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Situating Research

Writers, Sources, and Strategies

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Chapter 1
Researching in Context

It's a Friday night, and a new movie is premiering. You have seen the movie's previews for weeks leading up to the release, and you have also seen posters at the theater. You've read reviews online and in the newspaper. You have also seen other films by the director and starring actors in the cast. You know, based on this evidence, that the movie will probably be good. It does not disappoint. Later that weekend, you tell your friends about the movie, sharing the best parts, and you make a case that they should see it as well.

This is an example of the types of research that we engage in every day. From researching the latest cell phone to deciding where to have lunch, you accumulate a great deal of information and are able to make a decision based on the evidence. Furthermore, you will share your own experiences and evidence about these issues with your friends and family, and sometimes you will share this information with many more people through blog posts, Facebook or Myspace entries, and even reviews on websites.

Why Do Academic Writing and Research?

To Solve Problems
Although research for work or school may not seem much like the casual research that you do every day, it really is not all that different. Imagine the movie preview is a problem of sorts. It is a topic that intrigues you, but you have been tricked by previews in the past and don't want to spend the money if it's not worth it. **To solve this problem**, you read a few reviews. It is important to read more than one review to get some corroborating evidence about the quality of the movie. Similarly, in professional and school research, you cannot always rely on one or two sources but need multiple sources to help you make a case. In the case of the movie, you know that the director has made good films in the past, so you have some faith in the quality of the picture. You also enjoy the previous work by the actors in the movie, so you feel comfortable that they will entertain. In researching professional and academic topics, it is important to find reputable sources by known scholars and authors rather than random writers who have no credentials.

To Learn and Be Informed
Sometimes you may do research only **to inform yourself** about topics of interest. First of all, you will want to know for yourself if the movie is worth watching before you ask your friends to watch it with you. Similarly, academic researchers will often have a question about something that they want to learn more about so they first do research simply to gather information.

To Share New Knowledge
Naturally, after you have informed yourself about movie's quality, you will **share the information** you gain with others, telling your friends about what you discovered. Obviously, this is not so different from school where you also write to share what you have learned

through lecture, studying, and research about a certain subject. Most often you share this information with your professor, but your writing can also be used to share what you have learned with peers in your class. In writing about their scholarship, academic researchers also share what they have learned about a specific research question or problem with their peers.

To Persuade Others
While sharing information with others is beneficial, it will not mean much to them unless you can persuade them that your findings are worthwhile. For example, if you want your friends to watch a movie with you, you will need to share your discoveries about the film in a way that **persuades** them to also see the movie. It's not just your opinion and experience that will convince them, but all of the different types of credible evidence and specific reasons why the movie is worth seeing. In the same way, a professor's academic research is basically meaningless unless they can persuade an audience of peers that the research is credible and useful.

To Learn By Communicating
In persuading your friends to watch the movie with you, you may find yourself coming up with new ideas and reasons for watching the movie that you would not have thought of if you were only watching the movie by yourself. You may find yourself synthesizing reviews with your personal experience in unique ways. Also, in discussing the film with you, your friends may come up with reasons for not wanting to watch the film that you may not have thought of before. Believe it or not, academic writing works in exactly the same way. In writing a research paper, your professor or fellow students may come up with objections or questions about your writing, helping you to see your ideas in a new and different way and perhaps prompting you to dig even deeper with your research. Academic researchers go through the same process. In trying to persuade others of the importance of their discoveries, they might find that other researchers in their field have important questions or objections to their work. By responding to these questions and objections from their peers, the original academic researchers may discover new ideas or see their research in new ways. Thus, even the process of writing and communicating our ideas with others helps us discover new knowledge.

However, even with all your thoughtful persuasion, some of your friends probably won't want to go to the movie regardless because they don't like the type of movie or the lead actor. It would take a great deal more evidence, especially evidence that the friends valued, to persuade them to see a movie that they wouldn't normally watch. When communicating with some audiences, certain types of evidence will have more value, and in some contexts, such as in school or professional settings, certain types of evidence can even negatively impact your argument. To persuade others, it is vital to not only have lots of good evidence, but to have multiple, appropriate types of evidence for your audience as well. It is important, therefore, to remember that all research and writing is wrapped up in particular research and writing situations. In this chapter, we will discuss how all communication is shaped by specific contexts. Then, we will discuss how professionals and scholars have responded to common research and writing contexts by developing recognizable research traditions and genres. Finally, we will explore how the writing and research context influences every aspect of a research project.

1. Go online to *metacritic.com* and read the reviews for a new movie, game, or album coming out that you are interested in. Then, using the reviews as evidence, write a paragraph explaining to your friends why they should also see this movie, play this game, or listen to this album.
2. Take a few minutes to write about a topic you have researched out of personal need or interest. What kinds of information did you need to find? How did you go about finding it? What did you do with or based on your research results?
3. In small groups, share your non-academic research stories. What are the similarities and differences in your topics, research strategies, and outcomes?

What Defines a Writing Situation or Context?

In writing about your research, it is important to keep your audience and the writing context in mind in order to most effectively persuade others with your research. The writing situation, also called context or rhetorical situation, always shapes research and writing. Since the time of the ancient Greeks, scholars have devised and debated models and terms to represent communication because it is difficult to account for all of the elements involved in speaking and writing. One common, simple model is the rhetorical triangle.

The basic elements of the rhetorical situation are:

The Author – Who is communicating? What is the author's persona?

The Audience – Who will be receiving the text? What does the author know about them, their position, their values, etc that will influence how the text is written?

The Subject and Purpose – What will the communication be about? What does the author hope to accomplish with the communication?

Author

Text

Audience   Subject/Purpose
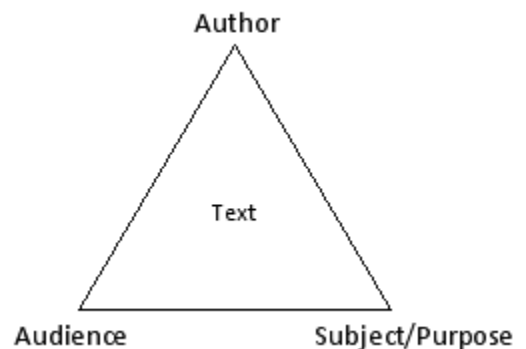
Just as in geometry, if any point shifts, the shape of the triangle changes; the orientation of the author, audience, and subject matter all shape the text. Consider even the most basic writing tasks, such as making a grocery list. If you make a list for yourself, the contents will be a basic reminder of what you need to get. However, if you are writing a list for a friend, the contents will need to be more detailed. If you are making a pasta dish, "pasta sauce" will be sufficient as a reminder to yourself, but you'll need to tell your friend what type, size, or name brand of sauce to buy. Obviously, professional, civic, and academic rhetorical situations become much more complicated and require thoughtful writing to meet the needs of the given case.

1. Look at the syllabi for each of your courses this term and make an inventory of the kinds of writing assignments you will have to complete. Try to define the rhetorical situation for each assignment, especially with regard to the apparent purpose of the writing.
2. As a class or in small groups, create a list of academic writing situations you have encountered or expect to encounter based on your syllabi reviews. You might want to create a course document or wiki that you can add to throughout the term. Return to your list as you work through this textbook and discuss how the concepts covered can help you address these different writing situations.

What is a Discourse Community?

Whether writing to learn, share knowledge, or create new knowledge, students and professors encounter a wide range of writing situations. Therefore, it can be problematic to discuss "academic writing" as though it were just one particular type of writing, just as one cannot lump together all public or popular writing that happens outside of the university. Instead, it is more useful to discuss how people form discourse communities that perform certain kinds of tasks and produce different genres to achieve their purposes.

While letters, personal writing, and some assignments are often addressed to a single reader, most writing is addressed to a larger audience. Groups of people who tend to communicate with one another are called **discourse communities**, and they share common concerns, content, questions, vocabulary, and ways of sharing knowledge. Participants on an NFL discussion board form a discourse community—they share content knowledge about teams, players, statistics and rules; they use specialized language when discussing players' game strategies and scoring averages; they debate draft decisions and analyze coaching strategies; there are rules how to write and where to post messages; moderators keep threads on topic and intervene if participants become aggressive or insulting. Different professions have their own discourse communities as well. Members of the medical community are often characterized as speaking their own language; they use technical jargon and abbreviations for conditions and treatments, seemingly cryptic notations for record keeping, and follow incredibly precise rules in their publications.

1. Brainstorm a list of all of the different discourse communities you belong to. How is each defined in terms of shared content, ways of doing things, and ways of talking or writing?

What are Research Traditions?

In the process of conducting research within specific discourse communities, scholars have developed certain ways of doing research or **research traditions** over time as they have studied similar problems and faced similar research contexts and writing situations. Each research tradition is characterized by similar kinds of questions, common ways of collecting data, and accepted means of analyzing and reporting results. Most research can be categorized as text-based, qualitative, or quantitative. Some researchers stick to one of these types of research, while many use multiple approaches to meet the needs of their studies. Let's start with a few brief definitions.

> **Text-based Research** – Text-based research, often called interpretive research in the humanities, studies a variety of texts and artifacts (books, magazines, films, TV, music, advertising and propaganda of various types, etc.). While all research traditions use published sources, text-based research studies texts as the main focus, rather than as a means to an end. Text-based researchers usually examine texts within a specific context and focus. By doing so, they gain a better understanding of texts and cultures. An analysis of how Thomas King employs Native story-telling strategies in his book *The Truth about Stories* would be an example of text-based research.

> **Qualitative Research** – Qualitative research is descriptive in nature, concerned with observing and interviewing people to learn as much about them and their cultures as possible. By studying people in their natural contexts, qualitative research tries to understand more about how specific cultures shape how and why people do things. A psychologist's case study of a patient would be an example of qualitative research.

> **Quantitative Research** – Quantitative research is any research that involves measurement or the manipulation of numbers to make claims, provide evidence, describe phenomena, determine relationships, or determine causation. In such research, it is the frequency of a phenomenon or opinion or the results of an experiment that provide evidence for the researcher to make claims. For instance, lab experiments where you must count or measure something (temperature, mass, time, etc) are examples of quantitative research. In contrast, a lab experiment where you determine your results based solely on something's appearance would be qualitative.

We will discuss text-based, qualitative, quantitative and mixed method research more fully in Chapters 6-9, explaining more fully the research methods that each research tradition uses to conduct research.

What Kinds of Writing do Researchers Do?

Just as shared content and ways of generating content form discourse communities and research traditions, recurring research and writing situations allow scholars to develop patterns and habits for responding to them. As a result, we can discuss certain **genres** and writing strategies that have arisen to meet academic needs. Genre is a complex concept, surrounded by different definitions and theories, but a simple understanding of genre as a classification or type of text characterized by recurring patterns of content, organization, or style will suffice for our purposes.

Similar to how research traditions have developed, genres have evolved in writing as people have responded to particular needs of communication in certain contexts. For example, people have always needed to communicate news and current events. The spread of print made newspapers a convenient way to do this. News writers realized that people would want to be able to read about some topics and not others, that the stories should be easy to find, and that the most important information in a story should come first because readers might not have time to finish the whole article. Thus, journalists developed the genre of the news story, marked by a clear headline, and the standard lead paragraph that provides the who, what, when, where, and why of the story became a convention. In academic writing, genres, such as lab reports, abstracts, works cited or reference pages, and even the five-paragraph essay that you may have learned in high school evolved as people responded to recurring writing situations and realized that standardized formats would make communication more efficient. When learning to write in new genres, it is important to remember that it's not about following arbitrary rules, but following certain writing strategies and patterns that will help your specific audience get your message most effectively.

However, research writing is common in many non-academic contexts as well, and other genres are common in civic and professional discourse. Business people write emails, memos, reports, business plans, proposals, and presentations to share their research with different audiences. Activists create websites and brochures to present research-based evidence to support their causes. Government aids and lobbyists write white papers to share research on complex topics with politicians. People from many professions and hobbies conduct research on topics that interest them and then write or contribute to Wikipedia entries to share information with a diverse audience. Each of the research tradition chapters in this book includes a popular example that represents how writers in non-academic contexts employ many of the same research methods as academics, though they usually write about their results in very different ways. In Chapter 2, we'll talk more about how various academic, civic, and professional discourse communities use research materials to inform and persuade audiences.

Discussion and Practice
1. Make a list of non-academic research writings you have encountered recently. What were they about? What genres were represented? Where did you see them?

How Do Context and Research Traditions Shape Research Writing?

Rhetorical situations and research traditions influence every stage of the research process, from what questions are asked, to what kind of research is conducted to find answers, to how results are presented and evaluated. Some considerations are practical, such as what can be done with the time and resources available. Other decisions are based on a researcher or discipline's ideas about how knowledge is made. These considerations guide researchers' decisions about all elements of their studies, including:

Research Method – Research method refers to how the research is done. Interviewing, conducting surveys, or gathering data from focus groups are all different types of research methods. Different research questions lend themselves to different methods. For example, we can't answer questions about historical events by observing them directly, but we may be able to interview people who were involved. If everyone who was there at the time is deceased, we would need to examine artifacts, such as material evidence or texts from the time, to answer our questions.

Evidence – Evidence refers to the research data that the researcher has collected in order to support a claim. Context determines what counts as valid evidence in research. For example, researchers in the social sciences value observation and interview data. Researchers in the physical sciences prefer evidence from controlled lab experiments. Evidence can also be gleaned from existing published sources to create an original argument.

Sources – Sources are defined here as where the evidence originated. Most academic writing situations call for academic sources—preferably sources published in peer-reviewed journals—and material from popular magazines or websites is seen as suspect. Sources can be categorized as primary or secondary. Primary sources are original texts or data collected by the person doing the research. For example, an historian might collect oral histories from Vietnam veterans. These oral histories are considered primary sources because they are the research data that the historian collected. Secondary sources are previously published syntheses, interpretations, or revisions of primary sources. When the researcher read several books by other prominent historians about Vietnam War, these books are secondary sources.

Scope – The extent or degree of research refers to how elaborate or extended the study needs to be. Specific research and writing situations determine the depth and breadth of research required. A student writing a research paper for an introductory political science class might only need to read and discuss four sources provided in class to meet the assignment, but a graduate student would need to locate, evaluate, and integrate a number of scholarly sources to complete a successful seminar paper.

Presentation – Presentation includes the forum, genre, and style in which researchers share their results. The forum is where a text is published, and research writing appears in everything from personal blogs to scholarly books. Different publication venues are appropriate for different research and writing purposes. As discussed above, research writing can be presented in multiple genres as well, from lab reports to grant proposals to articles. Writers must study examples of the genre that most meets the needs of their research and writing situation and follow the writing strategies that would most effectively persuade their intended audience. Consequently, the research and writing situation determines what counts as "good" writing. It determines what rhetorical moves you make in writing, what type of language or word choice you use, and how you format your data and sources.

The research cases below illustrate how topic, audience, and purpose determine how the research is conducted and then presented in writing to solve problems in different disciplines.

Text-based Research in Law

Using Research to Solve Legal Problems
Catherine is a lawyer in Indiana whose firm has been hired to defend a blogger's privilege to protect their confidential sources. A senior partner has asked Catherine to write a legal memorandum to present the case. In gathering evidence and opinions, she will use a variety of primary and secondary textual sources. For example, she'll need to study the specific shield laws in the state (Indiana's shield law does cover freelance writers associated with traditional media, but has not yet been applied to bloggers). She will need to review case law and precedent, and will study the blogger's publication and the story in question to see if the site meets legal standards for editorial control. This work will require close reading and interpretation of specific passages. Catherine will probably also read relevant articles that analyze similar cases.

Using Writing to Solve Legal Problems
After conducting extensive research and analysis, Catherine will write an open memo to the firm that follows a standard outline. She'll write an introduction, a statement of the legal question at issue, a statement of the facts in the case, an overview of pertinent statutes and precedents, a discussion of the issues in the case, and a conclusion that considers potential outcomes for the case and makes a recommendation about how the firm should proceed.

To write a successful legal memorandum, Catherine needs to be precise and concise. She doesn't need to provide an exhaustive history of case law on the matter, but will cite the most important recent cases and statutes that pertain to the case. Because she is writing this memo to other legal experts, Catherine can refer to legal terms and statutes without elaborating, but she will need to revise the language and content if she uses material from this memo in a letter of opinion or trial notes in the future.

Qualitative Research in Education

Using Research to Solve Problems in Education
Mike is a high school teacher who wants to discover why a high percentage of students drop out of a certain high school. He will begin by reading what other scholars have written about the causes of high dropout rates, but the best primary research method is to conduct a type of qualitative research called ethnography. Erin will spend at least a year observing the school in as much of its context as possible—observing several classrooms, the cafeteria, etc. He will also interview many of the participants in the school—students, teachers, the principal, and possibly even some of the parents. In this way, Mike will examine the school's culture as thoroughly and in as much detail as possible in order to discover hidden causes that even the participants might be unaware of. Because the teacher does not know what these hidden causes are before he starts his research, a multiple choice survey that lists possible causes for the high dropout rates would not be as accurate. This type of survey might miss some underlying causes that the teacher is unaware of. Even an open-ended questionnaire would not get at the underlying causes for the high dropout rates because some of these causes might be unknown to the students, too. In other words, the ethnography is the best approach because the problem of high dropout rates is too complex for other research methods. Only by seeing the entire school in its context through conducting detailed observations and interviews can the teacher get at the complex reasons for dropping out of high school.

Using Writing to Solve Problems in Education
Mike wants to write about his ethnographic research in an academic journal to share his findings with other educators who may be facing similar challenges. To do this, he carefully details his research methods, letting the audience of other researchers know exactly how he conducted his study. Mike also writes a literature review where he not only shows what other researchers have already discovered about the reasons for dropping out of high school, but also establishes why his research is original or important for other educators to read about. Finally, he includes many details from his observations and interviews, which gives his findings credibility. Academic articles usually follow conventional organizational structures, and most journals require a specific style for citing sources.

On the other hand, Mike's principal also asks him to offer the school suggestions that would help teachers and administrators motivate more students to graduate. When sharing these suggestions, Mike doesn't write about methods, a literature review, or details from his observations and interviews. Instead, he takes findings from the ethnography and uses them to offer a short, bulleted list of practical suggestions that busy teachers and administrators can quickly read and learn from.

Quantitative Research in Medicine

Using Research to Solve Problems in Medicine
Sarah is a biological engineer who has an idea for constructing coronary stents that would better facilitate blood flow through blockages in the coronary arteries. She has read a number

of published articles in medical journals about current stent technology and has observed their effectiveness in practice, which has led to her theory for improving this medical equipment. She then tests out her theory in a lab by measuring which stent provides the best flow. This is an example of a lab experiment that relies on the quantitative research tradition, and she will record her data clearly.

Using Writing to Solve Problems in Medicine
Sarah would like to run even more experiments using the coronary stents in her lab, but she needs more sophisticated and expensive equipment in order to do this. To get the money, she decides to write a proposal for a research grant. Her audience for the proposal is a panel of other experts in her field of biological engineering. She first writes about the research on blood flow in coronary stents that she and others have already conducted. She does this to establish the need for further research and funding for more expensive equipment to continue the study. Then, she outlines her plan for extending this research. This will prove to her audience of experts that her research will be viable and credible.

Good scientific writing is often quite technical and detailed. Because she is writing to other experts in her field, Sarah will use terminology that would probably lose a non-expert audience but that is more precise and accurate to an expert audience. She will need to follow the specific format recommended by the agency offering the grant and document her sources using the citation style the grant agency recommends. Sarah will also provide detailed tables of data to represent her primary research and further enhance her credibility.

Mixed Method Research in Business

Using Research to Solve Problems in Business
A business major named Max wants to start a local coffee shop after graduation. To help make it successful, though, Max must first conduct several kinds of research. He will research models of other successful coffee shop businesses, compare them to see what successful coffee shops have in common, and apply these in designing his own business plan. Max could also research what other business or marketing professionals have written about coffee shops and implement their suggestions. So far, Max has primarily engaged in text-based research.

Because markets vary, however, Max needs to conduct local market research to find out what types of coffee drinks would sell the best and make him the most profit. This research problem calls for quantitative research. He decides to conduct a survey asking people in the area what types of coffee drinks they would most like to drink and what price ranges they would be most willing to pay. A survey is the most appropriate method because he can ask several multiple choice questions and quickly get responses from many people as surveys are easy to pass out and don't take more than a few minutes to complete. While it is impossible for him to survey everyone living in the area, Max still needs to poll a good percentage of the locals to get a sufficient breadth of information. However, because the information he needs is quite focused, his research doesn't need as much depth as a more open-ended, qualitative interview would

give him, for instance. Consequently, a short, multiple-choice quantitative survey will suffice for his research needs.

After conducting his survey, Max knows which types of coffee drinks and price ranges would make him the biggest profit, but he also knows that it takes more than affordable coffee to make a successful coffee shop. Therefore, Max decides to conduct qualitative research in the form of a focus group. He invites ten people who represent his target demographic to discuss possibilities for the store's décor, logo, food, and retail items.

Using Writing to Solve Problems in Business
When this research is completed, Max has a very good idea of how to run a successful coffee shop, but he needs more start-up money to open his business. To solve this problem, he uses his text-based, quantitative, and qualitative research to write a business plan to convince potential financial backers to invest. He chooses this genre to outline plans for the business, showing potential investors that his business is likely to be successful and make a profit.

Good business writing is clear and concise. Consequently, Max does not go into a lot of detail about the process or data from his research but only presents the most important information so that busy financial backers will be able to skim the document and glean the key points. In fact, he may present most of his data visually, using tables, charts, or graphs. He will also not include a literature review from his research of other successful business plans, but will only use this research to support the rationale for his own business plan.

Note that each of these researchers begins with a specific topic and purpose. The scholar then considers the best research strategy for solving their particular problem and how in-depth the research will need to be. Either before the project begins or in the process of conducting the research, the writer decides what audience or audiences they will need to communicate with about their findings, and the audience will further determine what counts as appropriate evidence and what counts as "good" writing. We will discuss a number of text-based, qualitative, quantitative, and mixed method studies in the following chapters. As we do, pay special attention to how the author's topic, purpose, and audience influence the type and scope of their research and how they present their research using specific genres and writing conventions.

Writing Projects

1) *Researcher Profile* - Interview a professor in your major or an academic area that interests you about what research methods they use, how they write about their research, and where they publish their research. Write a profile of this professor's research and writing practices to share with the class.

2) *Discourse Community Analysis* – Select a discussion board/group/forum about a topic that interests you. Consider professional or college sports; fan sites for bands, books, films, or TV shows; hobbies like cooking or kayaking; or groups associated with your field of study or potential careers. Follow discussion on the forum for a couple of days, browse the archives, any background about the board, FAQs, or rules posted on the site. Write an article for potential site users to describe this board's discourse community and how it works. How would you summarize the forum's main topics, concerns, and purposes? What types of language do they use? Do they use terms that people outside of the community would not understand? If so, maybe you should include a brief glossary or list of common acronyms. What are the community's writing strategies and rules for discussing topics? Are the rules of conversation presented explicitly or do members seem to have a more implicit system for managing their discussions? What do you think people get out of belonging to this discourse community?

Chapter 2
Creating Arguments and Working with Evidence

People write for many purposes—to express their emotions and creativity, to entertain, to think through problems and decisions, to share information, to argue issues, to make proposals. The kinds of research writing that we emphasize in this book, however, focus primarily on writing to inform and persuade. Many students approach research projects with dread, not just because research papers require a lot of time and work, but also because they feel little investment in the process. You might think that writing a research paper is just about piecing together what other people have written and see no opportunity for expressing yourself or your opinions in this type of writing. Although some writing situations ask you to summarize and synthesize what others have said while being as objective as possible, almost all writing makes an argument of some kind, and you often have significant control over which sources you use, how you frame them, and how you make your case. In this chapter, we will discuss how people use evidence to inform and persuade in a variety of rhetorical situations.

You will recall from Chapter 1 that every act of writing or communication grows out of a particular context that includes an author, topic and purpose, and audience. People write in response to a particular **exigence**—an event or situation that requires some sort of rhetorical intervention. You can also think of exigence as a type of problem that requires rhetorical action and problem-solving. One type of exigence for students is when they are assigned writing for course credit. A newspaper reader may see an editorial they disagree with as an exigence for writing a letter to the editor. A neighborhood organization may see broken playground equipment as an exigence for writing a proposal for repairs to the town council. The kinds of research and evidence required for a successful piece of writing depends on what the author hopes to accomplish and what the audience expects.

Two of the most common purposes for academic, professional, and civic writing are exposition and persuasion. Exposition explains—its purpose is to share knowledge with an uninformed reader. Persuasive writing involves convincing readers to change their attitudes or actions. Essays that ask you to take a position on an issue or present an interpretation, business proposals, and political campaign materials are examples of writing to persuade or convince. Both of these purposes make a case about a topic or issue, however. For example, a brochure at your health center on how to avoid getting sick is expository in nature. It is giving you the facts. However, it has selected only a few facts and not every fact that has ever been written. It also avoids conflicting facts and any controversy. It is making an argument, even though it isn't overtly trying to persuade you to change your opinion. The techniques used on a political brochure may be the same—the careful selection of facts to make an argument—but the purpose is different.

All writing requires the effective use of **claims** and **evidence. Claims** are statements that you, the writer, originate. They should be supported by evidence—and all of this evidence comes

from the careful selection of **data** from many sources. Your evidence is any material you use to support a point or claim. Evidence is the "truth" presented by the writer in a particular situation. Data are facts produced and collected through looking at a topic in a particular way. As a researcher, you collect as much data as possible, and as a writer, you select the best data to present as evidence for an argument. This may sound confusing at first because you may have considered facts and truth as synonymous. Let's look at two examples how data becomes evidence in argument. The first can be seen often in the crime scene dramas on television. The crime scene investigators have to collect as much data as possible from a crime scene because they don't know what will be relevant until it is all analyzed. Although this isn't always portrayed in these shows, the investigators provide the most compelling data to the district attorney who then selects evidence from that data to present in the trial of a suspect. The attorney knows better than to present every gum wrapper, cigarette butt, speck or particle of dust to the jury when there might be more compelling evidence such as fingerprints or DNA on a murder weapon, so much of the data gets ignored.

Let's take another example. In the mid-2nd century, Ptolemy computed the position of the planets and their motion, a table of data that still can be used with some accuracy today. The data available to him was observations made with the naked eye and mathematical models. These facts led to Ptolemy's conclusion, which was accepted as truth, that the earth was at the center, and all planets revolved around it. The data was limited, however, and even Ptolemy wrote that this argument could only be theoretical. However, that theory held until 1643 when Copernicus collected more precise data on planetary orbits, then used it as evidence to argue that the sun was at the center of the system. This was followed by Tycho Brahe's data that supported Copernicus, and finally Galileo who used his telescope to collect even more data. The point is that the continued collection of more data changed the "truth" as more compelling evidence was used to make these arguments.

As a researcher, you want to collect a lot of data, but not all of it will end up as evidence in a final argument—you want to select the best evidence to produce the best argument. Depending on your topic, audience, and purpose, you can use a wide variety of evidence to support your argument. In fact, most writing draws on multiple types of data, such as: personal experience or anecdote; first-hand observations or field work; statistics gathered from surveys or controlled experiments; opinions, stories, or information from interviews; material from books, articles, and web sites; media like films, television programs, or podcasts; and statistics or data sets from research conducted by the government, universities, or other organizations. Next, we'll take a closer look at some different types of arguments and the rhetorical strategies and evidence that are appropriate for specific purposes.

Discussion and Practice

1. We are surrounded by arguments—all manner of texts presenting sometimes conflicting truths. Consider the following texts. Indicate the purpose of each, whether expository or persuasive. Then, indicate how much evidence is needed for it to achieve its purpose and why
    a. Commercials
    b. Essay in history
    c. Newspaper article
    d. Television newscast
    e. Essay in English
    f. Proposal in Business
    g. Scientific experiment
    h. Internet discussion post
    i. Letter to the Editor
    j. Instructions for using an iPod
    k. Blog
    l. Grocery list
    m. Website for a political candidate
2. Now that you have considered these various texts, do any seem non-argumentative? In other words, do all of the texts have to include evidence? Do all of these texts contain claims?

How Can We Define and Categorize Arguments?

A few brief definitions and strategies for argument will be useful as you work out connections between research and argumentation.

We can define argument broadly as presenting one's case in an effort to persuade others through the use of spoken or printed text and/or images. Arguments can range from minor disagreements addressed at the level of cooperative negotiation to polemical presentations with the goal of defeating opponents rather than persuading them. While aggressive argumentative attacks are common in some types of public and political discourse, academic discourse communities usually value more reasoned, logical arguments. The structure and tone of arguments varies considerably depending on the purpose and audience addressed. Consider the following common purposes for argumentation:

Arguments to seek the truth or work through issues – You may have had arguments like this with yourself, where you make pro and con lists for a specific decision or debate your options. This type of argumentation is also common in philosophical or theoretical discussions or when a group is working collaboratively to solve a problem. Inquiry-based argument is often called *dialectic*.

Arguments to raise awareness and increase involvement – In this type of argument, you must convince people that the information is worth their attention and that your presentation is factually accurate. For example, a human rights group might distribute a brochure to inform people about human trafficking; in addition to providing cases and individual statistics, they might highlight the humanity of the victims and demonstrate that this is a problem in the United States. Lastly, the human rights group will lead the reader to a website or address where they can find more information about human trafficking and can get involved in the organization through donations or volunteering.

Arguments to convince people to change their opinions or values – This is a broad category of argumentation that addresses everything from contrary evaluations of a football team's chances for the Super Bowl to attitudes about abortion. The seriousness of the issue and how entrenched your audience's values are will determine what types of evidence and strategies may succeed, but significant debates about values might never be "won."

Arguments to persuade or encourage people to take action – Arguments to convince often precede arguments to persuade an audience to act on their convictions. A community group might need to convince the city council that a park is in dangerous disrepair and then persuade them to allocate a budget and hire contractors to make repairs. In other cases, an audience might agree with your principle, but need persuasion to take an action or donate to support your cause. Persuasive arguments often involve demonstrating that the benefits of a particular policy or action would outweigh the costs.

In addition to identifying arguments by their purpose, we can also classify arguments by the nature of the issue they address. Often referred to as *stasis theory*, this approach dates back to ancient Greek and Roman rhetoric and considers where the points of contention lie. Consider the following *stases* and two examples that range significantly in content and seriousness.

Questions of Fact – Does a thing exist? Did something happen?

Questions of Definition – What is the nature of the thing or event? How can the thing or event be classified? What does it mean? Definition may also address how or why.

Questions of Evaluation – Is the thing or event good or bad? Accidental or intentional?

Questions of Policy or Procedure – What action should be taken? What is the best way to move forward?

We work through stases all of the time, often without realizing it. John tells Leslie that their favorite band from college just released a new album. At first, she questions this possibility, as the band hasn't released a new album in 12 years. This question of fact is easily resolved by checking the band's website. Next, Leslie might question if it will be as good because they have

a new lead singer. To settle this question of definition, John could argue that, while the old singer did shape the old sound greatly, the new singer is a great vocalist and guitarist who stays true to the band's roots. Next, Leslie might ask if it's a good album. John could answer this question of evaluation by telling her what he likes about it, playing one of his favorite songs, or referring her to the high reviews on Amazon. The final question of action is if Leslie should buy the CD or download it from iTunes.

A stasis approach is also common in more formal situations, such as legal cases. For example, if a man shoots and kills his roommate, the question of what happened might be determined by the existence of the roommates' body, the coroner's report, and the fact that the shooter was in possession of the weapon. Next, detectives would have to investigate if the shooting was accidental or intentional in order to define the nature of the shooting. If it was an accident, was it the result of gross negligence? If they find that the shooter meant to fire the weapon, the officers and the prosecutor would need to determine if the act occurred in the heat of the moment or if it was premeditated. The answers to each of these questions would inform the court's deliberations about what crime to charge the shooter with and what punishment to ask for. The differences between a case of reckless homicide and first-degree murder are significant, and thus great care must be taken to present appropriate evidence and appeals at every stage in the case.

Discussion and Practice

1. Think about some arguments you have made or debates you have had in the past. How would you classify these arguments based on the types described here? In small groups, generate a list of examples for each type of argument. Discuss what aspects of your argument experiences help you classify them. Did you come up with any examples that don't fit into one of these categories? What about arguments that might fall into more than one category?

2. Alone or in small groups, choose one of the general topics listed below and brainstorm some possible points of contention about the issue. Next, try to develop stasis questions that would lead to arguments of fact, definition, evaluation, and action associated with the topic. You might do an internet search to see what stasis questions appear in published debates about your topic.

   Refugee Policies in the US   Alcohol Use among Teenagers
   Academic Dishonesty   Texting While Driving
   The Pharmaceutical Industry   Fracking

How Do You Make an Argument through Rhetorical Appeals?

Regardless of the point of contention or purpose of an argument, it is important to be thoughtful about the strategies you use to persuade your audience. Rhetorical strategies are used in almost any type of writing—not just in directly argumentative texts—and the various **rhetorical appeals** address different elements of the issue at hand and different aspects of the

audience's consciousness. One of the ways that speakers and writers adapt to specific rhetorical situations is by adjusting the types of arguments or appeals they make or emphasize. We make strategic argumentative moves to achieve the desired effect.

There are three main categories of appeals that correspond roughly to the three elements of the rhetorical situation discussed in Chapter 1.

Author

Text

Audience   Subject/Purpose

Credibility Appeals

Argument

Emotional Appeals   Logical Appeals
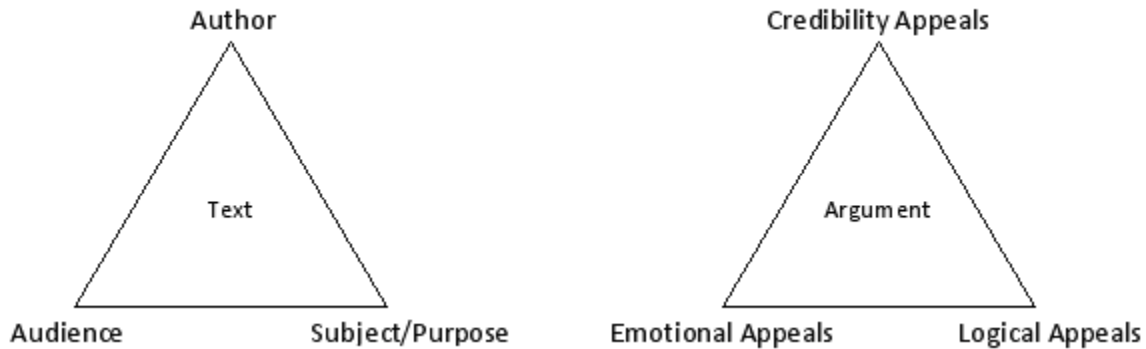
Figure 2.1 Rhetorical triangle.

Aristotle used the terms *ethos*, *logos*, and *pathos* to refer to appeals that emphasized the author, subject, or audience, respectively, but you don't have to know Greek or use technical terms to understand and use these types of appeals.

> **Ethos or Credibility Appeals** – One builds ethos by making ethical appeals, which establish the author's character, persona, credibility, status, authority, sincerity, or virtue. However, making an ethical appeal does not mean arguing if something is or is not ethical in our day-to-day use of the term, though it may involve the author's ethics. Thus, it may be simpler to say that the author establishes their credibility or demonstrates their authority rather than saying they make an ethical appeal.

> **Pathos or Emotional Appeals** – One creates pathos by making emotional appeals that draw on the audience's emotions, needs, beliefs, and values. While some argue that we should not rely on pathos, especially in academic writing, almost all effective texts include emotional appeals. The key is in how they are used and in the balance between emotional and logical appeals. In academic writing, arguments are expected to rely more on logical arguments than on pathos.

> **Logos or Logical Appeals** – Logos is a complicated term that had multiples meanings in Greek philosophy, but for our purposes, logos is the logic and reasoning of a text. Logos appeals are made by using 'facts,' statistics, examples, and anecdotes, often in support of inductive or deductive reasoning. Because logos is valued highly in academic writing, you should attend to how the evidence you use, the organization of your argument, and

how explicitly you make connections between concepts will appeal to your readers' rational side.

If you think about it, you are in a variety of rhetorical situations every day and employ rhetorical strategies to make the appropriate appeal for the desired effect. Chances are, however, that you just haven't examined these situations in quite this way or used these terms. For example, when Stacy was in high school, she had to convince her parents to help her buy a car for when she moved to college. She established her credibility and ethics by arguing that she had been responsible with the family car and worked hard at her part-time job to save money. She appealed to her parents' reason by explaining the time and expense that would be saved if they didn't have to drive back and forth to pick her up for visits and breaks, and how having a car would give her more options for working while she was in college. Stacy appealed to her parents' emotions by claiming that she would come to see them more and be less homesick if she had a car. Finally, Stacy reminded her parents that her older brother got a car when he went to school, thus making a logical appeal based on her parents' previous example while also appealing to her parents' values of fairness.

How is Logical Reasoning Used in Researched Arguments?

Because logos is so important in academic discourse, let's take a closer look at the two primary types of logical reasoning—deductive and inductive. Induction and deduction use evidence differently, so you should consider these approaches to research and argument at the outset of any project.

Inductive Reasoning

Inductive approaches begin with a collection of specific data and work from specific instances to develop general conclusions or theories. We use inductive reasoning all of the time as we learn from experience. Say you eat frozen entrees several days a week for lunch. If every time you microwave them for the amount of time listed on the package they are still cold in the center, inductive reasoning tells you that the directions aren't accurate for your microwave, so you start leaving them in longer until you figure out the best cooking time. Of course, induction in researched arguments is often more formalized. In terms of research, some scholars use "inductive method" and "scientific method" interchangeably, and formal research follows specific steps to collect data, analyze it, and draw conclusions based on the collected data. Inductive reasoning informs a variety of disciplines and approaches to research, ranging from textual studies that examine common characteristics of a genre to social sciences research about behavioral trends.

The strength of inductive arguments depends on the amount of evidence used to reach a conclusion. **Weak induction** is based on limited evidence and, as such, is less persuasive and more likely to be contradicted by further observation. If we return to the microwave example, it is quite reasonable to assume that the cooking time isn't accurate for the one microwave you use every day, but it would not be logical to assume that the directions are wrong for all microwaves. For this reason, arguments based only on personal experience or a limited data set should not be overgeneralized.

Strong induction is based on a large number of instances or occurrences, often observed over time by many individuals. Some phenomena, such as the sun rising in the east or the cycle of the seasons, have reoccurred regularly throughout history, so we feel quite confident that the sun will rise and set tomorrow as it always has and that summer will be hotter than spring in most areas. Even with strong inductions, however, the conclusion can never be completely certain and is subject to change if the observed evidence changes. As we have already indicated earlier in this chapter, for centuries, people believed the sun revolved around the earth because that is what their observations suggested; new technology and more accurate observations led people to change this belief.

If an inductive relationship is strong enough, it may become accepted as a natural law or common sense. These claims based on inductive reasoning from existing data can then be applied to deductive reasoning.

Deductive Reasoning

Deductive approaches work from general to specific, beginning with a generalization, theory, or claim about a category and applying it to a specific case to make an argument. Deductive reasoning is practiced in the sciences, mathematics, political science, and economics, which test scientific theories in specific situations or apply assumed laws to individual cases. Deduction is also common in philosophy, religious studies, and other fields that investigate abstract principles. The strength of a deductive argument is based on its logical consistency rather than the accumulation of evidence.

In formal logic, deduction often takes the form of a **syllogism**, which is a series of three statements that lead to a conclusion. The first statement is the major premise, a categorical claim or statement of apparent fact about some group or phenomena. The second statement is the minor premise, which makes a statement about a smaller subset or individual instance associated with the major premise. The third statement is the conclusion, which is logically entailed if the major and minor premises are true. Consider the following examples of syllogisms:

Major premise	One purpose of the state is to promote the safety of the people.	All teachers are nice.
Minor premise	Vaccinations promote the safety of the people.	Mr. Smith is a teacher.
Conclusion	The state should require vaccinations.	Mr. Smith is nice.

The tricky thing about deductive reasoning is that a syllogism can be valid without being true. Logic dictates that the reasoning is valid if the conclusion necessarily follows from the premises. However, if one of the premises is false, or if people in a debate don't agree with one of the premises, the syllogism will not be accepted as sound. For example, a number of students might disagree with the major premise, "All teachers are nice." If both premises are proven to be true or are commonly accepted, however, the syllogism is valid and sound, making for a strong logical argument.

Many arguments use a shortened form of the syllogism called an **enthymeme**. In an enthymeme, one of the premises is left unstated, often because the arguer assumes the audience will accept the unstated premise as true because it represents their cultural values or "common sense." Enthymemes often take the form of a claim and a reason. Consider the following enthymemes and their unstated premises or assumptions.

> They shouldn't let their daughter watch horror films because she'll have nightmares.
> (The unstated assumption is that horror films cause nightmares.)

> He receives so much gold in *World of Warcraft* because he plays a female character.
> (The full syllogism would be: 1) Female characters receive more gold from other players. 2) His character is female. 3) He gets more gold.)

Discussion and Practice

A nutrition and dietetics major is interested in learning more about the snacking habits of students, so he observes student activity at the vending machines in a classroom building on campus for an hour in the morning, lunchtime, and afternoon on two different days. During each observation, he records the time, gender of the student, and what they purchase from the machines. The student's two observation tables are presented on the next page.

1. Examine the data for patterns. What general claims might the student make based on these specific examples of vending machine purchases? Are these conclusion based weak induction or strong induction?
2. How might you develop the inductive claims made above into premises for deductive reasoning? Write a syllogism or enthymeme about some aspect of students' vending machine purchases; you may need to draw on additional premises that are commonly accepted in your culture.

Monday Vending Machine Observations

Time	Gender	Drink	Snack(s)
7:50am	M	Pepsi	Pop Tarts
7:53	F	Frappuccino	Granola bar
7:55	F	Apple Juice	
8:00	M	Amp Energy Drink	Cookies
8:06	M	Orange Juice	Pop Tarts
8:32	M	Green Tea	
8:54	F	Orange Juice	
8:58	F	Diet Pepsi	
11:52	M	Mt. Dew	Chips, Cheese Crackers
11:56	F	Green Tea	
12:01pm	M	Pepsi	Trail Mix, Snickers
12:10	M	Mt. Dew	Cheese Crackers
12:18	F	Diet Pepsi	
12:55	F	Water	
12:59	M	Pepsi	
4:00	F	Apple Juice	Reduced fat cookies
4:01	F		Chewing gum
4:10	M		Cookies
4:16	F	Diet Pepsi	M&Ms
4:22	M	Dr, Pepper	
4:37	M	Pepsi	2 bags Doritos
4:44	M	Amp	

Thursday Vending Machine Observations

Time	Gender	Drink	Snack(s)
8:48am	F	Frappuccino	
8:54	M	Apple Juice	Pop Tarts
8:56	M	Pepsi	Cupcakes
9:00	F	Water	Fruit bar
9:02	F	Orange Juice	Granola Bar
9:15	M	Amp	
12:30pm	F	Diet Pepsi	
12:38	M	Mt. Dew	Chips, cupcakes
12:40	M	Pepsi	Trail mix, Reese's Cups
12:55	M	Pepsi	Peanut butter crackers, twix
1:00	F	Green Tea	Reduced Fat cookies
1:01	F		Skittles
1:12	M	Dr. Pepper	
3:52	F	Diet Pepsi	Pretzels
3:53	F	Diet Dr. Pepper	
4:00	M	Amp	Cheese Crackers
4:04	M	Pepsi	
4:11	F		Reduced fat cookies
4:30	M	Amp	Chips

What Evidence Can Be Used to Support Rhetorical Appeals?

Each writer must select appropriate evidence based on their topic, audience, and the appeal they hope to make. Below, we've listed some of the more common types of evidence and examples of each.

Comparisons, Metaphors, and Analogies – Metaphors and analogies can make strong appeals. The environmental movement has used the image **metaphor** of "Mother" Nature to encourage people to care for the planet and compared the earth to a spaceship or boat to encourage the frugal use of resources. **Analogy** can also play a part in logical arguments, particularly through inductive reasoning. Metaphors and analogies are both used widely in text-based research to explain concepts and to argue for a specific way of seeing a text or other argument. Such comparisons are also used in public and popular writing as a way to explain complex arguments to audiences unfamiliar to those concepts.

Examples from Specific Cases or Anecdotes – Telling a story is often a successful way to engage the audience and make a position or proposal seem feasible. A student environmental club proposing a campus-wide single-stream recycling program might describe the successes of two other universities that took similar action. Citing precedent, or what has occurred in the past, can make a solid logical appeal. Anecdotes are especially effective for making emotional appeals. Consider the Feed the Children commercials that always begin with the story of an individual child in poverty. Specific case or anecdote examples are often used in qualitative research in the social sciences. A psychologist may refer to a specific case of a previous patient in order to determine how to best treat a current patient. Anecdotes are often used in text-based research. A literary scholar may open an analysis of the historical accuracy of *The Scarlet Letter* by using a passage from the book.

Testimony – Just as lawyers do, you can bring the testimony of experts or people involved with an issue into your writing to support your claims. The students pushing recycling could cite a variety of scientists and waste management experts about the benefits of recycling; they could also quote students and faculty who are unhappy with the lack of recycling on campus. Citing authorities can add to your logos as well as your ethos; citing people who are impacted by a problem will strengthen pathos. Testimony can be used in either text-based or qualitative research. Both use the work of other scholars to further support or analyze their claims and research findings. Testimonies in the form of interviews are often used in qualitative research.

Empirical Evidence – Empirical evidence, or data gained from a systematic study of an artifact or phenomenon, can be used to make a variety of appeals, and strong arguments are often supported with these types of numerical data, statistics, and results. Proponents of a recycling program might present a report that contains financial data about how much their program would cost or how much it would save. They could

present estimates of how many tons of waste the campus adds to landfills each year. They could also set up a pilot program to experiment with single-stream recycling in one dorm and present their results. Empirical evidence is most often associated with logical appeals, but a shocking statistic can elicit an emotional response and explaining the method you used to gather data can enhance your credibility. Empirical evidence is used in both qualitative and quantitative research. Both establish clear research methods to conduct studies that are used to uncover data.

Graphic Representations – Photographs, illustrations, charts, and graphs can make appeals on their own or add impact to a written statement. The environmental club might include photographs of campus trash bins full of cans and plastic bottles or a picture of a landfill to illustrate their point. A well-designed chart that presents their numerical data might be more effective than a full paragraph summarizing it. (See Chapter 11 for more information about visual representations of data.) Graphic representation of numerical data is especially important in quantitative research where data sets can be so huge that visual representation is needed to make sense of them as well as to make comparisons.

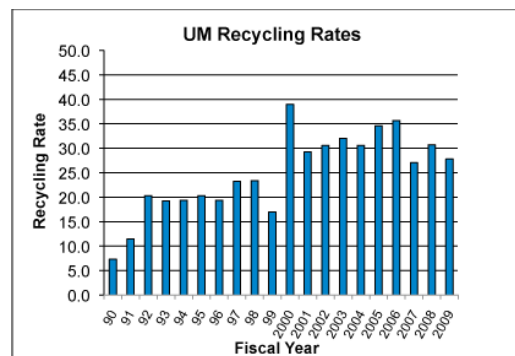Figure 2.2 City Dump. Reprinted by permission of John Nyberg.

Figure 2.3 University of Michigan Recycling Rates Graph, Reprinted by permission of Waste Reduction & Recycling Office, University of Michigan, Ann Arbor.

Discussion and Practice

1. On the next page, read the recycling proposal from the Green Campus Subcommittee at the Florida Institute of Technology. Identify where the committee makes logical appeals, emotional appeals, and credibility appeals.

2. Next, identify the types of evidence the committee uses to support their proposal. What types of evidence do they use to establish their ethos, logos, and pathos?

2004 Green Campus Proposal

The Quality of Life Committee, of which the Green Campus Subcommittee is a part, has taken on the task of investigating a university recycling program. The concern of this committee, as has been voiced by others on campus, is that the university as a whole needs to make a greater effort in recycling items on campus. Currently, there are many universities around the country that have recycling programs. The College and University Recycling Council (CURC; http://www.nrc-recycle.org/councils/CURC/) was formed in 1992 and became a technical council of the National Recycling Coalition in 1995. The mission of the CURC is "to organize and support environmental program leaders and institutions of higher education in managing resource recycling and waste issues."

At Florida Tech, a green campus survey was administered to determine the level and need for awareness of recycling on campus. A sample size of 251 people, which included 5% of all students on Melbourne Campus and 7% of all Florida Tech's employees (i.e., faculty and staff) was given a survey, which asked the level of importance of recycling to them and if they would participate in recycling program. The survey also asked which items they think should be recycled. In the sample size, over 97% agreed that Florida Tech should have a recycling program. Additionally, 95% said that they would participate in recycling program if one was established on campus. A list of items was presented for respondents to choose which items should be recycled. The three items they indicated the most were paper at 97%, aluminum cans at 90% and plastic at 84%. Some unsolicited qualitative information from staff and faculty was also provided during the survey process. Some of the comments included:

- "I hope y'all adopt a recycling program here. I feel terribly guilty every time I throw away paper from the printer that I know could be recycled."
- "I'm all for recycling, and it's always baffled me why a school with programs in science, technology, biology, environmental science and ecology doesn't recycle!"
- "If this means, would you recycle? "The answer is yes," I would continue to do so. Further, I would provide stronger encouragement to others in our office."
  It seems evident that the climate on campus for recycling is ripe. However, in order for the campus community to buy into this program, the University should step up efforts to facilitate recycling opportunities.

The following are some recommendations from the subcommittee to implement a more comprehensive recycling program on campus.

This committee recommends to Florida Tech that:
- It join the College and University Recycling Council (CURC)
- Build awareness and emphasize the value of recycling on campus via newspaper articles, fliers, forum messages, etc.
- Identify locations of recycling receptacles on campus.
- Identify possible grant funding agencies.
- Provide funding for the following:
  - transportation to pick up recyclables
  - recycling containers
  - central storage area
  - compensation for manpower to the appropriate department for supervision of this program

By joining this CURC, Florida Tech will have access to technical assistance, education and training as well as networking opportunities and support for a recycling program. This will help us to build awareness on campus for recycling and the good it will do for the university and the community. By identifying locations for recycling receptacles on campus, the awareness on campus for recycling will be heightened even more. There are also opportunities to generate revenue from recycling. Based on some of the information obtained about revenue from turning in recyclables and the amount of recycling already done on campus, this program could pay for itself in short period of time. Currently with the help of Alpha Phi Omega this campus is already recycling paper nine months out of the year and there is a program also underway to recycle aluminum cans to benefit Habitat for Humanity. Consequently, the precedent has been set on campus for recycling and to elevate this to the next level should be a natural progression of the program.