

## **Lesson Plan 1: Research paper Writing: An Overview**

### **Objectives:**

- SWBAT identify parts that comprise a scientific research paper
- SWBAT understand some different ways scientists develop ideas for their research
- SWBAT understand the advantages of conducting a literature search
- SWBAT understand the process of writing a research paper
- SWBAT understand what to include/exclude in the various sections of a research paper (introduction, method, results, discussion, references)
- SWBAT see an example of an actual completed research paper

**Lesson Duration:** 40 minutes

**Aim:** What is the process of writing a scientific research paper?

### **Materials:**

- Lesson plan
- laptop and projector
- PowerPoint lecture (*Research Paper Writing: An Overview*)
- an example of a completed research paper from internet

### **Procedure:**

#### **PowerPoint Lecture--*Research Paper Writing: An Overview***

- 1) The parts of a research paper are: title page, abstract, introduction, method, results, discussion, references.
- 2) Conducting Research: Where to start? Give suggestions for formulating a research question
  - Read, Observe, Relax, Feel good about your topic
- 3) Explain that before finalizing a research topic, conducting a literature search first has many advantages
  - Answer may already be known
  - Your own research is improved
  - Connects you with others in scientific community
  - Shows the history of topics
  - Potential for replicating previous work
  - Reap benefits accumulating knowledge
- 4) Explain that conducting and writing research is not a linear process and give tips on how to approach this process
- 5) Review each major section of the research paper (Introduction, Method, Results, Discussion), explain what to include/exclude in each section and give some suggestions

6) Give some take-home writing suggestions and tips:

- Practice good time management
- Find a peaceful environment to write
- Save what you write
- Drafts and revisions
- Check and edit
- Try to enjoy the process

**Lesson Illustration:**

Show class an example of an actual completed research paper (from internet) while scrolling through various sections

# Research Paper Writing: An Overview

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# Parts of a Research Paper

- Title page
- Abstract
- Introduction
- Method
- Results
- Discussion
- References

# Conducting Research: Where to start?

- 4 suggestions for deciding on a research idea/question
  - *Read* textbooks and articles with a critical eye and jot down points that were unclear to you
  - *Observe* the behavior of others around you
  - *Relax*: Sometimes ideas come about spontaneously
  - *Feel good about your topic!* Be motivated and enthusiastic about what you plan to research



Basic Research sometimes stems from natural curiosity

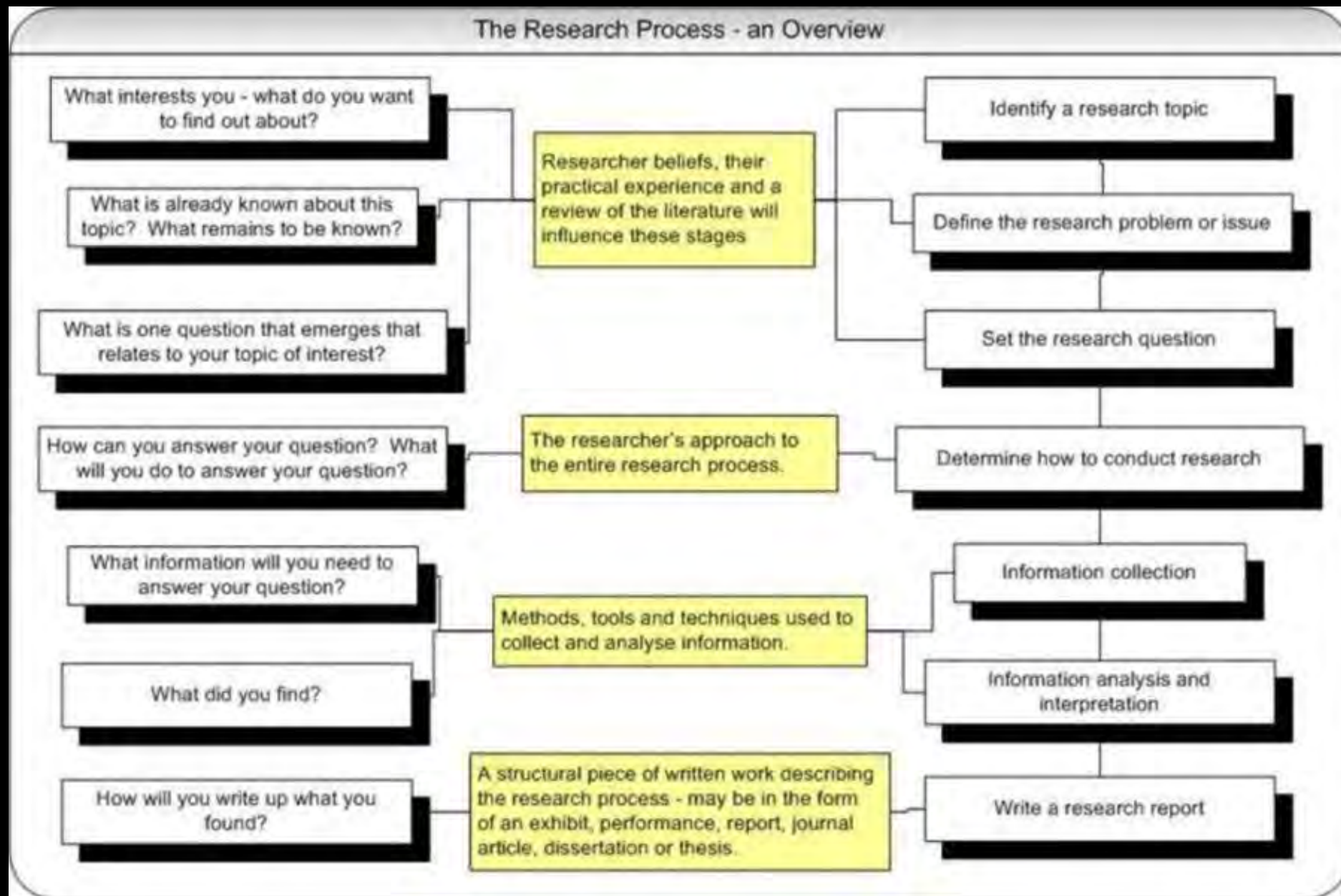
# Advantages of a Literature Search

- Answer may already be known
- Your own research is improved
- Connects you with others
- Shows the history of topics
- Replicates previous work
- You reap the benefits

# Your Research Report

- Research is not a linear process!
- Some helpful hints
  - Write *Method* section first
  - Go back and write the *Introduction*
  - Start experiment
  - Analyze data and write *Results* section
  - Write *Discussion* section, revise *Introduction*
  - Make sure entire research paper tells a story





# The Research Process

# Introduction

- State research problem
- Write lit. review examining this problem
- State the void in the literature
- Write about your own research question and how investigating it would add to the literature
- State your hypothesis (non-directional/directional)
- Cite literature that may support your hypothesis

# Method Section

- Skeleton for the rest of the paper
- 3 Subsections
  - Participants
  - Materials
  - Procedure

# Results Section

- Write results plainly, clearly and objectively
- Do not make any arguments about what you've found in this section
- Tables and figures: Don't use redundant data--Include them only to add/clarify results

# Discussion Section

- One of the most difficult sections to write
- “leaves you free to examine, interpret and qualify the results, as well as to draw inferences from them” (*APA Publication Manual*, p. 26)
- Forces you to step back from your data and look at the big picture
  - include limitations of study

# Citations & References

- Reference List (for journal articles)
  - Please refer to notes on how to cite references in APA format
- Citations (in-text)
  - Walker (2000) compared reaction times
  - In 2000 Walker compared reaction times
  - In a recent study of reaction times, Walker (2000) described the method...Walker also found

# Writing Tips

- Practice good time management
- Peaceful writing environment
- Save what you write!
- Drafts and revisions
- Check and edit
- Try to enjoy the process!

## **Lesson Plan 2: Research Paper Writing: An Overview**

### **Objectives:**

- SWBAT identify 3 goals of the Introduction section of a research paper (introduce problem, develop literature review, research plan)
- SWBAT understand how to introduce the research problem
- SWBAT understand how to develop the literature review
- SWBAT understand what to include in the research plan
- SWBAT understand what to include in the Method section of a research paper (participants, materials, procedure)

**Lesson Duration:** 40 minutes

**Aim:** How do we approach writing the Introduction and Method sections for the research paper?

### **Materials:**

- Lesson plan
- laptop and projector
- PowerPoint lecture (*Introduction and Method Sections*)

### **Procedure:**

- The 3 goals of the Introduction section:
  - Introduce the problem
  - Develop the background,
  - State the purpose and rational of your project
- 1) Introducing the Problem:
  - Introduction tells the story of why you're interested in your research topic
  - Why do you think others will find your topic important?
  - What is the previous research on this topic?
  - How will your research contribute to the literature?
- 2) Developing the Literature Review
  - Read articles and make brief outline for each article
  - Take note of any controversies/conflicting arguments about research topic in literature and discuss in paper
- 3) State purpose: Describe research plan
  - Briefly describe methods
  - Describe hypotheses, IV and DV, experimental design and expected results
  - Helpful hint if stuck: Look at other research articles as a guide
- Method Section: 3 Parts
  - Participants
  - Apparatus/Materials



## -Procedure

- 1) Explain that the participant section must include demographic characteristics of participants in study, selection and recruitment criteria, mention of how participants were compensated for their time and participation and how informed consent was obtained.
- 2) Review what should be included in apparatus/materials section (i.e. test instruments, surveys, recording devices used and setting research was conducted)
- 3) Define procedure as a “verbal or graphic timeline” of events that took place in research study, and emphasize how important it is to be explicit in description. Include:
  - Experimental design
  - IV and DV
  - Assignment of participants to conditions

Homework: Students will be assigned to begin writing the Introduction and Method sections of their research paper

# Introduction and Method Sections

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# Composing the Introduction



# Composing the Introduction: Three Goals

- Introduce the problem
- Develop the background
- State the purpose and rationale of your project

# Introducing the Problem

- Introduction: Tells the story of why you are interested in your research topic
- Think: How did you and your topic find each other?
- Do you think others will find your topic important? Why?
- What is the previous research on this topic?
- How will your research contribute to the literature?

# Develop your Literature Review

- Read the articles you've searched
- Make a brief outline for each article: hypothesis, method, results, conclusion
- Which articles are the most relevant to your research project?
- Are there any controversies?
- Are there any differences in argument about your topic? Describe these differences in your paper.

# Describe your Research Plan

- Give an overview of your Method section
- Briefly describe your hypotheses, the IV and DV, expected results and what your interpretation of your results are
- Are you stuck? Look at other research articles as a guideline for the flow of the introduction

# The Method Section





# Method Section

- Participants
- Apparatus or Materials
- Procedure

# Participants

- Who will they be?
- Describe particular demographic characteristics
- How will you select and recruit them?
- Will you offer incentives or compensation for their participation?
- How will you obtain informed consent?

# Apparatus/Materials

- List and describe all the materials that was needed to conduct your research project
  - include test instruments, surveys/questionnaires
  - include recording devices: video camera, audio tape recorder
- Include test setting: i.e. laboratory, classroom, outdoors

# Procedure

- “Verbal or graphic timeline”
- Chronicles the sequence of events that took place in your study
- Include the following design information: IV, DV, how you assigned participants to conditions, experimental design
- Be very specific in your description

# Reference

- American Psychological Association. (2001). *Publication Manual of the American Psychological Association* (5th ed.). Washington, DC.

## **Lesson Plan: Curriculum Vitae Preparation**

### **Objectives:**

- SWBAT define what a CV is
- SWBAT understand some different ways to add value to their resume
- SWBAT understand what to include/exclude in the various sections of their CV
- SWBAT understand the process of writing a research paper
- SWBAT understand what to include/exclude in the various sections of a research paper (introduction, method, results, discussion, references)
- SWBAT see an example of a CV template

**Lesson Duration:** 40 minutes

**Aim:** What is the process of writing an academic resume (CV)?

### **Materials:**

- Lesson plan
- laptop and projector,
- PowerPoint lecture (*CV Preparation*)

### **Procedure**

#### **PowerPoint Lecture--*CV Preparation***

- 1) Define what a curriculum vitae is, it's purpose and who should be involved in writing it.
- 2) Describe ways in which one can add value to his/her CV (i.e. internships, extracurricular activities, volunteer experience, and membership in professional organizations)
- 3) Give Do's, Don'ts, and other helpful tips for a successful CV, as outlined in the powerpoint.

**Homework:** Students will be assigned to construct a draft of a CV, which will be due the following class meeting.

# CV Preparation

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# What is a CV?

- ❖ CV stands for *curriculum vitae*, which means “course of life”
- ❖ Is a “marketing brochure” that tells your prospective employer about your skills
- ❖ Academic resume that includes all accomplishments and experiences that are relevant to your current academic objective
- ❖ A good CV increases chances of interview



# Who should Write your cv?

- ❖ YOU!! You are the only person capable of representing yourself in the best way
- ❖ Of course, have professionals (i.e. teachers) give you tips and proofread your CV while working on it

# ways to add value to your cv

- ❖ Internships (i.e. research lab)
- ❖ Extracurricular activities or clubs (i.e. Psych Club, Biology Club, Political Science Club)
- ❖ Volunteer experience (i.e. nursing home, senior citizen center, daycare)
- ❖ Membership in at least *one* professional organization in your field
  - ❖ APA (American Psychological Association)
  - ❖ AIBS (American Institute for Biological Sciences)



# cv writing: do's and don'ts

## ◆ Do's:

- ◆ Write in short, crisp phrases and sentences
- ◆ Keep it neat. Be consistent with formatting and spacing.
- ◆ Use standard font types that are easy to read (i.e. Times New Roman, Helvetica, Arial)
- ◆ Be very detailed in describing responsibilities for each position you held (numbers are impressive)
- ◆ Use impactful words that demonstrate that your leadership skills (i.e. managed, counseled, achieved)

# cv writing: do's and don'ts

## ◆ Do's:

- ◆ Put your contact details at the very top of the document (name, address, phone #, email address)
- ◆ Highlight achievements at the right place (i.e. poster presentations should have its own heading, and not listed under "Education")
- ◆ Check for spelling and grammar
- ◆ Have a teacher proofread your CV



# don'ts

## ❖ Don't:

- ❖ Give a heading. Don't write Resume or CV on top
- ❖ Use flashy fonts (*i.e.* Papyrus, Zapfino, Impact, Comic Sans)
- ❖ Use colored paper or colored text
- ❖ Use long sentences. Avoid using pronouns in the CV (*i.e.* I, me, my, he, she)

# don'ts

## ❖ Don't:

- ❖ Lie about your qualifications. Highlight your accomplishments, but do not be deceptive
- ❖ Use abbreviations in the CV. Only use acronyms after you write out the entire name of organization i.e. Brooklyn Academy of Science and the Environment (BASE)
- ❖ Use long sentences. Avoid using *first-person* pronouns in the CV (i.e. I, me, my)
- ❖ Use an explicit sounding or informal email address ([ditzzybritzy@xyz.com](mailto:ditzzybritzy@xyz.com); [iamsmart@xyz.com](mailto:iamsmart@xyz.com); [funnymonkey@xyz.com](mailto:funnymonkey@xyz.com)). Obtain a formal email address for professional use ([johnsmith@xyz.com](mailto:johnsmith@xyz.com); [jsmith@xyz.com](mailto:jsmith@xyz.com); or [john\\_smith@xyz.com](mailto:john_smith@xyz.com))



# other tips

- ❖ Do not include unnecessary experience (i.e. SS#, birthdate, elementary & JHS)
- ❖ Save your CV in a .doc format (instead of .docx or .pages)
- ❖ Update your CV as you obtain a new related experience
- ❖ For the future: Consider engaging in activities that are related to your goal to add experience to your CV
- ❖ Look at many good examples of CVs to help improve yours over time (i.e. word choice, formatting)

# Reference

❖ [www.careerride.com](http://www.careerride.com)