CAS 352: Issues in Group Leadership

How To Do A Research Project

Compiled by Learning Assistance Services (9/09)

Paper and Poster Presentation

The goal of this assignment is to do a small independent research project in conjunction with a partner. The topic of the research can be almost anything of your choosing, but must somehow relate to the workshop/study group program. I recommend scanning the course schedule and/or a few education journals to come up with some possible topics. When coming up with a topic, you should have some personal interest in the topic, but it should also have some relevance to the academic discussion going on in the field.

This assignment is not a summary of a topic we cover(ed) in class or a book report about a topic. I expect you to do something creative with your knowledge: survey or interview students regarding the relevant topic or perhaps create a teaching tool. Use your imagination and your analytical skills.

Logistical Requirements for Paper

In addition to the paper (described below), you will be required to submit a proposal for your project (as one of the short assignments for CAS 352; to be downloaded from Blackboard) and give a poster presentation on your topic on the last day of class.

The paper you write will be approximately 6-8 pages and due on **Monday, May 3rd**. You must use *at least* three outside sources, two of which must be from an academic source (peer reviewed journal or review article). We will use the APA method of citing sources. Please refer to the link below in order to understand the APA style essentials.

http://www.vanguard.edu/faculty/ddegelman/index.aspx?doc_id=796

The following sites provide further APA style guidelines:

http://www.wisc.edu/writetest/Handbook/DocAPAFormatting.html
http://www.psywww.com/resource/apacrib.htm
http://www.crk.umn.edu/library/links/apa5th.htm
http://www.docstyles.com/apacrib.htm

Your paper will be judged on and should reflect a careful consideration of the following criteria:

- Analysis – your paper should demonstrate a clear understanding of the key issues related to your topic of choice. The paper should display analysis and not mere summary of the topic under consideration. It should also include evidence to support arguments where necessary.
- Connections – your paper should demonstrate a connection of the references you mention to the central topic and to each other where necessary throughout the paper.
- Mechanics – this includes attention to punctuation, grammatical soundness and your submissions being checked for spellings errors.
- Formatting – a double-spaced, twelve point font (Times New Roman or Courier New). Papers should have a title page, running headers and page numbers (refer to the APA sheet for what to include in your running headers). Papers should not be right justified. Your margins should be 1 inch.

- Citations – if you mention an author or their work, paraphrase, or use a direct citation, you must give credit where credit is due. The references must follow APA guidelines. The citations must be related to the argument you are trying to make.

Logistical Requirements for Poster Presentation

Creating a poster should be a different process than writing up your research in a paper. This packet contains information on the goals of a poster presentation, how to set up a good poster, and what you should look for when evaluating posters created by your peers. The poster session will be on the last day of CAS 352 for the term. LAS will reimburse you for printing your poster **IF AND ONLY IF** you get it printed at the Barnes Computing Center (located in Bausch & Lomb hall). We will reimburse you for up to $18, permitting you to get a 4 ft x 3 ft poster on plain paper. Anything above that amount, you are responsible for paying for yourself. Your poster will be evaluated on analogous criteria as that listed for the paper (excepting formatting), and additionally, your poster will receive at least one peer evaluation.

Guidelines from the Barnes Computing Center
(Taken from http://www.pas.rochester.edu/bcc/posters.html on July 31, 2009).

The BCC has the ability to print large format posters.
All posters must have one edge that is 36".
When creating your posters it is best to change the page size to the dimensions it will be printed to. If you do not the scaling effects cannot be guaranteed. Ultimately, posters of greater than 100MB in size may not be printable. Please have your poster prepared at least 24 hours before you need it. We only do printing from 8:00AM to 5:00PM. Any posters brought after that time will not be available for pick-up until the following day. They should be created using MS Powerpoint or using Latex and rendered to PDF.

Price is based entirely on length and paper type.

Paper Type	Cost
Plain Tracing Paper	$4.50/Linear Foot
Glossy Paper	$8.50/Linear Foot

All Glossy prints come with a free draft on tracing paper.
Please come with an account number ready.
If you are not a member of PAS you must bring a blue 312 requisition form.
If you want posters printed for personal use please make a check payable to
The printer is only capable of 300dpi. Anything renderings above that may become hazy when printed
Picture images tend not to scale well and may become pixelated if you print to a poster size larger than their render size.

Grading of the Final Project

The paper will account for 60% of your final project grade, and the poster will account for the other 40%.

Grading Criteria for the Paper

An 'A' Paper will

- Have a well defined research question and hypothesis
- Clearly articulate what is currently known about the topic in the academic literature
- Have a well designed methodology for answering the research question posed
- Clearly explain how the data support (or don't support) the hypothesis
- Develop a succinct model to explain the data uncovered by their research and what has been shown in the literature
- Draw strong connections between the literature, the data acquired, and the Workshop program
- Use citations appropriately and completely
- Correctly follow the APA style for citations and format of the paper
- Have correct grammar and mechanics as well as clear and sophisticated sentence structure
- Read as if it is written with one cohesive voice, despite having been written by 2 or more people

A 'B' Paper will

- Have a vague research question OR an unclear hypothesis
- Clearly, but superficially articulate what is in the academic literature
- Have a relatively well designed methodology for answering the research question posed; most survey/interview questions are clear, but a couple may be vague or "double barreled"
- Draw connections between the literature, the data acquired and the Workshop program
- Have a model to describe the data acquired that only gives cursory attention to what has been written about in the literature
- Use citations appropriately and completely
- Correctly follow the APA style for citations and format of the paper
- Have generally correct grammar and mechanics as well as clear sentence structure, although the sentence structure may be relatively uniform
- Mostly read as if written with one voice

A 'C' Paper will

- Have a vague research question and an unclear hypothesis
- Superficially touch on previous research in the field
- Have a simplistic research methodology
- Draw connections between the academic literature and the data acquired OR between the data acquired and the Workshop program, but will ignore the third dimension connecting the Workshop program and the academic literature
- Create a simplistic model to describe the data acquired

- Make mistakes in following the APA style for citations and format
- Generally cite sources appropriately, perhaps missing one or two places where a citation should have been given
- Have generally correct grammar and mechanics as well as clear sentence structure, although the sentence structure may be relatively uniform
- Have evidence of shifting writing style and piecemeal construction; occasionally reads as if written with one voice

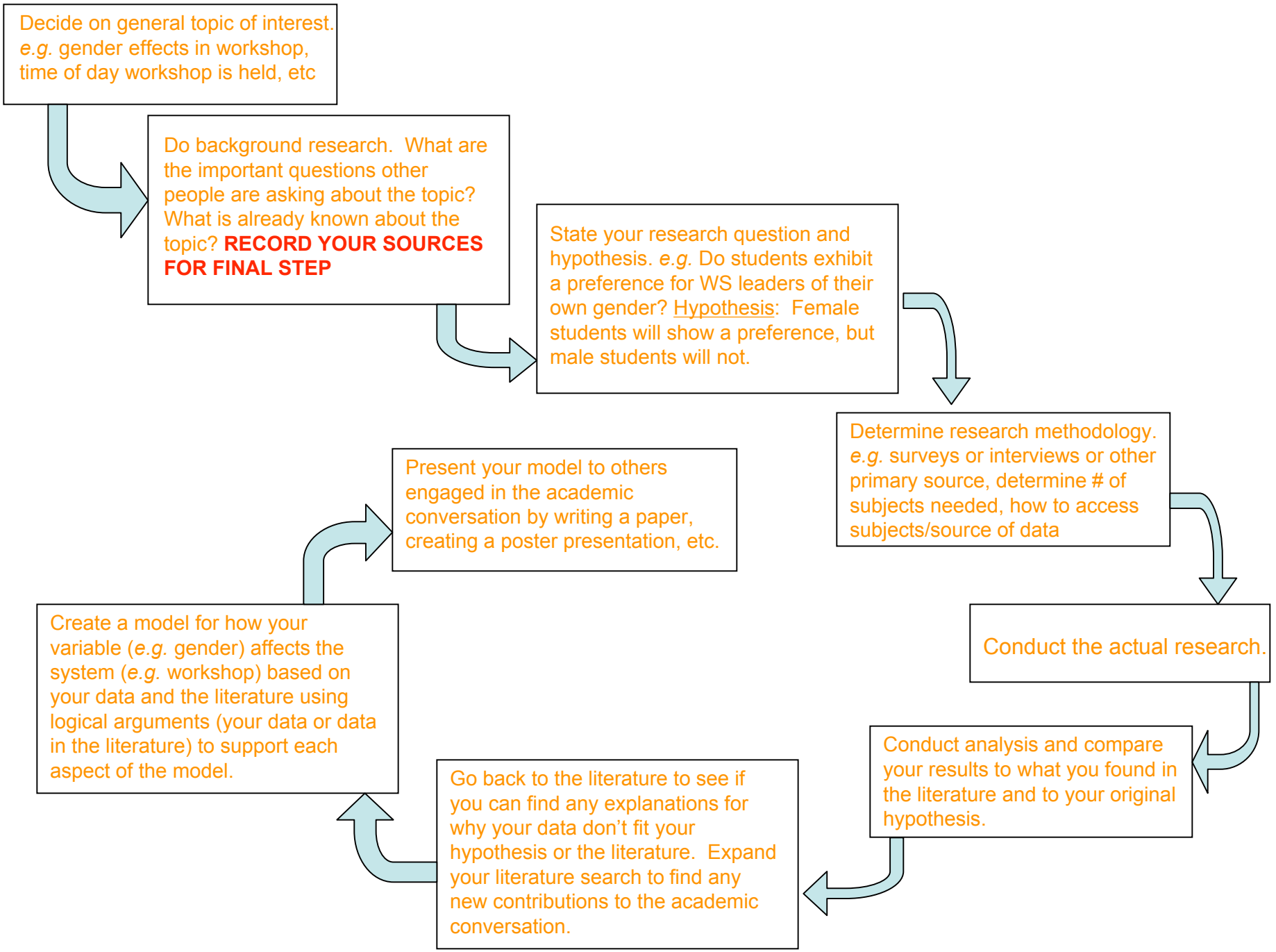
A 'D' Paper will

- Have an unarticulated research question and an unclear hypothesis
- Ignore other research published in the academic literature
- Have a poorly formed research methodology
- Not draw connections between the data acquired and the Workshop program
- Have an unclear explanation for the relevance or meaning of the data acquired
- Make multiple mistakes in following the APA style for citations and format
- Ignore or incompletely cite outside sources
- Use poor grammar and spelling
- Lack a cohesive voice; read like the authors cut and paste the paper together

Grading Criteria for the Poster

The grading of the poster will be based largely on the peer reviews received (see poster critique rubric handout at the back of packet) and a similar assessment performed by the instructor.

The Process of Doing Research


Decide on general topic of interest. *e.g.* gender effects in workshop, time of day workshop is held, etc
Do background research. What are the important questions other people are asking about the topic? What is already known about the topic? **RECORD YOUR SOURCES FOR FINAL STEP**
State your research question and hypothesis. *e.g.* Do students exhibit a preference for WS leaders of their own gender? Hypothesis: Female students will show a preference, but male students will not.
Determine research methodology. *e.g.* surveys or interviews or other primary source, determine # of subjects needed, how to access subjects/source of data
Conduct the actual research.
Conduct analysis and compare your results to what you found in the literature and to your original hypothesis.
Go back to the literature to see if you can find any explanations for why your data don't fit your hypothesis or the literature. Expand your literature search to find any new contributions to the academic conversation.
Create a model for how your variable (*e.g.* gender) affects the system (*e.g.* workshop) based on your data and the literature using logical arguments (your data or data in the literature) to support each aspect of the model.
Present your model to others engaged in the academic conversation by writing a paper, creating a poster presentation, etc.

Research always begins in one of two places: a question or a hypothesis. Real research does not begin with "I want to learn something about **X**," or "I have always been interested in **Y**." Those statements lead you to a field or a topic, a place to begin your literature/background search, but that statement is not a hypothesis or research proposal. This packet includes a flowchart for how to approach a research project. These next pages will walk you through that flowchart in more detail.

(A) Deciding on a research topic

This first step can seem overwhelming, especially when your instructor is vague in delivering the assignment. For CAS 352, the assignment is deliberately vague so that you can study a topic that you will enjoy based on your interests from the course and outside the course. Think about what you are generally curious about. What topics on the syllabus look intriguing to you? What topics are we not covering in leader training that you wish we were covering? Although this step may seem overwhelming at first, have fun with it. Your instructor is also happy to meet with you to discuss some general topic ideas.

(B) Background/Literature search

At this point in your project, a trip on-line **and** a trip to the library are in order. You may already have a question and a hypothesis for your project (which is the next step in our schema), but this step cannot be skipped. Research is not done in a vacuum; there is a context of prior knowledge that adds relevancy and substance to the data you unearth. In order to untangle the academic conversation that is ongoing about your topic, you need to find out what people already know about your topic and what questions are currently being asked. In order to do this, you need to move beyond your typical web search. Three excellent resources are the reference librarians at Rush Rhees and the other libraries on campus, the on-line databases available from the library website (http://www.library.rochester.edu/index.cfm?page=databases) and Google™ Scholar (http://scholar.google.com).

Make a note of each article you read/skim. You may not cite all of them in your final paper or poster, but you always need to be able to go back to your literature to know where you got your information. There is software available to help you keep track of the literature you use in your research. EndNote is available to U of R students, faculty and staff free of charge through a University site license. This may be overkill for a small research project, but you can create separate databases for each research project you conduct during your tenure at U of R, which can be immensely useful.

(C) Stating your research question and hypothesis

All research is done in response to a question and to test a hypothesis (a proposed answer to that question). Now that you've listened in to the academic conversation (and probably the mainstream media's version of that conversation), you should be able to come up with your own research question. The research flowchart in this packet gives one example of a research question and a hypothesis. Keep in mind, as you're doing research, that your hypothesis DOES NOT have to be the final conclusion you arrive at after conducting your research. In fact, some researchers find it easier to develop a research methodology if they state a hypothesis and set up their project so that they can prove their hypothesis is false.

When thinking about your research question and hypothesis, keep in mind that the words "student" and "leader" describe a wide range of people, so you may want to consider how

gender, class year, race, etc may play into how your subjects are going to respond to the study. Referring to the example presented in the research flowchart in this packet, when asking whether students show a preference for workshop leaders that are the same gender, we could assume that all U of R students will show similar behavior. We could also look more closely at our data to see if male students and female students show different trends in how they rank their leader. Either way is an acceptable approach to answering the research question, but the second approach (considering male and female students may show different trends) allows us to look at a more detailed picture of the U of R student mind. Creating as detailed a hypothesis as possible helps you in the next step, developing a research methodology, because those details give you an outline of what data you need to gather.

(D) Developing a research methodology

Now that you have a research question, you need to come up with a plan to find data to answer it. Here is a list of questions that you can answer to help you figure out the best research methodology for your project.

- Do you want your data to come in the form of numbers or stories or some other form?
- How much data do you need to collect?
- Where will you find your subjects or the materials you need for your research?

Using surveys

Many students use surveys to gather their data for this research project. There are many things every researcher must consider when using surveys: how many responses do you need, what is your response rate (the percent of people who receive the survey and respond to it) likely to be, and based on those two factors, how many surveys do you need to distribute.

Writing a survey that gives you the types of answers you expect is more challenging than people realize. This packet contains two handouts that do a good job of helping explain how to write a survey. These handouts are taken from http://www.innonet.org/client_docs/File/Survey_Dev_Tips.pdf accessed on July 31, 2009 and http://www.wilder.org/download.0.html?report=1976 also accessed on July 31, 2009. You are required to show your survey to your instructor before you distribute it to your research subjects. Please read the two handouts on survey writing before submitting a draft of your survey to your instructor.

There are multiple ways of distributing surveys, depending on who your research subjects are. If you want to do it on-line, surveymonkey.com is an option as they provide some of their services for free.

Interviewing subjects

Interviews can give you a detailed, personalized picture about some subjects' experiences. If you choose to engage in qualitative research, make sure you talk with your instructor about constructing good questions. Keep in mind that for your research to be relatively easy to analyze, you need to ask all of your subjects the same general questions. Your presentation of a question should not give any indication to the subject how you expect/want the person to answer. You should practice your interview prior to meeting with your subjects. This packet contains a handout that gives information on how to prepare for an interview and how to (and how not to) respond if you are doing a more informal/less structured interview. The

handout is taken from http://www.wilder.org/download.0.html?report=1983 and was accessed on July 31, 2009.

(E) Conducting the research

This is, surprisingly, the easiest of part of the project (if you have done a thorough job with the previous steps). Make sure you give your subjects enough time to respond to the survey (if that is part of your research methodology) and that you give yourself plenty of time to analyze the data.

Even the best laid plans lead to some unexpected challenges though. If you have trouble getting surveys back or your respondents did not seem to understand the questions you asked, make sure you consult with your instructor to troubleshoot.

(F) Analyzing your results and creating a model to explain your understanding of your topic

For a research project of this size, the analyses you perform will not be too complex. The analyses also depend on what type of research you do. For help with this step of the project, your best bet is to talk to your instructor.

As you analyze your data, you will develop an idea/picture/story of what the data are telling you. This is the model referred to in the flowchart. This model should explain the data you obtain and the previous findings/models you discovered in your literature searches. At this point, you should re-consult the literature to make sure you understand and have accounted for previously developed models and data (or can explain any discrepancies) and to see if anything new has been published (or if you missed any key findings in your previous searches). Again, make sure you keep track of all the necessary citations for your poster and your paper.

(G) Presenting your research and results

There are three primary ways in which researchers present their work to other people: in manuscript (paper) form, via an oral presentation and via a poster presentation. For this project you will be expected to write a paper and present a poster to your class and instructor. Of course, presenting a poster also requires an ability to orally discuss your work, but you will not be expected to give a formal "talk" per se. Some brief guidelines for writing a general research paper and creating a research poster are presented below, but the logistical details of your assignment are given in the first few pages of this handout. Also, refer back to your notes/experiences in your first-year writing seminar, as your instructors undoubtedly gave you excellent material for your research paper assignment then.

Writing a research paper

There are four main goals in writing a research paper for the natural, physical and social sciences. The first goal is to explain the academic context in which you are doing the research. Next one must describe the methods used so that the research can be replicated and validated by interested parties. The third and fourth goals are presenting the data obtained and explaining how the researchers are interpreting the data (what conclusions have you/they come to) given the academic context/previous research and the strengths and limitations of the methodology. Many research papers outline themselves according to these goals by breaking the paper into four sections: introduction, methods, results and discussion. **ALL** papers must include a references/citations section, and depending on what style guidelines you are using, your paper

may also include an abstract, appendices or other sections. If you have followed the research schematic given in this handout, assembling your paper should not be too complicated. It is highly recommended that you see one of the writing fellows or writing tutors at the College Writing Center (http://writing.rochester.edu/ has all the contact information you need) to make sure that you are clearly communicating the research you have done.

One of the challenges of writing a research paper is that research is often done as a team and, sometimes, the "writing up" process is also done as a team. There are multiple ways to approach team writing, and you should work with your partner to come up with a process that requires both of you to write some of the text and gives both of you enough time to edit each other's writing and the paper as a whole. Prior to writing any of the actual text of the paper, you should work as a team to come up with a detailed outline of what will be in each section of the paper. This helps to insure that the paper has a cohesive flow and voice.

Creating a poster

Poster presentations have slightly different goals than a research paper. The primary difference is that a poster is intended to be a largely visual depiction of your research. Blocks of text are difficult to read while standing at a poster, so your poster should include bullet points, tables and many figures depicting your data, your methods and/or the model you've created to explain your results and the results of others doing similar research.

Generally, the goal of a poster is to advertise your results and the implications of those results to your audience. Less focus is placed on describing the detailed academic conversation that you would depict in the introduction of a research paper/manuscript, but the context of your research should not be overlooked. You must explain generally (but with specific references available upon request) why your research is interesting to other people in the field. For most research projects, you will also only give a general description of your methodology to your audience, although having a copy of your survey (if relevant) on-hand is extraordinarily helpful and highly recommended. There are certain research projects, ones in which a primary goal is to develop a new method/tool for other researchers to use, that would obviously "spend" more space on that part of the poster.

Three handouts are included in this packet that should help you when it comes time to designing your poster. The first handout is from Hess, G.R., K. Tosney, and L. Liegel. 2006. Creating Effective Poster Presentations. URL=http://www.ncsu.edu/project/posters, visited July 31, 2009. The second handout is a more descriptive paper from Michael Newbrey and Joan Baltezore on how to create strong poster presentations. The third handout is the peer evaluation form that was used in a previous year to help you critique your own poster before bringing it to class. A modified version of this form will likely be used again this year for the peer evaluations of posters.

References

Hess, G.R., Tosney, K. and Liegel, L., (2006). "Creating Effective Poster Presentations." URL=http://www.ncsu.edu/project/posters, visited July 31, 2009

Holm-Hansen, C., (2007) "Conducting Interviews: Tips for conducting program evaluation." URL=http://www.wilder.org/download.0.html?report=1983, visited July 31, 2009

Holm-Hansen, C., (2007) “Writing Good Surveys: Tips for conducing program evaluation.” URL=http://www.wilder.org/download.0.html?report=1976, visited July 31, 2009.

Innovation Network, Inc., “Data Collection Tips: Developing a Survey.” URL=http://www.innonet.org/client_docs/File/Survey_Dev_Tips.pdf, visited July 31, 2009.

Newbrey, M., and Baltezore, J., (2006). “Poster Presentations: Conceptualizing, Constructing & Critiquing” *The American Biology Teacher*, vol 68. No 9.

Preparatory Assignments

CAS 352 – Math Issues in Group Leadership Spring 2010
Due: February 23, 2010

Names:

To help you get focused on your topic, please confer with your partner(s) and answer the following questions.

1. The general topic you have in mind:

2. Why are you concerned about this topic? How do you know some kind of need or problem exists in this area?

3. What other people, local or otherwise, are also concerned about this topic? Why are they concerned?

4. What conversations have already taken place or questions have already been asked in the academic literature about this topic? Include citations.

5. After looking at the literature about your topic, what is your research question that you intend to answer with your project?

6. What is your hypothesis (the answer you expect to find to your research question), and what evidence (roughly described, bullet points are fine) are you basing your hypothesis on?

The following questions are not part of your assignment – I am providing them to help you evaluate your research topic and question.

Questions for evaluating your research question (taken from http://www.esc.edu/esconline/across_esc/writerscomplex.nsf/0/f87fd7182f0ff21c852569c2005a47b7 on September 29, 2009):

Ask the following 8 questions to evaluate the quality of your research question and the ease with which you should be able to answer it:

1. Does the question deal with a topic or issue that interests me enough to spark my own thoughts and opinions?
2. Is the question easily and fully researchable?
3. What type of information do I need to answer the research question?

E.g., The research question, "What impact has deregulation had on commercial airline safety?," will obviously require certain types of information:

- statistics on airline crashes before and after
- statistics on other safety problems before and after
- information about maintenance practices before and after
- information about government safety requirements before and after

4. Is the scope of this information reasonable (e.g., can I really research 30 online

writing programs developed over a span of 10 years?)

5. Given the type and scope of the information that I need, is my question too broad, too narrow, or okay?
6. What sources will have the type of information that I need to answer the research question (journals, books, Internet resources, government documents, people)?
7. Can I access these sources?
8. Given my answers to the above questions, do I have a good quality research question that I actually will be able to answer by doing research?

CAS 352 – Issues in Group Leadership
Research Methodology Assignment

1. Names of people working on project:

2. After receiving feedback on your research question (either during class or from your instructor), what is your revised research question?

3. What is your hypothesis?

4. What variable(s) are you going to measure?

5. What methods are you planning on using to measure that/those variable(s)? Surveys? Interviews? Observations? Other technique?

6. How many subjects are you planning on using or observations are you planning on making?

7. If you are using surveys or interviews, how many data points are you hoping to get?

8. Who are your subjects?

9. How do you plan to contact your subjects?

10. Please attach a copy of the survey, interview questions, or research protocol you plan to use.