# THE PROFESSIONAL WRITER'S RESEARCH GUIDE

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# The Professional Writing Research Guide

## The Purpose of *The Professional Writer's Research Guide*

Professional writers in various contexts—e.g., science, medicine, business, industry, journalism—do research throughout their careers. Some professions do more research than others; however, whether a professional writer's purpose is to inform, persuade, or report, the writer will need to do research to make their documents more geared towards audience (i.e., credible, context-specific, usable). As a result, a professional writer needs to know how to develop research projects that will yield useful data about the given issue, need, or problem.

*The Professional Writer's Research Guide* has been developed to provide professional writers with a resource that they can use to develop research projects in various contexts. Each section was developed to be a quick reference to a certain research method or principle

- Textual Research
- Interviews
- Surveys/Questionnaires
- Observations
- Usability Testing
- Reporting and Sustainability
- Archiving

While these sections are not exhaustive, they do provide an explanation of the method or principle, the conditions under which the method or principle should be considered, suggested practices, and examples of how others have enacted or incorporated these principles or methods into their own research. The overall guide should help researchers develop research questions and then design the research tools (e.g., the strategies, the actual interview questions or surveys, the usability test) needed to answer those questions.

As an audience to *The Guide*, you will notice that the contributors, students in Purdue University's Professional Writing Program, have approached Professional Writing research from a rhetorical perspective. This means that research get framed by a strong consideration of the purpose of the research project, as well the multiple audiences that the researcher will come in contact with (e.g., those receiving the final documents, those being interviewed or surveyed, those taking a usability test). A rhetorical approach will help Professional Writing researchers to design a more focused and efficient project—in spite of the obstacles discussed later (see The Recursive Nature of Research, p. )—and to be more ethical in the treatment of the research participants and those affected by the conclusions of the research.

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# Getting Started

## The Research Question

All research projects need to start with a set of research questions. The researcher or team of researchers develop the research questions based upon the issue, need, or problem that is being addressed. For example, if a researcher was charged with the task of writing about the environmental impact of the Hoosier Heartland Corridor, a proposed highway that will run through the state of Indiana, the researcher might want to learn 1) what flora and fauna will be affected directly affected by the proposed route? 2) what disruptions will occur to this flora and fauna? 3) how will these disruptions ecologically affect other native species? 4) in what ways is the landscape connected to the Indiana heritage?

As you look at these questions note that while they appear objective, the assumption that there will be "disruptions" reveals that the researcher may lean towards a conservationist agenda. Therefore, the researcher needs to be aware of her/his own biases at the beginning; the researcher needs to decide whether to design a research project that tries to answer pre-established conclusions or whether the project will be designed to counter these biases.

The research questions are used to develop research tools, but they are not the research tools themselves. After you develop the research questions, you will have to determine what research methods (i.e., textual research, field research) you will use to collect data that will answer these questions. Then you will design your research tools so that they yield information that answers these questions (see the following sections for more details). If you develop an interview or a survey, you probably do not want to ask the audience of this research tool to answer your research questions directly. For example, if the Hoosier Heartland Corridor researcher learns that a rare ladybug lives in the path of the proposed highway (an answer to research question #1) through textual research, the researcher may interview an entomology expert to learn more about the impact of the proposed highway on this insect species (question #1) or how a reduction in this ladybug population will affect the plants that it normally feeds on and the other animals that feed on this insect (question #3). Note how the interview question is more specific than the research question.

- Once you have collected all of your data from different sources you will want to answer your research questions. Data grids can help you to visualize how all of your data answers your research questions. To use a data grid…
- Develop a grid or table with all of your research questions in the first column and the data collections methods used in the top row (Table 1).
- Place all of your data in the appropriate cell in the grid; some data may belong in more than one row.
- After the grid is completed, look across each row to develop an answer to your questions.

Note that in most circumstances you will have to account for conflicting data; at this point you have to weigh the data to determine which data is most credible (see Reporting and Sustainability, p. ); you can do this by 1) quantifying the amount of data that support one answer versus the conflicting answer, and 2) weighing the credibility of the sources.

**Table 1. Example of a Data Grid**

| Research Questions | Textual Research on Indiana Wildlife | Textual Research on Indiana Landscape Referred to by Local Writers | Interview with Harris N. Hall, Ph.D. in Entomology |
|---|---|---|---|
| what flora and fauna will be affected directly affected by the proposed route? | | | |
| what disruptions will occur to this flora and fauna? | | | |
| how will these disruptions ecologically affect other native species? | | | |
| in what ways is the landscape connected to the Indiana heritage? | | | |

## The Recursive Nature of Research

The professional writer should envision their research project as a recursive process (i.e., stages of the research process need to be constantly rethought, repeated, and revised); this mean that the research process often does not occur in a linear sequence (i.e., one stage follows another stage without any need to revisit the previous stages). Picture the following research designs.

- One design of research would be that the researcher collects data from the library, the web, and some field research; then the researcher analyzes the data, draws conclusions and reports them.
- A slightly more complex model would be one in which the researcher goes to the library and uses this information as background for an interview with an expert; the expert then gives the researcher further leads to more textual researcher which is used to design a survey. After the survey the researcher uses all of the information to draw conclusions.
- In another model, a survey with actual product users reveals new information that make the researcher think that the research team should reconsider the original research questions (i.e., maybe they need to become more focused on a certain aspect of the topic or they need to broaden their scope); as a result they revise

their research questions and then have to redesign other components of the research.

The first example obviously seems ideal, while the last one appears to be complicated and frustrating. Under the best circumstances, the stages of the research process often get rethought and repeated. However, the last example is more realistic and more thorough. Notice how in the last two examples, the researcher uses one set of collected data to (re)develop further data collection. After the researcher develops the research questions and designs the plan, the researcher has to be willing to make changes to various components as new information comes to light. To anticipate these results with field research, it is a good idea to conduct a pretest on a small sample of your target population or conduct a usability test with your research tools prior to doing a full-scale data collection. However, even a full-scale research approach may yield information that makes you rethink your research approach. Also in some instances, such as usability testing, it is to the researcher advantage—if resources are available—to reiterate or repeat the test after revisions have been made to the original product design. One should not consider these revisions or reiterations to be a failure on the part of the researcher; rather these recursive features need to occur because newer results come into conflict with earlier data.

Research, by it very nature, is a messy and inefficient process. Researchers who anticipate—and embrace—this reality when they approach a research project will experience less frustration during the research process. Unfortunately, the data that the writer needs does not have glowing neon lights that point this researcher to it existence. Instead, researchers have to read through multiple texts that yield no useful information, re-conduct experiments and field research that originally yielded faulty data, and sometimes throw away data that proves to be skewed. These realities can be even more difficult to handle when one is working with a limit resources and strict deadlines. As a result, you need to 1) try to anticipate these obstacles by developing an understanding of your purpose to conduct research and the various audiences that you will be encountering during the research process, 2) be prepared to analyze why you have experienced difficulties and 3) develop back-up plans or alternative plans—something that you can take to your supervisor to negotiate for more resources (i.e., time, funds).

## Textual Research

Textual research is arguably the most commonly used method of research. It is used by almost every field in all levels of academics as well as in the professional world. This section will provide quick-reference instructions and pointers to use while doing textual research in professional writing.

### What is textual research?

Textual research involves the process of searching through a multitude of documents in an effort to find information pertinent to a researcher's question. Textual resources include a plethora of text-based documents. Reference books like dictionaries and encyclopedias, field specific journals, government documents, online publications, and text books are just a few examples of textual resources. The information found in these texts is most basically summed up as the documentation of another's research. All research data is organized in textual form eventually in the archival process (Thomson, 1999).

### When should textual research be used?

As mentioned previously, textual research is used in a wide variety of contexts. While it is easy to say that it can be used in every form of research, there are specific instances when using textual sources is appropriate. Following, there several cases when one would want to use this method:

- *To build general background on topic –* obtaining an understanding of the topic being studied makes research easier for a writer.
- *In academic writing –* using sources from academic journals and related documents is a main stay in academic writings.
- *In journalistic writing –* textual resources are often used by journalists in obtaining information for their stories.
- *In other professional documents –* Incorporating other writers' material will give pieces important authority and help build the researcher's ethos.

While this is a limited list, these give a general idea of the importance of textual research to a professional writer. A general notion to keep in mind is that textual research relies heavily on the writings of others. Leaving a strong "paper trail," or list of valid textual sources, gives the writer a credible professional ethos. Especially in documents concerning the humanities, claims backed up by quality writings are much more convincing than baseless arguments.

### Suggested practices

Most students are exposed to some form of textual research early in their academic careers. It is an effective method to expose students to as early as elementary school. A

problem that can arise from this is that there is rarely any instruction on proper technique. Students are not taught effective reading skills and tend to only take away general summaries and do not look at their readings analytically or critically (Haas, 1988). Meaning has to be extracted by researchers' representations, assumptions, and translations of the material. These are based on prior held knowledge, assumptions, and opinions. Knowing what the research question is may be the most important part of approaching any research method. However, knowing how to find the answers to this question requires a certain amount of skill in doing said research. Some methods to take into consideration are listed here with explanations and related information:

- *Literature-search* –This is where the process begins when doing textual research. Before a writer can begin to accumulate information for his or her piece, the right material must first be located. With technology where it is, lit-searches are most often completed using a computer.
    - Make sure to know what exactly the research questions are. This will help limit the search to only pertinent information.
    - Library "card" catalogs are often stored on some sort of server that includes texts found not only at one location, but at other branches and even in other library networks. The web also contains an expansive number of pages on a seemingly infinite number of topics. Some points to keep in mind when doing searches:
        - Use key words that are specific enough to the research question to avoid extraneous information but general enough to locate pertinent material.
        - Limit search parameters to current publications to avoid out of date information.
        - See the librarian or use the "help" function within the program to learn to use specific catalogs and libraries effectively.
    - Making sure online sources are valid often poses a problem, but sticking to well-known and trusted websites can solve this problem. Limiting the search to physical texts is also effective, but this can also limit the thoroughness of the research. Some pointers:
        - Know who the author is and understand the rhetorical purpose of the site; this will help in appreciating the validity. Some valuable information on websites:
            - Government sites end in ".gov"
            - Non-profit organizations end in ".org"
            - University sites end in ".edu"
            - Commercial Sites end in ".com"
        - Check for date of material; is the information obsolete?
        - (Baker, 2003)
    - If searches do not prove to be all that successful, try looking for material on similar topics. The simple changing of key words can reveal some very useful information. Words that represent a more general concept can often reveal new, useful and even more specific information. Other key words can come from a variety of sources including rewordings of the research question as well as themes discovered during preliminary research.

- *Annotation* – Including everything from notes in the margin of a book or periodical to more advanced digital observations, annotating a passage can be a researcher's most effective study practice. Knowing how to make analytical/critical notes in or about a text helps the researcher pull the most important concepts out of a reading (Wolfe, Neuwirth; 2001).
  - Simple highlighting and underlining can be useful when returning to research materials when the time comes to report. They help in locating specifics for citation.
  - Critical notes in the margins on ideas that emerge during initial readings can also prove effective when the writing is underway. Often times, important concepts are revealed during first readings and are more useful when seen in the context of the research material.
  - Keep the research question in mind throughout the process.

- *Note-taking* – While note-taking can be included in annotation, it is well worth a second mention. Simple prompts with contextual information can help the researcher with remember important information without having to scour the text a second time for important details.
  - Making initial notes on themes found within a document and then sorting significant information under these headings can help to sort ideas out for later reference.

- *Citing sources* – One of the more important parts of textual research, this is where credit is given to the authors of the documents used during research. It is also where the author develops his or her professional ethos. Showing a list of credible resources along with internal citations gives the piece authority. Finally, the audience of the document may wish to see the text so they can find more details or use the same text in their own research.
  - Website with common bibliographical styles (from Purdue University's online writing lab): http://owl.english.purdue.edu/handouts/research/r_docsources.html
    - Keep audience and type of research in mind when choosing format for citations.

- *Other practices and obstacles associated with textual research* – No less important than the previous practices, the following are other ideas to consider when doing textual research:
  - Keep the audience in mind. Know values and interests; this is important in deciding what material is worth looking through and what information is worth recording.
  - Keep in mind that researchers are biased individuals. Look for obviously partial material and know how to report on it or leave it out of the report all together.
  - Make sure the information being used is up-to-date. Often times, revelations in a field can disprove or change views on a certain subject. Limiting searches to current articles can help prevent obsolete data from entering a report.
  - Use plenty of sources. An abundant quantity will help to support the argument more soundly. They are also useful in developing a diversity of views.

- Understand that finding sources will prove to be inefficient and chaotic at times. Combat this by anticipating several dead-ends and false-starts. Also, exercise patience and leave plenty of time to do the research.

## Research Tools

Following, there are several lists of effective tools for doing textual research. These lists are by no means exhaustive. See the proper authority (i.e. librarian) for more complete directories.

*Computer-based research*

- Internet search engines
  - Alta Vista http://www.altavista.com
  - Google http://www.google.com
  - Yahoo http://www.yahoo.com
  - Ask Jeeves http://www.askjeeves.com
- Online card catalog
  - THOR (Purdue University)(includes abstracts on some articles and even full texts) http://www.lib.purdue.edu/
- Online Journals (DePew, 2003)
  - Journal of Business Communication http://www.businesscommunication.org/publications/jbc/previous/0402/0402_contents.html
  - Technical Communication Online http://www.techcomm-online.org/index.html
  - Business Communication Quarterly http://bcq.theabc.org/index.html

*Text-based research*

- Specific materials
  - Academic and professional journals
  - Newspaper and magazine articles
  - Reference books (i.e. encyclopedias)
  - Government documents
  - Records and files in organization's archives
- Online card catalogs
    - THOR (Purdue University)(this is where inventory of Purdue's physical texts are stored. http://www.lib.purdue.edu
    - Most other libraries have some sort of computer station with an electronic catalog on the main screen.
- See curator of specific archives for search tips.

## Textual Research in Practice

An excellent example of textual research in practice lies in one of the sources for this section's information. In "From the Margins to the Center," Neuwirth and Wolfe explore annotation and its implications in modern research. A wide variety of electronic and physical textual sources were cited and well indicated throughout the piece. While all of

the sources used for this section of *The Guide* seem to have used quality textual research practices in acquiring information, the Neuwirth/Wolfe article deftly relies on said information without making their article too citation heavy. Also, going through their extensive bibliography, this article's writers found some of the other articles for their research. When a writer leaves a paper trail that proves effective for their various audiences down the line, one can conclude that quality research was performed (Wolfe, Neuwirth; 2001).

## References on Textual Research

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# Surveys/Questionnaires & Interviews

## Surveys/Questionnaires

### Principle & Application

Survey questionnaires are useful means of collecting research information. By way of direct interaction with people, questionnaires serve to elicit meaningful data in regards to the intended research question.

For example, a group wishing to research the usefulness of a piece of software might pack questionnaires with the product to collect information about the people who buy it and how they use it. Or that same team might use questionnaires in conjunction with Beta usability testing before the finished product comes out in order to find and eliminate problems prior to a full release.

Also, surveys are used on a daily basis to measure people's opinion on nearly every subject imaginable – from the ever popular political Gallup poll to surveys in Cosmopolitan magazine asking what people's favorite lipstick color is. Surveys can range from one question (Do you think the President is doing his job well?) to several questions (Do you approve of his economic policies? His foreign policies? Etc.), but they generally only cover one focused area of interest. The nature of the research question dictates the focus of the survey.

The words survey and questionnaire themselves can be used interchangeably to describe the same concept (McNamara, 1999). From this point forward, we will refer to them as surveys.

### Surveys in Practice

#### *Who will take the survey?*

The composer of these documents will need to ascertain what criterion is required to be considered valuable as a person to fill out the survey. Allowing a random list of participants to fill out the documents can offer confounded feedback in some instances. For instance, if a researcher wants to find out how the public of Lafayette feels about a Ben and Jerry's ice cream shop, surveys filled out by those who frequent this establishment are valuable research material, but surveys filled out by people who never go to Ben and Jerry's will likely offer no relevant information. However, if that group wants to find what would make people want to frequent that establishment, a random selection may be more useful.

The researcher has an ethical responsibility of obtaining information from reliable sources (Peeples, 2003). He or she should never obtain information from a source that cannot offer substantial, authentic feedback.

Sometimes, people seek out surveys to take. With the advent of the internet, companies and other organizations can place surveys about their products or services online or

author surveys about what people want from future products. Companies sometimes lure people to the surveys by offering discounts or even monetary rewards.

### *Informing the surveyed*

Whoever takes the survey should know …

1. what purpose the survey has,
2. exactly how to complete the survey,
3. where to provide the completed survey if it is a mailed survey or otherwise impersonally conducted survey and
4. conditions of confidentiality, e.g., who will have access to the information and the terms of use for the survey's contents.

### *How should the survey be conducted?*

Surveys are most often given as an impersonal questionnaire on paper, whether it is in a magazine, packaged with a new product or mailed to respondents. These are then filled out and generally mailed back. One of the most famous mail surveys is the Nielsen survey, given to households to monitor television viewing over a set period of time.

Sometimes, surveys are done over the telephone. These can be either unannounced or set up in advance; given to random participants or to a predetermined group. Many times, these surveys are shorter in nature, consisting of only a few short questions. Many surveys done by news and political organizations are done this way.

Surveys can also be administered face-to-face on the street or in a commercial center, for example. These are generally limited to one or two short questions, so as not to infringe on people's time.

### *Developing the survey*

One will have to be meticulous in constructing the schematics for the surveys, surveys, or interviews. Provoking cognition from the interviewee will help in eliciting the maximum amount of information needed for the research. Open-ended questions require the respondent to be creative and complete in putting forth an answer. Closed-ended questions can be sufficed with "yes" or "no" or some form of abbreviated response. Open-ended questions may be most favorable for this purpose due to their nature, but one may want to incorporate close-ended questions intermittently to alleviate reading and writing fatigue

### *Recording the results*

The perception of the researcher can vastly affect the recording of the information obtained from the respondent. The data needs to be summarized without compromising valuable details required to display authentic research. After collecting the surveys or surveys, the researcher will need to pay close attention to how he or she records the data. Ideally, the researcher should approach the data with an unbiased, objective attitude. This means that the responses for the questions should be taken at "face value" and not over analyzed. For example, a respondent may give the following answer to the first question of example survey: "Midwest Community Options has given me a fresh start in life. They

have turned my life around." This particular answer is slightly vague, and as an ethical researcher, one is not given the liberty to fill in the blanks or add to the respondent's answer. For instance, one might theorize that the respondent's entire life is better due to Midwest Community Options. There is a high possibility that this theory is invalid. Nevertheless, an ethical researcher should never deduce information that is not clearly stated in the response. Adding to the respondent's answer will only confound the data.

## EXAMPLE SURVEY

These are three sample questions from a survey available at http://www.cs.auc.dk/~normark/scheme/examples/questionnaire/questionnaire-ex-1.html. *The first question below exhibits a truly open-ended question. The respondent is prompted to answer the question in his own words, not from a list of predetermined words or phrases. This kind of question yields more qualitative data, as it has to be interpreted somewhat to be used in the results.*

**1. What has Midwest Community Options done for you?**

.....

.....

*The second question is a hybrid of open-ended questions and closed questions. It asks the respondent to choose words that most accurately describe his reality. This helps narrow the question and give more quantitative data.*

**2. ..... is your Midwest Community Options Coordinator. How do you feel about the relationship you have with the Coordinator? Please circle the three most important feelings?**
Disappointed.....Frustrated.....Equal
Confident.....Anxious.....Walked over
Comfortable.....Pushed around.....Annoyed
Positive.....Angry.....Enlivened
Satisfied.....Excited.....Not heard
Content.....Fearful

*The third question is a closed question. The respondent chooses one of the options, which are representative of a spectrum of opinion. These can range from simple "Yes/No" responses to complicated scales of feeling. This example uses four responses in its scale.*

**3. Are you getting the kind of service you want from Midwest Community Options?**
[ ] Yes, completely
[ ] Yes. partially
[ ] No, not really
[ ] No, not at all

# Interviews

## Principle & Application

Interviews are essentially personal surveys that are composed entirely of one-on-one interaction and open-ended questions.

While surveys are generally one-way streets of information and feedback, interviews require a researcher to be able to adapt to new concerns or objections that were not previously anticipated. This give and take process can yield much more qualitative data than most surveys do.

## Interviews in Practice

### *Who should be interviewed?*

Obtaining information through interviews is similar to using surveys. Choosing well-suited interviewees is just as crucial as finding the best people to survey in reference to the subject at hand. An interviewer has an advantage over someone who using surveys to obtain data. An interviewer can approach the potential interviewee with a pre-interview to see if he or she will be an appropriate respondent. For instance, if one is researching the same subject as stated in the survey section above (Lafayette's attitude about Ben and Jerry's ice cream shop), he or she would be able to ask a few questions and decide if the interviewee frequents the ice cream shop or is otherwise not a valid respondent.

An interviewer can deduce who is a valid source for information during the preliminary steps of the interview rather than finding out later that a percentage of surveys prove to be useless due to the respondent's lack of knowledge about the subject being researched (Trochim, 2000).

### *Developing the interview*

As in a survey, care should be taken to ensure the questions being asked will yield relevant information. But as stated before, an interviewer has the opportunity to clarify questions and bring up new topics of conversation as the interview changes. Therefore, interviewers need to be instructed of all the facets of the research at hand, not simply how to conduct the interview. If the interviewer knows what is at stake and what the importance of the study is, he is more likely to conduct the interview to the best of his ability.

Interviewers need to rehearse the interview before actually conducting it in order to ensure they are comfortable with the subject matter (Blake, 2002).

### *Conducting the interview*

There are many factors in actually conducting an interview. In the case of door-to-door unannounced interviews, an interviewer is similar to a salesman: he must be well-dressed, well-mannered and be able to present himself in an interesting enough manner to persuade the person to participate in the study.

After ensuring the interview will actually take place, the interviewer is responsible for introducing the purpose of the study, etc., much as the introduction to a survey does. Once the participant is familiar with the aim of the interview, he'll likely be in the right frame of mind for answering questions along that line of thought.

## EXAMPLE INTERVIEW

The following examples were found at http://sern.ucalgary.ca/courses/seng/611/F97/grp2/slide2_1.htm.
The two examples below are open-ended interview questions. Like in surveys, they seek the respondents' interpretation of a situation and provide extremely qualitative information.

**Q: What problems do you currently experience in your work?**
A: Getting information in a timely fashion.
**Q: What kinds of things would you like to change in the way you work.**
A: A more efficient scheduling system. We would like to see real-time updates.
The next two examples are more closed-ended interview questions. These look for more specific information and opinions on specific issues. For example, the first question can only be answered with a time element.

**Q: How often should the report be generated?**
A: Once a day, but the information should be available at any time.
**Q: What fields do you think should be protected?**
A: I'm not sure what you mean, but patient confidentiality is extremely important.

### References on Surveys & Interviews

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## Observations

### What are observational studies & when are they appropriate?

Observational studies are a collection of data solely through observing subject/subjects without interacting in order to obtain credible results.

- Conditions when appropriate: when trying to collect data of a humanities or human life style nature, and/or scientific nature, as well as how choices can affect a person's life or situation. (explanatory variable vs. response variable)

### Suggested Practices

*Ethics*

- Whether or not it is appropriate to watch people without them knowing
- Subjectiveness on part of the observer, meaning the observer does not interfere or guide the observed in a certain direction.
- Making sure all data is used and is documented in an unbiased manner; state the facts as they are presented
- Making sure the observation is completely relevant to the research question.
- Cover all bases, follow research steps correctly
- Credit all outside sources

*Steps to conducting an effective experiment.*

- Establish a research question. A research question is a question in which one would hope to answer through a certain type of research. In an observational study, the question should pertain to a topic that can be researched through observations.
- Form a hypothesis, or the researchers' speculation of what the outcome will be.
- Test the research question. This is where you would take the appropriate steps to begin your research. Decide which tools will be used in the observation, for example, setting up field notes, mapping the area, conducting observations and interviews, etc.
- Analyze the data. This is the step in which you determine what data is pertinent and which data isn't.
- Report the data: What did you find, answer the research question and include the evidence that you gathered to support it.
- Remember to gather background information, know what to look for, and take notes as you observe.
- To observe effectively, learn to gaze beyond the obvious, look then look again, draw pictures, ask focused questions, make a connection between facts gathered and the larger idea/research question.
-

*Obstacles that may be encountered while conducting an observational study:*

- Non-response, limited cooperation
- Dishonesty, biased opinions, change in character while being observed
- Outside influence caused by tampering or peer pressure
- Cultural bias
- Room for interpretation
- Limited time or access to those/that being observed

## Tools Used in Observational Studies

### *Mapping*

Mapping includes creating a sketch of the area in which the researcher conducts his/her observations. Find a focal point and identify unity and tension within the space.

### *Using a Table or Diagram*

To create a table, you could begin by drawing two or more columns, one with the questions the researcher will address, and one with the answers the researcher gets from his/her observations (see Table 1a and Table 1b). Table 1a would be used for research about a location. For example, if one were to research how often a library was used and what it was mostly used for, you would be better off using Table 1a. However, if you have a more specific research question (i.e. Why would people act different if they think that no one is looking), Table 1b would be better suited for your needs. To use the location table, just write down what happens in the appropriate column, your response to it, then what you speculate about it. For the activity table, you will need to come up with some questions before you start. Those you would put in the appropriate column, then write down what happens, and the responses that you observe. The most difficult part of using either of these tables is organizing the data.

Location Observational Study Table 1a

| What happens | Response | Speculative |
|---|---|---|
| | | |

Activity Observational Study Table 1b

| Question/Event | What happens/when | Response |
|---|---|---|
| Question 1 | | |
| Question 2 | | |

*Field notes*

Field notes are notes that the researcher takes while observing a situation. Some things to remember when taking your field notes are:

- Write in the date, time, and place of observation
- Include specific facts, numbers, and details
- Include sensory impressions: sights, sounds, textures, smells, tastes
- Include personal responses to the act of recording field notes and how others watch you as you watch them
- Use specific words, phrases, summarization of conversations, and insider language
- Include questions about people or behavior at the site for future investigation
- Use a continuous page-numbering system for future reference
- Make sure notes are legible
- Include background material needed to understand the location and purpose of the observation
- Include information about positioning of yourself as the researcher, and the subjects being observed
- Include subjective feelings as you observe
- What assumptions do you as the researcher bring into the field site
- Could an outside reader or the field notes see, hear, and become immersed in the daily routines of the place?

## Illustrations of Principles & Practices Applied

*Good Example*

Community Policing in Action (U.S Department of Justice)

This study observed police in 12 neighborhoods in Indianapolis three years after the city had begun to move toward community policing. Data was gathered through systematic observations of supervisors, patrol officers, and with residents in each of the 12 neighborhoods. The researchers characterized neighborhoods into low, medium, and high distress areas. Scales representing citizens' perceptions of neighborhood cooperation with police were set-up by the researcher. The tools used in this observational study are interviews, observations of the neighborhoods, the policing in each neighborhood, and interaction between patrol officers and the residents of the neighborhoods, and mapping of each neighborhood. Some observations that were encountered were cooperation of residents, and increase in performance by patrol officers and neighborhood residents when they were being watched. The observational study and the data collected was reliable because researchers took into account the types of neighborhoods being observed as well as comparing results to past police-community interaction with the corresponding neighborhoods.

*Bad Example*

Does the Presence of Religion Increase Life Span?

Study said yes, that having religion in ones life increases life span. This study took a random sample of 3617 adults, religious and non-religious. The subjects were called and polled. The researchers took into account whether or not the person was religious, lifestyle activities such as smoking, being physically active, are they overweight, etc. The researchers then observed selected representatives of the sample and took field notes about their daily routine and how religious, if at all, they were. The research tools used in this study were surveying, observing, and taking field notes. Some obstacles that were encountered where that their were too many variables left out that could have contributed to a shorter life span such as family history of heart disease, cancer, and other diseases, the subjects being researched might have changed their behavior because they were being observed, and interpretation of religion. Also, because religion is a sensitive area, some subjects held back information that could have affected the study. This observational study was not reliable because the research question and answer could not be proven, and the subjects studied were not fully researched, i.e. their background, family history of disease, any recent, drastic changes to lifestyle right before the study was conducted, etc. In order to make this a good observational study, the initial research question would have to be reworked. Many of these problems can be eliminated if the research question was changed and a different angle was taken. It is not realistic to try and prove that having religion in ones life can increase ones life span. Also, to execute this study as precisely as possible, the researchers need to study those whose background history and current lifestyles are the same. This insures that no outside source affects the results of the study.

*Good Example*

Observation of One Piece of Bread Exposed to the Air for One Week

This is an example of an observational study in which an ordinary object is selected to observe everyday for one week. This is an observational study in which the research question is simply, what will happen to a piece of bread when it is exposed to the air for one week. The researcher, Donna Niday assumed that the piece of bread would grow mold since she had an encounter with old bread molding. Donna recorded field notes each day for a week. In one column she documented the day, and date, and described what she observed was happening to the piece of bread, such as how hard it was getting, if it had shrunk and by how much, what the bread looks like, etc. In the other column, she made notes which responded to what she saw. In such responses, she included what she would eat the bread with, what types of meals the bread would be good for…such as when it was fresh and soft, she would use the bread for peanut butter sandwiches, but when the bread began to harden, she thought of using the bread for turkey stuffing. She also jotted down associations made with bread, such as biblical meanings and references,

and phrases used with the word or reference to the word bread in them, such as "bread winner", "putting the bread on the table", etc. Donna came to the conclusion that the bread did not mold, but had shrunken _ by 1 inch. She also reflected on how many associations she had come up with that were connected to bread. Donna not only observed the surface of the bread, and its physical features, but she analyzed its possible contexts, associations, and symbols. This is a good example of an observational study because of its simplicity. Donna followed the basic steps in conducting a study, and documented both facts and thoughts on the bread. She did not run into any obstacles and she was very thorough with her field notes so that if anybody else wanted to pick up where she left off and further the study, they could. Her observations can also be easily referenced.

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## Usability Testing

### An explanation

Levi and Conrad (2003) have stated that usability testing aims to determine:

- Ease of learning
- Retention of learning over time
- Speed of task completion
- Error rate
- Subjective user satisfaction

The process of usability testing involves a facilitator, user, product (i.e. website, calculator, manual to a VCR, etc.), and often observers. The facilitator and, if present, observers are concerned with the problems the product will present to the user. A key concept to understanding usability testing is to remember that the product is being tested, not the user.

Traditionally, during usability testing, the facilitator and/or observers have studied the user and made note of problems that the product presents to the user. In his article "Ethics of Engagement: User-Centered Design and Rhetorical Methodology", Michael Salvo (2001) notes that recently there has been a shift to participation with the users during usability testing (p. 273). This user-participatory model of usability testing facilitates a more open channel of communication between the observer and user and allows more insight with problems that may present themselves and how the user can overcome such problems.

### Appropriate Conditions

Usability testing is appropriate when any company or institution would like to test its products ("What," 2003). More specifically, though, usability testing occurs when, "the product is evaluated for its ability to enable the user to perform […] tasks efficiently and effectively" ("What," 2003). Usability testing is also not limited to electronic products; consider the manuals and instructions that are used on an everyday basis to operate other products as valid candidates for usability testing.

Usability testing also occurs when a company/institution would like to gain information from a user standpoint. Obtaining user input can be particularly helpful when companies would like to upgrade their existing products, enhance a technical support team's knowledge of the consumer, redefine the user manual, and address other user requests.

Common topics for usability tests:

- Web sites: navigation and use
- Electronic devices: instruction and use
- Software programs: instruction and use
- Documentation: other instruction manuals, research documentation

### Suggested Practices

In order for usability testing to be successful, a number of considerations must be

addressed; according to Zimmerman (1999), those include, in order:

1. Selecting a topic, usability testing site, and participants
2. Developing the usability scenario and securing appropriate institutional review board approval
3. Conducting usability testing in the field
4. Considering lessons learned through usability testing

### *Selecting a topic, usability testing site, and participants*

When considering adapting usability testing to the field, it is important to note that safety, realism, and logistics are crucial. Usability must be done in a way that assures that none of the usability participants or researchers will be harmed if the participants err during the testing process. Additionally, instructions and scenarios should be written in a way that participants would follow in a real-life situation, and the logistics of transporting necessary equipment to the testing site is important. When selecting a topic, again, the users' safety must be considered; additionally, the testers and facilitators need to be able to acquire the needed equipment. The site of the test must be also considered, with regards to necessary and available equipment, and the usability sessions have to be scheduled. Participants who are representative of the product's audience must also be chosen, and care must be taken to gather a diverse user base (Zimmerman, 1999, p. 496-498).

### *Developing the usability scenario and securing approval*

The most important thing to consider when developing the usability scenario is that "if you are employed by a U.S. university, college, or research organization, you will need to seek approval of an institutional regulatory board (IRB) for any usability testing" (Zimmerman, 1999, p. 500). IRB's review the research procedures and make sure that testing does not harm humans or animals; risks are assessed according to the potential for physical, psychological, social, and financial harm. Even when there is no IRB, the researcher still has the responsibility to follow ethical and moral codes in not exposing participants to risks and in explaining to them what the usability testing will be used for. Additionally, release and consent forms typically discuss non-disclosure, consent to volunteer, and consent to being videotaped (Zimmerman, 1999, p. 500).

### *Conducting usability testing in the field*

Researchers must also make preparations when they conduct usability testing in the field. After selecting participants, they must notify them and remind them of the testing time and location. They must also prepare the site for the test, arrive early, set up equipment, test the system, organize consent and observational forms, and brief participants before the test (Zimmerman, 1999, p. 501).

### *Considering lessons learned through usability testing*

After the test, not only do the results need to be organized, but the team should consider what lessons they have learned as a result of the test. This will better prepare them for additional or follow-up usability testing. Data collected through initial usability testing often serves as a springboard for future usability tests on the same product; usability testing is an ongoing process.

## Obstacles

Usability testing can present some challenges for researchers because it attempts to combine both qualitative and quantitative data. Both methods of data collection consider the implications of validity and reliability, but they have different methods for obtaining and preserving them. "First, clients who are more used to quantitative models sometimes do not view the qualitative findings of a usability test as being rigorous…Second, when usability evaluators do include quantitative data, clients tend to interpret the sample data to make inferences about the target population without understanding the statistical implications of those inferences" (Hughes, 1999, p. 488-489). In other words, researchers argue about whether qualitative or quantitative data better supports or answers their research questions.

### *Quantitative data*

Quantitative research might draw in numerical data that supports the following kinds of inquiries:

- Time to complete tasks
- Number of tasks that can be completed within a given time limit
- Ratio Between successful interactions and errors
- Time spent recovering from errors
- Number of user errors (Hughes, 1999, p. 500).

### *Qualitative data*

Qualitative data, on the other hand, draws in data that could be used to test hypotheses; such data might come from the following sources:

- Spoken words
- Actions
- Gestures
- Facial expressions
- Documents
- Artifacts (Hughes, 1999, p. 501)

### *Validity versus reliability*

Validity considers whether the usability test measures information that is relevant to the way the product will be used outside of the testing site. Validity can be internal or external; internal validity asks whether the data chosen to measure is really an attribute of the product being studied, while external validity refers to how strongly the measurements gathered through usability testing apply to the principle being studied. Also of concern is reliability, or the likelihood that the results of the usability test could be duplicated (Hughes, 1999, p. 501).

## Research Tools

In order to test the usability of a product, several research tools must be utilized, and in this section, many of them will be listed, discussed, and evaluated. These tools are used before, during, and after the usability test.

- **Test Plan:** A test must always be planned. It will outline precisely where the test

is to be conducted and why, what knowledge must be extracted from the user before and after the test, and what instructions are to be used in the proceedings of the test. In any example, it must be clear whether the instructions or the product are being tested (De Pew, 2003). It must also be clear to all parties that the user is not being tested.

- **Prototype:** It is also useful to know what exactly is being tested, whether it is a product, a document, or a Web page. In order to evaluate such an object, one must know which version the tester is attempting to use, so when it comes time to make corrections, developers can figure out what needs to be fixed. When Ramey was designing her case study of Ruthford's usabilty test with Traveling Software, among the items requested for review was the unreleased version of the product used during the test. Although this was unavailable, they "were able to reconstruct its major features from the videotape images and from the participants' thinking-aloud during the test" (Ruthford & Ramey, 2000, p. 316). Through this statement, the resentment of the lack of information is clearly noted.

- **Testers:** Naturally, testers must be found in order to conduct the test; the demographics of these testers should range in age, gender, and if applicable, technological background. Also important is knowing how much previous experience the participants have had with the specific product being tested.

- **Pre-Test Questionnaires:** In order to assess the usability of a product, it is important to know of the user's knowledge of the product. If the user has limited experience and comfort with the product, but works well with the test, the usability of the product proves to be favorable due to the user's adaptability with it. However, if a user has a large amount of experience and comfort with the product, but does not work well with it, there are problems with either the product or the instructions, depending on what is being tested. Pre-test questionnaires typically ask questions related to gathering the user demographics mentioned previously.

- **Observations:** As was noted in Ramey's article, videotapes were used during the usability test to record what the users were looking at and how they were reacting to it. This proved useful to the researchers conducting the case study because they were able to have first-hand sources on the test, and they saw the particular version of the product being tested, even though they did not have access to this version (Ruthford & Ramey, 2000, p. 316). While videotape will provide observers with a chance to continually review and evaluate the usability test, it is not necessary to conduct a test. Without the use of videotape, multiple observers will provide different perspectives; these multiple observers should take detailed notes of the interaction of the user and the product while remaining as invisible to the participants as possible.

- **Feedback Forms:** In order to complete the assessment of the product, questions are posed to the user and the answers are written on a feedback form. This proves

major errors in the product, and it aids the facilitator in concluding the project. The user is also typically asked if they have any additional comments on the project. Feedback might also be gathered through interviews done after the completion of the test, and feedback forms sometimes take the form of post-test questionnaires.

## Principle in Practice

A usability test is based on five basic steps:

1. User arrives
2. Facilitator arrives
3. Observation team (if present) takes notes on users progress
4. User leaves, facilitator thanks user for time spent
5. Observation team and facilitator share their data

For informative diagrams of each of the steps involved, visit http://www.grantconsutlting.com/usability_storyboard/index.htm.

In order to illustrate usability testing methods, the practices of two leading software companies will be described. Adobe and Macromedia, Inc. are both large software companies that create programs commonly used by professional writing majors. In order to release decent versions of this software, they recruit users for testing. Adobe provides a form on their website that asks for basic demographics of the prospective tester, including location, job description, usage of Adobe software, and other information regarding the frequency of usage of technology on the part of the user (Adobe, n.d.).

Macromedia facilitators arrived on the site and conducted a usability test on Flash websites. Two sites were used, and the users were split into two even groups to prevent bias. They were asked to complete a five-part test that dealt mainly with how quickly various facts could be found on each site. For example, one of the questions asked users to find the closest store on the site where a particular shirt was being sold. The users were asked to submit their opinions on the ease of navigability of the site. Finally, the users were given a survey in which they were asked to rate each site on a scale of 1 to 7 (1 being "unsatisfactory" and 7 being "excellent"). In addition to this survey, expert users were asked for their personal opinions on each site, with regards to preference and navigability (Miletich, n.d.).

At the Grissom Usability Testing Laboraties at Purdue University, graduate students and professors alike conduct various usability tests based on human-computer interactions. The software tested ranges from Web tools to engineering tools, and the typical purpose for these experiments is to help designers and developers make these products more efficient. One study in 2001 was used to aid in the design of newer features for a CAD browser that would allow a team to collaborate on projects easier and create better products (Xie, 2001). When the users left, the observers and facilitators shared data collected.

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## The Principles of Reporting & Sustainability

### Explanation of Reporting

Reporting is the presentation of information on a certain subject, to a certain audience, at a specific time. Reports can be either written or verbal, and will vary depending on the situation. Reporting should be done in an engaging and appropriate way. It will thus attract the audience and be pertinent to the situation at hand. When reporting, the researcher should consider the audience, the subject matter, and the time of the report as ethical issues. Jeff Grabill agrees that audience seems to be the key concern when reporting information. He also gives a great explanation of an oral report. The oral reporting he does tends to be much shorter, more focused, and uses a language that is easy to understand and follow orally. He tries to make his oral reporting lively and fun to listen to, even when he is being serious. Finally, Grabill notes, "The challenges for those who present orally is to understand the constraints and possibilities of oral delivery and not to just speak a text that was meant to be read" (personal communication, March 3, 2003).

*Conditions for Appropriate Reporting*

Reports are inevitable in research. However, different methods of reporting are situation specific, meaning that the type of reporting used varies depending on several factors, including:

- the kind of information being presented
- the audience to which the information is presented
- the time at which it is presented

Reporting occurs when information on a specific topic needs to be presented to a certain audience, and at a given time. Reporting is appropriate as long as the correct steps are taken to do so and as long as ethical implications are considered. Jeff Grabill says that as long as ethical issues are taken care of during the research process, they should not be a problem when reporting the information (personal communication, March 3, 2003). (See **A List of Suggested Practices** for additional information on the steps and ethical implications.)

### Explanation of Sustainability

Sustainability is the act of retaining and keeping information relative and pertinent over time after a project, journal article, report, text, or any other presentation of information is complete. Grabill discusses sustainability in his article on "Community Computing." He worked on the Mechanicsville project, which was the development of a community network in an Atlanta, Georgia neighborhood. Grabill finished the project and has since left the area, but he discusses in his coda that the project is still very much alive today. He tells the audience that he has worked with residents to form a "media-rich history for the website" (Grabill, p. 22, 2002). He notes that the site has changed since he finished his article on it, but it still has kept some of the main ideas of the original site. One can see that although Grabill finished his work in the area with the computer network, he remains in contact with the users of the site today to ensure that it remains a useful tool

for the community. Additionally, he obviously wants the project to be sustained, as he worked hard to get the project going. In Munger's article on "Evolution of the Emergency Medical Services Profession: A Case Study of EMS Run Reports," the audience learns that the type of report done by EMS workers has vastly changed over time. The report evolved from being concise and limited in description to narrative. The narrative format gives space for explanations by various people in different professions in the medical field. The Munger article highlights that despite the changes in the report, some of the ideas from the original report remained, in order to sustain some general ideas of the report (2000). In sustaining previous ideas, people will see some uniformity on the best parts of the report that were worthy to keep. However, new ideas will improve the overall effect of the report.

## A List of Suggested Practices for Reporting

### *How to Report Successfully*

Reporting, as mentioned before, is the presentation of ideas and information in a clear and efficient way. Reporting is a type of communication where the reporter/writer informs his audience of important aspects of a particular area. With this being the case, it is vital that researchers know how to execute a successful report. Some questions that researchers should keep in mind while going through the process of reporting (Batschelet & Woodson, 1996):

- Are all ideas clear and presented in an interesting way?
- Are ideas linked together so the audience can grasp all the information that is being forwarded to them?
- Will the audience feel well-informed at the end of the report?
- Is this report sustainable?

### *Reporting for Specific Audiences*

It is essential to make sure that the researcher is in tune with his or her audience. The audience is the main focal point of reporting. The audience is anyone who is going to come in contact with the information being presented. There are several considerations about the audience that the researcher needs to be aware of when reporting the information that has been researched (Batschelet & Woodson, 1996):

- **Age**
  What is the age range of the intended audience? If one is reporting on the United States economy post-war, one has to realize that his or her audience will be of an adult age level which means one needs to make sure his or her choice of words are proficient and on an adult-age level.

- **Gender**
  The gender of the audience may not always be of importance this depends on the topic at hand.
- **Status**
  It is wise to be aware of the status of the audience. If one is writing a report that will be primarily read by researchers, one should consider his or her writing style.

Technical reports and academic journals for example use certain language or jargon that people in those fields of study are accustomed to.

- **Level of Education/Experience**
  The level education and experience can be tied into the status of the audience. The amount of education and experience an audience has will reflect their concerns and interests on certain topics.

- **Attitudes/Beliefs/Values**
  It is very important to understand what the audience's attitudes, beliefs, and values are on certain subjects, especially the one an individual is reporting on. The idea of ethos can come into play with this factor. Ethos is how the speaker/researcher is regarded through their reporting. If one is reporting on how professional writers should not be involved in policy writing because of their lack of knowledge and the audience is people in the professional writing field, the reporter would be appalling to his/her audience. This is why one should know how the audience feels about certain issues. False assumptions will also cause problems. Researchers assuming that the audience knows or is concerned with a certain topic will cause the audience to withdraw (Calderonello, Simons, & Nelson-Beene 1997).

### *Planning and Constructing Reports*

When one establishes who his or her audience is, one can begin several prewriting exercises. First, identify the purpose of the article; this will help one stay focused on the topic. What should the audience to know? What information should be made known, and what should not be shared? It is also good to answer the basic questions of;

- Who: Who are those being researched?
- What: What are the research tools?
- Where: Where is the research taking place?
- When: What is the time frame for the research?
- Why: Why is this research being conducted?
- How: How is the entire research process going to take place?

The answers to these questions will help one formulate a perspective on the topic. One's perspective will give the audience insight of what his or her views were on the subject and at the same time give one an authoritative intellect on the subject.

### *Reporting Requires Sound Research*

After establishing the audience and identifying the purpose, research will take place. After compiling sound research, further steps are recommended to make the process of reporting a successful one.

- Take notes.
- Evaluate your sources of information.
- Construct a proposal.

After completing these various tasks, the report should be underway. Keep in mind the audience and the proposal. The proposal is your primary purpose and main idea for the article. After several drafts of the report, revision will be a crucial part of completing the process of reporting. Revision will help one structure and balance out one's information. Some helpful tips to keep in mind for revision;

- Make sure quotes and citations are accurate.
- Paraphrasing is vital to avoid plagiarism.
- Use detail. This also adds to the authoritativeness of your reporting. It gives the audience the impression that the researcher's information is done carefully.
  (Calderonello, Simons & Nelson-Beene 1997)
- Use a brief summary at the end of the report. In the summary, include all the important information (outlining the information would be highly recommended). (Batschelet & Woodson 1996)

When all of these factors are included, the process of reporting should flow smoothly. As a researcher, reporting should be a task in which the main focus is to make sure that information forwarded to the audience is accurate and reader-friendly. Good judgment, audience awareness, and suitable revisions all equal a successful report.

### *Reporting Requires the Use of Ethics*

Although it is impossible to report without a bias, it is important to maintain ethical standards while reporting. Most important, it is crucial to give credit where credit is due. In *The Chronicle of Higher Education* (1999), a definition of research misconduct was released by the White House, and it reads: "scientific misconduct [is] 'fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results.'" This emphasizes the importance of giving due credit and reporting true information, even with the understanding that all reports are persuasive in nature.

## Research Tools Used for Reporting & Sustainability

There are a few direct research tools used in reporting and sustainability, and there are many preliminary tools that can contribute to the successful reporting of information. According to Smith (2001), numerical relationships are often shown by graphs and charts, such as pie charts, line graphs, and bar graphs. Smith (2001) also shares that models, actual objects, pictures, and diagrams are often shown to illustrate a point in reporting information. According to The Journal of Research in Science Teaching, some preliminary research tools include interviews, questionnaires, surveys, and experimental studies (Novak, 1963). For more information on interviews, questionnaires, and surveys, refer to the **Interviews, Questionnaires, and Surveys** section of *The Guide*. **Textual Research** (page __ of the Guide) and **Observations** (see page __ of the guide) are also helpful in preparing research reports. To find out how usable a report is, see the section of the Guide covering **Usability Testing**.

As for experimental studies, the Journal of Research in Science Education states that "The most powerful tool available to man for obtaining new knowledge is the scientific experiment; it is through measurement of changes in some variables when other variables are held constant (or randomized) that we obtain new information with the greatest veracity" (Novak, 1963, p 3-9). Through experiments, reporters can find imperative and engaging information to present to their audiences.

## Illustrations of Reporting in Practice

Reports appear everywhere, on television news, in magazines, journals, books, and even online. Regardless of the delivery method, reports are all held to the same standards; reports must be factual and well researched. However, a close look at reporting shows that it is impossible to be completely unbiased, regardless of the topic; every report is persuasive, even when they only report facts.

### *Examples Reporting for Different Situations*

In an article on the PR Newswire Association, Inc. (2002), there were suggestions about how to report the coverage of military campaigns. The article states the following:

> "The Pentagon and the news media subsequently reached an accord in 1992 regarding coverage of military campaigns that recognized that "open and independent" reporting would be the norm for such coverage" ("PR Newswire," 2002)

The coverage can be open and independent for such a situation because the "journalistic scrutiny of the war on terrorism and publication of dissenting viewpoints are not signs of disloyalty to the nation, but rather expressions of confidence in democratic self-government and fulfillment of the First Amendment function of holding the government accountable" (PR Newswire," 2002). The decisions about what to publish must "ultimately rest" with the publishers, not with the government officials ("PR Newswire," 2002).

*The Journal of Psychology* discusses scientific reporting, which differs greatly from reporting military campaigns. In the *The Journal of Psychology,* Jason Peebles states that "Scientific reporting is aimed at researchers and professionals working within the field. "Reports are written in an unbiased and objective manner" (Peebles 2000, p. 666).

### *Reporting for Scholarly Journals*

Each journal has its own style and requirements for reporting. For examples, the editor of *Professional Geographer* David C. Hodge said (1995, p. 1), "It is of paramount importance that the journal's identity be clear and that policies with respect to the content of the journal and to publication operations support that identity." Hodge made it clear in his editorial what the requirements were for submission to *Professional Geographer (*1995).

Submissions had to be easily read by people in a variety of geographic disciplines.

1. Submissions should emphasize good research methods.
2. Articles should be written for general audiences.
3. Articles should be of modest length.

In his editorial, Hodge was attempting to persuade the geographic academics to return to the basics of reporting for the journal. While this editorial is simply a vision statement, it clearly states what it takes to get articles published in respected journals.

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# Archiving

## Finding a Definition

Defining archiving seems very simple at first. It almost defines itself if you think of what an archive is. Archiving is gathering finished products of information, documenting them, and storing them for future reference and retrieval. However, archiving is not that cut-and-dry. There is quite a bit more substance to this simple-sounding part of researching (DePew, 2003).

An archive's main purpose is cultural documentation (Joyce, 1984, 124). Because of this, archivists must consider a number of things when archiving, including

- the audience for whom they are gathering texts,
- the credibility of documents they gather,
- the method or methods of storing these documents, and
- the usefulness of the documents gathered.

These are extremely important in the process of archiving and must be considered in order to create an effective archive.

## Considering an Audience

Archivists must consider the people who will be looking at the texts they gather. However, this does not only include a primary audience, but a secondary audience as well. A farmer whose land lies in the path of the Hoosier Heartland Corridor would be a primary audience. A secondary audience in this situation could be an environmentalist ten years from now conducting research on the environmental impact of the Hoosier Heartland Corridor on the surrounding land. When gathering information for an archive, one must consider what will be useful for both of these parties, as well as other primary and secondary audiences (DePew, 2003).

For this reason, it is important for archivists to remain objective in gathering data. A good archivist must explain and identify research characteristics of data without being influenced by bias (Joyce, 1984, 125). In essence, an archivist should not judge data through his or her own biases, or those of others. While the archivist may believe that the Hoosier Heartland Corridor is unnecessary, he or she must gather information that both supports and does not support building the highway. This boosts the usefulness of the archive, as it will then cater to a larger audience.

## Determining Credibility

When gathering information for archiving, it is important to check its credibility. The main concern should be on the author's credibility. If an archivist finds an article on the ecosystem of Indiana and how it might be affected by the Hoosier Heartland Corridor, he or she should check whether or not the author is knowledgeable about environmental issues by checking the author's credentials.

Another consideration archivists must take into account is who is employing the author. If the author is employed by a group that is advocating against the Hoosier Heartland Corridor, there is a possibility that the information is skewed in favor of statistics declaring the faults of the plan. In some cases, an author's employer may actually give the author the desired conclusion, which would leave the author to find information to come to that conclusion, whether it is correct or not (DePew, 2003). It is because of the existence of biases that an archivist must take this into account.

## Method(s) of Data Storage

There are many different mediums on which data is stored in what Ham calls "the *post-custodial era*" (Ham, 1981, 207). During what he calls the *custodial era*, the number of records that archivists had to deal with was relatively small, so storage was easy and archivists could take a somewhat passive roll in keeping a documentary record. The custodial era allowed archivists to keep their attention on their own collections, virtually ignoring larger historical and social databases, which had the unfortunate effect of isolating archivists from one another and preventing the sharing of techniques and ideas (Ham, 1981, 207).

However, this is changing through the creation of new technology. New kinds of information can be captured using more efficient means than text, including:

- Photographs
- Videotapes
- Computer video files
- Recordings
- Computer processing
- The Internet

All of these mediums have changed the world of archiving. Instead of drawings that take hours to create, one can use pictures created either digitally or with a regular camera, videotapes, and even computer visual files. Sounds can be recorded on audiotapes or by computer, which aids in presenting information to blind users. Vast records can be kept in a space as small desk through computer processing, and the Internet has guaranteed that the potential users can access information they need from virtually anywhere (Ham, 1981, 208).

These mediums allow the public to access a broader range of data, and also make it compact rather than bulky, allowing for more storage space than was previously imagined. It also allows for easy and fast updating of documents as new data comes out, making data up-to-date for potential users to access. The creation of new technologies that are used by much of the public has very quickly changed the outlook of archiving (Ham, 1981, 208).

However, with these advances also come problems. The sheer amount of the data that can be processed with this technology is staggering, and it often increases demands on archivists, who must sort through, evaluate, and file all this information. Bulk is also a problem, but that has been mostly solved through computers and the information

superhighway. But a larger issue remains—an intellectual issue. "As Peter Drucker . . . pointed out, 'the critical problem is not how to process or get information, but to determine what information is'" (qtd in Ham, 1981, 208-209). The problem, simply put, it the total overload of information, which makes sifting through the veritable mine of data difficult without an idea of what information is valuable and what is not (Ham, 1981, 209). For this reason, it is extremely important to develop a framework for a method of appraising data (Ham, 1981, 207).

## Deciding Usefulness

The prospect of deciding the usefulness of documents may seem a bit presumptuous to people. After all, data exists to be useful to others. However, while all data is, to a certain extent, useful to someone, so why should any of it be thrown out? One of the main problems with managing documents filled with data is that it takes time, and time costs money. While all data is somehow useful, one must take into consideration whether or not it is useful enough to merit an archivist spending time documenting it. Because of this, it is important to come up with a method of deciding usefulness (Peace, 1984, 3-4)

Archivists are often forced to work with extremely bureaucratic data that often does not reflect the actual issue. Because of this, archivists must appraise the information carefully. In order to best do this, one must study the administrative process in order to shed light on the importance of the bureaucratic data (Lutzker, 1982, 120). In order to deepen an understanding into how institutions function, archivists should draw upon the following disciplines:

- Sociology
- Social psychology
- Public administration
- History (Lutzker, 1982, 119)

After gaining insight through these areas, an archivist must analyze the collection and apply the gleaned knowledge to further understand the creators of the documents and the purposes for which the records were created. It is through this method that one can determine biases and also discover the real issue that the documents may be skirting. Through this, archivists can learn to see through the language of the bureaucrat to what lies beneath, if anything, thus leaving them able to determine whether the document is useful or not (Lutzker, 1982, 120).

In addition, it is also the responsibility of the archivist to select documents that will endure through time. An archivist must therefore utilize wisdom when selecting the documents that he or she keeps. Because of this, archivists need to consider appraisal and collecting strategies. Also, "archivists must educate creators about the importance of retaining records of long-term importance and inform the general public about the essential work of the archival profession" (qtd in Hackman, 1987, 14), which will promote understanding.

Selecting records that will maintain their value and relevance is difficult for several reasons:

- Archivists do not have "an accepted method for evaluating the state of archival documentation for functions or subjects" (Hackman, 1987, 14)
- Much of the data necessary to check the status of the value of archival records is unavailable or hard to find
- Archivists lack established methods with the motivation and ability to evaluate resources, and also do not have the influence to bring results to the public eye (Hackman, 1987, 15)

### *Missing Data*

There are many bits of information an archivist must have in order to see if archival documentation of certain areas is adequate. These include:

- What kinds of records are created
- Which records are already being archived and where
- Which records may lose value over time and which may endure
- Which records are already available to the public through other archives
- What records are needed or wanted by users

This information must be known in order to create a useful archive and assess adequacy from a broader viewpoint. Archivists will only gain the answers to these questions by gaining more information about other administrations (Hackman, 1987, 15).

Despite the difficulties associated with finding a method to evaluate the value of documents, archivists should consider it important to add value to the archive they are creating. Not doing so can actually lead to wasteful competition between archives for virtually useless records, and can also distort records and cause confused allocation of resources used for archiving. It is therefore important to create a collecting framework based on a method of appraising data to make the process of archiving more efficient (Ham, 1981, 207).

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