Research Methods in Psychology

Parts of a Research Proposal and Paper

APA Format

- The primary source for style requirements and format when writing reports of psychological research is the sixth edition of the *Publication Manual* (2010) of the American Psychological Association (APA).
- Psychology students should not submit class research projects for publication unless supervised by an instructor or research mentor.
- An online resource for APA format and guidelines is available at: http://www.apastyle.org

Research Proposals

- The written research proposal follows the general format of the research manuscript:
  - Introduction
  - Method
  - Expected Results and Proposed Data Analysis Plan
  - Conclusions
  - References
  - Appendix
  - Information for Institutional Review Board (IRB)

Guidelines for Effective Writing

- **Know Your Audience.**
  - If you assume your readers know more than they actually do, they'll be confused.
  - If you underestimate your readers, they'll be bored with unnecessary details.
  - Err on the side of underestimating your readers.
- **Identify Your Purpose.**
  - Research manuscripts use expository writing.
  - The principal purposes of a research manuscript are to describe and to convince.

Guidelines *(continued)*

Write clearly.

- Use economy of expression (i.e., be concise).
- Be precise.
- Follow grammatical rules.

Guidelines *(continued)*

- **Be concise.**
  - Say only what needs to be said.
  - Short words and short sentences are easier to understand.
  - Write several drafts of your manuscript; decrease wordiness as you edit your drafts.
- **Be precise.**
  - Choose the right word for what you want to say.
- **Follow grammatical rules.**
  - Failure to adhere to grammatical rules distracts the reader and introduces unnecessary ambiguity.
  - Grammatical errors decrease the credibility of your persuasive argument.

Guidelines *(continued)*

Write fairly.

- Choose words and sentence constructions that avoid bias on the basis of gender, sexual orientation, racial or ethnic group, disability, or age.
- Describe persons at the appropriate level of specificity (e.g., describe *men and women* participants rather than the generic term *man* when referring to human beings).
- Be sensitive to labels used to describe racial and ethnic groups.
- Avoid the term "subjects" when describing human participants.

Guidelines *(continued)*

Write an interesting report.

- Present ideas and findings directly, but in an interesting and compelling manner that reflects your involvement with the research problem.
- Strive to tell a good story about your research.

Structure of a Research Report

- A research report consists of the following sections (the main body of the report is in **bold**):
  - Title Page
  - Abstract
  - **Introduction**
  - **Method**
  - **Results**
  - **Discussion**
  - References
  - Appendixes
  - Author Note
  - Footnotes
  - Tables (if any)
  - Figures (if any)

Structure of a Research Report *(continued)*

- **Title page**
  - The title page contains the title of the research, the authors' names, where the research was done (i.e., the authors' affiliation), a brief heading to describe the subject of the research (the "running head"), and a short title (the first 3 words of the title) with the page number.
  - The title should be a concise statement of the main topic of the research and should identify the variables or theoretical issues in the research.

Sample Title Page

Experience 1

Running head: WATER-LEVEL TASK

Experience and the Water-Level Task Revisited:
Does Expertise Exact a Price?

Ross Vasta
State University of New York, Brockport
Deirdre Rosenberg
Rochester Institute of Technology
Jill A. Knott and Christine E. Gaze
State University of New York, Brockport

Each page has a header with the first 2 or 3 words from the title and page number. Place the page number 5 spaces after the page identification.

The running head is a short title at the top of each page of the printed article. Place the running head at the left margin, in capital letters. Maximum length is 50 characters.

Center the title in uppercase and lowercase letters. Authors' names are placed one double-spaced line below the title, centered. The institutional affiliation is typed on the next double-spaced line.

The title is usually 10 to 12 words.

Double-space the entire paper.

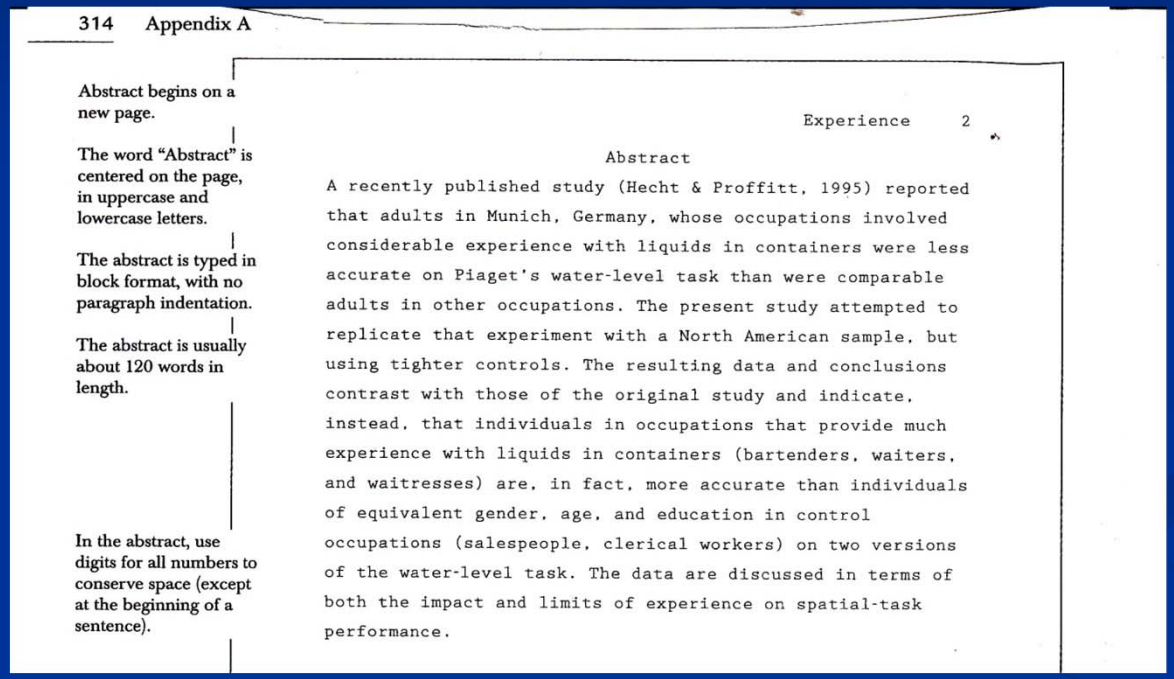
Use uniform margins of at least 1 inch on the top, bottom, right, and left of all pages.

See page 1 of student Sample "The Effect"

Structure of a Research Report *(continued)*

- **Abstract**
  - The abstract is a one-paragraph summary of the content and purpose of the research report.
  - The abstract should be 100-200 words.
  - Four main elements should be included:
    - The problem under investigation,
    - Highlights of the experimental method,
    - The main findings, and
    - The conclusions and implications of the findings.
  - Write the Abstract last!

Sample Abstract Page



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Abstract begins on a new page.

The word "Abstract" is centered on the page, in uppercase and lowercase letters.

The abstract is typed in block format, with no paragraph indentation.

The abstract is usually about 120 words in length.

In the abstract, use digits for all numbers to conserve space (except at the beginning of a sentence).

Abstract

A recently published study (Hecht & Proffitt, 1995) reported that adults in Munich, Germany, whose occupations involved considerable experience with liquids in containers were less accurate on Piaget's water-level task than were comparable adults in other occupations. The present study attempted to replicate that experiment with a North American sample, but using tighter controls. The resulting data and conclusions contrast with those of the original study and indicate, instead, that individuals in occupations that provide much experience with liquids in containers (bartenders, waiters, and waitresses) are, in fact, more accurate than individuals of equivalent gender, age, and education in control occupations (salespeople, clerical workers) on two versions of the water-level task. The data are discussed in terms of both the impact and limits of experience on spatial-task performance.

See page two of Student sample report "The Effect"

Structure of a Research Report *(continued)*

- **Introduction**
  - The three primary objectives of the introduction are:
    - to introduce the problem being studied and to indicate why the problem is important;
    - to describe the theoretical implications of the study and to summarize briefly the relevant background literature related to the study (including appropriate citations);
    - to describe the purpose, rationale, and design of the present study with a logical development of the predictions or hypotheses guiding the study.

Structure of a Research Report *(continued)*

- Introduction, *continued*
  - You should be able to answer the following questions *before beginning* to write the introduction:
    - Why is this problem important?
    - How do the hypothesis and the experimental design relate to the problem?
    - What are the theoretical implications of the study, and how does the study relate to previous work in the area?
    - What are the theoretical propositions tested, and how were they derived?

(*Publication Manual,* p. 16)

Sample Introduction Pages

See page 2-3 of Student sample report "The Effect"

Experience and the Water-Level Task Revisited:
Does Expertise Exact a Price?

Piaget's water-level task (Piaget & Inhelder, 1948/1956) has provided psychology with one of its more fascinating and intriguing puzzles. In the 30 years since Rebelsky (1964) reported that many of her graduate and undergraduate students--especially females--did not know that the surface of a liquid remains horizontal when its container is tilted, dozens of experiments have investigated this problem. Yet today it remains unclear why so many adults, who encounter liquids in tilted containers virtually every day of their lives, somehow fail to note this seemingly obvious physical principle (Vasta & Liben, 1996).

In a recent study, Hecht and Proffitt (1995) added another surprising twist to this puzzle when they reported that adults whose occupations involve considerable experience with liquids in containers (viz., bartenders and waitresses in Munich, Germany) performed even less accurately on the water-level task than did comparable groups of adults in other occupations. These data are obviously counterintuitive in that it is commonly believed that greater experience in an area leads to greater knowledge about the area--which, in turn, should facilitate problem solving in the area when that becomes necessary. People who spend hours each day attending to liquids in containers, therefore, should be much more likely than most other people to appreciate the invariant horizontality of liquid surfaces or at least should be better able to generate the correct response when faced with the

Page 3 begins the main body of the paper, including introduction, method, results, and discussion.

Center the title of the paper, in uppercase and lowercase letters. Double-space and begin typing the text of the paper.

Paragraphs are indented five to seven spaces using the tab function.

Use the author's last name and date for reference citations. (The citation of Piaget & Inhelder is unusual because it has two dates: 1948 is the year of the original publication, and 1956 is the year the work was republished.)

Use the "&" symbol when authors' names are within parentheses. Use "and" when authors' names are part of the text.

Standard Latin abbreviations such as "viz." are used only within parentheses. When the terms are part of the text, use the English translation of the terms (viz. = namely).

Left-justify the paper so the words are aligned with the left margin, but the length of each line varies at the right margin.

Sample Introduction Pages

water-level task. That they cannot, and that they in fact do worse than people without such experience, is an assault on this widely held belief.

The researchers' explanation for their findings grows directly out of their theoretical model, which posits that the water-level problem can be cognitively represented by adopting either an environment-relative reference system--which promotes the correct solution to the problem--or an object-relative reference system--which biases the subject toward an incorrect solution (McAfee & Proffitt, 1991). According to the authors, "people whose occupations entail extensive experience with liquid-filled containers might be more inclined to adopt an object-relative perspective" (p. 91). The study thus is notable not simply because the findings were unexpected but also because it purports to provide important evidence as to why the water-level task poses such a vexing challenge to many adults.

To evaluate the validity of the study's conclusions, it is important to consider that the Hecht and Proffitt study falls into the category called quasi-experimental research (Campbell & Stanley, 1966; Cook & Campbell, 1979). Because their variable of major interest was occupation, the participants of the research could not, of course, have been randomly assigned to each job and then given years of experience working at it. (Nor could they have been randomly assigned to the categories male and female, the other variable of some interest in the experiment.) Instead, quasi-experimental research requires that investigators simply identify extant groups of participants (e.g.,

Use double quotations to include short quotations (less than 40 words) in the text of the paper. Include the page number in parentheses.

Underline words that will appear in italics when typeset.

Arrange multiple citations that occur at the same place in the text in the order they appear in the reference list. Use a semicolon to separate citations.

Sample Introduction Pages

bartenders, waitresses, etc.) who embody the different levels or categories of the variables under study. The paramount concern attending this sort of research involves ensuring that the groups differ only on the variable(s) of interest (i.e., occupation) and not on any other variable(s) that could potentially account for differences found between groups. In true experimental designs this problem is normally handled by the random assignment of participants, which presumably distributes all of the other variables unsystematically across conditions. However, when that technique is not available, as here, considerable care must be taken to assure that the groups are as equivalent as possible beyond the variable under study.

Let us examine how successful Hecht and Proffitt (1995) were at manipulating the primary variable of interest, occupation. Their stated goal involved selecting "professions that assured different degrees of experience with surface orientation" (p. 92). In what we will term the high-experience groups, bartenders were selected because most of their work time is spent pouring beer (draft and bottled), as well as measuring, pouring, shaking, and stirring drinks of other kinds. Waitresses were used because they spend much of their time carrying drinks (as many as five mugs in each hand, for the Munich waitresses) and serving them to customers.

The control occupations, ideally, should have been selected according to two criteria. Inasmuch as these groups constituted the low-experience level of the variable, their relative exposure to liquids in containers should be

Use "we" only to refer to yourself and your co-authors (do not use "we" if you are the only author). Avoid the use of the editorial "we" that refers to a generic group. Instead, use an appropriate term such as "people," "humans," or "researchers."

Sample Introduction Pages

considerably less. In addition, to avoid the potential problems inherent in quasi-experimental designs, the groups should differ only on the experience variable and be otherwise comparable on all other factors.

One of the control occupations was bus driver. This job seems well chosen in that these men undoubtedly devoted little of their work time to dealing with liquids in containers. The other low-experience occupation was housewife. Here, the wisdom of the choice is less obvious. The typical woman participating in the experiment was described as "54 years old on average . . . [and who] cared for a household with several children and devoted most of her time to the family" (p. 92). As such, it is reasonable to expect that these women spent some portion of their normal day involved in cooking, washing dishes, pouring and serving drinks to the family, and other routine activities that involve liquids. Conceptualizing this group as low-experience, therefore, would seem questionable. This problem is underscored by the researchers' finding that, when compared directly, the performance of housewives and waitresses was not significantly different. A better choice for the second control occupation, then, would have been preferred.

The present research attempted to replicate, with a North American sample, Hecht and Proffitt's study, but with an improved methodology. One improvement was that males and females were represented in all occupations. Bartender and server[1] were again selected as the high-experience (with liquids in containers) occupations. Salesperson and clerical

Brackets are used to enclose material that is inserted in a quotation.

The final paragraph of the introduction presents the purpose of the present study.

Content footnotes are used infrequently in APA format. The placement of the footnote is indicated by a superscript, using Arabic numerals. The footnote is typed on a separate page later in the manuscript.

Structure of a Research Report (*continued)*

- **Method**
  - The purpose of the Method section is to describe, in detail, how the study was conducted. Based on the Method section, a reader should be able to replicate the study.
  - The three most common subsections of the Method section are:
    - Participants,
    - Materials (or Apparatus),
    - Procedure.

Structure of a Research Report *(continued)*

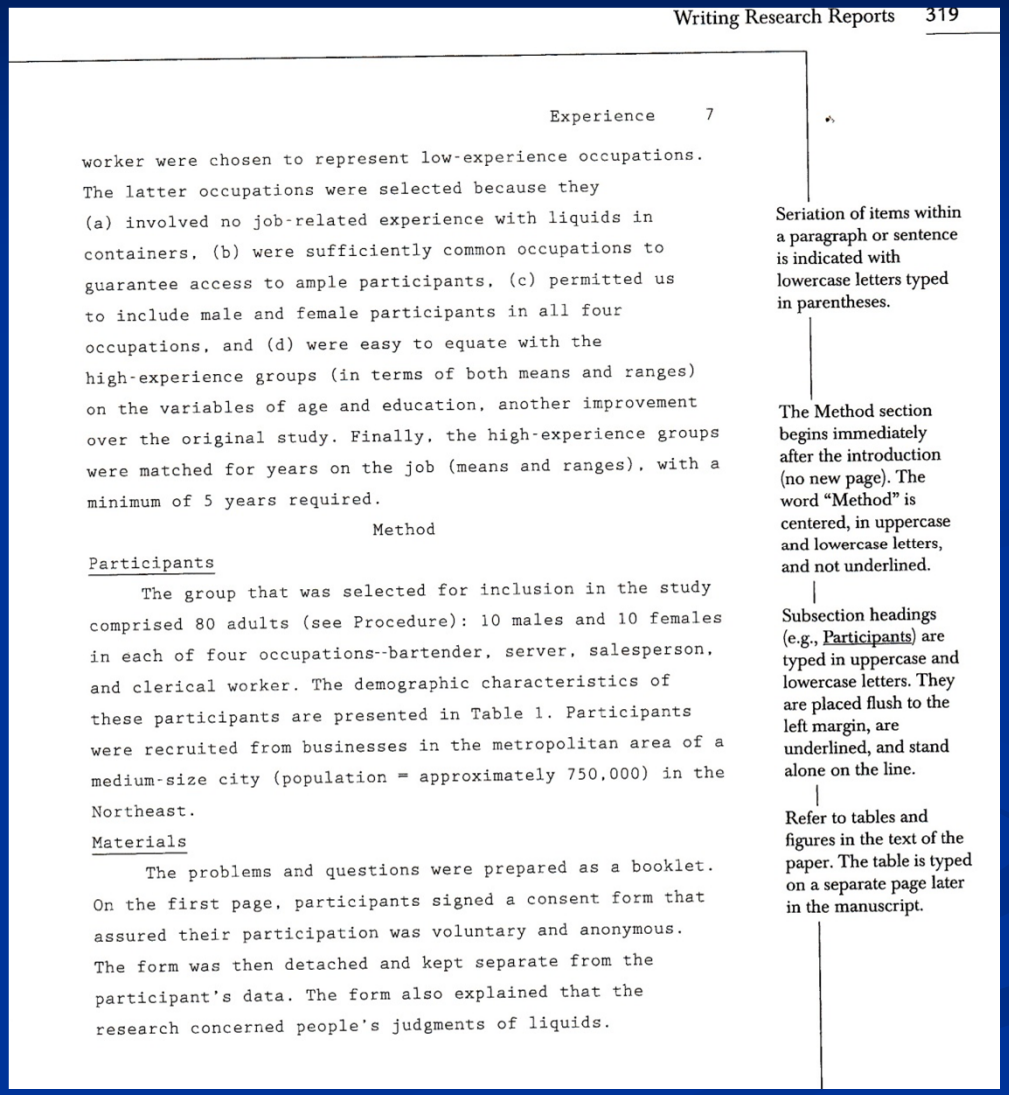
- Method, *continued*
  - *Procedure:* This is the most critical component of the Method section.
  - Describe what happened from the beginning to the end of the sessions in which you tested your participants.
  - Include enough detail so that a researcher could replicate the essential aspects of your study.

Structure of a Research Report (*continued)*

- Method, *continued*
  - *Participants:* When humans are the participants, report:
    - the procedures for recruiting and compensating them,
    - major demographic characteristics (e.g., gender, age, race/ethnicity),
    - total number of participants,
    - the number assigned to each condition of the experiment, and
    - describe any attrition.
  - *Materials:* Describe any materials that are critical to the design and implementation of the study variables; be sure to cite other researchers appropriately.

Sample Method Pages

See page 4-5 of Student sample report "The Effect"



worker were chosen to represent low-experience occupations. The latter occupations were selected because they (a) involved no job-related experience with liquids in containers, (b) were sufficiently common occupations to guarantee access to ample participants, (c) permitted us to include male and female participants in all four occupations, and (d) were easy to equate with the high-experience groups (in terms of both means and ranges) on the variables of age and education, another improvement over the original study. Finally, the high-experience groups were matched for years on the job (means and ranges), with a minimum of 5 years required.

Method

Participants

The group that was selected for inclusion in the study comprised 80 adults (see Procedure): 10 males and 10 females in each of four occupations--bartender, server, salesperson, and clerical worker. The demographic characteristics of these participants are presented in Table 1. Participants were recruited from businesses in the metropolitan area of a medium-size city (population = approximately 750,000) in the Northeast.

Materials

The problems and questions were prepared as a booklet. On the first page, participants signed a consent form that assured their participation was voluntary and anonymous. The form was then detached and kept separate from the participant's data. The form also explained that the research concerned people's judgments of liquids.

Seriation of items within a paragraph or sentence is indicated with lowercase letters typed in parentheses.

The Method section begins immediately after the introduction (no new page). The word "Method" is centered, in uppercase and lowercase letters, and not underlined.

Subsection headings (e.g., Participants) are typed in uppercase and lowercase letters. They are placed flush to the left margin, are underlined, and stand alone on the line.

Refer to tables and figures in the text of the paper. The table is typed on a separate page later in the manuscript.

Sample Method Pages

Figures and tables, when used, must be mentioned in the text.

Type quotations of 40 or more words in block format, without quotation marks. Indent the block five spaces from the left margin.

The three problems were on separate pages. Problem 1 (Figure 1a) was the same problem used by Hecht and Proffitt (1995, p. 93, Figure 2). The instructions, printed above the problem, were as identical as possible to those described by the original researchers (which were not reported verbatim, presumably because they were in German). The instructions read:

> Think of the drawing below as a glass of water that is being held perfectly still by an invisible hand, so that the water in it is at rest. Note that the glass is being held above the table and that the drawing is a side view of the glass, so that a single line is appropriate to indicate the water level. Draw a line representing the surface of the water, so that it touches the point marked on the right side of the glass.

Problem 2 was a more common version of the water-level task (Figure 1b). We included it to ensure that the findings by Hecht and Proffitt (1995) were not a function of the manner in which participants were asked to perform the problem. Printed instructions above the problem read "Figure A shows a bottle with some water in it. In Figure B the bottle has been tilted. Draw a line to show how the water would look."

On the next page, participants' understanding of the invariance (horizontality) principle was assessed verbally with a multiple-choice question in which the stem and answers read "When a container with water is tilted to the right, the water line in the container will be

Sample Method Pages

horizontal (—), will slant downward (\), or will slant upward (/)."

Problem 3, on the page that followed, involved predicting how water would look if poured from one container to another of a different shape. (We report no data on this problem in this article.)

On the final page, participants provided demographic and employment information. The data solicited included gender, age, years of experience at the job, number of hours worked per week, any other current employment, any previous experience as a bartender or waiter/waitress, highest year of schooling completed, and any prior familiarity with the water-level problem.

Procedure

The data were collected over an 11-week period. Participants were tested individually at their places of work by one of the three junior authors, who each tested approximately equal numbers in the four occupations. As individuals were tested, their demographic and employment data only were given to the senior author whose job it was to determine when the eight groups were sufficiently equivalent on the variables of age, education, and, for the high-experience occupations, years of job experience. When he decided that the means and ranges of these variables were comparable across the eight groups, the senior author halted the data collection and, only afterward, gained access to the performance data. This procedure ensured that the nature of the individuals' performance in no way influenced the final selection of participants to be included in the study.

Note that the word "data" is plural; thus, "the data were" (not was).

Structure of a Research Report *(continued)*

- **Results**
  - The results section contains the climax of the report — the actual findings of the study.
  - Answer the questions raised in the introduction, but "stick to the facts" — leave any interpretation of the findings for the Discussion section.

Structure of a Research Report *(continued)*

- Results, *continued*
  - The structure of a typical paragraph in the Results section is as follows:

    1. State the purpose of the analysis.
    2. Identify the descriptive statistic to be used to summarize the results.
    3. Present a summary of this descriptive statistic across conditions in the text itself, in a table, or in a figure.

Sample Results Pages

See pages 5-6 of Student sample report "The Effect"

To achieve the goal of having eight groups of 10 participants with equivalent demographic data, 124 adults had to be tested. Participants were not included in the final group of 80 if (a) they had prior familiarity with the water-level task (n = 3), (b) they had previously been servers or bartenders but were currently in one of the low-experience occupations (n = 8), (c) they were bartenders or servers who had fewer than 5 years of experience or worked only part-time (n = 7), or (d) their age or education lay outside the range that eventually emerged as equivalent across the eight groups (n = 26).

Results

Scoring

The water-level task drawings (Problems 1 and 2) were scored using a transparent protractor overlay to determine the number of degrees each drawing deviated from horizontal, as has been done previously (Vasta, Belongia, & Ribble, 1994; Vasta, Lightfoot, & Cox, 1993).

Analyses

The mean deviations from horizontal on Problem 1, the replication water-level task, for males and females in each of the four occupations are presented in Figure 2. A 4 (Occupation) x 2 (Gender) analysis of variance (ANOVA) revealed main effects for occupation, $F(3, 72) = 3.01$, $p < .05$, and gender, $F(1, 72) = 4.05$, $p < .05$, with no interaction. As seen in Figure 2, bartenders and servers were more accurate than salespersons and clerical workers. Follow-up analyses indicated no differences in accuracy for occupations within the high- and low-experience conditions

The Results section does not begin on a new page; the heading is typed in uppercase and lowercase letters, centered, and not underlined.

The authors used optional subsection headings to present the material in the Results section. The title of each heading depends on the particular study. Subsection headings are typed flush at the left margin, underlined. Major terms are capitalized.

Give all authors' names in the first citation. When there are three or more authors, use "et al." for subsequent citations.

The first time an abbreviation is used, write out the term completely and place the abbreviation in parentheses. Later in the paper use the abbreviation without additional explanation.

Sample Results Pages

and so the data were combined across the occupations. A 2 (Experience) x 2 (Gender) ANOVA was performed, producing both a main effect for job experience, $F(1, 76) = 9.19$, $p < .01$, and a main effect for gender, $F(1, 76) = 4.22$, $p < .05$, with no interaction. Contrary to the findings of Hecht and Proffitt (1995), subjects in the high-experience occupations were more accurate ($M = 6.9$) than those in the low-experience occupations ($M = 14.5$). Predictably, males ($M = 8.12$) were more accurate than females ($M = 13.27$).

A similar pattern emerged from the data of Problem 2, shown in Figure 3. The 4 (Occupation) x 2 (Gender) ANOVA in this case resulted in a borderline main effect for occupation, $F(3, 72) = 2.22$, $p < .10$, and a significant effect for gender, $F(1, 72) = 7.58$, $p < .01$, with no interaction. Follow-up analyses again indicated that the occupations did not differ within job experience categories. A 2 (Experience) x 2 (Gender) ANOVA revealed main effects for experience, $F(1, 76) = 6.63$, $p < .01$, and gender, $F(1, 76) = 7.96$, $p < .01$, with no interaction. As with Problem 1, subjects in the high-experience occupations were more accurate ($M = 6.25$) than those in the low-experience occupations ($M = 10.97$), and males ($M = 6.02$) were more accurate than females ($M = 11.2$).

The same pattern of results was found when the drawings were scored in terms of the number of subjects whose water lines fell within a predetermined criterion range. When the criterion was set at 5°, the data of more adults in the high-experience occupations than in the

When presenting statistical copy, the name of the statistical test is underlined and followed by the degrees of freedom in parentheses. Note the spacing. If your word processor does not have a necessary symbol, write the symbol in black ink.

Most statistical symbols are underlined (e.g., F, t, M, p, df).

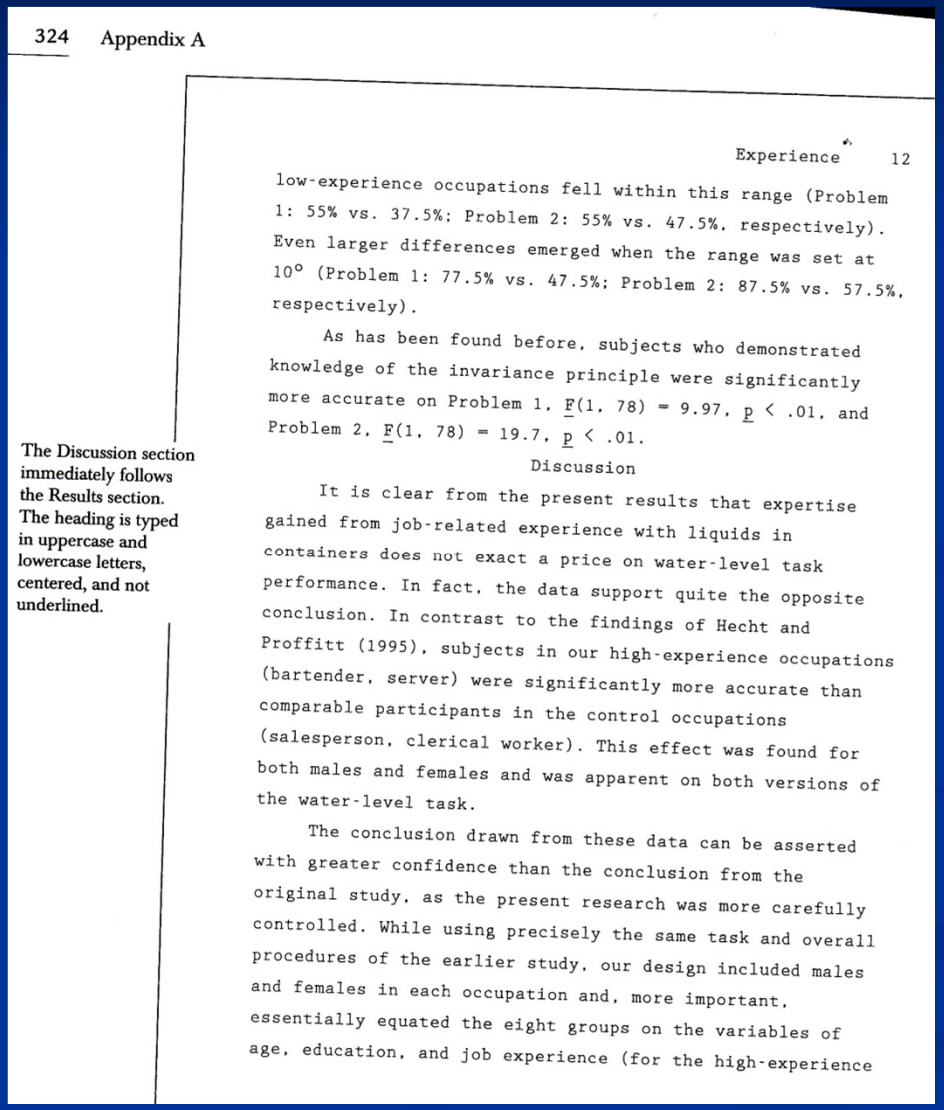
The term "subjects" is appropriate when discussing results.

Structure of a Research Report *(continued)*

- **Discussion**
  - The Discussion section includes:
    - A clear and concise statement of the essential findings.
    - A clear presentation of how the findings support or refute the hypotheses.
    - A description of how the results are similar to or different from previous research.
    - Limitations or problems in the research.
    - Specific ideas for additional research based on the findings.

Sample Discussion Pages

See pages 6-7 of Student sample report "The Effect"



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Experience 12

low-experience occupations fell within this range (Problem 1: 55% vs. 37.5%; Problem 2: 55% vs. 47.5%, respectively). Even larger differences emerged when the range was set at 10° (Problem 1: 77.5% vs. 47.5%; Problem 2: 87.5% vs. 57.5%, respectively).

As has been found before, subjects who demonstrated knowledge of the invariance principle were significantly more accurate on Problem 1, $F(1, 78) = 9.97$, $p < .01$, and Problem 2, $F(1, 78) = 19.7$, $p < .01$.

Discussion

It is clear from the present results that expertise gained from job-related experience with liquids in containers does not exact a price on water-level task performance. In fact, the data support quite the opposite conclusion. In contrast to the findings of Hecht and Proffitt (1995), subjects in our high-experience occupations (bartender, server) were significantly more accurate than comparable participants in the control occupations (salesperson, clerical worker). This effect was found for both males and females and was apparent on both versions of the water-level task.

The conclusion drawn from these data can be asserted with greater confidence than the conclusion from the original study, as the present research was more carefully controlled. While using precisely the same task and overall procedures of the earlier study, our design included males and females in each occupation and, more important, essentially equated the eight groups on the variables of age, education, and job experience (for the high-experience

The Discussion section immediately follows the Results section. The heading is typed in uppercase and lowercase letters, centered, and not underlined.

Sample Discussion Pages

condition). The performance differences found between the high- and low-experience conditions, therefore, at least cannot be attributed to differences in any of these variables, increasing the likelihood that it was indeed the nature of the participants' work that produced the main effect.

Whether the starkly different patterns of findings and levels of performance (e.g., the mean errors for the Munich waitresses and bartenders were about 21° and 14°, respectively, whereas the corresponding means for the American sample were 7° and 4°) obtained by the two studies involved any or all of these extraneous variables, however, remains unclear. Other possibilities also exist. Certainly we must at least raise the question of cultural differences between the two samples. While it seems unlikely that adults in Germany would approach the water-level task in a qualitatively different manner, or would derive very different sorts of expertise from their bartending and waitressing experiences, these possibilities cannot be entirely discounted without additional research.

Regardless of the reasons for the different outcomes, the present results are important in their own right in that they bolster two previous sets of findings regarding the impact of experience on spatial-task performance. First, our data align with previous reports that performance on the water-level task is positively related to vocational aspirations and training in both adolescents (De Lisi & McGillicuddy-De Lisi, 1988) and adults (Robert & Harel, 1996). While direction-of-effect issues must be considered

Sample Discussion Pages

in all of these studies, the findings nevertheless are consistent with an experiential analysis, in which greater exposure to the components of a process leads to a better understanding of its underlying principles. The present data, however, also support research indicating that experience may have its limits. Robert and Harel (1996) have reported that although the spatial-task performance of students in natural sciences programs surpassed that of students in social sciences programs, women continued to perform less accurately than men in both areas. These results closely parallel our findings, in that the accuracy of female bartenders and servers on the first two problems was higher than that of female sales and clerical workers but remained significantly below that of the high-experience males (see Baenninger & Newcombe, 1995; and Vasta, Knott, & Gaze, 1996, for more on this issue).

In conclusion, the provocative and counterintuitive results reported by Hecht and Proffitt (1995) remain difficult to explain in light of the present research. If job-related expertise does, in fact, alter adults' cognitive perspective on the water-level task, as they claim, then subsequent demonstrations of that phenomenon are needed.

Structure of a Research Report *(continued)*

- **References**
  - The References section includes the complete citation for each source cited in the research manuscript.
  - References are listed in alphabetical order according to the last name of the first author of each source.

Structure of a Research Report *(continued)*

- *Examples of Reference Citations*
  - References to *journal articles* include the authors' last names and initials, the year of publication, the title of the article, the name of the journal, the volume number, and the page numbers. Note punctuation, font, and capitalization.

Hollon, S. D., Thase, M. E., & Markowitz, J. C. (2002). Treatment and prevention of depression. *Psychological Science in the Public Interest, 3,* 39-77.

Structure of a Research Report *(continued)*

- *Examples of Reference Citations, continued*
  - References to *books* include the authors' last names and initials, the copyright date, the title, the city in which the book was published, and the publisher.

Posavac, E. J., & Carey, R. G. (2003). *Program evaluation* (6th ed.). Englewood Cliffs, NJ: Prentice Hall.

Structure of a Research Report *(continued)*

- The structure of a typical paragraph in the Results section is as follows *(continued):*

4. If a table or figure is used, point out the major findings on which the reader should focus.
5. Present the reasons for, and the results of confidence intervals, effect sizes, and inferential statistics.
6. State the conclusion that follows from each test, but do not discuss implications. These belong in the Discussion section.

Structure of a Research Report *(continued)*

- *Examples of Reference Citations, continued*
  - The reference for a *chapter* in an edited volume includes the authors' last names and initials, the year of publication, the chapter title, the editors of the book, the title of the book, page numbers of the chapter, the city of publication, and the publisher:

Buchanan, T. (2000). Potential of the Internet for personality research. In M. H. Birnbaum (Ed.), *Psychological experiments on the Internet* (pp. 121-139). San Diego, CA: Academic Press.

Structure of a Research Report *(continued)*

- *Examples of Reference Citations, continued*
  - The citation for an *electronic journal* identifies the specific Internet address:

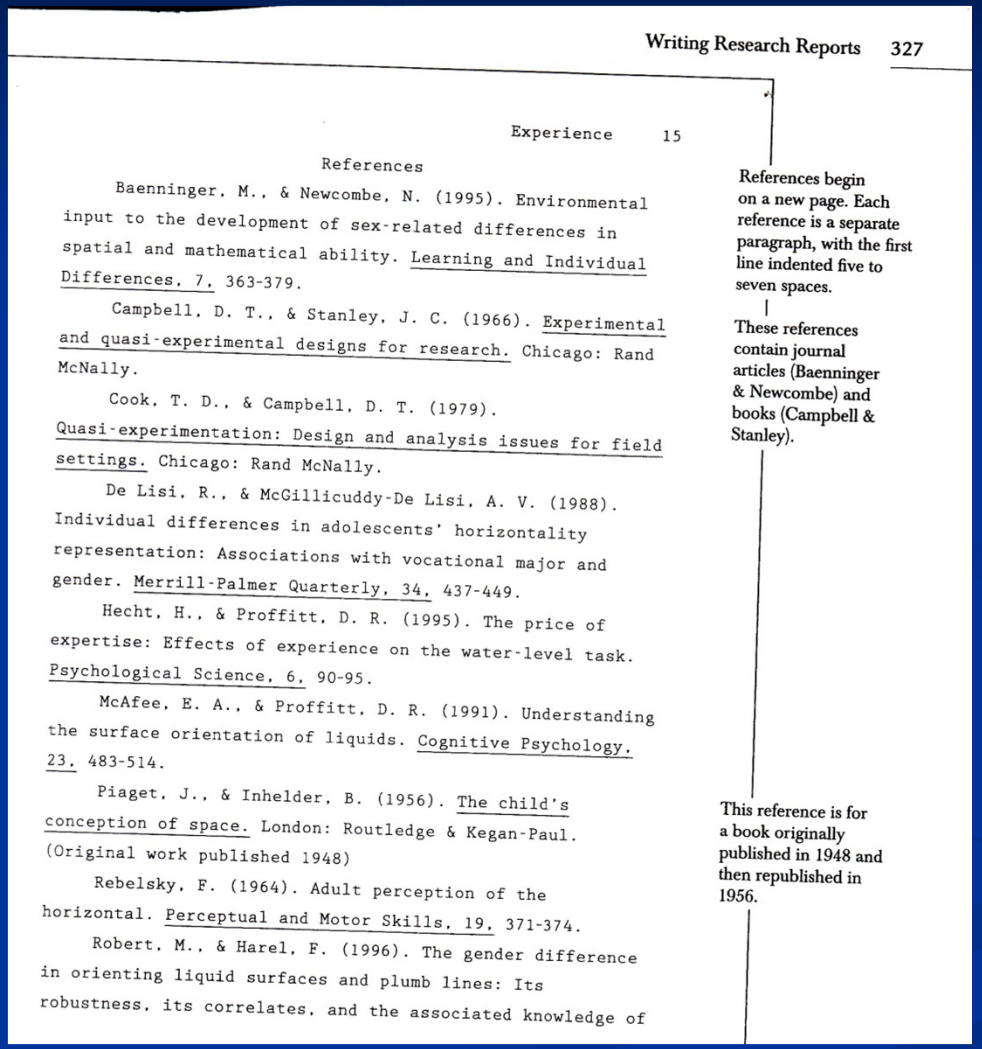
Kirsch, I., & Sapirstein, G. (1998). Listening to Prozac but hearing placebo: A meta-analysis of antidepressant medication. *Prevention and Treatment* [On-line serial], *1*. Available: journals.apa.org/prevention/volume1/pre0010002a.html.

Structure of a Research Report *(continued)*

- **Appendixes**
  - Although appendixes are rare in published research reports, they may be required by instructors for class research projects.
  - An appendix is sometimes used to provide a verbatim copy of instructions to participants or a copy of particular materials used in a research study.

Sample References Pages

See pages 7-8 for References and 9-11 for Appendix of Student sample report "The Effect"



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McAfee, E. A., & Proffitt, D. R. (1991). Understanding the surface orientation of liquids. Cognitive Psychology, 23, 483-514.

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Rebelsky, F. (1964). Adult perception of the horizontal. Perceptual and Motor Skills, 19, 371-374.

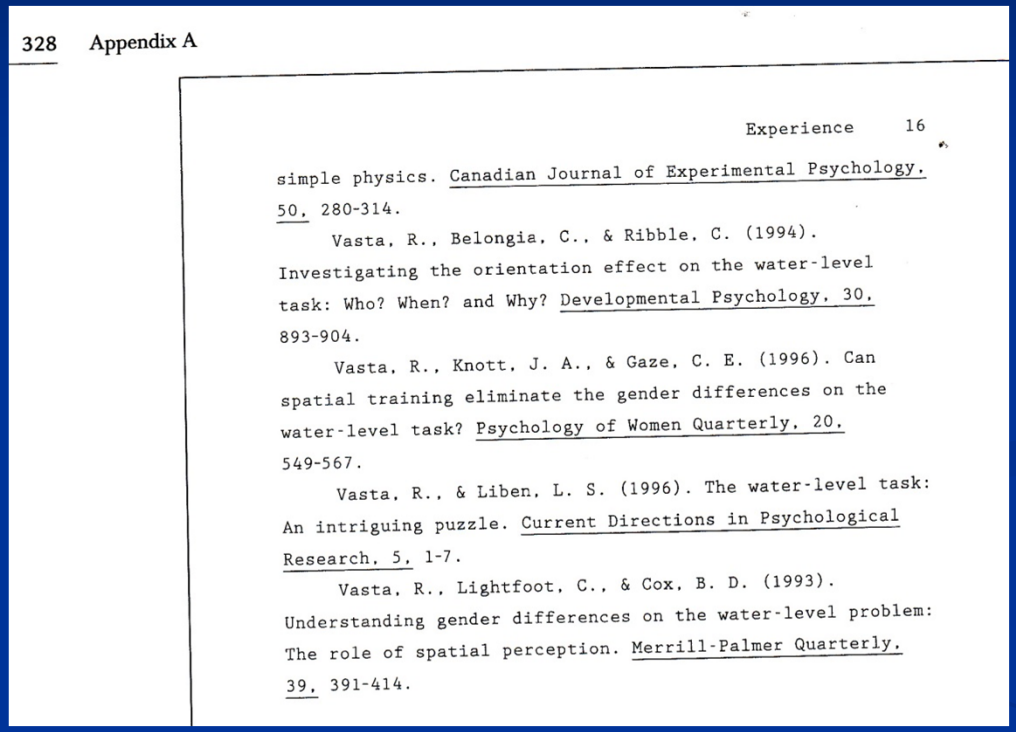
Robert, M., & Harel, F. (1996). The gender difference in orienting liquid surfaces and plumb lines: Its robustness, its correlates, and the associated knowledge of

References begin on a new page. Each reference is a separate paragraph, with the first line indented five to seven spaces.

These references contain journal articles (Baenninger & Newcombe) and books (Campbell & Stanley).

This reference is for a book originally published in 1948 and then republished in 1956.

Sample References Pages



328 Appendix A

simple physics. Canadian Journal of Experimental Psychology, 50, 280-314.

Vasta, R., Belongia, C., & Ribble, C. (1994). Investigating the orientation effect on the water-level task: Who? When? and Why? Developmental Psychology, 30, 893-904.

Vasta, R., Knott, J. A., & Gaze, C. E. (1996). Can spatial training eliminate the gender differences on the water-level task? Psychology of Women Quarterly, 20, 549-567.

Vasta, R., & Liben, L. S. (1996). The water-level task: An intriguing puzzle. Current Directions in Psychological Research, 5, 1-7.

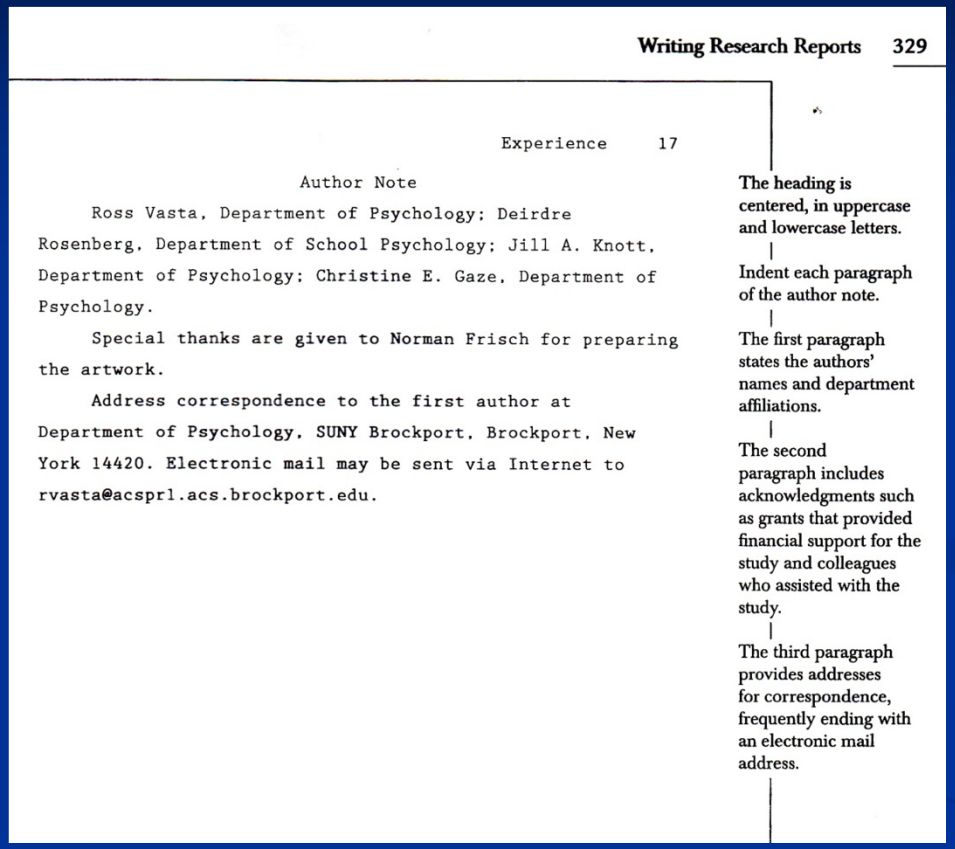
Vasta, R., Lightfoot, C., & Cox, B. D. (1993). Understanding gender differences on the water-level problem: The role of spatial perception. Merrill-Palmer Quarterly, 39, 391-414.

Structure of a Research Report *(continued)*

- **Author Note**
  - The author note includes:
    - Any sources of financial support for the research,
    - Acknowledgment of people who contributed to the research project,
    - Contact information should an interested reader desire more information,
    - The name and departmental affiliation of each author.

Sample Author Note Pages

See page 12 of Student sample report "The Effect"



Experience 17

Author Note

Ross Vasta, Department of Psychology; Deirdre Rosenberg, Department of School Psychology; Jill A. Knott, Department of Psychology; Christine E. Gaze, Department of Psychology.

Special thanks are given to Norman Frisch for preparing the artwork.

Address correspondence to the first author at Department of Psychology, SUNY Brockport, Brockport, New York 14420. Electronic mail may be sent via Internet to rvasta@acsprl.acs.brockport.edu.

The heading is centered, in uppercase and lowercase letters.

Indent each paragraph of the author note.

The first paragraph states the authors' names and department affiliations.

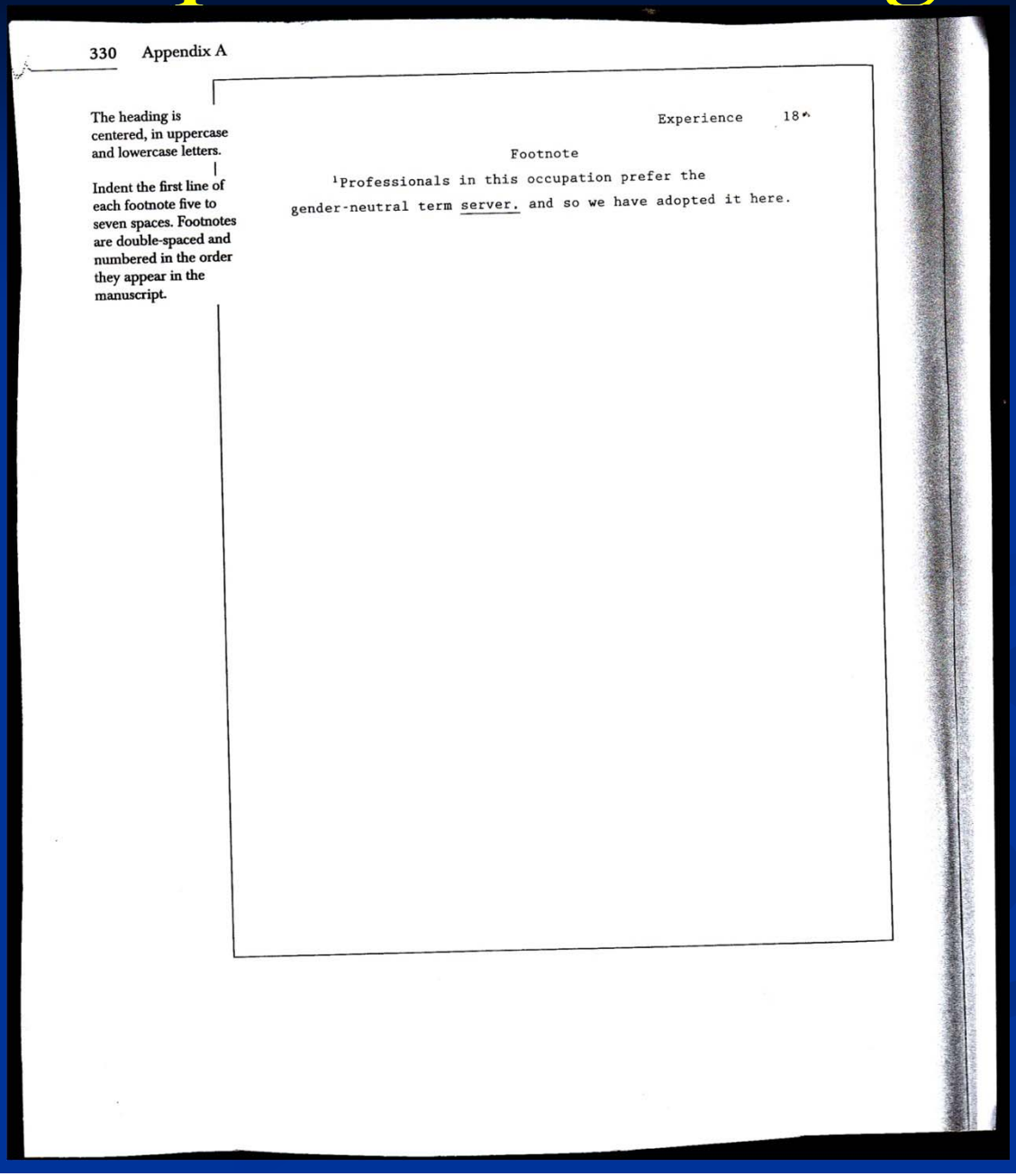
The second paragraph includes acknowledgments such as grants that provided financial support for the study and colleagues who assisted with the study.

The third paragraph provides addresses for correspondence, frequently ending with an electronic mail address.

Structure of a Research Report *(continued)*

- **Footnotes**
  - Footnotes are rare in research manuscripts.
  - There are two types of footnotes:
    - Copyright permission footnotes that acknowledge a source of a quotation (when copyright permission must be acknowledged).
    - Content footnotes that supplement or expand on the text material
  - Note that footnotes appear on a separate page near the end of the manuscript, not at the bottom of a text page.

Sample Footnote Pages



330 Appendix A

The heading is centered, in uppercase and lowercase letters.

Indent the first line of each footnote five to seven spaces. Footnotes are double-spaced and numbered in the order they appear in the manuscript.

Experience 18

Footnote

[1]Professionals in this occupation prefer the gender-neutral term server. and so we have adopted it here.

Structure of a Research Report *(continued)*

- **Tables and Figures**
  - Any tables or figures cited in the text are attached at the end of the research manuscript.
  - Place only one table or figure on a page.
  - If figures are included, a separate "Figure Captions" page precedes the figures; the titles of the figures are presented on the page.

Sample Table Pages

See page 13 of Student sample report "The Effect"

Experience 19

Table 1

Demographic Variables Characterizing Participants Selected for Inclusion in the Research

Occupation and gender	n	Age	Education	Job experience
Bartender				
Female	10	34.1 (24-46)	14.0 (12-16)	11.4 (5-20)
Male	10	33.0 (26-43)	14.2 (12-16)	10.3 (5-20)
Server				
Female	10	32.7 (23-49)	14.0 (12-16)	11.9 (5-30)
Male	10	32.3 (24-46)	14.3 (12-16)	11.9 (5-20)

(table continues)

Each table is typed on a new page. Use Arabic, not Roman, numerals to number your tables.

Type the title of the table flush to the left margin, underlined, with major terms capitalized.

Note that only horizontal lines are used to separate sections of the table.

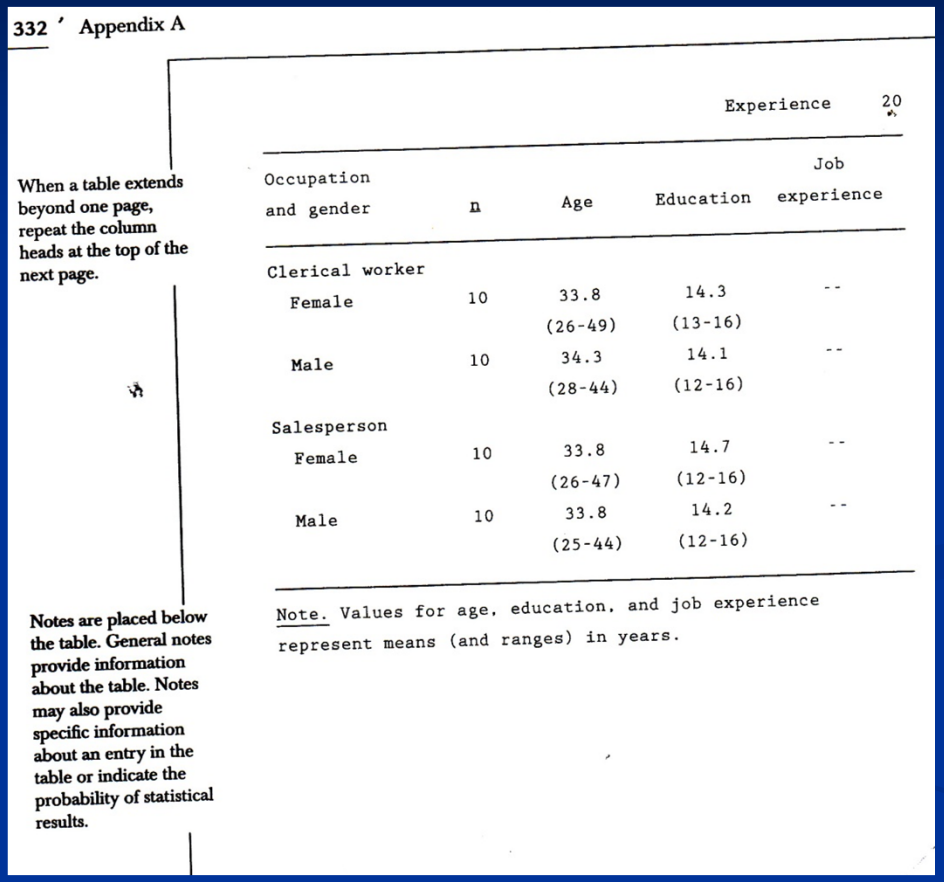
Double-space the entire table, including the title, headings, and notes.

Headings in the table are typed in sentence style, with only the first letter of the first word in capitals.

Design your table to fit your data. The table does not need to span across the entire page.

If the table does not fit on one page, do not single-space or use smaller type fonts to reduce the size of the table. Instead, type (table continues) in the bottom right-hand corner of the page.

Sample Table Pages



When a table extends beyond one page, repeat the column heads at the top of the next page.

Experience 20

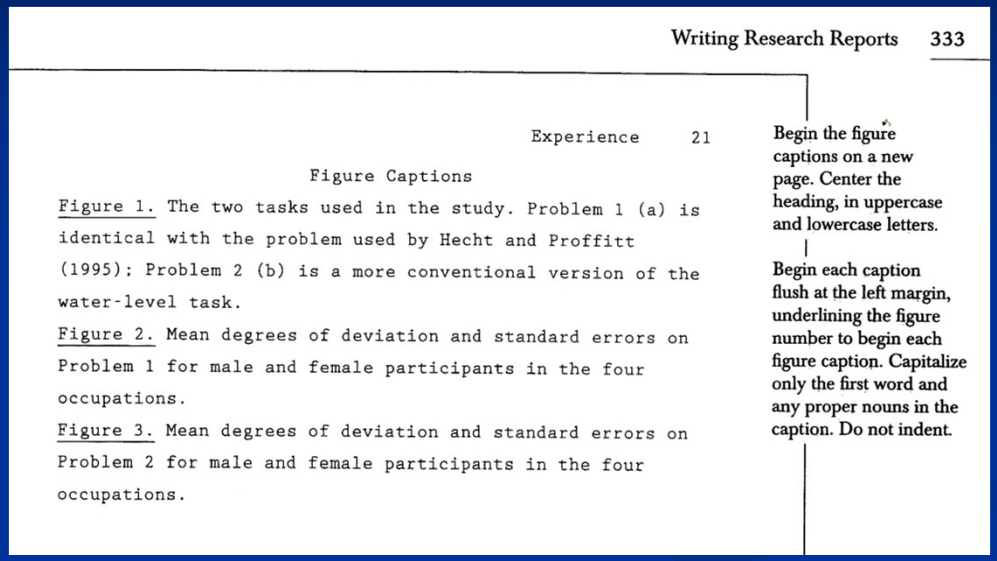
Occupation and gender	n	Age	Education	Job experience
Clerical worker				
Female	10	33.8 (26-49)	14.3 (13-16)	--
Male	10	34.3 (28-44)	14.1 (12-16)	--
Salesperson				
Female	10	33.8 (26-47)	14.7 (12-16)	--
Male	10	33.8 (25-44)	14.2 (12-16)	--

Note. Values for age, education, and job experience represent means (and ranges) in years.

Notes are placed below the table. General notes provide information about the table. Notes may also provide specific information about an entry in the table or indicate the probability of statistical results.

Sample Figure Captions Pages

See page 14-15 of Student sample report "The Effect"



Experience 21

Figure Captions

Figure 1. The two tasks used in the study. Problem 1 (a) is identical with the problem used by Hecht and Proffitt (1995); Problem 2 (b) is a more conventional version of the water-level task.

Figure 2. Mean degrees of deviation and standard errors on Problem 1 for male and female participants in the four occupations.

Figure 3. Mean degrees of deviation and standard errors on Problem 2 for male and female participants in the four occupations.

Begin the figure captions on a new page. Center the heading, in uppercase and lowercase letters.

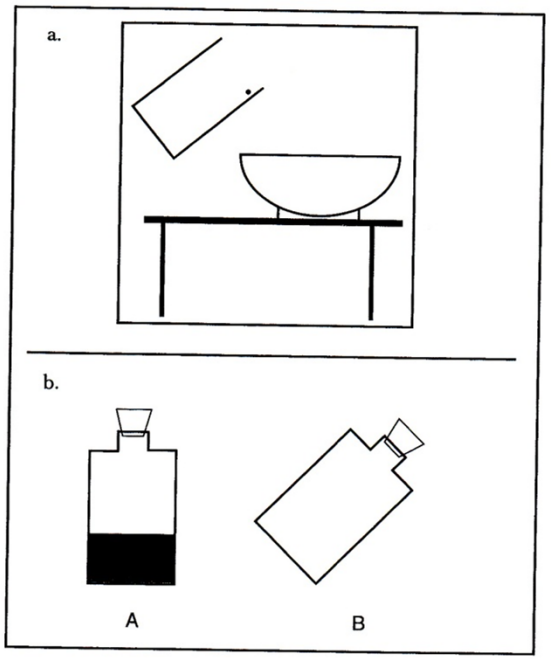
Begin each caption flush at the left margin, underlining the figure number to begin each figure caption. Capitalize only the first word and any proper nouns in the caption. Do not indent.

Sample Figures Pages

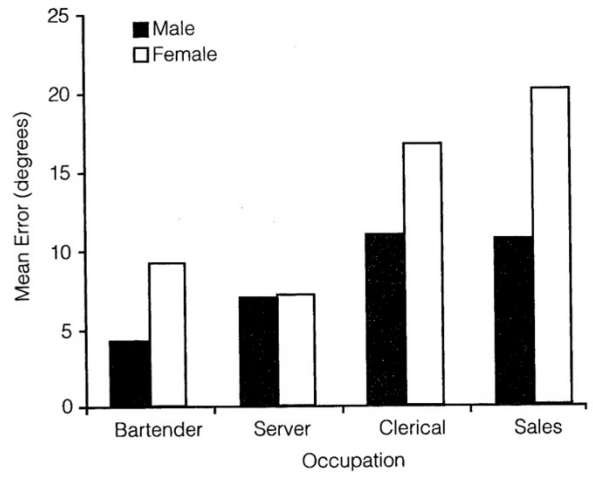
Place each figure on a separate page.

Pages on which figures are drawn are not numbered, nor is there a page identification. To identify the figure, write the figure number in pencil on the back of the page.

This diagram is Figure 1.



Sample Figures Pages



Include all necessary labels for interpreting the figure, including labels for each axis and the legend.

As in all graphs, the independent variable is placed on the horizontal axis, and the dependent variable is placed on the vertical axis.

This graph is Figure 2.