MSSE Capstone Paper Criteria

Overview

Each Master of Science in Science Education (MSSE) student, with the cooperation of her or his graduate committee, will identify and complete a capstone project. The results of each student's capstone project must be summarized in a written, professional paper approved by the student's graduate committee and submitted as a Word document to the MSSE office. Oral project presentations will be made at the "Professional Symposium in Science Education" scheduled in the first week of July of each year. Students should follow MSSE guidelines and paper template given, as this is a three credit capstone project, not a six credit master’s thesis.

Capstone Professional Paper Criteria

1. The Capstone Professional Paper must have sections to match each area below.

INTRODUCTION AND BACKGROUND A concise statement of the project focus question. A rational for why the question is a current topic, researchable and relevant to science education. Background information about your experience, project setting and what led you to this topic.

CONCEPTUAL FRAMEWORK (i.e. literature review) The Capstone Project 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 to the project. Include the framework of concepts, principles and theories underlying and informing the project.

METHODOLOGY A description of methods selected and the treatments used to generate data for answering the above focus question. If a treatment was used, include it here.

DATA AND ANALYSIS Science and education data should be able to stand tests of validity and reliability. Data display (i.e. tables and figures) and analysis should be appropriate to the question and setting of the study. Effort should be made to triangulate and synthesize together data from various instruments.

INTERPRETATION AND CONCLUSION Your interpretation of the project results, which should lead to clarification or resolution of the focus question. The project's claims should meet criteria for validity.

VALUE A summary of how the project expands, clarifies, validates, or invalidates the principles and/or process of science education. The results should generate new questions. The project should have implications for teaching-learning beyond your individual classroom or situation.
II. Writing style, language, grammar, and format must be appropriate for a scientific English paper.

Style & Format.
Specific style and formatting rules that all MSSE students should use will be provided in the MSSE Writing Style Workbook, along with an example of capstones that demonstrate these guidelines. These standards are a combination of APA and MSU Graduate School guidelines and are unique to MSSE. For further questions regarding style and formatting, contact Diana Paterson (formatting advisor) at dianap@montana.edu.

For specific language and grammar questions:
- A classic writing guide is *The Elements of Style* by Strunk and White.
- *Scientific English* by Robert Day is a guide specific for scientists and other professionals.
- Online resource: Online Writing Lab at Purdue (http://owl.english.purdue.edu/owl/)

III. Professional papers are reviewed and edited to ensure clarity of writing.

Graduate Committees are more interested in careful, thoughtful, concise writing and organization than in length. No page limits are provided with these criteria.

Have committee members read and comment on early drafts. They expect to assist you with paper revisions. One faculty member has mentioned that he expects a paper to go through about seven drafts prior to the final accepted version.

You may also want to have a peer (classmate, colleague, family member, or friend) read your paper and edit for grammar, organization, and clarity.

Allow sufficient time to circulate drafts, incorporate suggestions, and polish the final paper.

An additional thought – when you wrote assignments for EDCI 509 you used present or future tense. Your project is now complete (or will be very soon) so the capstone project professional paper should be written in the past tense. If you put your paper together as sections of separate assignments for EDCI 509, there may be statements, paragraphs, or concepts that appear repeatedly. Please be sure to edit for re-statement, repetition, and redundancy. Your advisors will appreciate your efforts to be concise.

**NOTE:** The MSU spring semester ends the first week of May, so please avoid the end of semester crush as much as possible! Expect that committee members might be "unavailable" during parts of May and June. Many faculty advisors are doing field research, attending conferences, and preparing for the summer session in May and June.