Chapter 1 : How to Write a Research Paper - A Research Guide for Students

Research Writing: Elements and Steps Research writing is distinct in approach and technique. The information here describes the various stages of research writing and offers suggestions for approaching it.

The introduction and literature review sections will introduce the problem and provide general information. The following section will describe each of these parts in more detail. Additional information can be found in the Resources section of this module and in the Suggested Readings. Title The title should be specific and indicate the problem the research project addresses using keywords that will be helpful in literature reviews in the future. Abstract The abstract is used by readers to quickly review the overall content of the paper. Journals typically place strict word limits on abstracts, such as words, making them a challenge to write. The abstract should provide a complete synopsis of the research paper and should introduce the topic and the specific research question, provide a statement regarding methodology and should provide a general statement about the results and the findings. Because it is really a summary of the entire research paper, it is often written last. Introduction The introduction begins by introducing the broad overall topic and providing basic background information. It then narrows down to the specific research question relating to this topic. It provides the purpose and focus for the rest of the paper and sets up the justification for the research. Literature Review The purpose of the literature review is to describe past important research and it relate it specifically to the research problem. It should be a synthesis of the previous literature and the new idea being researched. The review should examine the major theories related to the topic to date and their contributors. It should include all relevant findings from credible sources, such as academic books and peer-reviewed journal articles. Methods The methods section will describe the research design and methodology used to complete to the study. The general rule of thumb is that readers should be provided with enough detail to replicate the study. Results In this section, the results of the analysis are presented. How the results are presented will depend upon whether the research study was quantitative or qualitative in nature. This section should focus only on results that are directly related to the research or the problem. Graphs and tables should only be used when there is too much data to efficiently include it within the text. This section should present the results, but not discuss their significance. The hypothesis should be answered and validated by the interpretation of the results. This section should also discuss how the results relate to previous research mentioned in the literature review, any cautions about the findings, and potential for future research. This section should be an alphabetized list of all the academic sources of information utilized in the paper. The format of the references will match the format and style used in the paper.

Chapter 2 : Writing Research Questions | Research Rundowns

Writing a Research Paper. This page lists some of the stages involved in writing a library-based research paper. Although this list suggests that there is a simple, linear process to writing such a paper, the actual process of writing a research paper is often a messy and recursive one, so please use this outline as a flexible guide.

What is a research question? A research question is the question around which you center your research. The question you ask should be developed for the discipline you are studying. A question appropriate for Biology, for instance, is different from an appropriate one in Political Science or Sociology. If you are developing your question for a course other than first-year composition, you may want to discuss your ideas for a research question with your professor. Why is a research question essential to the research process? Research questions help writers focus their research by providing a path through the research and writing process. Steps to developing a research question: Choose an interesting general topic. Most professional researchers focus on topics they are genuinely interested in studying. Writers should choose a broad topic about which they genuinely would like to know more. What issues are scholars and researchers discussing, when it comes to your topic? What questions occur to you as you read these articles? For most college papers, your audience will be academic, but always keep your audience in mind when narrowing your topic and developing your question. Would that particular audience be interested in the question you are developing? Is your research question clear? With so much research available on any given topic, research questions must be as clear as possible in order to be effective in helping the writer direct his or her research. Is your research question focused? Research questions must be specific enough to be well covered in the space available. Is your research question complex? They should, instead, require both research and analysis on the part of the writer. What sources should you consult as you seek answers to your question? What research process will ensure that you find a variety of perspectives and responses to your question? Sample Research Questions Unclear: How should social networking sites address the harm they cause? The clearer version specifies sites MySpace and Facebook , the type of potential harm privacy issues , and who may be experiencing that harm users. A strong research question should never leave room for ambiguity or interpretation. What is the effect on the environment from global warming? What is the most significant effect of glacial melting on the lives of penguins in Antarctica? The focused version narrows down to a specific effect of global warming glacial melting , a specific place Antarctica , and a specific animal that is affected penguins. It also requires the writer to take a stance on which effect has the greatest impact on the affected animal. When in doubt, make a research question as narrow and focused as possible. How are doctors addressing diabetes in the U. What main environmental, behavioral, and genetic factors predict whether Americans will develop diabetes, and how can these commonalities be used to aid the medical community in prevention of the disease? The simple version of this question can be looked up online and answered in a few factual sentences; it leaves no room for analysis. The more complex version is written in two parts; it is thought provoking and requires both significant investigation and evaluation from the writer.

Learn how to design, develop, research, and execute a writing project from inception to completion in this credit-eligible course.

Visit site An outline might be formal or informal. An informal outline working outline is a tool helping an author put down and organize their ideas. It is subject to revision, addition and canceling, without paying much attention to form. In a formal outline, numbers and letters are used to arrange topics and subtopics. The letters and numbers of the same kind should be placed directly under one another. The topics denoted by their headings and subheadings should be grouped in a logical order. All points of a research paper outline must relate to the same major topic that you first mentioned in your capital Roman numeral. Example of an outline: Early life in Stratford 1. Life of Anne Hathaway b. Romeo and Juliet b. Much Ado About Nothing c. Last two plays 2. Retired to Stratford a. Epitaph on his tombstone III. Concluding statement The purpose of an outline is to help you think through your topic carefully and organize it logically before you start writing. A good outline is the most important step in writing a good paper. Check your outline to make sure that the points covered flow logically from one to the other. Make the first outline tentative. What is the chief reason you are writing the paper? State also how you plan to approach your topic. Is this a factual report, a book review, a comparison, or an analysis of a problem? Explain briefly the major points you plan to cover in your paper and why readers should be interested in your topic. BODY â€" This is where you present your arguments to support your thesis statement. Remember the Rule of 3, i. Begin with a strong argument, then use a stronger one, and end with the strongest argument for your final point. Explain why you have come to this particular conclusion. Critically analyze your research data. Using the best available sources, check for accuracy and verify that the information is factual, up-to-date, and correct. Opposing views should also be noted if they help to support your thesis. This is the most important stage in writing a research paper. Here you will analyze, synthesize, sort, and digest the information you have gathered and hopefully learn something about your topic which is the real purpose of doing a research paper in the first place. You must also be able to effectively communicate your thoughts, ideas, insights, and research findings to others through written words as in a report, an essay, a research or term paper, or through spoken words as in an oral or multimedia presentation with audio-visual aids. Do not include any information that is not relevant to your topic, and do not include information that you do not understand. Make sure the information that you have noted is carefully recorded and in your own words, if possible. Plagiarism is definitely out of the question. Document all ideas borrowed or quotes used very accurately. As you organize your notes, jot down detailed bibliographical information for each cited paragraph and have it ready to transfer to your Works Cited page. Devise your own method to organize your notes. One method may be to mark with a different color ink or use a hi-liter to identify sections in your outline, e. Understanding the Internet A. What is the Internet 3. How to "Surf the Net" b. Accessing WWW Group your notes following the outline codes you have assigned to your notes, e. This method will enable you to quickly put all your resources in the right place as you organize your notes according to your outline. Read all the relevant notes you have gathered that have been marked, e. Summarize, paraphrase or quote directly for each idea you plan to use in your essay. Use a technique that suits you, e. Mark each card or sheet of paper clearly with your outline code or reference, e. Put all your note cards or paper in the order of your outline, e. If using a word processor, create meaningful filenames that match your outline codes for easy cut and paste as you type up your final paper, e. Before you know it, you have a well organized term paper completed exactly as outlined. The unusual symbol will make it easy for you to find the exact location again. Delete the symbol once editing is completed. Double check the facts and figures. Arrange and rearrange ideas to follow your outline. Reorganize your outline if necessary, but always keep the purpose of your paper and your readers in mind. Use a free grammar and proof reading checker such as Grammarly. Is my thesis statement concise and clear? Did I follow my outline? Did I miss anything? Are my arguments presented in a logical sequence? Are all sources properly cited to ensure that I am not plagiarizing? Have I proved my thesis with strong supporting arguments? Have I made my intentions and points clear in the essay?

Chapter 4 : How to write a research paper

Learn research and composition 1 with free interactive flashcards. Choose from different sets of research and composition 1 flashcards on Quizlet.

Bibliography Definition A research problem is the main organizing principle guiding the analysis of your paper. The problem under investigation offers us an occasion for writing and a focus that governs what we want to say. It represents the core subject matter of scholarly communication, and the means by which we arrive at other topics of conversations and the discovery of new knowledge and understanding. Sage, ; Chapter 1: Research and the Research Problem. Designing and Planning Your Work. You should be thinking about it at the start of the course. There are generally three ways you are asked to write about a research problem: Here are some strategies for getting started for each scenario. You are given the topic to write about Step 1: Identify concepts and terms that make up the topic statement. For example, your professor wants the class to focus on the following research problem: European Union, global terrorism, credibility [hint: Review related literature to help refine how you will approach examining the topic and finding a way to analyze it. You can begin by doing any or all of the following: Choose the advanced search option feature and enter into each search box the main concept terms you developed in Step 1. Also consider using their synonyms to retrieve relevant articles. This will help you refine and frame the scope of the research problem. You will likely need to do this several times before you can finalize how to approach writing about the topic. Always review the references from your most relevant research results cited by the authors in footnotes, endnotes, or a bibliography to locate related research on your topic. This is a good strategy for identifying important prior research about the topic because titles that are repeatedly cited indicate their significance in laying a foundation for understanding the problem. If the article record appears, look for a "cited by" reference followed by a number. This link indicates how many times other researchers have subsequently cited that article since it was first published. This is an excellent strategy for identifying more current, related research on your topic. Finding additional cited by references from your original list of cited by references helps you navigate through the literature and, by so doing, understand the evolution of thought around a particular research problem. Since social science research papers are generally designed to get you to develop your own ideas and arguments, look for sources that can help broaden, modify, or strengthen your initial thoughts and arguments. For example, if you decide to argue that the European Union is ill prepared to take on responsibilities for broader global security because of the debt crisis in many EU countries, then focus on identifying sources that support as well as refute this position. From the advanced search option in ProQuest, a sample search would use "European Union" in one search box, "global security" in the second search box, and adding a third search box to include "debt crisis. Therefore, one way that you can use a source is to describe the counter-argument, provide evidence from your review of the literature as to why the prevailing argument is unsatisfactory, and to discuss how your own view is more appropriate based upon your interpretation of the evidence. Just make sure that you cite the sources! Sources for historical context -- another role your related literature plays in helping you formulate how to begin your analysis is to place issues and events in proper historical context. This can help to demonstrate familiarity with developments in relevant scholarship about your topic, provide a means of comparing historical versus contemporary issues and events, and identifying key people, places, and events that had an important role related to the research problem. Sources of interdisciplinary insight -- an advantage of using databases like ProQuest to begin exploring your topic is that it covers publications from a variety of different disciplines. Another way to formulate how to study the topic is to look at it from different disciplinary perspectives. If the topic concerns immigration reform, for example, ask yourself, how do studies from sociological journals found by searching ProQuest vary in their analysis from those in law journals. A goal in reviewing related literature is to provide a means of approaching a topic from multiple perspectives rather than the perspective offered from just one discipline. Remember to keep careful notes at every stage or utilize a citation management system like EndNotes or RefWorks. If you start over, that history could be deleted. A good indication is that you start composing your paper outline and gaps appear in how you want to approach

the study. This indicates the need to gather further background information and analysis about your research problem. You are provided a list of possible topics to choose from Step 1: An effective instructor should never include a topic that is so obscure or complex that no research is available to examine and from which to begin to design a study. Instead of searching for the path of least resistance choose a topic that you find interesting in some way, or that is controversial and that you have a strong opinion about, or has some personal meaning for you. In that case, you can choose another from the list. Your professor leaves it up to you to choose a topic Step 1: Under this scenario, the key process is turning an idea or general thought into a topic that can be configured into a research problem. If you lack ideas, or wish to gain focus, try any or all of the following strategies: Review your course readings, particularly the suggested readings, for topic ideas. Search the USC Libraries Catalog for a good, recently published book and, if appropriate, more specialized works related to the discipline area of the course [e. Browse through some current journals in your subject discipline. Even if most of the articles are not relevant, you can skim through the contents quickly. You only need one to be the spark that begins the process of wanting to learn more about a topic. Think about essays you have written for past classes, other courses you have taken, or academic lectures and programs you have attended. Thinking back, what interested you the most? What would you like to know more about? Place this in the context of the current course assignment. To build upon your initial idea, use the suggestions under this tab to help narrow , broaden , or increase the timeliness of your idea so you can write it out as a research problem. Once you are comfortable with having turned your idea into a research problem, follow Steps 1 - 4 listed in Part I above to further develop it into a research paper. Sage, ; Chapter 2: Choosing a Research Topic. Becoming a Successful Early Career Researcher. Routledge, ; Answering the Question. University of Canberra; Brainstorming. Department of English Writing Guide. George Mason University; Brainstorming. University of North Carolina; Chapter 1: Sage Publications, ; Choosing a Topic. Institute for Writing Rhetoric. Indiana University; Identify Your Question. Trent University; Trochim, William M. Research Methods Knowledge Base. Resources for Identifying a Topic Resources for Identifying a Research Problem If you are having difficulty identifying a topic to study or need basic background information, the following web resources and databases can be useful: CQ Researcher -- a collection of single-themed public policy reports providing an overview of the issue, background information, and chronology. New York Times Topics -- each topic page collects news, reference and archival information, photos, graphics, audio and video files published on a variety of topics. Content is available without charge on articles going back to Opposing Viewpoints In Context -- an online resource covering a wide range of social issues from a variety of perspectives. PolicyFile -- provides access to U. Contents are updated weekly. Descriptions of resources are adapted or quoted from vendor websites. As best as you can, choose a topic that has at least some interest to you or that you care about. Obviously, this is easier for courses within your major, but even for those nasty prerequisite classes that you must take in order to graduate [and that provide an additional revenue stream to the university], try to apply issues associated with your major to the general topic given to you. For example, if you are an IR major taking a philosophy class where the assignment asks you to apply the question of "what is truth" to some aspect of life, you could choose to study how government leaders attempt to shape truth through the use of propaganda. Librarians are experts in locating information and providing strategies for analyzing existing knowledge in new ways. Always consult a librarian before you consider giving up on finding information about the topic you want to investigate. Follow this link to contact a librarian.

Chapter 5 : How to Write a Research Paper (with Sample Research Papers)

Research questions help writers focus their research by providing a path through the research and writing process. The specificity of a well-developed research question helps writers avoid the "all-about" paper and work toward supporting a specific, arguable thesis.

This is not the same as a literature course, which focuses on literary analysis and interpretation, although some colleges and universities do incorporate literature and other humanities into their composition courses; often, however, composition courses offer intensive instruction in writing non-fiction , expository texts using academic discourse conventions. Writing curricula vary considerably from institution to institution, but it may emphasize many stages of different writing processes invention or brainstorming, drafting, revision, editing, proofreading , different forms of writing narration, exposition, description, argumentation, comparison and contrast , different portions of the written product introductions, conclusions, thesis statements, presentation and documentation of forms of evidence, inclusion of quotations, etc. Pedagogies or approaches to teaching writing are grounded in a range of different traditions and philosophies. Advanced composition[edit] Some universities require further instruction in writing and offer courses that expand upon the skills developed in First-year composition. For example, the skills required to write business letters or annual reports will differ significantly from those required to write historical or scientific research or personal memoirs. However, recently there are an increasing number of departments specifically dedicated to this field of study e. Second language writing Second language writing is the practice of teaching English composition to non native speakers and writers of English. Teaching writing to ESL students does not receive much attention because even in ESL classes teachers focus on speaking, listening and reading, not just writing. ESL teachers might need to explore common methods which are the cognitive, social and expressive theories to create an approach that meets the needs of ESL writers and help them to overcome their difficulties. The first one of these approaches is the cognitive view which says that writing is progressing from one stage to another in a series of single steps. That means "good" writing is a planned process, which includes planning, translating and reviewing. She took this idea from her observation of different writers. She thinks that writers return to "backwards" parts of the process in order to move "forward" with the overall composition. ESL teachers may find this approach helpful at first in teaching beginning ESL students because at this level students do not have large amounts of vocabulary and grammar or knowledge of the style of essays which is the basis of writing English. Al-Buainain Haifa in her article "Student Writing Errors in EFL," points out that, when a researcher asked ESL students by using a survey what they would like to have learned or learned better in their writing classes, they found that the largest percentages expressed specific needs in vocabulary and grammar [8] Many kinds of grammar make ESL students confused, especially because there are many exceptions. Because writing styles are different in different languages, ESL students need time to master them. Therefore, ESL teachers should find an effective way to teach ESL students vocabulary, grammar and style because the writing of English requires them. The cognitive approach can meet these needs because it emphasizes the steps, organization and process of writing. Another approach is the social view which shows the importance of teaching writing by making students learn the different languages of discourse communities. This is what David Bartholomae emphasizes in his article "Inventing the University". Discourse community can be thought of as members of an academic discipline or a select audience. When the ESL students have become good at grammar and style, they face a large problem when they enter their chosen academic field. Bartholomae in this article illustrates that each academic community has a particular language or vocabulary. The problem is that any academic field has its own language, even jargon, that differs from one to another. This problem is faced not only by ESL students, but all American students will struggle with this when they begin the first year of their academic life. The social approach can be used by ESL teachers as a second step but they should make sure that their students master the basics of English writing such as grammar and style. However, it is difficult to evaluate them in a paper. Therefore, these standards cannot be relied upon to judge writing. In addition, these elements are not the important elements that help to assess "good" writing. It is difficult to ask ESL

students to write freely if they possess limited vocabulary or grammar. They need examples to help them which they can find in the cognitive approach. Learning writing is one of the essential difficulties that ESL students find in studying English, especially since writing is important in an academic community. Some ESL students may need to jump from being a student who does not speak English ever to a student who uses academic language in a short time which may put a large burden on their shoulders. Hence, teaching writing to ESL students is different than teaching native speakers. Connecting College Composition to Culture" describes how studies in "little narratives [that] almost all examine literacy in particular local settings" championed by scholars who "seldom make theoretical statements that claim to be valid for literate cultures in general or literate cultures in general," which would allow students to engage in cultural critique From the many linguistic and sociological itemsâ€¦the educators selected some key concernsâ€"generative themes expressed through generative words" Shor insists "subject matter is best introduced as problems related to student experience, in language familiar to them" In her approach, she engages students in the kind of literary criticism that is necessary for analyzing and evaluating critical discourse: I [also] use the Otherness of the cultures reproduced in foreign texts to estrange the American familiar" A Critical Approach," utilizes a perspective that provides opportunities for the types of writing necessary for students to critically analyze and evaluate ideologies entrenched in the dominant discourse, even as they are learning English as their second language. For example, in addition to incorporating "local topics," Wilson provides options for students to "investigate language use in certain communities, societies, or cultures" as well as "investigating" the relationships between language and power Writing across the curriculum Because academic discourse is not monolithic in other words, there are curricula that address that the concept of academic discourse can be applied to specific parts of a writing curriculum , many compositionists have created a writing across the curriculum WAC movement that situates writing-intensive instruction in specific academic discourse communities. Many universities not in North America only offer writing instruction via writing centers. Some models for this work include the digital studio and the multiliteracy center.

Chapter 6 : How to Write a Research Question | Guides

This online writing course will help you understand discourse and research writing with the goal of creating solutions to issues within your local context.

Subjects Description Developed for emerging academic writers, Primary Research and Writing offers a fresh take on the nature of doing research in the writing classroom. Encouraging students to write about topics for which they have a passion or personal connection, this text emphasizes the importance of primary research in developing writing skills and abilities. Eble have built a pedagogical approach that makes archival and primary research interesting, urgent, and relevant to emerging writers. Students are able to explore ways of analyzing their findings and presenting their results to their intended readers. With in-text features to aid students in understanding primary research and its role in their writing, chapters include special elements such as: Communities in Context â€" Profiles of traditional and digital communities that help students understand the characteristics of communities and group members Profiles of Primary Researchers â€" Spotlights on professionals, giving an illuminating look into the role primary research plays in real-world research and writing Student Writing â€" Examples of exemplary student writing that demonstrate how research can be relevant, engaging, and interesting, with annotations. Invention Exercises - Exercises designed to help students locate primary investigation within communities that they already understand or find appealing Writing Exercises - Writing exercises that offer students practice in exploring communities and investigating primary materials. Readings â€" Annotated readings with questions to guide analysis, pulled from a variety of rich sources, that give students inspiration for undertaking their own research projects. This text has a robust companion website that provides resources for instructors and students, with sample syllabi, chapter overviews, lecture outlines, sample assignments, and a list of class resources. Primary Research and Writing is an engaging textbook developed for students in the beginning stages of their academic writing careers, and prepares its readers for a lifetime of research and writing. Reviews Primary Research and Writing transformed the way I teach first year composition. When students become researchers, they become passionate about research and writing. My students saw research, writing, and critical analysis as relevant and even necessary activities. Candace Nadon, professor at Fort Lewis College Teaching writing via communities and primary research truly enlivens and enriches the first-year classroom. Primary Research and Writing: People, Places, and Spaces is an incredibly useful text for exploring how to gather and write up firsthand data in the twenty-first century. Filled with wide-ranging contemporary examples, the text connects research and writing methods with various local and global communities in a manner that students find helpful and accessible. Matthew Sansbury, professor at Georgia State University Revitalize and recharge your composition or expository writing or history or service-learning class! This approach energized my students, who took off running to investigate a community of their choice using primary sources in the archives and in the world around them. I had the joy of seeing them take ownership of their writing. Primary Research and Rhetorical Tools 1. Introduction to Primary Research 2. Defining and Engaging with Communities 3. Methods for Inquiry and Conducting Primary Research 5. A Practical Guide 6. Fieldwork and Ethnographic Observation 7. Writing and Delivering your Research 9. A Rhetorical Approach to Research and Writing Reporting and Delivering Research Findings Eble is associate professor of rhetoric and professional communication at East Carolina University where she serves as Director of Graduate Studies. She has published in Computers and Composition, Technical Communication, and Technical Communication Quarterly on professional writing theory and practice, especially as it relates to rhetorical engagement, technology, and design. She is the co-editor of Stories on Mentoring: Theory and Praxis

Chapter 7 : World War II Research and Writing Center |

research base on effective practices in composition instructions. As the findings from the research on composition are discussed, references will be made to the ways these are.

Zbar In most cases, a work of nonfiction requires some amount of research and interviewing. Make sure you leave time to actually write. Take your researching and interviewing seriously, but also enjoy it. While it seems perfectly sound on one level, living by this mantra can limit and even deter your career. Why take on work in this manner? For one, it builds your repertoire. Second, editors want all-around writers whom they can send on any assignment. Third, it opens doors to other opportunities. If you can research and write about an unfamiliar subject, you bring to the table a fresh perspective. Editors always need new ideasâ€"even new takes on old topics. But you must gain a good working knowledge, concentrate on finding key points, get your facts straight and talk with the right people. Study every relevant website you can find. Read magazines, journals and books related to your subject to pick up the jargon, trends, leads and ideas. Give yourself time to nail inconsistencies in your story. With a little legwork, you can tackle any topic. Writers constantly face the challenge of finding people to share information that will make their work believable, entertaining and accurate. Not only must you find someone to talk to, you must try to find the right someone. With any project, the first thing to ask is whether you need a true expert, or just someone to give you background on, say, hunting. The guy at the local sporting goods store may be fine for the latter. But when you need more authority, here are some ways to track down the right experts. Backtrack to the Source. Whose quote in the story started you thinking? With whom was your conversation? Who had the interesting experience? Often these people will have useful information and can get you started. Your local phone book is a convenient source of experts. The directories available on the Web can broaden your search nationally or even internationally. One of the best sources you can tap is your network of other writers who may have worked on a related story. Online communities are perfect for this kind of inquiry. If you want to cast a broader net, Internet newsgroups and e-mail lists are good options. For example, the American Medical Association and the American Bar Association maintain lists of experts in particular topics and can often point you to a qualified person in your area. If you need someone from a less obvious professionâ€"say, chicken farmersâ€"check the Encyclopedia of Associations at your local library for the right group. Use PR to Your Advantage. Believe it or not, there are people who make their livings finding experts just for you. Start with your local college or university. The PR department will likely have a list of faculty members and their areas of expertise. Build Your Own Contact Files. Make a list of experts and resources. You may spend a day or more looking for that one perfect industry expert or analyst. Why let that person end up buried in your archives? Create a list of experts, analysts and industry insidersâ€"indexed by categoryâ€"which you can turn to when a specific topic arises in the future. Part of your expertise as a writer is your little black book of contacts. Cast a Wider Network. Never miss an opportunity to meet new people. Finding experts can be challenging, but once you learn how to do it, it can become the most rewarding part of writing. On rare occasions, you will run into people who are more interested in selling a book or a point of view than they are in providing information. Ask all your sources how they came to know about their subject matter, what their experience is in the field, and what degrees they have and from what schools. Here are four tips for turning vast stockpiles of otherwise latent research and data into user-friendly, actionable and powerful snippets for your stories or leads for future pieces. If you specialize in a certain area, create an index of past articles so they can be reused, or at least accessed, for information. Just open a Word document or Excel file and start to log your work. Include the date the article was created, the file name, a brief note about the story, and whom it was written for. This also will help you track resales of your articles in the future. An important point here: Archiving must be done regularly or it will become daunting to go back and enter months of articlesâ€"and a potentially powerful tool will become useless. When editors come calling for story ideas to take into their editorial meetings, grab the hanging file you should have filled with potential leads and clips, and type up some ideas from it. Central to being an expert scribe on a topic is knowing what the trends are and having

plenty of story ideas to pursue. This is especially important if you write a recurring feature or column and have to think up stories with regularity. Files bulging with dated clips or reports burden potentially useful reference information with useless old data. Transfer that information to your contact management system of choice. You may find that one category should be broken down into several more to aid in retrieval of useful information. Planning ahead and staying organized can make any daunting research task much easier.

Chapter 8 : Research and Writing

Research Questions and Hypotheses - This book chapter takes an in-depth look at the principles used to design and write research questions and hypotheses for qualitative, quantitative and mixed methods research and describes the differences in approaches based upon the type of research.

All you do is stare at a blank sheet of paper until drops of blood form on your forehead. To help you become an accomplished writer, you will prepare several research papers based upon the studies completed in lab. Our research papers are not typical "lab reports. Such an assignment hardly represents the kind of writing you might be doing in your eventual career. Written and oral communications skills are probably the most universal qualities sought by graduate and professional schools as well as by employers. You alone are responsible for developing such skills to a high level. Resources for learning technical writing Before you begin your first writing assignment, please consult all of the following resources, in order to gain the most benefit from the experience. General form of a typical research article Specific guidelines if any for the assignment â€" see the writeups on individual lab studies McMillan, VE. ISBN REQUIRED for Bioc , , recommended for other science courses that include writing As you polish up your writing skills please make use of the following resources Instructor feedback on previous assignments Common errors in student research papers Selected writing rules somewhat less serious than the other resources For Biosciences majors the general guidelines apply to future course work, as can be seen by examining the guidelines for the advanced experimental sciences research paper Bioc General form of a research paper An objective of organizing a research paper is to allow people to read your work selectively. When I research a topic, I may be interested in just the methods, a specific result, the interpretation, or perhaps I just want to see a summary of the paper to determine if it is relevant to my study. To this end, many journals require the following sections, submitted in the order listed, each section to start on a new page. There are variations of course. Some journals call for a combined results and discussion, for example, or include materials and methods after the body of the paper. The well known journal Science does away with separate sections altogether, except for the abstract. Your papers are to adhere to the form and style required for the Journal of Biological Chemistry, requirements that are shared by many journals in the life sciences. General style Specific editorial requirements for submission of a manuscript will always supercede instructions in these general guidelines. To make a paper readable Print or type using a 12 point standard font, such as Times, Geneva, Bookman, Helvetica, etc. Include the name s and address es of all authors, and date submitted. Abstract The summary should be two hundred words or less. See the examples in the writing portfolio package. General intent An abstract is a concise single paragraph summary of completed work or work in progress. In a minute or less a reader can learn the rationale behind the study, general approach to the problem, pertinent results, and important conclusions or new questions. Writing an abstract Write your summary after the rest of the paper is completed. After all, how can you summarize something that is not yet written? Economy of words is important throughout any paper, but especially in an abstract. However, use complete sentences and do not sacrifice readability for brevity. You can keep it concise by wording sentences so that they serve more than one purpose. For example, "In order to learn the role of protein synthesis in early development of the sea urchin, newly fertilized embryos were pulse-labeled with tritiated leucine, to provide a time course of changes in synthetic rate, as measured by total counts per minute cpm. The writer can now go directly to summarizing the results. Summarize the study, including the following elements in any abstract. Try to keep the first two items to no more than one sentence each. Purpose of the study - hypothesis, overall question, objective Model organism or system and brief description of the experiment Results, including specific data - if the results are quantitative in nature, report quantitative data; results of any statistical analysis shoud be reported Important conclusions or questions that follow from the experiment s Style: Single paragraph, and concise As a summary of work done, it is always written in past tense An abstract should stand on its own, and not refer to any other part of the paper such as a figure or table Focus on summarizing results - limit background information to a sentence or two, if absolutely necessary What you report in an abstract must be consistent with what you reported in the paper Corrrect

spelling, clarity of sentences and phrases, and proper reporting of quantities proper units, significant figures are just as important in an abstract as they are anywhere else Introduction Your introductions should not exceed two pages double spaced, typed. General intent The purpose of an introduction is to aquaint the reader with the rationale behind the work, with the intention of defending it. It places your work in a theoretical context, and enables the reader to understand and appreciate your objectives. Writing an introduction The abstract is the only text in a research paper to be written without using paragraphs in order to separate major points. Approaches vary widely, however for our studies the following approach can produce an effective introduction. Describe the importance significance of the study - why was this worth doing in the first place? Provide a broad context. Defend the model - why did you use this particular organism or system? What are its advantages? You might comment on its suitability from a theoretical point of view as well as indicate practical reasons for using it. State your specific hypothesis es or objective s , and describe the reasoning that led you to select them. Very briefly describe the experimental design and how it accomplished the stated objectives. Use past tense except when referring to established facts. After all, the paper will be submitted after all of the work is completed. Organize your ideas, making one major point with each paragraph. If you make the four points listed above, you will need a minimum of four paragraphs. Present background information only as needed in order support a position. The reader does not want to read everything you know about a subject. As always, pay attention to spelling, clarity and appropriateness of sentences and phrases. Materials and Methods There is no specific page limit, but a key concept is to keep this section as concise as you possibly can. People will want to read this material selectively. The reader may only be interested in one formula or part of a procedure. Materials and methods may be reported under separate subheadings within this section or can be incorporated together. General intent This should be the easiest section to write, but many students misunderstand the purpose. The objective is to document all specialized materials and general procedures, so that another individual may use some or all of the methods in another study or judge the scientific merit of your work. It is not to be a step by step description of everything you did, nor is a methods section a set of instructions. In particular, it is not supposed to tell a story. By the way, your notebook should contain all of the information that you need for this section. Writing a materials and methods section Materials: Describe materials separately only if the study is so complicated that it saves space this way. Include specialized chemicals, biological materials, and any equipment or supplies that are not commonly found in laboratories. Do not include commonly found supplies such as test tubes, pipet tips, beakers, etc. If use of a specific type of equipment, a specific enzyme, or a culture from a particular supplier is critical to the success of the experiment, then it and the source should be singled out, otherwise no. Materials may be reported in a separate paragraph or else they may be identified along with your procedures. In biosciences we frequently work with solutions - refer to them by name and describe completely, including concentrations of all reagents, and pH of aqueous solutions, solvent if non-aqueous. See the examples in the writing portfolio package Report the methodology not details of each procedure that employed the same methodology Describe the mehodology completely, including such specifics as temperatures, incubation times, etc. To be concise, present methods under headings devoted to specific procedures or groups of procedures Generalize - report how procedures were done, not how they were specifically performed on a particular day. For example, the Bradford assay is well known. You need not report the procedure in full - just that you used a Bradford assay to estimate protein concentration, and identify what you used as a standard. Therefore when writing up the methods most authors use third person passive voice. Use normal prose in this and in every other section of the paper â€" avoid informal lists, and use complete sentences. What to avoid Materials and methods are not a set of instructions. Omit all explanatory information and background - save it for the discussion. Omit information that is irrelevant to a third party, such as what color ice bucket you used, or which individual logged in the data. Results The page length of this section is set by the amount and types of data to be reported. Continue to be concise, using figures and tables, if appropriate, to present results most effectively. See recommendations for content, below. General intent The purpose of a results section is to present and illustrate your findings. Make this section a completely objective report of the results, and save all interpretation for the discussion. You must clearly distinguish material that would normally be included in a research article from any raw data or

other appendix material that would not be published. In fact, such material should not be submitted at all unless requested by the instructor. Content Summarize your findings in text and illustrate them, if appropriate, with figures and tables. In text, describe each of your results, pointing the reader to observations that are most relevant. Provide a context, such as by describing the question that was addressed by making a particular observation. Describe results of control experiments and include observations that are not presented in a formal figure or table, if appropriate. Analyze your data, then prepare the analyzed converted data in the form of a figure graph , table, or in text form. What to avoid Do not discuss or interpret your results, report background information, or attempt to explain anything. Never include raw data or intermediate calculations in a research paper. Do not present the same data more than once. Text should complement any figures or tables, not repeat the same information. Please do not confuse figures with tables - there is a difference. Style As always, use past tense when you refer to your results, and put everything in a logical order. In text, refer to each figure as "figure 1," "figure 2," etc. If you prefer, you may place your figures and tables appropriately within the text of your results section. Figures and tables Either place figures and tables within the text of the result, or include them in the back of the report following Literature Cited - do one or the other If you place figures and tables at the end of the report, make sure they are clearly distinguished from any attached appendix materials, such as raw data Regardless of placement, each figure must be numbered consecutively and complete with caption caption goes under the figure Regardless of placement, each table must be titled, numbered consecutively and complete with heading title with description goes above the table Each figure and table must be sufficiently complete that it could stand on its own, separate from text Discussion Journal guidelines vary. Space is so valuable in the Journal of Biological Chemistry, that authors are asked to restrict discussions to four pages or less, double spaced, typed.

This review is a collection of views and advice on composing research questions from problem statements. It mostly reads as a list of tips and suggestions. A research question is the fundamental core of a research project, study, or review of literature.

Introduction Before beginning your paper, you need to decide how you plan to design the study. The research design refers to the overall strategy that you choose to integrate the different components of the study in a coherent and logical way, thereby, ensuring you will effectively address the research problem; it constitutes the blueprint for the collection, measurement, and analysis of data. Note that your research problem determines the type of design you should use, not the other way around! Research Design in Social Research. Research Methods Knowledge Base. General Structure and Writing Style The function of a research design is to ensure that the evidence obtained enables you to effectively address the research problem logically and as unambiguously as possible. In social sciences research, obtaining information relevant to the research problem generally entails specifying the type of evidence needed to test a theory, to evaluate a program, or to accurately describe and assess meaning related to an observable phenomenon. With this in mind, a common mistake made by researchers is that they begin their investigations far too early, before they have thought critically about what information is required to address the research problem. Without attending to these design issues beforehand, the overall research problem will not be adequately addressed and any conclusions drawn will run the risk of being weak and unconvincing. As a consequence, the overall validity of the study will be undermined. The length and complexity of describing research designs in your paper can vary considerably, but any well-developed design will achieve the following: Identify the research problem clearly and justify its selection, particularly in relation to any valid alternative designs that could have been used, Review and synthesize previously published literature associated with the research problem, Clearly and explicitly specify hypotheses [i. However, you can get a sense of what to do by reviewing the literature of studies that have utilized the same research design. Also included is a collection of case studies of social research projects that can be used to help you better understand abstract or complex methodological concepts. The Research Methods Videos database hours of tutorials, interviews, video case studies, and mini-documentaries covering the entire research process. Qualitative, Quantitative, and Mixed Methods Approaches. Sage, ; De Vaus, D. Creating Robust Approaches for the Social Sciences. Sage, ; Leedy, Paul D. Pearson, ; Vogt, W. Gardner, and Lynne M. When to Use What Research Design. Action Research Design Definition and Purpose The essentials of action research design follow a characteristic cycle whereby initially an exploratory stance is adopted, where an understanding of a problem is developed and plans are made for some form of interventionary strategy. Then the intervention is carried out [the "action" in action research] during which time, pertinent observations are collected in various forms. The new interventional strategies are carried out, and this cyclic process repeats, continuing until a sufficient understanding of [or a valid implementation solution for] the problem is achieved. The protocol is iterative or cyclical in nature and is intended to foster deeper understanding of a given situation, starting with conceptualizing and particularizing the problem and moving through several interventions and evaluations. What do these studies tell you? This is a collaborative and adaptive research design that lends itself to use in work or community situations. Design focuses on pragmatic and solution-driven research outcomes rather than testing theories. When practitioners use action research, it has the potential to increase the amount they learn consciously from their experience; the action research cycle can be regarded as a learning cycle. Action research studies often have direct and obvious relevance to improving practice and advocating for change. There are no hidden controls or preemption of direction by the researcher. It is harder to do than conducting conventional research because the researcher takes on responsibilities of advocating for change as well as for researching the topic. Action research is much harder to write up because it is less likely that you can use a standard format to report your findings effectively [i. Personal over-involvement of the researcher may bias research results. The cyclic nature of action research to achieve its twin outcomes of action [e. Advocating for change usually requires

buy-in from study participants. Coghlan, David and Mary Brydon-Miller. The Sage Encyclopedia of Action Research. Action Research in Education: Guilford, ; Gall, Meredith. Chapter 18, Action Research. Norman Denzin and Yvonna S. SAGE, , pp. Writing and Doing Action Research. Sage, ; Reason, Peter and Hilary Bradbury. Handbook of Action Research: Participative Inquiry and Practice. Case Study Design Definition and Purpose A case study is an in-depth study of a particular research problem rather than a sweeping statistical survey or comprehesive comparative inquiry. It is often used to narrow down a very broad field of research into one or a few easily researchable examples. The case study research design is also useful for testing whether a specific theory and model actually applies to phenomena in the real world. It is a useful design when not much is known about an issue or phenomenon. Approach excels at bringing us to an understanding of a complex issue through detailed contextual analysis of a limited number of events or conditions and their relationships. A researcher using a case study design can apply a variety of methodologies and rely on a variety of sources to investigate a research problem. Design can extend experience or add strength to what is already known through previous research. Social scientists, in particular, make wide use of this research design to examine contemporary real-life situations and provide the basis for the application of concepts and theories and the extension of methodologies. The design can provide detailed descriptions of specific and rare cases. A single or small number of cases offers little basis for establishing reliability or to generalize the findings to a wider population of people, places, or things. Design does not facilitate assessment of cause and effect relationships. Vital information may be missing, making the case hard to interpret. The case may not be representative or typical of the larger problem being investigated. If the criteria for selecting a case is because it represents a very unusual or unique phenomenon or problem for study, then your intepretation of the findings can only apply to that particular case. Chapter 4, Flexible Methods: Columbia University Press, ; Gerring, John. Past, Present and Future Challenges. Encyclopedia of Case Study Research. The Art of Case Study Research. Applied Social Research Methods Series, no. Most social scientists seek causal explanations that reflect tests of hypotheses. Causal effect nomothetic perspective occurs when variation in one phenomenon, an independent variable, leads to or results, on average, in variation in another phenomenon, the dependent variable. Conditions necessary for determining causality: Empirical association -- a valid conclusion is based on finding an association between the independent variable and the dependent variable. Appropriate time order -- to conclude that causation was involved, one must see that cases were exposed to variation in the independent variable before variation in the dependent variable. Nonspuriousness -- a relationship between two variables that is not due to variation in a third variable. Causality research designs assist researchers in understanding why the world works the way it does through the process of proving a causal link between variables and by the process of eliminating other possibilities. There is greater confidence the study has internal validity due to the systematic subject selection and equity of groups being compared. Not all relationships are casual! The possibility always exists that, by sheer coincidence, two unrelated events appear to be related [e. Conclusions about causal relationships are difficult to determine due to a variety of extraneous and confounding variables that exist in a social environment. This means causality can only be inferred, never proven. If two variables are correlated, the cause must come before the effect. Beach, Derek and Rasmus Brun Pedersen. Causal Case Study Methods: Foundations and Guidelines for Comparing, Matching, and Tracing. University of Michigan Press, ; Bachman, Ronet. Chapter 5, Causation and Research Designs. Sage, , pp. Chapter 11, Nonexperimental Research: Cohort Design Definition and Purpose Often used in the medical sciences, but also found in the applied social sciences, a cohort study generally refers to a study conducted over a period of time involving members of a population which the subject or representative member comes from, and who are united by some commonality or similarity. Using a quantitative framework, a cohort study makes note of statistical occurrence within a specialized subgroup, united by same or similar characteristics that are relevant to the research problem being investigated, rather than studying statistical occurrence within the general population. Using a qualitative framework, cohort studies generally gather data using methods of observation. Cohorts can be either "open" or "closed. Date of entry and exit from the study is individually defined, therefore, the size of the study population is not constant. In open cohort studies, researchers can only calculate rate based data, such as, incidence rates and variants thereof. Closed Cohort

Studies [static populations, such as patients entered into a clinical trial] involve participants who enter into the study at one defining point in time and where it is presumed that no new participants can enter the cohort. Given this, the number of study participants remains constant or can only decrease. The use of cohorts is often mandatory because a randomized control study may be unethical. For example, you cannot deliberately expose people to asbestos, you can only study its effects on those who have already been exposed. Research that measures risk factors often relies upon cohort designs.