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DEVELOPING A RESEARCH QUESTION AND UNDERSTANDING RESEARCH REPORTS

2A: HOW TO READ EMPIRICAL JOURNAL ARTICLES

Published journal articles in psychology have a particular format that allows readers to find the information they are looking for and makes the study report clearer to the readers. Most articles will follow American Psychological Association (APA)-style guidelines, organizing the paper into the following major sections:

- Abstract
- Introduction
- Method
- Results
- Discussion
- References

We'll discuss each of the sections to familiarize you with the information you can expect to find in these sections.

Abstract

An abstract is a concise summary of the study that includes the purpose, method, main results, and conclusions of the study. The abstract must be short (under 120 words for APA style), because the abstract will be entered into the PsycINFO database to provide researchers with enough information to decide if the article is relevant to their interests. The abstract is usually the first (and possibly the only) portion of the article that a reader will encounter. It is printed at the top of the first page of the article.

Introduction

The introduction contains a lot of important information about the background and motivation for the study. A well-written introduction will begin by introducing the general topic of the study (i.e., the research question) and defining any specialized terms. The author(s) will then review what is already known about the research question by discussing past studies conducted in the area, the results found, and the relevance of each study to the current study described in the article. The author(s) will also describe the purpose or motivation for the current study, explaining why it was done and how the design used allowed them to answer the research question. In most cases, hypotheses will also be stated according to the specific results that were expected for the study.

A well-written introduction will make a clear argument for why the study is important. A reader should be able to find the argument for the study's purpose and the support provided by the author(s) in the form of a research question that has not yet been fully addressed by past studies in the topic area.

Method

The method section is a detailed description of the design and methodology of the study. It is divided into four main subsections: participants, design, materials or apparatus, and procedure. Some articles may combine some of these subsections into a single section (e.g., design and materials as one section). The goal of the method section is to allow someone to replicate the important elements of the study if they wish to do so.

Participants: This section describes the important characteristics of the participants in the study. The information should include the number of participants, important demographic information, number of participants per condition, where participants were sampled from, and compensation provided for the participants.

Design: If a separate design section is included, it will describe the variables that were manipulated and/or measured in the study. If the study is an experiment, level of the independent variables will be described and how the variables were manipulated will also be included (e.g., within subjects, between subjects).

Materials or Apparatus: The materials or apparatus section will describe the relevant materials or apparatus used for the study. Examples include specialized apparatus used for the study, computers used to present stimuli or collect responses, stimuli presented to the participants and how they were developed, questionnaires given to participants and relevant information about them, and so on. Sometimes the actual items used will be presented in an appendix that is referred to in the materials section.

Procedure: The procedure section should provide a chronological ordering of what the participants experienced during the study, including instructions for the tasks, what they saw or read, timing of presentation or task completion, what task they performed, what responses were collected from them, different conditions of the study and how participants were assigned to the conditions, and so on.

Results

The results section will include an objective report of the results found in the study. This section should include a description of the data collected and the statistical tests used to analyze the data. Summary information about the data will also be included either within the text or in tables or graphs that are referred to in the results section. Statistical test results and values will also be included in the text.

Discussion

The discussion section should review hypotheses (if they were stated in the introduction) and discuss the results in reference to the original research question. It should be clear from the discussion section what answer to the research question was provided by the study. A comparison with results of past studies will also be included, and possible explanations for discrepant or unexpected results should be provided by the author(s). The author(s) may also suggest directions for future studies in the topic area.

References

Every past study cited in the paper should be included in the references section of the article in alphabetical order. If you are researching studies in a particular area, the references section can be useful in providing leads to other relevant articles in a particular topic area. Each reference will include the authors' last names and initials in the order of authorship on the paper (this order is important; it usually indicates the order of contribution to the published article), the year the article was published, the title of the article, the journal it was published in, and the volume and page numbers of the journal.

Multiple Study or Experiment Articles

Many articles published in psychology contain more than one study or experiment. For those articles, you are likely to see a separate method and results section for each article but just one introduction and one general discussion section that tie the whole article together.

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2B: READING JOURNAL ARTICLES— MUELLER AND OPPENHEIMER (2014)

This exercise accompanies a reading of the following:

Mueller, P. A., & Oppenheimer, D. M. (2014). The pen is mightier than the keyboard: Advantages of longhand over laptop notetaking. *Psychological Science*, 25, 1159–1168.

Please answer the following questions about the Mueller and Oppenheimer (2014) article (you must read through the article before you begin this assignment—the reference to the article has been provided, and the article can be found on the SAGE Student Site). For each question, indicate which section of the article (e.g., introduction, method) the information was in.

1. State the research question.
2. Discuss some of the past research regarding hand note taking versus laptop note taking. Which is more advantageous to learning? (*Hint: All researchers may not agree.*)
3. Do the researchers state a specific hypothesis? If so, what is it? If not, what is your hypothesis (or prediction)?
4. Study 1: How did the researchers design the experiment to answer their research question? (This can be found in the method section.)
5. What change in methodology did the researchers make from Study 1 to Study 2? Why?
6. Was the change (from Question 5) effective in answering their follow-up question?
7. What were some possible limitations of Study 2, and how did they design Study 3 to alleviate those limitations?
8. Briefly summarize the main (and important) findings from Study 1, Study 2, and Study 3.
9. Overall, what do the results suggest for note taking?
10. What are some real-world applications of this study, and how can students use this information for their own learning?

2C: READING JOURNAL ARTICLES— ROEDIGER AND KARPICKE (2006)

This exercise accompanies a reading of the following:

Roediger, H. L., III, & Karpicke, J. D. (2006). Test-enhanced learning: Taking memory tests improves long-term retention. *Psychological Science*, 17, 249–255.

Please answer the following questions about the Roediger and Karpicke (2006) article (you must read through the article before you begin this assignment—the reference to the article is provided, and the article can be found on the SAGE Student Site).

1. The research question addressed in this study is this:
 - a. Of all study techniques, which is the best?
 - b. Which study technique do students use most often?
 - c. Which study technique is better: rereading or recalling?
 - d. Which information is better remembered: a story about otters or a story about the sun?
2. The researchers' hypothesis in this study is this:
 - a. Information about otters will be remembered better than information about the sun.
 - b. Recalling information will result in better memory than rereading the information.
 - c. Rereading information will result in better memory than recalling information.
 - d. None of the above.
3. Learning condition in Experiment 1 was manipulated within subjects. This means that _____.
 - a. all subjects received both the rereading and recalling learning conditions
 - b. subjects only completed either the rereading or the recalling learning condition
 - c. subjects did not receive either of these conditions in the study
4. The main results of Experiment 1 were that _____.
 - a. recall for the otter passage was higher than recall for the sun passage
 - b. recall was higher when subjects recalled the passage than when they reread the passage before the final test for all test delays
 - c. subjects recalled more about the passage they found more interesting
 - d. recall was higher when subjects recalled the passage than when they reread the passage before the final test—but only for test delays greater than 5 min
5. Experiment 2 was conducted to _____.
 - a. replicate the results of Experiment 1
 - b. generalize the results of Experiment 1 to new passages
 - c. examine effects of taking multiple tests between study and the final test
 - d. both a and c

6. The results of Experiment 2 showed that _____.
 - a. recalling the passages always resulted in better memory than rereading them
 - b. repeated tests of the passages resulted in less forgetting over the 1-week delay than the other learning conditions
 - c. subjects recalled less information when the passages were changed

7. The primary conclusion from this study is that _____.
 - a. people remember more about animals than other topics
 - b. recalling information will help you remember better than rereading it over the long term
 - c. the best study technique for students seems to be rereading their notes
 - d. all of the above

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2D: REVIEWING THE LITERATURE

1. How does an empirical journal article differ from a popular magazine article (e.g., an article in *Time* magazine)? Who is the intended audience of empirical journal articles in psychology?
2. Describe how you might use PsycINFO to conduct a literature review on the topic of obesity stereotypes and biases. Describe the steps you would take to collect relevant articles for your literature review and what you might expect to find at each step.
3. Using PsycINFO, find an article authored by Larry L. Jacoby that was published in 1991, and then write the APA-style reference for the article.
4. Using PsycINFO, find a recent article (2014–2019) that examines the relationship between violence on TV and violent behavior in children. Write the APA-style reference for the article.
5. You've probably heard the saying "opposites attract." This is really a hypothesis about what people are attracted to, and research in psychology has attempted to test this hypothesis. For this exercise, you will search for studies that tested this hypothesis. However, before you begin, you must first convert the saying into a research question about behavior.
 - a. State the research question for this saying in terms of behavior that might be examined in a research study.
 - b. Using your research question to develop keywords (do NOT type in the saying), conduct a literature search using PsycINFO to find one article that provides empirical evidence that either supports or does not support the hypothesis. In your own words, write a paragraph indicating why you think the article supports or does not support the hypothesis. Attach a copy of the abstract of the article, and describe how you conducted your search.
 - c. Describe how the empirical evidence you found could be used by companies that run dating sites (e.g., match.com) to help their clients identify potential dating partners.

2E: CREATING REFERENCES

For the following PsycINFO references, retype each one in APA style.

1. Voss, Joel L; Paller, Ken A. Neural correlates of conceptual implicit memory and their contamination of putative neural correlates of explicit memory. [References]. [Journal; Peer Reviewed Journal] *Learning & Memory*. Vol 14(1-6) Jan-Jun 2007, 259-267. Year of Publication 2007
2. Carnagey, Nicholas L; Anderson, Craig A; Bushman, Brad J. The effect of video game violence on physiological desensitization to real-life violence. [References]. [Journal; Peer Reviewed Journal] *Journal of Experimental Social Psychology*. Vol 43(3) May 2007, -496. Year of Publication 2007
3. Blass, Thomas. Understanding behavior in the Milgram obedience experiment: The role of personality, situations, and their interactions. [References]. [Journal; Peer Reviewed Journal] *Journal of Personality and Social Psychology*. Vol 60(3) Mar 1991, 398-413. Year of Publication 1991
4. Wagman, Jeffrey B; Malek, Eric A. Perception of Whether an Object Can Be Carried Through an Aperture Depends on Anticipated Speed. [References]. [Journal; Peer Reviewed Journal] *Experimental Psychology*. Vol 54(1) 2007, 54-61. Year of Publication 2007
5. Meyers, Adena B; Landau, Steven. Best Practices in School-Based Sexuality Education and Pregnancy Prevention. [References]. [Book; Edited Book] Thomas, Alex (Ed); Grimes, Jeff (Ed). (2002). *Best practices in school psychology IV (Vol. 1, Vol. 2)*. (pp. 1523-1536). xv, 909 pp. Washington, DC, US: National Association of School Psychologists. Year of Publication 2002
6. McDaniel, Mark A; Einstein, Gilles O. Spontaneous Retrieval in Prospective Memory. [References]. [Book; Edited Book] Nairne, James S (Ed). (2007). *The foundations of remembering: Essays in honor of Henry L. Roediger, III*. (pp. 225-240). xi, 451 pp. New York, NY, US: Psychology Press. Year of Publication 2007

2F: APA STYLE

Identify as many APA-style errors as you can find in the following short paper.

The Survival Affect
In Free Recall

RUNNING HEAD: Survival Affect

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SURVIVAL AFFECT 2

Abstract

Memory for words studied in three different contexts was examined. In one study context, subjects rated items for their importance in surviving in the wilderness. In another context, subjects rated items for their importance in moving to another country. Finally, in the 3rd context, subjects rated the pleasantness of a list of items. Subjects then recalled the items in the list. Subjects were tested individually in a small lab room that measured 8 feet by 11 feet. Free recall results were very significant. Thus, the authors concluded that the survival affect is real. Further experiments confirmed this.

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Introduction

We tested whether items studied in a survival context are better remembered than items studied in other contexts. Previous studies (like Nairne et al., 2007) have suggested that a survival context can improve memory. These results support the proposal that memory developed to aid human survival. The current study tested this.

Method

Subjects

Students from a psychology course volunteered. There were twenty-three of them. It was for course credit. Three came on a Monday and the rest came on a Thursday. Some were assigned to each context condition.

Materials

The experiment occurred in a small lab room with white walls. The floor had gray carpeting. Subjects were tested individually in front of a computer. The experimenter told the subject that they would be rating items presented on the screen and then the instructions for one of the study contexts (survival, moving, pleasantness) were presented on the screen.

The items presented came from a norming study conducted in 2004 (Van Overschelde, Rawson, & Dunlosky). Each participant saw 44 items and rated each one according to the instructions. After the rating task, subjects were given a blank sheet of paper (8.5 inches by 11 inches) and asked to write down as many of the items as they remembered.

Procedure

Most of the procedure is described above. Items were presented for 4 seconds each in the rating task. Subjects were given 2 minutes to recall all the items in the list.

SURVIVAL AFFECT 4

Results

Table 1. The results were very significant. A statistical test showed that F was 6.78. This was a p less than .05 so our hypothesis was right. The means were 60% for survival, 52% for moving, and 53% for pleasantness. This shows that memory is important for survival.

Discussion

The experiment was designed well. We know this because our results showed significance. This tells us that experiencing things in a survival context can help our memory. This further proves that the purpose of memory is to help us survive. Future experiments can help prove this as well.

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Table 1 Mean Percentage of Items Recalled as a Function of Study Context

| <i>Study Context</i> | <i>Mean</i> |
|----------------------|-------------|
| Survival | 60 |
| Moving | 52 |
| Pleasantness | 53 |

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SURVIVAL AFFECT 6

References

- James S. Nairne, Sarah R. Thompson, and Josefa N. S. Pandeirada, (2007). Adaptive Memory: Survival Processing Enhances Retention. *Journal of Experimental Psychology: Learning, Memory and Cognition*, Volume 33, No. 2, pgs. 263-273.

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2G: APA-STYLE MANUSCRIPT CHECKLIST

Title Page

- Title
- Author(s)
- Affiliation(s)
- Running head
- Page number

Abstract

- Statement of the issue
- Brief hypothesis
- Brief description of the method
- Brief description of the results and conclusions

Introduction

- Problem of interest
- Link between problem and past research
- Summary of past research
- Description of the basic purpose of the current experiment
- Description of the hypotheses (conceptual-level independent variable and dependent variable)

Method

- Thorough description of the study
- Participant description
- Design—Independent variables and dependent variables, operational definitions
- Materials—Description of the stimuli
- Procedure—How the experiment was performed

Results

- Descriptive statistics
- What inferential statistics were used; what alpha level
- Results of the statistical analyses

Discussion

- Hypotheses that were supported or rejected
- Implications of the results

- Possible alternative explanations
- Future directions

References

- Are all the appropriate references cited?
- Are all the references cited in the text?
- Are the citations in the appropriate APA format?

Tables and Figures

- Each figure on a separate page
- Figures are clear and neat
- Tables follow APA-style guidelines
- Tables and figures cited in text

Writing

- Overall clarity
- Grammar
- Spelling
- APA format

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