**Demystifying Research Articles Tutorial**

**Objectives:**

In this tutorial you will learn how to:

* Identify the sections of a research article
* Explain the purpose and contents of each section
* Distinguish between different types of articles

**Why Research Articles Matter**

Research articles are an important part of a scholarly conversation among researchers in a field.

This conversation helps researchers find the best ideas from each other’s research papers to push research forward.

**Break It Down**

This tutorial will break down and identify the parts of a research article in order to help you read and understand them more easily.

**Academic Sources**

Research articles are important for college students because they contain the latest researches and advances in a field of study. Plus professors love it when you cite research articles. Some even require it.

**The online tutorial shows 3 salesmen talking about 3 kinds of articles to a student:**

Salesman #1: Hey, I’ve got a deal on top quality **scholarly articles.**

Salesman #2: Psst. I’ve got a line on some **peer-reviewed articles.**

Salesman #3: Top notch **journal articles**, right here!

Student: Stop! They’re all the same thing. And I can get them free from the library!

You may see references to peer-reviewed, scholarly, or research articles. Generally, these refer to the same type of article! Professors may use any of three names to describe these types of articles.

**Parts of an Article**

If you ever did a school science project, you may remember the different sections covered during the lab:

* Purpose
* Hypothesis
* Procedure
* Results
* Conclusions

The parts of a research article correspond to the parts of a science project. So you might think of a research articles as professional science projects.

**What’s in a Name? Title & Author**

Title and subtitle are listed first. Article titles can be quite long and oddly specific.

Authors: In most cases, lead researchers are listed before other contributors.

Example:

Dogs are sensitive to small variations of the Earth’s magnetic field

Vlastimil Hart, *et al*. *Et al* is a Latin phrase, meaning “and all” – this means Vlastimil Hart is the principal researcher and there were others who worked with him on this article.

Here is an acronym to help you remember the parts of a research article:

**AIM RAD**

Research articles are usually made up of parts like these…

A: Abstract

I: Introduction

M: Method

R: Results

A: and

D: Discussion

[Imagine a picture of a Skateboarding senior man: “Remember to AIM RAD!”]

**Abstract**

The Abstract is a short summary of the article which includes a brief description of each section.

Reading abstracts can be a great shortcut when deciding if an article suits your research.

**Example Citation and Abstract:**

Araujo, Astolfo G. Mello and José Carlos Marcelino. “The Role of Armadillos in the Movement of Archaeological Materials: An Experimental Approach.” *Geoarchaeology,* vol.18, no. 4, Apr. 2003, pp. 433–460. *Wiley Online Library.* doi:10.1002/gea.10070.

“Armadillos are medium-sized animals whose burrowing behavior can be significant in archaeological settings ranging from South America to the central United States. Although archaeologists are well aware that these animals can move archaeological materials across stratigraphic layers, few data are available about the magnitude of mixing, number of burrows per individual, dimension of burrows, and their impact on archaeological sites. This paper addresses the problem from an experimental perspective. Specifically, we monitored the action of the yellow armadillo (Euphractus sexcintus) in translocating cultural materials. Our results suggest that: (1) the vertical movement of artifacts has no preferential direction; (2) cultural horizons at least 20 cm apart can be mixed; (3) the animal's activity leaves some distinct traces that can be recognized during an excavation; and (4) there is no significant correlation between size, shape, or weight of artifacts and amount of displacement” (Araujo and Marcelino, 433).

**Introduction & Literature Review**

The **introduction** sets the stage for the research by discussing the kinds of questions that the researchers want to answer.

Authors search for similar research and add a **literature review,** where the authors take a look at related research. Well written literature reviews summarize other research and tie it to the research question or hypothesis used in the article.

**Example Citation and Introduction Section (Excerpt):**

Note how many prior research studies the first two paragraphs of this article consider.

Ghirlanda, Stefano, et al. "Chickens Prefer Beautiful Humans." *Human Nature,* vol. 13, no. 3, 13 Sept. 2002, pp. 383-389. *PubMed.* doi: 10.007/s12110-002-1021-6.

Introduction

A widespread idea about sexual signals is that they provide potential mates with detailed information about the signal bearer’s quality as a mate. Signaling of both phenotypic and genetic quality (for instance: lack of genetic defects, a good immune system) has been hypothesized (reviewed in Andersson, 1994). The hypothesis goes further in assuming that the natural receivers of a signal (that is, conspecifics of the opposite sex) possess a biological adaptation enabling them to decode the quality information contained in the signal. Such a mate-quality hypothesis has been often embraced in studies on humans (Cunningham, 1986; Perrett et al., 1998; Buss, 1999; Thornhill & Gangstad, 1999) whereas it remains controversial among biologists studying other species (see e.g. Palmer & Strobeck, 1997).

An alternative hypothesis (Enquist & Arak, 1998; Ryan, 1998) agrees that receivers get some information from sexual signals, e.g. about sex and age, but also claims that finer details of receiver preferences are due to biases inherent to nervous systems. For instance, preferences for exaggerated sex-typical traits (Keating, 1985; Gillen, 1981; Perrett et al, 1998; Rhodes et al., 2000) may follow from how the brain discriminates between the sexes (Enquist et al., 2002). Indeed, it is typical for biases to emerge as a by-product of some discrimination or recognition task. Such biases follow well-known empirical rules which are largely independent of the particular task at hand (that is whether a discrimination has been solved to obtain food, to escape a danger, or, in humans, simply to comply with the instructions of an experimental psychologist, see Purtle, 1973; Mackintosh 1974). (Ghirlanda, Jannson, and Enquist 383).

**Method**

In the **Method** section, the authors talk about the procedures they used in their research. This section may talk about sample size (number of participants included or samples tested), type of experiment, and may include a description of any instruments used (i.e. survey questions, observation criteria, specific tests).

Example Citation and Method Section (Brief Excerpt)

Teigen, Karl Halvor. "Is a Sigh “Just a Sigh”? Sighs as Emotional Signals and Responses to a Difficult Task." *Scandinavian Journal of Psychology*, vol. 49, no. 1, Feb. 2008, pp. 49-57. *Psychology and Behavioral Sciences Collection.* doi: 10.1111/j.1467-9450.2007.00599.x.

Methodology:

*Participants.* Participants were 75 students attending a course in introductory psychology at the University of Oslo, 15 men and 59 women (11 participants did not report sex), median age was 22 years…*Questionnaire.* All participants received a questionnaire containing two main tasks: (1) Semantic differential ratings (Osgood et al., 1957). The concept ‘sigh’ was to be rated on nine 7-point bipolar adjective scales (Teigen 51).

**Results Section**

**Results** of the research are reported here. This section is usually brief. It uses statistics, charts, data and graphs to describe the data in technical language.

For example, this article features a table from Ghirlanda and Jansson’s “Chickens Prefer Beautiful Humans,” which plots the “Proportion of Responses” by Humans and Chickens on the Y axis across a range of 7 different “Faces” on the X axis. The study authors include above this table an image of the 7 human faces tested.

**Discussion Section**

The **Discussion** section looks at the results in more depth. The researchers discuss the meaning of the research results and how that impacts their research theories.

It also highlights the **limitations** of the study, for example, deciding their research used too small sample sizes or was limited to only studying specific species.

Finally, the discussion **looks forward,** suggesting questions for further research – what should future researchers do?

Example Discussion:

Scholar #1: Yes, but why should I care who chickens prefer?

Scholar #2: But just think what this tells us about ducks?

**Bibliography**

This section lists articles, books, and other sources that were used to write the article.

This is a great place to find more articles, books, and research on the same subject.

**Example of Bibliography Section (Excerpt):**

**Article Citation:**

Reimers, Eigil, and Sindre Eftestøl. “Response Behaviors of Svalbard Reindeer Towards Humans and Humans Disguised as Polar Bears on Edgeøya”. *Arctic, Antarctic, and Alpine Research,* vol.44, no. 4, Nov. 2012, pp. 483–489. *JSTOR.* Doi: 10.1657/1938-4246-44.4.483.

Works Cited

Aars, J, et al. “Estimating the Barents Sea Polar Bear Subpopulation Size”. *Marine Mammal Science*, 2009, vol. 25, pp. 35-52.

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Alendal, E., et al. “Size and Composition of the Wild Reindeer (*Rangifer tarandus platyrhynchus*) Population in the Southeast Svalbard Nature Reserve”. *Holarctic Ecology*, vol. 2, pp. 101-107.

Berger, J., “Future Prey: Some Consequences of the Loss and Restoration of Large Mammalian Carnivores on Prey”. *Behavioral Ecology and Conservation Biology*, edited by T. Caro, Oxford U Press, 1998, pp. 80-100.

Berger, J., et al. “Recolonizing Carnivores and Native Prey: Conservation Lessons from Pleistocene Extinctions”. *Science*, 2001, vol. 291, pp. 1036-1039.

**Matching Exercise:**

**Try This! Identify the Parts**

Match each type of information with the part of a research article it belongs to. Match each letter on the right with a numbered item on the left. Type the letter to the left of each numbered item.

\_\_\_\_ 1. Introduction A. Number of participants

\_\_\_\_ 2. Method B. Statistical analysis

\_\_\_\_ 3. Discussion C. Hypothesis

\_\_\_\_ 4. Results D. Future research that should

be done

Answer Key:

1. C
2. A
3. D
4. B

**Ranking Articles Exercise**

**Try This!**

Erin is writing a research paper to answer the question: Are educational campaigns effective in reducing drunk driving in U.S. college students?

A search using the keywords: Education AND “drunk driving” returns the following results.

Read the 3 abstracts below. **Select the most useful article for Erin’s topic by circling Abstract 1, 2 or 3.**

**Abstract 1:**

**Schmitz, Aurinez R., et al. "Factors Associated with Recurrence of Alcohol-Related Traffic Violations in Southern Brazil." *Revista Brasileira De Psiquiatria*, vol. 36, no. 3, 2014, pp. 199-205. *Academic Search Complete*. doi: 10.1590/1516-4446-2013-1128.**

Objective: To analyze variables **associated** with **recurrence** of blood alcohol content (BAC)-related traffic violations among drivers in **southern Brazil.**

Method: This cross-sectional study included 12,204 driving-under-the-influence (DUI) offenders according to data provided by the Rio Grande do Sul state Transportation Department. Sociodemographic characteristics, license duration, license category, and psychological assessment results were analyzed. Drivers convicted of DUI more than once in 2009/2010 were considered recidivists. Variables were evaluated using descriptive statistical analysis and Poisson regression, adjusted by sex, age, and education level.

Results: A total of 538 (4.41%) drivers were considered recidivists. The following variables showed the strongest associations with recidivism: being aged 41-50 years (prevalence ratio [PR] = 3.41), being licensed for ≥ 12 years (PR = 1.86), being licensed for motorcycles, cars and trucks (PR = 1.36), having a license with psychological restrictions (PR = 1.33), and driving a truck or a similar vehicle at the moment of notification (PR = 1.08).

Conclusions: In the age group with the highest risk for **recurrence,** drivers showed a higher probability of having a diagnosis of alcohol dependence and other psychiatric comorbidities that hinder the control of alcohol use. Psychological assessments seem to be important in predicting repeat offenses, especially when limited aptitudes are suspected, and should therefore be better investigated (Aurinez, et al. 199).

**Abstract 1 Feedback: did you pick this one to be the best article for Erin?**

Incorrect. This article looks at factors that lead to repeated drunk driving offenses in Brazil. It does not relate to our topic at all.

If you wanted to improve your search results, you might add “college students” and “United States” to your keywords when you search.

**Abstract 2:**

**Will, Kelli England and Cynthia Shier Sabo. "Reinforcing Alcohol Prevention (RAP) Program: A Secondary School Curriculum to Combat Underage Drinking and Impaired Driving." *Journal of Alcohol & Drug Education*, vol. 54, no. 1, 2010, pp. 14-36.**

The **Reinforcing Alcohol Prevention** (RAP) Program is an **alcohol prevention** curriculum developed in partnership with secondary schools to serve their need for a brief, evidence-based, and straightforward program that aligned with state learning objectives. Program components included an educational lesson, video, and interactive activities delivered during a 90-minute period. RAP Program modules were delivered to 1,720 8th, 9th, and 10th graders at four schools during health courses. Dependent T-tests on a pre-post **alcohol**-related knowledge survey administered to a subset of classes (N = 668) indicated that students' knowledge and awareness of **alcohol**-related risks and consequences increased significantly from pretest (M = 84.96, SD = 8.87) to posttest (M = 97.25, SD = 12.39). The program was well received and showed statistically significant improvements in students' knowledge and awareness of **alcohol's** harmful effects (England and Sabo 14).

**Abstract 2 Feedback: Did you choose this abstract?**

This abstract does not quite cover what Erin hopes to find. This article looks at an education program for Junior High and High School students. So the topic and participant age group don’t quite match with the topic of educational campaign effectiveness among college students.

Notice that the article comes from the *Journal of Alcohol & Drug Education.* That journal may be a good one to search to find articles that more closely match the topic.

**Abstract 3:**

**Clapp, John D., et al. "Reducing DUI among US College Students: Results of an Environmental Prevention Trial." *Addiction,* vol. 100, no. 3, Mar. 2005, pp. 327-334. *CINAHL Complete*. doi: 10.1111/j.1360-0443.2004.00917.x.**

AIMS: Driving under the influence (**DUI**) of alcohol is among the most common and serious alcohol-related problems experienced by US **college** students. Community-based **prevention** trials using **environmental** approaches to **DUI prevention** have been effective in **reducing DUI.** Such interventions remain untested in **college** settings. This study is the first to test the efficacy of an **environmental** **prevention** campaign to reduce **DUI** among **college** students.

DESIGN: We used a quasi-experimental non-equivalent comparison group design to test the efficacy of the **DUI** **prevention** intervention. Students at the experimental university were exposed to a **DUI** **prevention** intervention that included a social marketing campaign, a media advocacy campaign and increased law enforcement (**DUI** checkpoints and roving **DUI** patrols).

SETTING: Students from two large public universities located along the US/Mexico border participated in the seven-semester study.

PARTICIPANTS: In total, 4832 **college** students took part.

MEASURES: Using telephone interviews of randomly selected students, we took pre- and post-intervention measures of self-reported **DUI.**

FINDINGS: Self-reported **DUI** (past year) decreased significantly from pre-test to post-test (odds ratio = 0.55) at the intervention school, whereas rates at the comparison campus remained stable. The campus-intervention interaction was statistically significant (P < 0.05), suggesting that the campaign led to the observed change in **DUI**.

CONCLUSIONS: **Environmental DUI** campaigns similar to those validated in community **prevention** trials can be effective in **college** settings. Further research, however, is needed to determine the robustness of the changes associated with such campaigns (Clapp, et al. 327).

**Article 3 Feedback: Did you pick this article for Erin’s research paper?**

Correct! This article presents results about the effectiveness of educational campaigns in combination with other measures to reduce drunk driving in college students.

Since this article looks at educational campaigns alongside other measures, you might check out the bibliography of this article to find related articles that test only educational campaigns.

Did you notice that each article had the various parts of a research paper we learned earlier, but sometimes used different words to label these parts? For example, the last article used the word, FINDINGS, instead of results? Although different words may be used, you can usually find the same type information in both Findings and Results sections.

Did you notice that article 2 contained all the article parts, but they were not labeled? This article, without the labels like Abstract or Method, is classified as an unstructured research article.

**Types of Articles**

**Other Types of Research Articles**

So far, we’ve looked at original research study articles. But there are other types of articles you might encounter, too.

* Critical Responses
* Historical Research
* Case Studies
* Meta-Analysis
* Literature Criticism

**Critical Responses**

This type of article is written to respond to arguments or findings in another article, book, or other body of work. Critical responses can even be written about an entire field of study or a group of researchers.

Example of a Critical Response:

Professor: “I disagree with Davenport’s findings! His sample size was far too small”.

**Historical Research**

Researchers look at original documents, photographs, and other sources in order to draw conclusions about the past. These types of articles are commonly written by historians, political scientists, or literary historians.

For example, imagine a researcher with an ancient vase and a plate of feta cheese with the following caption:

“This cheese vase proves that the Greeks made feta some 200 years before we originally thought”.

**Case Studies**

Case studies look at individual persons or groups (like all teenagers who are male). They can give researchers an idea of the course of a disease or the effect of treatment in a single person or demographic group. These are common in the fields of medicine and the social sciences.

Example of a Case Study: This study examines the case of a 24 year-old woman who believes that she disappears in the presence of orange juice.

**Meta-Analysis**

This type study takes a look at the results of many research or case studies on a single topic. These researchers are usually looking for some consensus among the studies. The sciences, business, and medicine frequently have these types of articles.

Example Meta-Analysis: “Trix are for Kids: A Meta-Analysis of the Effects of Advertising on Children’s Eating Habits.”

**Recap:**

In this tutorial you have learned to:

* Identify the parts of a research article
* Explain the purpose of each section
* Distinguish between different types of articles

**Quiz: Demystifying Research Articles**

The following quiz consists of 10 multiple choice questions. Each question is worth 10 points.

Choose the best answer and type the letter for this answer in the blank by each quiz question.

\_\_\_\_ 1. Research articles are important for college students to use because:

1. They contain the latest research and advances in a field of study
2. Professors are required to write research articles for their job security
3. They are different from peer-reviewed or scholarly articles
4. Scholarly conversations are not usually scientific

\_\_\_\_ 2. Which statement is **not** true about research articles?

1. Research articles contain the latest research and advances in a field of study
2. Procedures used by the authors are included in the research article
3. The abstract includes a brief description of all sections of the article
4. Research articles do not consider future research that should be done

\_\_\_\_ 3. Abstracts are helpful for your research because:

1. They include an in-depth analysis of the results of similar research studies
2. They are detailed discussions of the meanings of the study results
3. They detail the methods and participants employed by the researchers for the study
4. They are brief summaries that can help you determine what an article is about
5. None

\_\_\_\_ 4. The purpose of a works cited/bibliography is to:

1. Inform readers of the other articles that were consulted by the researchers
2. Give credit to the authors of studies and articles that were consulted
3. Show that the study was informed by research from other experts or researchers
4. All of the above

\_\_\_\_ 5. You are writing a paper about how exercise might help children with ADHD. Which of the following articles would be the most useful for your paper topic?

1. “Obsessive-Compulsive Disorder in Children
2. “Benefits of Physical Exercise in Developing Certain Fitness Levels in Children with Hyperactivity”
3. “The Psychophysiological and Health Corollaries of Child Problem Behaviours in Caregivers of Children with Autism and ADHD”
4. “Attention-deficit Hyperactivity Disorder (ADHD): An Updated Review of the Essential Facts”

\_\_\_\_ 6. The section of the article which may recommend more research on the same is the…

1. Method
2. Results
3. Discussion
4. Abstract

\_\_\_\_ 7. Quality research articles are…

1. Not free
2. Part of a scholarly conversation within a field
3. Only on serious topics
4. Not scholarly topics

\_\_\_\_ 8. The acronym AIM RAD stands for:

1. Articles are Interesting if they use Methods to Research and Design
2. Abstract, Introduction, Method, Ramifications And Discussion
3. Abstract, Introduction, Method, Results And Discussion
4. Abstract, Introduction, Method, Results Are Discussed

\_\_\_\_ 9. Other types of research articles listed in the tutorial included:

1. Case Responses
2. Meta Abstracts
3. Critical Responses
4. Historical Introductions

\_\_\_\_ 10. The article “Case studies in Elephant Noses” is an example of a:

1. Case Study
2. Review
3. Meta-Analysis
4. Critical Interpretation
5. Book Review

If you are required to turn in this quiz to your professor, please print by selecting FILE => PRINT. If you are required to email the quiz to your professor or upload it to Blackboard, please choose FILE => SAVE.

Answer Key:

1. A
2. D
3. D
4. D
5. B
6. C
7. B
8. C
9. C
10. A

Works Cited

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