of the title page, contents (only include if requested), abstract, introduction, references and appendixes and tables and figures on new pages.
- d. If you are required to include tables, figures, or appendixes, these items should appear **after** the References, in the following order: Appendixes, Tables, and Figures.

Examples of the correct format for these pages are in the appendix.

Abstract

This is a brief, comprehensive summary of the study, and should not be more than 120 words. The abstract should describe five things:

1. The problem under investigation or purpose of the study
2. The participants, specifying pertinent characteristics (such as species, number, age)
3. The experimental method, including apparatus, data-gathering procedures, and complete test names, where applicable
4. The findings, including statistical information
5. The conclusions and their implications or applications.

Some important points.

- a. The abstract should refer to previous research in the area, as well as, the purpose and content of your research.
- b. All abbreviations and acronyms must be defined, except units of measurement.
- c. All numbers should be in the digit form (Arabic) except those that begin a sentence.
- d. Terms should be defined and names of tests and drugs spelled out.
- e. Paraphrase; do not quote in the abstract.
- f. Be concise and specific. The abstract should only report 4-5 of the most important points, and should not interpret anything.

Format.

- a. The abstract is started on a new page after the title page (page 2). (Use page break)
- b. The word 'Abstract' should be centered on the first line of the page (and bold).
- c. The beginning of the abstract starts on the next (double-spaced) line and is **not indented**.

Introduction

The introduction starts on the page following the abstract and it is **labeled with the title of your paper**. The introduction includes a review of the literature relevant to the topic. It should not include works of only tangential or general significance. The introduction should "funnel" the reader toward the hypotheses. It achieves this goal by first presenting general statements and then by becoming increasingly specific. You should end the introduction by giving a brief outline of your study and a statement of your hypotheses. This section should do the following:

1. Introduce the Major Purpose/Problem of your Study

Orient the reader by providing one or two paragraphs that provides an overview of the

purpose of your study, the problem under investigation, and a description of your research strategy and its conceptual link to your purpose.

2. Provide the Relevant Background Material

- a. Assume the reader is familiar with your general area.
- b. Avoid an exhaustive review of past studies.
- c. Only review the studies that are **directly relevant**, highlight **essential** details, findings and conclusions.
- d. Your review should provide a context for the study.

3. The Development of your Research Question

Indicate the precise relationship between the major purpose of your study and the research you have reviewed (shortcomings, gaps, puzzling findings, etc. that guided the development of your question.)

Clearly detail the **logical connection** between previous work and your research.

4. Overview the Specific Linkage between Your Major Purpose and the Research Procedures You will Employ

- a. Orient the reader by providing an overview of the linkage between your problem and the research procedures you will use.
- b. Make sure you define, in a GENERAL manner, what your procedures will be.
- c. Clearly define all variable.
- d. Formally state your hypotheses.

Method

The method describes what you did in the experiment and how you did it, so that another researcher can replicate your work. It follows directly after the introduction, and can include participants, apparatus and procedure.

Participants. This subsection describes the participants in the study (their species (if not human), age, sex), the procedures for selecting and assigning them, and the agreements and payments made. Only include detailed recruitment procedures if the recruitment is done in a unique or unusual way that contributes to the design of the study (hence might be replicated by someone in the future).

- a. When a particular demographic characteristic is an experimental variable the group should be described specifically (race, ethnicity, national origin).
- b. For nonhuman subjects, report the genus, species, or other specific identification, such as the location of the supplier. Give the animal's sex, age, weight, and physiological condition. Specify, too, all essential details of their handling.
- c. Give the total number of participants and the number assigned to each experimental condition.
- d. If any participants did not complete the experiment, state how many and explain why they did not continue.

Apparatus or materials. This subsection presents the apparatus, materials, or test(s) used in the experiment. Typically, the name and description of tests (describe questionnaires; do not just give title), any electronic or mechanical equipment, and any other lab equipment used is given here. Do not include trivial materials such as pencils or pens to fill out questionnaires. Detailed descriptions of complex apparatus may be included in an appendix.

Example:

The task was designed using the Micro-Experimental Laboratory software (Schneider, 1990) on a Gateway 2000 micro-computer. Sixteen complex figures drawn from the Hidden Pattern Test of the Kit of Factor-Referenced Cognitive Tests (Ekstrom, French, & Harman, 1976) were used in this task. These complex figures subtended 2.0° of visual angle at a distance of 85 cm. The complex figures and the model used in the present experiment are shown in Figure 1.

Procedure. This subsection summarizes each step in the execution of the experiment. It includes the order of completion of the tasks involved, their duration, the variable(s) measured and scoring procedure(s). Do not include the recruitment or consent procedures. The procedure begins only when data collection begins. The design of the experiment, including the names and levels of the independent variables under study and the dependent variables measured, is also presented here. This section should be detailed enough to give the reader an accurate description of how the data was collected.

Example:

Participants were seated in front of a computer screen. A warning signal ("GET READY") was first presented in the centre of the screen for one second. This was followed, 500 ms later, by the model, presented centrally for another second. The complex figure was then presented for 33 ms at either side of fixation and was followed by a mask that was presented until response.

There were two within-subject variables, namely, type of response (three figures where the model was present, three figures where the model was absent) and visual field (left, right). Gender and level of spatial ability (high, medium, low: based on the final distribution of standardised scores on the Hidden Figures Test and the Mental Rotations Test) were between-subject variables. Reaction time and accuracy were the dependent variables.

Results

This section summarizes the data collected and the statistical treatment used. All data and results (even those that run counter to the hypothesis) must be reported here, but not interpreted or discussed. No inferences should be made. Descriptive as well as inferential statistics may be presented in this section. Very often, figures (graphs) and tables are included. The format used to present the results of the most widely used inferential statistics is as follows:

F test: $F(1,44) = 8.29, p < .01$ (Note that symbols (F, p , etc.) are italicized)

t test: $t(68) = 5.29, p < .05$

Correlation: $r = -0.40, p < .01$

Chi (χ) square test: $\chi^2(2) = 7.88, p < .05$ (to get chi – go to Insert – Symbol and scroll down to the Greek letters, select χ and click Insert)

Note that the test values are reported to 2 decimal places (round off SPSS values but never give $p < .00$ instead round up to $.01$). All statistics should be given in sentence form.

Example: The effect for age was statistically significant, $F(1,44) = 8.29, p < .01$.

Means can also be presented in the text.

Example: The mean score for men on the verbal test was 23.6.

Means can also be presented within parentheses, if necessary.

Example: Women had a slightly higher score than men on the verbal test ($M = 23.61, SD = 2.10$ for men, $M = 26.94, SD = 1.98$ for women).

NOTE: It is inappropriate to have a results section consist solely of a table or figure.

Tables and figure. When a complex design is involved, means and other data are typically presented in figures or tables. Refer to all figures and tables in the written text. Do not use to words graphs, pictures or drawings to refer to figures. It is important to provide clear explanations and to tell the reader what to look for in the figures. As usual, there is a strict format that tables and figures must follow.

A. Tables. The tables come at the end of the report, after the reference page(s) and after any appendices. In tables the first letter of all main words in the title is capitalized. The title of the table is in italics but the words “Table 1” are not. In a table, make sure that the information is organized in a simple and logical way. Use horizontal borders above and below sections but not vertical borders between columns. (With a cell or group of cells in a table selected, Go to Table – Table Properties – Select the Table tab, click on Borders and Shading – Select the Border tab and click the appropriate button to get the border that you want for that cell (group of cells). Make sure apply to cell is selected, click okay. Make sure that ‘Hide Gridlines’ in the table menu is selected. Gridlines may show in grey but will not show in printed document.)

B. Figures. The figures are presented at the end of the lab report. The figures appear on separate pages and do not have a title at the top of the page. The figure caption for each figure appears on the line below (still double spaced) the figure. The caption begins with the label, “*Figure X.*”, (where X is the figure number) which is flush left, in italics (with a period) and then the label is followed by a brief explanation. Some rules to follow with figures:

- a. In a figure, the independent variable should be presented on the horizontal axis and the dependent variable should appear on the vertical axis.
- b. The units of measure must be specified. The top border and the right axis must be removed.
- c. All labelling should be horizontal except for the y-axis.
- d. All labelling should be in a sans serif font (such as Arial) and be between 8 pt and 14 pt.
- d. Your figure may include a legend if appropriate, positioned within the limits of the borders of the figure.
- e. In the text, the word "table" and "figure" are capitalized. Thus, always refer to "Figure 1", not "figure 1".

See examples from pages 22-25 for more information on tables and figures or Chapter 5 of the APA manual.

Discussion

In this section, the goal is to discuss and evaluate your results, and whether or not the results confirm your hypotheses. Although, you should attempt to relate your findings to the literature presented in the introduction, this section need not address every point made in the introduction. As opposed to the Introduction section, the Discussion section should start out with specific statements and then become increasingly more general.

There are two major points that must be present:

- a. Open the discussion with a clear statement of support or non-support for your original hypotheses.
- b. Similarities and differences between your results and those of other researchers should be discussed.

Some other things that may be discussed:

- a. Evaluate and interpret the implications of the results with respect to your hypotheses.
- b. Include a discussion of the theoretical implications of your results
- c. Highlight the shortcomings of your study.
- d. Indicate future directions this research could take.

It is especially important to suggest explanations to account for hypotheses that were not confirmed. The explanations can be methodological or conceptual in nature. This means that the methodology needs to be examined critically. Sources of error or bias that may have affected the results should be pointed out. Suggestions for future research should always be made.

Example:

Close examination of Figure 2 reveals that the participants who did not show a significant visual field effect (FS+ females and FS- males) were more accurate, albeit not

in a significant manner, than participants who demonstrated a significant visual field effect (FS- females and FS+ males). It is possible that the absence of a significant laterality effect in FS+ females and FS-males is due to a ceiling effect. Specifically, it is possible that since these participants were already performing at a relatively high level in the right visual field, the improvement in performance required to achieve an LVFA was constrained by task demands. This impossibility for participants to improve their performance (ceiling effect) would be responsible for the non-significant laterality effect in FS+ females and FS- males. Future studies should attempt to reduce the influence of a ceiling effect by increasing task difficulty.

Referencing

In text citations.

1. Citations can sometimes be part of a sentence. In this case, the format is as follows.

Example:

In their study, Jamison and Signorella (1980) had participants perform a paper-and-pencil version of the water level task.

2. When the citation is used to support a statement, the source or sources is/are presented as follows.

Example:

Several studies report that participants who identify with masculine sex roles perform better in spatial tasks than those who identify with feminine sex roles (Jamison & Signorella, 1980; Nash, 1975; Signorella & Jamison, 1978, 1986; Vaught, 1965).

Note: citations are always presented in alphabetical order based on the name of the first author. Notice that "&" is used (instead of "and") only when the references are presented within parentheses. When a source contains only two authors, both names should always be presented: do not use "et al."

3. When a source has three to five authors, you should list all the authors the first time you cite the source. For the second and subsequent citations, cite the first author's name followed by the abbreviation "et al." (This means "and others" in Latin.) The abbreviation may be used in both forms of citation. Note the period which follows "al." since "al." is an abbreviation of the Latin word alia.

Example:

This point was demonstrated in a study by Imperato, Gautier, Pichardo, Voyer, and Bryden (1991). Imperato et al. (1991) tested normal males and females as well as androgen insensitive participants on the WAIS.

- d. When more than five authors are listed, only the first author is listed, followed by "et al."

Quotations. The number of quotations you include in your report should be kept to a minimum. The relevant reference should be presented as well as the page(s) number indicating where in the source the quotation can be found. A quotation with less than 40 words is presented as part of the text and is enclosed with double quotation marks. Otherwise it is indented (1/2 inch) separated from the text; no quotation marks are used. Direct quotations must be exact. If you leave a word or words out of a quote, use ... to indicate where the word was. If you change a word (change tense for example), indicate the changed word by setting it within square brackets. When quoting always provide the author, year and the specific **page** in the text.

Examples: Quotations with more than 40 words (including lead in):

1. However, it is possible that these findings are the result of a gender-bias correction process.

Feingold (1988) rejects this possibility by claiming that:

If it were the case...the temporal trends reported in the present study would have been flat, with the exception of steep drops in gender differences in the year that sex-related item analyses were introduced to eliminate or reduce sex differences in test performance. (p. 102)

However, such steep drops in gender differences could still produce a linear decrease over time.

2. Feingold (1988) was aware of the plausibility of this interpretation:

One could argue that these findings are the result of a gender-bias correction process. This possibility can be rejected since if it were the case, the temporal trends reported in the present study would have been flat, with the exception of steep drops in gender differences in the year that sex-related item analyses were introduced to eliminate or reduce sex differences in test performance. (Feingold, 1988, p. 102)

However, such steep drops in gender differences could still produce a linear decrease over time.

Examples: Quotations with less than 40 words:

3. In their framework, spatial ability was defined as the capacity to generate "... a mental representation of a two or three-dimensional structure and then assessing its properties or performing a transformation of the representation" (Carpenter & Just, 1986, p. 221).
4. In Carpenter and Just's (1986) framework, spatial ability was defined as the capacity to generate "... a mental representation of a two or three-dimensional structure and then assessing its properties or performing a transformation of the representation" (p.221).

Quotations that contain test items or instructions are quoted word for word (verbatim). Such quotations are also enclosed with double quotation marks if they contain less than 40 words.

Example: More than 40 words:

5. The experimenter instructed participants that:

A complex figure will be presented at the centre of the screen. Your task is to indicate whether or not the simple figure was embedded within this complex drawing. Try to go as fast as possible without sacrificing accuracy, since both your reaction time and accuracy will be measured. (Instructor, 1999)

These Instructions were modified to take into account the use of the four models in Experiment 2.

Example: Less than 40 words:

6. Item 34 was formulated as follows: "How many times a year do you take a bath?" This formulation clearly did not reflect the construct measured by the test. (Note: Citation was included in a previous sentence and page number is omitted because the item is identified by number.)

Reference list. This section, should present all of the sources included in your report and should not include any sources not mentioned in the lab report. The *APA Publication Manual* (2009) specifies several different formats depending on whether you are referring to a journal

article, a book, or an article in a book. Pay careful attention to the punctuation. There are several general rules that always must be followed:

- a. All references cited in the text, or used for information must be cited on the reference page.
- b. Do not categorize the reference list by type of material (books, journal articles, or electronic sources). Instead, list all references in **alphabetical order** by the first author's last name. Be careful here. Do not change the order of the authors' names for a multi-author publication.
- c. The first line of each reference on the reference page is flush left. The subsequent lines of a reference are indented $\frac{1}{2}$ inch (Go to 'Format', 'Paragraph', under the indentation menu select 'Hanging' and make sure it says 'by 0.5-inch')
- d. The reference page for this handout follows this format.
- e. Each element of a reference (authors' names, date, article title, publication data) is separated from the next element by periods.
- f. The spacing of the authors' names is important. Pay attention to the examples below. Note that the ampersand "&" replaces "and" between authors' names.
- g. **Double-space** the entire reference list.
- h. Multiple publications by the same author(s) are listed with the earliest publication first.
- i. Underlining is no longer used, **use italics**.

Only sources which are referred to directly in the text can be included in the references

For a reference drawn from a journal. Generally, journals are organized in volumes (one per year) and issues (from perhaps two to twelve per year) (e.g., Volume 37 of the Journal of Social Issues consists of journal issues published in 1981). The issue number is included in the reference only when the issues in a volume are not paginated consecutively, i.e., each new issue starts with page one rather than continuing from the previous issue. In the case of the Journal of Social Issues, the issue number would be included in parentheses after the volume number. Example 2 below, "Two authors, including issue number." It is more common to continue the pagination from one issue to the next within a volume. This is shown in Example 1. Therefore, in most cases you do **not** include the issue number in your reference.

It is important that you italicize the name of the journal and the volume number in the reference list. In addition, please note that only the first letter of the first word of the article title is capitalized (unless the title has a colon, then the first word after the colon is also capitalized). Authors are identified by their surnames and initials (in that order), not their first names.

Articles almost all have a DOI (digital object identifier) assigned. APA format requires that researchers (including students) will always locate the DOI, and use the reference format which includes the DOI. **This is not an "either-or" situation where the researcher may choose to ignore a DOI.** When there is no DOI assigned, provide the periodical home page web address (URL). There is no need to include database information such as ProQuest or PsycINFO. These databases change the coverage of particular journals over time. When an article is not assigned a DOI, is either published in a discontinued periodical or the periodical web page does not exist, and online content is **ONLY** available in an electronic database such as JSTOR, provide the entry page URL of the database which holds the article. Although this type of reference is rare for articles, it may occur especially when the journal is discontinued. **It is unacceptable to substitute an assigned DOI with the journal URL or database URL. There is no need to include retrieval dates.**

Please refer to the *Publication Manual of APA* (6th ed., 2009, pp. 198-224) for more types of reference examples.

1. Journal article with DOI:

Herbst-Damm, K. L., & Kulik, J. A. (2005). Volunteer support, marital status, and the survival times of terminally ill patients. *Health Psychology, 24*, 225-229. doi:10.1037/0278-6133.24.2.225

2. Journal article with DOI, more than seven authors:

Taylor, S., Zvolensky, M. J., Cox, B. J., Deacon, B., Heimberg, R. G., Ledley, D. R., ... Cardenas, S. J. (2007). Robust dimensions of anxiety sensitivity: Development and initial validation of the Anxiety Sensitivity Index-3. *Psychological Assessment, 19*, 176-188. doi:10.1037/1040-3590.19.2.176

2. Journal article without DOI (when DOI is not available):

Light, M. A., & Light, I. H. (2008). The geographic expansion of Mexican immigration in the United States and its implications for local law enforcement. *Law Enforcement Executive Forum Journal, 8*(1), 73-82.

References to Books

When a book is included in your reference list, the title of the book is underlined or italicized. Again, only the beginning words are capitalized unless they are proper nouns or follow a colon. The title of the book is followed by the city of publication, the state (or province) if the city is not well known, and the name of the publishing company. If there is a DOI available, include it. If the book was viewed from an on-line repository and a DOI is not available, include the URL.

1. One author, no DOI:

Chomsky, N. (1979). *Language and responsibility*. New York, NY: Pantheon.

2. Two or more authors, no DOI:

Alexander, F., & French, T. (1946). *Psychoanalytic theory*. New York, NY: Ronald Press

3. Book chapter:

Haybron, D. M. (2008). Philosophy and the science of subjective well-being. In M. Eid & R. J. Larson (Eds.), *The science of subjective well-being* (pp. 17-43). New York, NY: Guilford Press.

4. One author of a second or later edition, no DOI:

Aronson, E. (2008). *The social animal* (10th ed.). New York, NY: Worth Publishers.

5. Electronic version of a print book:

Schiraldi, G. R. (2001). *The post-traumatic stress disorder sourcebook: A guide to healing, recovery, and growth* [Adobe Digital Editions version]. doi:10.1036/0071393722

6. Multi-volumed books, each volume of which you cite, no DOI:

Koch, S. (Ed.). (1959-1963). *Psychology: A study of science* (Vols. 1-6). New York, NY: McGraw-Hill.

7. Multi-volumed book, only one of which you cite, no DOI:

James, R., Smith, W., & MacDonald, R. (1994). *The auditory modality* (Vol. 2). New York, NY: Wiley.

8. Two authors of an edited book, no DOI:

Letheridge, S., & Cannon, C. R. (Eds.). (1980). *Bilingual education: Teaching English as a second language*. New York, NY: Praeger.

9. Corporate author, published by that author, no DOI:

American Psychological Association. (2009). *Publication manual of the American Psychological Association* (6th ed.). Washington, DC: Author.

References to Articles (or Chapters) in Edited Books

An edited book is often a collection of articles with authors other than the editor(s), compiled by the editor(s). The reference always begins with the name of the author(s) of the article, not the book, followed by the title of the article. This is followed by the name of the book editor(s), preceded by "In," then the book title, the page numbers for the article, and finally the publication information for the book. The book title is italicized and, as before, only the first letters of the titles are capitalized. Note that the editors' initials precede their surnames. Authors' initials follow their names.

1. One editor:

Hartley, J. T., Harker, J. C., & Walsh, D. A. (1980). Contemporary issues and new directions in adult development of learning and memory. In L.W. Poon (Ed.), *Aging in the 1980s: Psychological issues* (pp. 239-252). Washington, DC: American Psychological Association.

2. Two editors:

Gurman, A. S., & Kniskern, D. P. (1981). Family therapy outcome research: Knowns and unknowns. In A. S. Gurman & D. P. Kniskern (Eds.), *Handbook of family therapy* (pp.741-775). New York, NY: Brunner/Mazel.

References to Websites and E-Mail

You will find up-to-date information on how to cite various web materials and e-mail at the following web address: <http://www.apastyle.org/apa-style-help.aspx>

Internet references should include, at a minimum, a document title or description, date of publication or of retrieval, and an address. Whenever possible, the authors should be included. References should direct the reader as closely as possible to the information and provide URL addresses that work.

The URL is the most critical element of the reference, unless the information is an online publication that is an exact duplicate of a print version. Note: page numbers are not included. Use n.d. (no date) when a publication date is not available. Emails are referred to as personal communications, and because the data is non-recoverable, personal communications are not listed in the reference list, but only cited in text with the date received. The example below is taken from the *APA Publication Manual* (6th ed.), p. 179.

1. Email:

T. K. Lutes (personal communication, April 18, 2001) stated that...

Secondary sources. For secondary sources, only the consulted source is presented (the source in which the reference was cited). However, remember to keep these to a minimum. Here is an example of how a secondary citation is done:

On page 57, Carlson and Buskist (1996) refer to a study by Grant (1986). If you wish to describe Grant's study in your paper and have not read Grant's study, you would now consider Carlson and Buskist as a secondary source which has provided you with information about Grant's research. Because you have not read the actual Grant (1986) paper you must let your reader know where you read about it. It is not necessary to include the year of Grant's paper since the reader would look for it in Carlson and Buskist's reference list. Then, put **only** the Carlson and Buskist (1996) reference on the reference page.

This secondary citation is done by referring to the study in the narrative as follows:

Grant (as cited in Carlson & Buskist, 1996) found that the mortality of finches during droughts related to the size of their beaks.

If the citation is within parentheses, it takes the following form:

The size of finches' beaks affects their mortality during times of drought (Grant as cited in Carlson & Buskist, 1996).

You should now have a better idea of the different sections that are part of a research report. Note that these are all the sections you need in a short report. In lengthy reports, such as thesis, more sections are needed. The contents and appendices are typically not required in research reports associated with 200 level courses. If you are in doubt, ask your instructor. These extra parts are as follows:

Contents

This is typically presented after the cover page. It provides a detailed table of the content of the report, including the titles of different sections as well as the page number indicating where they can be found (see the Contents page at the beginning of this document for a sample).

Appendices

These provide copies of any new tests or questionnaires developed for the purpose of the experiment; they may also include the raw data obtained in the study.

The Appendices are found at the end of the report, **after** the reference list (and before tables and figures, if any). The different appendixes are identified by a letter and are presented in the order in which they appear in the text. Thus, if Test 1 is mentioned before Test 2, Test 1 should be found in Appendix A and Test 2 in Appendix B. (If only one appendix is used, just call it Appendix.) The words "Appendix A", followed by the title of the appendix, are centred at the top of the first page of the appendix in Bold Title Case. If an Appendix is used, it must be referred to in the text.

Please note that the guidelines presented in this document are not exhaustive. Nevertheless, they should provide you with enough information to produce a satisfactory research report. If you have any questions concerning the APA guidelines, consult the *APA Publication Manual* for more in-depth information.

References

American Psychological Association. (2009). *Publication manual of the American*

Psychological Association (6th ed.). Washington, DC: Author.

Carlson, N. R., & Buskist, W. (1997). *Psychology: The science of behavior* (5th ed.). Boston,

MA: Allyn and Bacon.

Appendix

Samples

This appendix contains samples of a title page, abstract, table, and figure. They can be found on the following pages.

Gender, Age, and Individual Differences in Spatial Skills

by

Ronald B. MacDonald

200812345

A laboratory report

presented to Dr. E. Austen

in Psychology 225

Sensation and Perception

Department of Psychology

St. Francis Xavier University

December 3, 2008

Abstract

The purpose of the present study was to investigate the influence of training on gender-related differences in mental rotation. There were 47 participants given the first part of the MRT (mental rotation test) and then divided into training and non-training groups. Training group participants completed the Space Relations subtest of the Primary Mental Abilities test battery and manipulated three-dimensional block constructions resembling the structures found in the MRT. They then completed the second part of the MRT. Non-training group participants rested during the time required for training. All participants also completed an activities questionnaire about spatial and non-spatial sports. The hypotheses were: participants who practised spatial activities would get better scores on the MRT than participants who practised non-spatial activities; both males and females would benefit from training; and, females would benefit from training more than males. Only the first 2 hypotheses were confirmed. Results are discussed in relation with their implications for the development of gender-related differences in spatial abilities.

Table 1

Distribution of Participants as a Function of Toys, Sports and Sex of Participants

	Sex	
	Male	Female
Toys		
Spatial	18	3
Non-Spatial	4	22
Sports		
Spatial	14	15
Non-Spatial	8	10

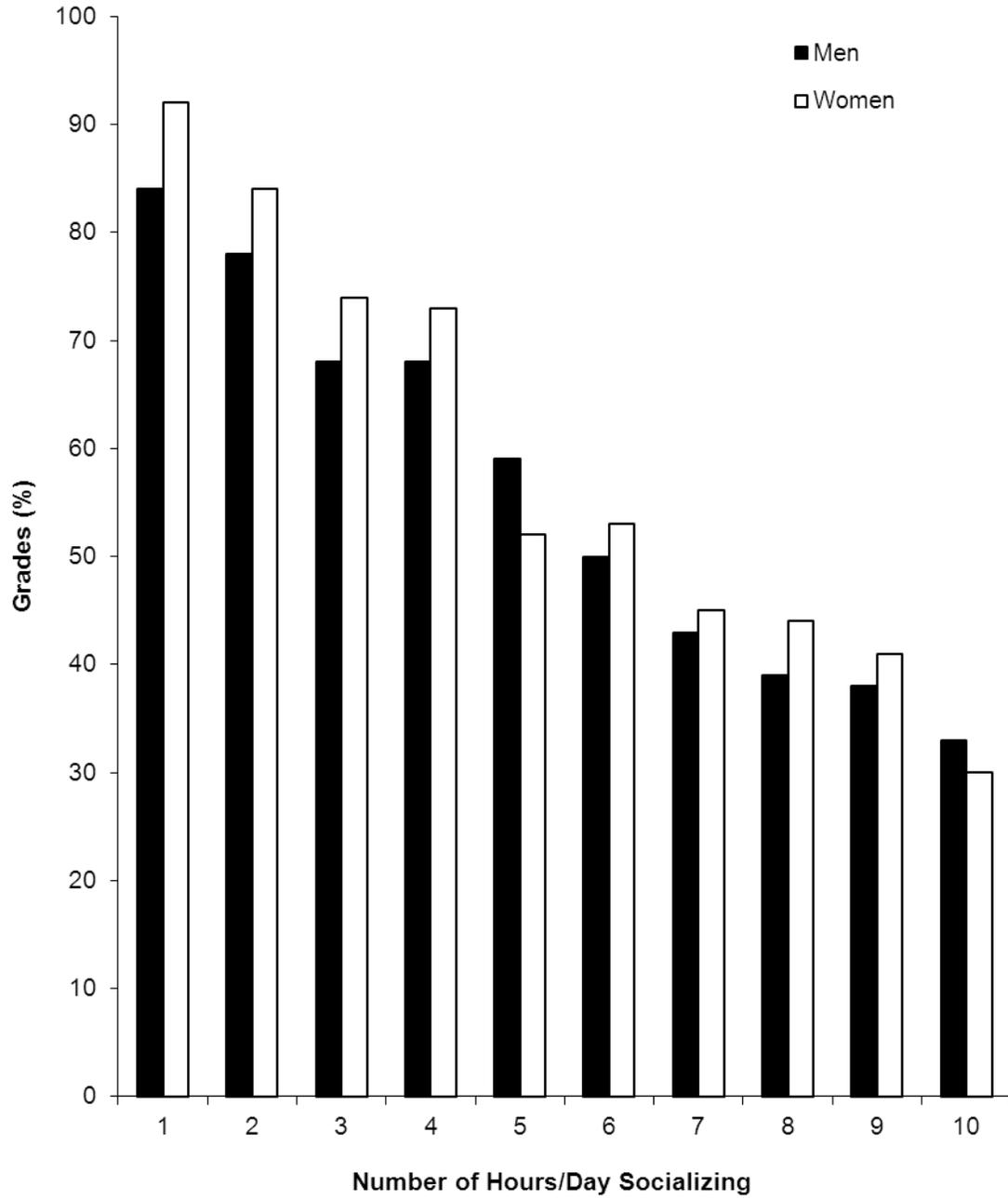


Figure 1. Grade in percent as a function of time spent studying daily and sex of students.

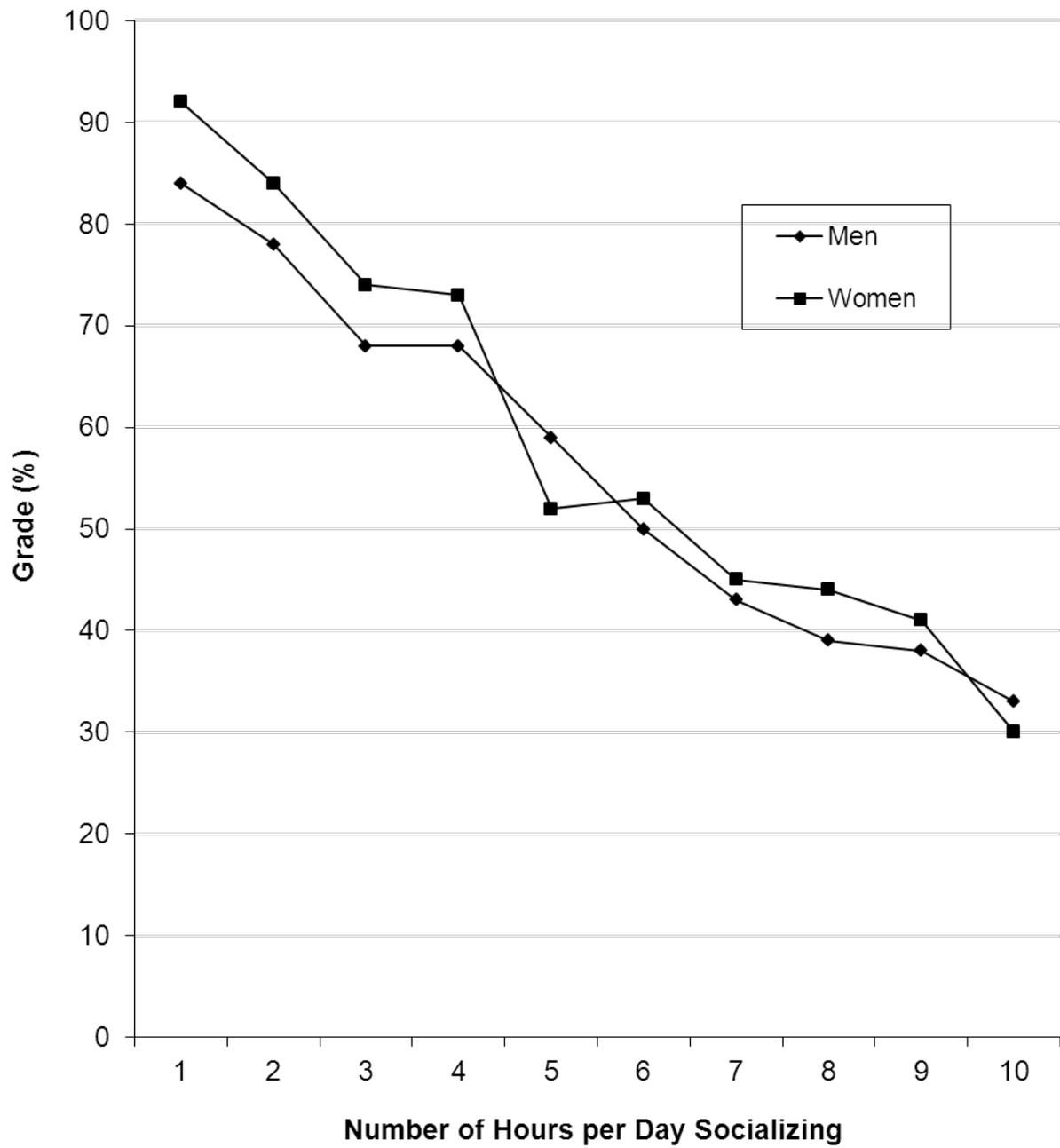


Figure 2. Grade in percent as a function of time spent socializing daily and sex of students.