

Assignment

ENGL 315: Scientific Writing & Communication

Manuscript

Due: Wednesday, March 14, 2012

Save as: Lastname_Manuscript (i.e. Newbold_Manuscript.docx)

Turn In: On BlackBoard under "Assignments" > "Manuscript"

Value: 200 points (22.2% of overall grade)

Description and Rationale: Now that you are familiar with how communication in the sciences functions and the importance of scholarly scientific journals in expanding the knowledge of a field, you are ready to write a manuscript as if for a journal. While popular perceptions of science is that what researchers find is simply "true" and accurate, good scientists know that for science to be accepted, it must be communicated and argued effectively in scientific journals. As you work through this assignment, you will familiarize yourself with some of the organization, language, and style conventions that scientists use to effectively persuade peer scientists and communities that their work is relevant, important, and sound. In other words, you will learn how to build your *ethos* as a scientist by making appropriate rhetorical choices in a scientific journal article.

Assignment: For this assignment, you will conduct a research experiment by designing a game that teaches a biology concept. Following the pattern and research agenda of an article by Patricia Valente et al, you will set up questionnaires for a pre- and post-test experiment. After collecting and evaluating the data you receive from these questionnaires, you will write a manuscript as if to be published in *Medical Teacher* journal. To do this, you will complete all the major sections of a traditional scientific article, using the IMRaD (Introduction, Methods, Results, and Conclusion) format. Specifically, you will write a 5 – 7 page, single-spaced article that includes a title, abstract, acknowledgements, introduction, methods section, results section, discussion section, conclusion, and references page. You will follow the author publication guidelines for *Medical Journal*, citing sources in APA format.

The remainder of this assignment description outlines the specific requirements for developing the game and for writing each section of the manuscript, followed by a grading rubric, and a suggested schedule of completion.

- **Game:** You will develop a simple game that gauges learning of a few biology concepts to early or non-biology students or other individuals. To do this, you will want to focus on one specific area of biology. **Note:** For the purposes of this assignment, your game should not be too complicated or require too much time for participants to complete. I would also encourage you to devise a game that requires no more than two participants to play at a time, although allows more than two.
- **Surveys:** Using pre- and post-test surveys, following the model of Valente et al (see page e390, specifically), you will survey at least 10 participants to gauge knowledge of a concept before and after playing the game. There should be at least 10 topics that the participant is expected to learn or know.

Using the data that you collect, you will analyze and draw conclusions.

- **Title, Abstract, and Acknowledgements:** Following the author guidelines of *Medical Journal*, you will be required to supply a title page that includes a title, short title, your name, and your institution (you do not need to supply your contact information). Additionally, you will be required to write a brief acknowledgements section that gives credit to the participants and other individuals who helped you conduct your research.
 - **Introduction:** Following the guidelines of your textbook, Chapters 4 and 5 of *Writing in the Sciences* by Penrose and Katz, you will write an effective introduction that appropriately positions your research using the Create a Research Space (CARS) model and the three rhetorical moves (see pages 98 and 99). To do this, you will need to conduct secondary research about biology games and you will need to cite the Valente et al report along with other supporting sources. Your introduction should be $\frac{1}{2}$ - 1 page in length (300 – 600 words) and should cite at least 8 sources in-text.
 - **Methods:** Following the guidelines in Chapters 4 and 5 of your textbook, you will effectively describe your methods for developing the game and conducting the surveys. Using the Valente et al article as a resource, you will establish credibility by citing their practices. Your methods section should be 1 – 2 pages in length, or 500 – 1000 words.
 - **Results:** Following the guidelines on pages 105 – 109 in your textbook, you will write a results section that summarizes your findings. Using appropriate visual(s) (table, chart, graph, photograph), you will explain the results of your experiment as they are represented visually in your own terms. Your results section should be about $\frac{3}{4}$ - 1-1/2 pages, or about 400 – 750 words.
 - **Discussion:** Following the guidelines on pages 111 – 115 in your textbook you will discuss the trends and implications of this research. Mirroring the research agenda you outline in your introduction, you will explain how your experiment shed new knowledge in an area that still needs to be explored. You will summarize your findings. Ultimately, you will address limitations to your study by addressing your participant sample and research design and suggest research questions that still need to be explored. Your discussion section should be about $\frac{1}{2}$ - $\frac{3}{4}$ of a page, or 300 – 400 words.
 - **Conclusion:** As a short follow-up to your Discussion section, you will conclude by offering suggestions to educators who might use something like your game to teach biology students. Your conclusion should be about $\frac{1}{4}$ - $\frac{1}{2}$ of a page, or 150 – 300 words.
 - **References:** You will be expected to cite all sources in-text and in the references page in APA format. You are expected to cite at least eight (8) sources in your introduction as you set up your research gaps and experiment.
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Scoring Rubric

Game 10 points	<ul style="list-style-type: none">-Clear effort is made to create a game that teaches appropriate topics for the population selected-Game is easily understood and explained to participants, providing clear data not skewed by misinterpretation
Surveys 10 points	<ul style="list-style-type: none">-Three surveys are a conducted: a pre-test, post-test, and questionnaire about the experience-Questions ask appropriate questions that effectively gauge participant learning-Pre/post test ask at least 10 learning points
Title, Abstract, and Acknowledgements 20 points	<ul style="list-style-type: none">-Title is informative and clearly describes the content of the paper-Abstract is no more than 200 words and follows the submission guidelines of <i>Medical Teacher</i>, and follows guidelines outlined on pages 116 – 117 of your textbook-Acknowledgements appropriately addresses those who helped conduct research in any way
Introduction 20 points	<ul style="list-style-type: none">-Effectively follows CARS format and rhetorical moves addressed in textbook (pages 98 – 99)-At least eight (8) sources are cited, including the Valente et al article, in text in APA format-Is ½ - 1 page in length (300 – 600 words)
Methods 40 points	<ul style="list-style-type: none">-Game is clearly articulated so that the reader has a lucid understanding of how the game was developed and what participants were supposed to do-Participant population is clearly explained and reasons why this population was chosen is given-Explanation of surveys and questionnaire is given, indicating what you (the researcher) hoped to learn from these questions-Is 1 – 2 pages in length, or 500 – 1000 words
Results 30 points	<ul style="list-style-type: none">-Data is summarized effectively, clearly pointing to a new understanding about the experiment-At least one visual is used (table, chart, graph, etc.) that represents the data-Visual follows the guidelines on pages 105 – 109, accurately giving figures an effective title, generalizes (not repeats) the data, and is located near the text in which it is explained
Discussion 30 points	<ul style="list-style-type: none">-Introduction is mirrored, suggesting what was sought in introduction was found during the research-Major findings are summarized, pointing to their significance-Limitations of study are given, as well as possible answers to rebuttals
Conclusion 10 points	<ul style="list-style-type: none">-Suggestions for use of this research are given, including possible use of similar games in classrooms and other instructional settings
Language/ Tone 30 points	<ul style="list-style-type: none">-Effective use of present and past tense indicates current status of the field and the research experiment at hand-Use of modal qualifiers and hedges indicates limitation of research and avoid presumptuous or far-fetched conclusions-Effective use of passive and active voice makes the document readable and appropriate for audience-Overall tone is professional, following standard scientific expectations-Grammar, punctuation, spelling, and sentence mechanics are correct and do not distract
Total 200 points	

Suggested Pace and Schedule

To keep on pace during the next six (6) weeks, I encourage you to have each of the following tasks accomplished **BY THE DATE** given:

February 6

Chapter 4, pages 91 – 101 read

February 8

Chapter 4, pages 101 – 115, read

“A Game for Teaching Antimicrobial Mechanisms of Action” by Valent et al (on BlackBoard) read

Game outlined with surveys in the works

February 13

“Tapping into Technology: Effectively Conducting an Advanced Literature Search” by Brusco read

Chapter 5 read

Game developed, surveys written, and participants notified

February 15

Research begun, Introduction started

Methods started

February 20

Experiment partially or completely conducted

Introduction completed

Methods completed

Results/Discussion started

February 22

Abstract, acknowledgments, title page, references started

Results/Discussion completed

February 27

Written manuscript completed

Poster and Presentation started

February 29

Finish preparing poster and presentation

March 5

Proposals started

March 7

Proposals completed
