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## Intercollege Programs for Science Education

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## Director:

Dr. Peggy Taylor

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# Master of Science in Science Education Program

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# SUMMER COURSE PHOTOS



# End Product

# THE EFFECTS OF TEACHING THE NATURE OF SCIENCE ON HIGHER ORDER THINKING SKILLS IN A FRESHMEN LEVEL HIGH SCHOOL COURSE

by

Nicolai R. Love

A professional paper submitted in partial fulfillment of the requirements for the degree

Qf

Master of Science

in

Science Education

MONTANA STATE UNIVERSITY Bozeman, Montana

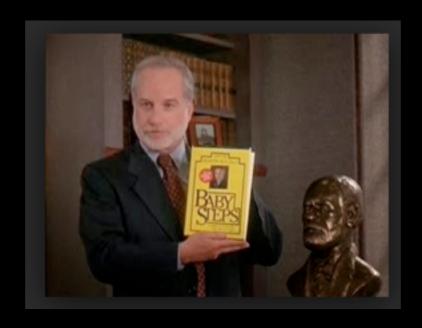
July 2014



# Introduction/ Background

Literature Review

Methodology



Data and Analysis

Interpretation

Values and Claims



## **MSSE**

## WRITING STYLE

## **WORKBOOK**

### Format Advisor

Diana Paterson, MSSE Associate Director dianap@montana.edu 406-994-5679



# MSSE WRITING STYLE WORKBOOK

The writing MSSE graduate students are required to complete must meet graduate level standards. The ability to communicate thoughts and results effectively in writing is an essential skill of all master level graduates. This document has been prepared by the MSSE Program office to specifically address issues of formatting and is designed to illustrate professional writing in graduate courses and the MSSE Capstone Paper. The general academic writing style is unique to MSSE because a combination of MSU Graduate School guidelines and APA guidelines are utilized. This document is always your FIRST reference for formatting guidelines. Keep it handy as you write.

Included in this workbook are formatting requirements and writing expectations for MSSE graduate students. Many of the guidelines pertain directly to the MSSE Capstone Paper; however, these recommendations and standards are expected in all graduate level writing.

# GENERAL WRITING GUIDELINES

# ACTION RESEARCH REFERENCE

When writing about your action research project, refer to it as a classroom research project based on the action research model or an action research-based classroom project. INTRODUCTION/BACKGROUND SECTION

If required, the introduction/background section of the paper should contain demographic information about the subjects of your study. Be sure to include a citation from a school website, a site such as city-data.com or personal communication from an administrator for data used in CONCEPTUAL FRAMEWORK (i.e. literature review)

The conceptual framework (i.e. literature review) should be based on modern and innovative approaches and ideas. It should be well documented with existing literature, including a review of current thinking relative to this topic, a synthesis of science and education information related

Sentences or phrases that end with a quotation mark, the punctuation is comma/question PUNCTUATION

mark/period/quote:

All students reported that they "greatly enjoyed the activity." or when asked, "What is

your favorite subject," nearly all students mentioned science.

Avoid the overuse of semicolons. Check the use of commas. Commas are used to separate

Acceptable: My students do labs, seatwork, and in-class readings (items in a list). items in a list and to separate two independent clauses. Acceptable: My students enjoy labs in which they are able to work in pairs, and they also enjoy those few times when they work alone on performance-based assessment skills

(two independent clauses).

Numbers in sentences must be spelled out if they are the number ten or under or if they begin a sentence. If a number larger than nine is used in a sentence, then you should use all numerals in NUMBERS the sentence. Never begin a sentence with a number that is a percentage.

Acceptable: Eight of my 10 students are female.

Acceptable: Of the 14 students in my class, 6 are males.

Acceptable: Forty percent of the students are male.

Not acceptable: I had 3 students miss the lab.

Not acceptable: 3 students are missing teeth.

Not acceptable: 30% of the students have red hair.

Page numbers may or may not be required for MSSE graduate writing, but are required in the MSSE Capstone Paper. If you choose to use page numbering in other graduate papers, the same PAGE NUMBERS formatting rules apply: numbers should be located at the top of the page and centered. Use the page numbering examples included in the Capstone paper as a guide.

# SPECIFIC CAPSTONE WRITING GUIDELINES

The following guidelines are specific to the MSSE Capstone Research Paper:

- 1. Start with clean, blank Word document. Go to PAGE LAYOUT tab. Select Margins and set margins to 1 inch for top margin, bottom margin, right margin and 1.5 inches left margin. Set font to Times New Roman 12 pt. Go to the "Paragraph" section and set the "Indent Left and Right" to 0 inches and the "Before and After Spacing" to 0 pt. Do not
- Complete the first draft of the basic components or body of the capstone paper. The basic components are the Introduction and Background, Conceptual Framework, Methodology, Data and Analysis, Interpretation and Conclusion, References Cited, and Appendices. The body of the capstone is continuous, therefore, do not start each basic component on a new page unless the previous component ends at the bottom of the page. A correctly formatted capstone paper with detailed instructions is included in this
  - 3. After the body of the capstone is drafted, begin working on the Front Matter of the capstone paper including the Title Page, Statement of Permission to Use, Dedication (\*Optional), Acknowledgement (\*Optional), Table of Contents, List of Tables, List of Figures, and Abstract. Manuscript Information Page is added ONLY if the capstone is being submitted to a peer-reviewed journal. Please see Appendix C for the requirements for the additional page that is added to the FRONT MATTER.

Now that the first draft of the capstone is complete, page numbers are added. The instructions for adding page numbers to the capstone paper are:

- Open the Capstone Draft document.
- Select and highlight only the Front Matter
- Click on Page Number ▼. Choose top of page "plain number 2" (centered). Click on INSERT tab. Choose Page Number again and scroll down to Format Page Number. Choose i, ii, iii  $\dots$  and the select "OK". Then select Header  $\blacktriangledown$  , the Edit Header, and choose a. Different 1st page. Close Header and Footer tab.

Set Margins to 1 in for top, bottom, right; 1.5 in for left margin. Set Header Margin to 1 in. First Page Different (no page number).

### BEGIN TITLE HERE IF IT REQUIRES THREE LINES

### TITLE OF CAPSTONE PAPER IN

### ALL CAPITAL LETTERS

Title of Paper in ALL CAPS, centered, doublespaced if more than one line.

by

Name

Your name is centered and format is First Middle Last Name.

Single-spaced

A professional paper submitted in partial fulfillment of the requirements for the degree

of

Master of Science

in

Science Education

Single-spaced

MONTANA STATE UNIVERSITY Bozeman, Montana

Month Year



In an effort to increase the quality of writing in the MSSE Program and to prepare you for the final Capstone Paper, everyone will participate in peer editing as assigned. When you are assigned to peer edit, please follow these procedures:

- Edit for both content and writing conventions.
- Use the Track Edit feature of Word when editing. If you aren't certain how to use it, do a YouTube search for track changes in word mac or track changes in word 2010

both are by Terry Jorgensen.

- Keep deadlines in mind. Since you know who is editing your paper, if there is a scheduling conflict by either party, try to work it out between you. As always, you can ask me for an extension. So, a typical assignment cycle might look like this: Sunday-Tuesday...work on 1st draft; Tuesday-Wednesday...submit to editors; Saturday...work on final draft based on editor feedback; Sunday...submit final and edited copies to the Dropbox by midnight.
- As the original author, take the feedback from your editors and prepare a final paper for submission. You are the final author and not all suggestions by peer editors are viable or correct. Be sure to ask John if you don't know.
- When posting your final paper to the Dropbox by midnight Sunday, include your paper and the two edited papers you received from your peers. You do NOT submit anything to me that you have edited.
- Use the Capstone Template, Capstone Guidelines, Model Capstone Paper and the Writing Expectations for specific formatting.
- Pay attention to detail. For example, there is a difference between the heading for a Table and the caption for a Figure. I suggest printing the sample pages from the Capstone Template and keeping them by your computer. Other examples include citations, the placement of periods/quotation marks and the spacing/indentation in the references section. Be diligent about correct formatting, including but limited to, margins, font type and size, etc.
- If you receive differing suggestions from your editors about the same thing, feel free to ask ME before the final submission of the paper for clarification. Simply drop me a mail message with the example in question.

On weeks that peer review is assigned, complete the Peer Editing component on the Discussion Rubric. You will receive credit for editing, so please take it seriously.

# Peer Review Lists

inotated Bi	ibliography					
	- 11 II					
Annotated	Bibliography					
	The editor	_	Paper to be		Paper to be	edit
	Andrew		Jeremy	_	Carli	
	Jerald		Carli		Kyle	
	Kellen		Kyle		Megan	
	Jeremy		Megan		JC (Johnnie)	
	Carli		JC (Johnnie		Jenny E	
4	Kyle		Jenny E		Tassay	
	Megan	8	Tassay	9	Kelly	
6	JC (Johnnie	9	Kelly	10	Mike	
7	Jenny E	10	Mike	11	Jacqui	
8	Tassay	11	Jacqui	12	Lindsay	
9	Kelly	12	Lindsay	13	Jody	
10	Mike	13	Jody	14	Carrie	
11	Jacqui	14	Carrie	15	Rita	
12	Lindsay	15	Rita	16	Jason	
13	Jody	16	Jason	17	Leah Ann	
14	Carrie	17	Leah Ann	18	Marty	
15	Rita	18	Marty	19	Shannon	
16	Jason	19	Shannon	20	Jenn M	
17	Leah Ann	20	Jenn M	21	Jan	
18	Marty	21	Jan	22	Stacey	
	Shannon	22	Stacey		Mark	
20	Jenn M		Mark	24	Annie	
21	Jan	24	Annie	25	Andrew	
22	Stacey	25	Andrew	26	Jerald	
	Mark		Jerald	1	Kellen	
24	Annie		Kellen	2	Jeremy	
	Andrew		Jeremy		Carli	
	Jerald		Carli		Kyle	

## Wednesday, March 26, 14

### Literature Review Section:

1	Kellen	6	JC (Johnnie	7	Jenny E
2	Jeremy	7	Jenny E	8	Tassay
3	Carli	8	Tassay	9	Kelly
4	Kyle	9	Kelly	10	Mike
5	Megan	10	Mike	11	Jacqui
6	JC (Johnnie	11	Jacqui	12	Lindsay
7	Jenny E	12	Lindsay	13	Jody
8	Tassay	13	Jody	14	Carrie
9	Kelly	14	Carrie	15	Rita
10	Mike	15	Rita	16	Jason
11	Jacqui	16	Jason	17	Leah Ann
12	Lindsay	17	Leah Ann	18	Marty
13	Jody	18	Marty	19	Shannon
14	Carrie	19	Shannon	20	Jenn M
15	Rita	20	Jenn M	21	Jan
16	Jason	21	Jan	22	Stacey
17	Leah Ann	22	Stacey	23	Mark
18	Marty	23	Mark	24	Annie
19	Shannon	24	Annie	25	Andrew
20	Jenn M	25	Andrew	26	Jerald
21	Jan	26	Jerald	1	Kellen
22	Stacey	1	Kellen	2	Jeremy
23	_	2	Jeremy	3	Carli
24	Annie	3	_	4	Kyle
25	Andrew	4	Kyle	5	Megan
26	Jerald	5			JC (Johnnie)

# SCIENCE AND ENGINEERING PRACTICES: AN ANNOTATED BIBLIOGRAPHY

Kohn, A. (1998). Resistance to cooperative learning: Making sense of its deletion and dilution. In What to look for in a classroom...and other essays (pp. 47-68). San

This is the annotation of the above source, which is formatted according to MSSE Capstone Model Paper guidelines for the references section. If I were really writing an annotation for this source, I would offer a brief summary of what this book says about cooperative learning. Keep this to about one paragraph.

Lin, E. (2006, July). Cooperative learning in the science classroom: A new learning

Not all annotations have to be the same length. For example, this source is a very short scholarly article. It may only take a sentence or two to summarize. Even if you are using a book, you should only focus on the sections that relate to your topic.

# Specific Helps/ Examples

# Literature Review Author and Editor Guidelines

The purpose of this section of the Capstone Paper is to provide the theoretical underpinnings of your research topic. This is referred to as the Literature Review or the Conceptual Framework. All concepts that are important to inform the reader about your research topic are to be included in the review.

Use the following to guide your literature review.

- This is written in third person. Absolutely no references directly to you or the research
- Use either LITERATURE REVIEW or CONCEPTUAL FRAMEWORK as the section
- Do not use subheadings unless the review is extremely complicated or overly long. The topic sentence of a new paragraph is sufficient for the transition.
- Avoid the overuse of direct quotes. The trend in current literature reviews is away from
- Create a reference page at the end of the review. This gets its own separate section title, the use of direct quotes.

When writing, be sure to read the Writing Expectations on the Help Pages. Also REFERENCES CITED. familiarize yourself with the Capstone Paper Guidelines and the Capstone Paper Template. If you have not, you should print these documents and refer to them when writing your papers. Attend to all formatting guidelines, including, but not limited to:

Page margins

Formatting of headings, citations, references, etc. Font and size

When editing, reflect on the content, look for errors in writing convention, formatting, etc. In addition, highlight at least one strength of the writing.

# **Peer Editing**

If Peer Editing was assigned this week, please complete the following:

I was assigned to review papers from (insert names) (2.5):

I sent MY paper to (insert names) (2.5)

Did I complete the peer editing in a timely manner, at least by Friday night before the due date? Making prior arrangements with the author for an alternative due date is acceptable. If not, please state the reason(s) (5 ea).

Did I send MY paper to the editors in a timely manner, at least by Friday night before the due date? Making prior arrangements with the author for an alternative due date is acceptable. If not, please state the reason(s) (5 ea).

Do you have any Peer Editing Muddiest Points for the instructor regarding peer editing?

Proposed Peer Editing score: (out of 25)

### THE EFFECTS OF SCIENCE STRATEGIES SUPPORT FOR IDENTIFIED

### STUDENTS WITH LEARNING DISABILITIES

by Jessica Lynn Felchle

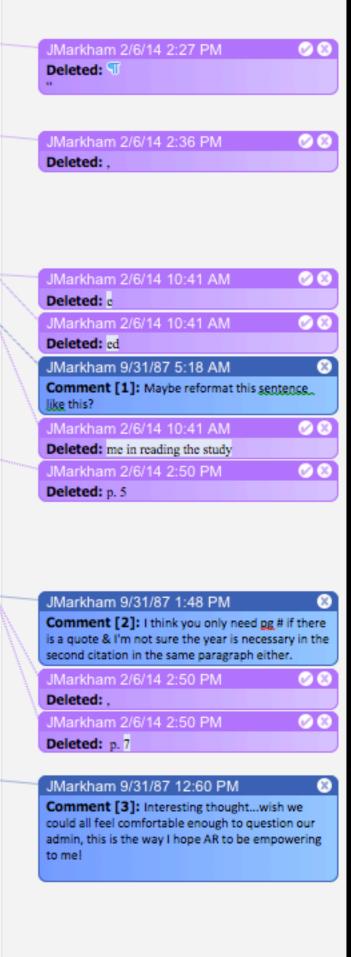
"The Effects of Science Strategies Support for Identified Students With Learning
Disabilities," by Jessica Lynn Felchle, was a study done in an area of education that has
been my area of specialization for twenty years. The study abstract was of interest to
because the results could directly inform my own teaching.

The study is an example of action research because it systematically identified an area of focus and concern, collected appropriate data, and interpreted and analyzed that data in order to improve the researcher's teaching and her students' learning (Mills, year, ).

The study is a perfect example of practical action research in which a teacher researcher is taking personal responsibility for her own professional development and maintaining complete control over the research process (Mills, year?).

If we were searching for ways in which this was not action research it could be said
that it does not fully conform to all of the values of critical action research. The
researcher designs the research plan to work within her existing school structure and does
not use the results to question it. Given that the strategies met with success for some of
the students but not all, the researcher could question whether or not the learning
conditions were appropriate since they made these students feel inadequate.

One impact of the project on the researcher was that it empowered her. The students'
post treatment interview responses were overwhelmingly positive toward her



# Benefits...

Correct formatting

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A professional paper submitted in partial fulfillment of the requirements for the degree

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MONTANA STATE UNIVERSITY Bozeman, Montana

July 2014

Content

Efficacy

Professionalism

# jgravesedu.com

