ABSTRACT

MIXING BITS AND PIECES: HOW TECHNICAL WRITERS MEET THE NEEDS OF LARGER WRITING COMMUNITIES THROUGH INTERTEXTUALITY

By Joanna L. Woerner

Because technical writers frequently work with larger writing communities (the multiple discourse communities that collaborate on a project), they must learn to blend the unique languages and conventions of multiple communities into one acceptable document. This blending can often prove challenging. However, by using intertextuality – defined as the practice of employing specific phrasing and visual elements that direct readers’ minds to accepted, pre-existing communications within a discourse community – technical writers can mix ‘bits and pieces’ (Porter 1986) of successful communications into new discourse. Though the definition and application of intertextuality has been much debated over the last forty years, I will demonstrate how it can be valuable to technical communication by describing how I used intertextuality during my internship at the Integration and Application Network, a branch of the University of Maryland Center for Environmental Science in Cambridge, MD, and by providing guidelines for establishing intertextuality in a document.
MIXING BITS AND PIECES: HOW TECHNICAL WRITERS CAN MEET THE NEEDS OF LARGER WRITING COMMUNITIES THROUGH INTERTEXTUALITY

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INTRODUCTION

Of course, the first step towards understanding how intertextuality can influence technical communication is to clearly define intertextuality. Unfortunately, this is not an easy task. In broad terms, “Examining texts’ ‘intertextuality’ means looking for ‘traces,’ the bits and pieces of text which writers or speakers borrow and sew together to create new discourse” (1986). Yet, for decades, theorists have debated what intertextuality is and how it should be applied. While these debates continue, some writers have used intertextuality to examine how they use common language “to put words together in new ways to fit our specific situations, needs, and purposes” (Bazerman 2004).

During my internship as a Miami University graduate student at the Integration and Application Network (a branch of the University of Maryland Center for Environmental Science), my search for a means to integrate the language used by two distinct discourse communities led me to intertextuality. Through my research, I was able to create a definition of intertextuality that worked for my purposes. Based on the ideas of many theorists, intertextuality can be defined as the practice of using specific phrasing and visual elements that direct readers’ minds to accepted, pre-existing communications within a discourse community. By this definition, intertextuality can help writers mix ‘bits and pieces’ (Porter 1986) of successful communications from different discourse communities into a new, acceptable document.

In order to help technical writers understand how intertextuality benefited me in my work and how it might help them in similar situations, I will provide an introduction to the Integration and Application Network, an overview of my internship activities, a description of the major activity in which I established intertextuality, and a discussion of intertextuality and the larger writing community.
CHAPTER 1 – INTRODUCTION TO THE INTEGRATION AND APPLICATION NETWORK

To fulfill the requirements for a Master’s Degree in Technical and Scientific Communication at Miami University, I interned at the Integration and Application Network at the University of Maryland Center for Environmental Science in Cambridge, Maryland from 9 January 2006 to 28 April 2006. This chapter describes the Integration and Application Network’s (IAN) mission and organization, summarizes my work at IAN, and discusses my contribution to the organization’s mission.

Integration and Application Network’s mission

Though the Integration and Application Network has many goals, its mission can be summarized by two main objectives: solving environmental problems and promoting a visual language for scientific processes.

One of the Integration and Application Network’s objectives is “solving, not just studying environmental problems” (ian.umces.edu). The Integration and Application Network, a part of the University of Maryland Center for Environmental Science, achieves this objective by collaborating with university faculty, staff, students, other academic institutions, government agencies, and non-government organizations to synthesize information and produce communications for a wide range of audiences (see Appendix 1). Through these communications, the Integration and Application Network informs the public and influences decision-makers—thus, educating those who have the authority to shape policy and solve environmental problems.

The Integration and Application Network is also committed to promoting a visual language for scientific processes through its symbol library—a catalog of free, downloadable vector images that allows users to create their own figures and maps. These symbols are used to create conceptual diagrams representing the processes impacting ecosystems (Figure 1). These conceptual diagrams can be used in documents that overcome language barriers and disseminate knowledge to audiences all over the world. At the time of this report, the symbol library has been downloaded by over 23,000 people in over 200 countries and territories (ian.umces.edu/symbols).
The Integration and Application Network uses conceptual diagrams to explain complex scientific processes to a variety of audiences. These diagrams are made with elements from the Network’s symbol library, which promotes a visual language for scientific processes.

The Integration and Application Network is uniquely positioned to solve environmental problems and communicate science effectively because of its organization and relationship with environmentally-focused groups, such as the University of Maryland Center for Environmental Science.

Integration and Application Network’s organization
The Integration and Application Network, though it pursues its own projects and funding, is part of several other organizations. For example, IAN is part of the University of Maryland Center for Environmental Science, one of the thirteen entities in the University System of Maryland (usmd.edu). Independent of these two organizations, the Integration and Application Network has its own structure. The following will describe the Integration and Application Network’s relationship with the University of Maryland and
the University of Maryland Center for Environmental Science. It will also explain the Integration and Application Network’s structure.

The University System of Maryland
The University System of Maryland, the collection of public institutions of higher education in the state, is focused on providing access to high quality, affordable educational opportunities (usmd.edu). These opportunities are generated at the eleven degree-granting and two research institutions included in the University System of Maryland (usmd.edu). The University of Maryland Center for Environmental Science, IAN’s parent organization, is one of the two research institutions in the System.

The University of Maryland Center for Environmental Science
The University of Maryland Center for Environmental Science employs over 400 faculty, staff, and graduate students who conduct and support research at three laboratories:

- The Appalachian Laboratory in Frostburg, MD,
- Chesapeake Biological Laboratory in Solomons, MD, and
- Horn Point Laboratory in Cambridge, MD.

In addition to its three laboratories, the University of Maryland Center for Environmental Science also contains the Maryland Sea Grant College program (Nichols 2001) (Figure 2). This program is a joint research initiative sponsored by the National Oceanic and Atmospheric Administration.

In order to support the research conducted in the three laboratories and the Sea Grant College Program, the University of Maryland Center for Environmental Science has a Center Administration (CA) (Figure 2). CA oversees grants, manages contracts, and supervises human resources. CA also includes the Integration and Application Network. However, as the Integration and Application Network grew, it left CA’s office building and built its own facility, also located at the Horn Point Laboratory. Though the Integration and Application Network no longer uses CA’s physical facilities, CA still provides IAN with some technical and financial support.
The Integration and Application Network is part of the University of Maryland Center for Environmental Science (UMCES). In turn, UMCES is part of the University System of Maryland.

Integration and Application Network’s structure
Though it is part of Center Administration, the Integration and Application Network has its own structure and personnel. The Network’s Director is the University of Maryland Center for Environmental Science Vice President for Science Application, Dr. William Dennison. Dr. Dennison oversees IAN employees, staff members employed through National Oceanic and Atmospheric Administration and Chesapeake Bay Program partnerships, and several graduate students and interns (Figure 3). These staff members
and students come together to form highly adaptive and fluid groups which dissolve and re-form as projects begin and end. This flexible structure allows employees at the Integration and Application Network to effectively and efficiently apply their skills to projects as needed.

In addition to the staff described above, the Integration and Application Network is supported by two administrative personnel: the Assistant to the President of University of Maryland Center for Environmental Science (who oversees grants) and an office manager.

Figure 3 – Integration and Application Network’s internal organization

The Integration and Application Network has its own staff made of core employees, students and interns, and an environmental policy analyst at the Annapolis Synthesis Center. In addition, IAN employs other personnel through partnerships with the Chesapeake Bay Program and National Oceanic and Atmospheric Administration.

The nature of my work at the Integration and Application Network
As a science communication intern at the Integration and Application Network, I worked on a variety of print and electronic documents that challenged my skills as a technical writer. In general, my projects fell into two categories: booklets and presentations. Both groups of projects required careful audience consideration, creative design, consultations with clients and partners, and sound editing skills. (A full description of all my internship projects can be found in Chapter 2.) In addition to challenging my professional skills,
these projects also allowed me to contribute to the Integration and Application Network’s mission.

**My contribution to the Integration and Application Network’s mission**

I contributed to the Integration and Application Network’s mission by supporting its two main objectives: solving environmental problems and promoting a visual language for scientific processes. I was able to assist in solving environmental problems by helping to synthesize information in the *National Estuarine Eutrophication Assessment 2004* booklet. This booklet will help researchers across the country understand the issues impacting estuarine systems and provide examples of how they might assess, monitor, and manage the estuaries they study.

I also contributed to the Integration and Application Network’s second objective, the establishment of a universal visual language, by designing conceptual diagrams in all of the documents I produced. When necessary, I also created new symbols to represent ideas such as eutrophication (heavy nutrient loads in an estuarine system), susceptibility (flushing and loads in an estuarine system), and future outlooks. The conceptual diagrams and symbols I used in my work demonstrated the utility of a visual language for scientific processes.

To further illustrate my contributions to the Integration and Application Network and provide the background for understanding how intertextuality played a significant role in my work, I give an overview of all of my internship activities, a detailed description of one of my major activities (the *Defending Our National Treasure* booklet), and provide an examination on how applying the techniques of intertextuality helped me produce an acceptable document for a larger writing community.
CHAPTER 2 – OVERVIEW OF INTERNSHIP ACTIVITIES

During my 15-week internship at the Integration and Application Network, I was able to contribute to a variety of projects which required skills ranging from writing text to teaching principles of science communication. In general, my internship activities fell into two categories: booklets and presentations.

Booklets

Approximately 95% of my time at the Integration and Application Network was focused on creating the following three booklets:

- *The National Estuarine Eutrophication Assessment (NEEA) 2004 Update*, and
- *Workshop on Advancements in Modelling Physical-biological Interactions in Fish Early-life History*.

(For a pie chart showing the percentage of time allocated to each project during my internship, refer to Appendix 2.) Though these print projects were created with the same principles of good design, each booklet was developed for a particular audience, required a specific set of responsibilities, and made unique contributions to the Integration and Application Network’s mission.

Defending Our National Treasure

The first booklet, *Defending Our National Treasure: A Department of Defense Restoration Partnership Initiative 1998 – 2004*, is part of a project that began about two years before I came to the Integration and Application Network. In 2004, the Department of Defense contracted the Integration and Application Network to produce its latest edition of *Defending Our National Treasure: A Department of Defense Restoration Partnership Initiative*, a booklet that describes the restoration projects conducted at the 64 Department of Defense installations within the Chesapeake Bay watershed. As a partner of the Chesapeake Bay Foundation, the Department of Defense wants to raise awareness about the issues influencing Bay health. The booklet is scheduled to be published in late 2006.
Audience
The primary audience for Defending Our National Treasure is the Department of Defense (DoD) personnel within the Chesapeake Bay watershed, with the intent to inform each branch of the armed services about the restoration projects conducted at different installations and help military personnel in the area learn from the efforts of their peers. In general, the booklet is geared toward environmental education and outreach personnel on each installation. The secondary audience for this booklet includes other Chesapeake Bay Program partners and the general public. Defending Our National Treasure is written for these audiences because it serves two purposes: 1) highlighting the achievements the DoD has made in bay restoration, and 2) demonstrating to environmental groups and concerned citizens that well-coordinated restoration efforts can make a direct impact on the bay. I was able to do an informal audience analysis by meeting with DoD contractors and asking fellow Integration and Application Network employees about the techniques they use to reach the general public. In order to ensure that the booklet is accessible to both the primary and secondary audiences, the Department of Defense will distribute the booklet to every installation in the watershed. The general public will be able to obtain a PDF of the booklet from the IAN website and its publication will be announced in our e-newsletter that reaches numerous environmental and educational organizations within the watershed. After joining the project, I was given several responsibilities to ensure that the booklet reached these audiences.

Responsibilities
I was directly responsible for the following tasks on the Defending Our National Treasure project:

- Writing the text for Chapter 1 – Chesapeake Bay,
- Editing additional text within the guidelines of the Department of Defense,
- Creating conceptual diagrams for all five chapters,
- Designing spreads for all five chapters, and
- Editing photos for all five chapters.

Though progress was made on these tasks, more work will be done before Defending Our National Treasure is finished and able to complete its contribution to the Integration and Application Network’s mission.
Contribution to Integration and Application Network’s mission
Defending Our National Treasure will further the Integration and Application Network’s mission of not just studying but solving environmental problems by demonstrating that coordinated restoration efforts can directly improve the health of the Chesapeake Bay. Though previous editions have been published, we at the Integration and Application Network hope that this edition will serve as a model for the many organizations that report on the condition of the Bay. The booklet will also provide a resource for educators and researchers.

The National Estuarine Eutrophication Assessment 2004 Update
The second booklet I worked on, the National Estuarine Eutrophication Assessment (NEEA) 2004 Update, describes the condition of the nation’s estuaries from 1999–2004. The clients for this project include Suzanne Bricker, a National Oceanic and Atmospheric Administration employee, and Ben Longstaff, an employee of the National Oceanic and Atmospheric Administration-University of Maryland Center for Environmental Science partnership. NEEA is conducted every five years to evaluate the causes of eutrophic symptoms that lead to poor water quality and use impairments. The purpose of this document is to provide an integrated assessment that helps legislators make sound decisions about estuarine management. The NEEA 2004 Update will reach audiences in early 2007.

Audience
Just like Defending Our National Treasure, the NEEA 2004 Update has two target audiences. The primary audience includes members of the scientific community who are interested in the overall health of estuaries or wish to learn about monitoring and improving water quality. The secondary audience for this document consists of legislators and members of the public who need or want to understand the basic issues impacting estuaries today. We were able to receive feedback from the primary audience at a workshop where researchers from all over the country offered recommendations for improving our analysis and the report. My responsibilities on this project centered on the need to attract both of these audiences.
Responsibilities
To create a document that met the clients’ needs and interested both target audiences, I was given the following tasks:

• Creating many of the conceptual diagrams in the booklet,
• Conducting substantive and copy edits,
• Designing creative and usable spreads,
• Making symbols for the three components evaluated in the assessment: influencing factors, eutrophic conditions, and future outlooks,
• Editing or re-creating the conceptual diagrams that represent the five estuary regions,
• Searching for interesting and informative photos, and
• Editing photos.

By completing these and future tasks, I will have helped to create a document that will further the mission of the Integration and Application Network.

Contribution to Integration and Application Network’s mission
The NEEA 2004 Update will contribute to the Integration and Application Network’s mission of solving environmental problems by providing decision-makers with the science they need to develop effective management plans. This booklet will also help the general public understand the issues that impact estuaries.

Workshop Program
The third booklet I worked on as an intern was the program for the Workshop on advancements in modelling physical-biological interactions in fish early-life history. Dr. Elizabeth North, a faculty member at the University of Maryland Center for Environmental Science, asked the Integration and Application Network to produce a 53-page program written in UK English. This booklet included a workshop overview, agenda, abstracts of the papers presented at the workshop, and an index of participants and their contact information. The time frame for this project was very short, and I was able to complete the program within ten working days after receiving the project.

Audience
Unlike the two previous booklets, the workshop program was created for a very narrow audience—the attendees and invited guests unable to attend the workshop. Because the project needed to be completed so quickly, I was unable to conduct a formal audience analysis. I relied on the client, who helped organize the workshop, to help me determine
the needs of the audience. In total, I produced 65 copies, which were then sent to the workshop location in Nantes, France.

**Responsibilities**
To finish this project on a tight deadline, I took on the following responsibilities:

- Designing a visually pleasing cover,
- Formatting text in an InDesign CS2 document,
- Copy editing text,
- Creating PDFs of the booklet in standard and A4 (European paper size) formats for the workshop website, and
- Printing and binding 65 copies of the spiral-bound booklet.

At its completion, the *Workshop on advancements in modelling physical-biological interactions in fish early-life history* booklet assisted in the success of the workshop and contributed to the Integration and Application Network’s mission.

**Contribution to the Integration and Application Network’s Mission**
The program for the *Workshop on advancements in modelling physical-biological interactions in fish early-life history* contributed to the Integration and Application Network’s mission of communicating science effectively. The booklet’s organization and format illustrated how good design and clear writing can effectively disseminate knowledge about the early life history of fish and other research topics.

This project also helped solidify our relationship with University of Maryland Center for Environmental Science faculty by allowing us to assist a highly regarded faculty member. It is our hope that as more researchers at the university grow to understand the importance of science communication, they will approach Integration and Application Network staff about collaborating on more projects. Though this workshop program and the other two booklets consumed much of my time as an intern, I also had the opportunity to work on other projects, including presentations.

**Presentations**
In addition to working on booklets, I spent 5% of my time as an intern creating two presentations: “A Summary of Integration and Application Network’s Projects” and “Communicating Science Effectively: print projects”.
A Summary of Integration and Application Network’s Projects
The first presentation I created for the Integration and Application Network was a summary of the organization’s current projects. On March 13, 2006, University of Maryland Center for Environmental Science employees at the Chesapeake Bay Program, the National Oceanic and Atmospheric Administration, and the Integration and Application Network met to share information about their projects and discuss how they could improve their partnerships. For this meeting, my mentor asked me to create and give a 10-minute PowerPoint presentation summarizing our organization’s major projects.

Audience
The audience for “A Summary of Integration and Application Network’s Projects” consisted of University of Maryland Center for Environmental Science employees at the National Oceanic and Atmospheric Administration and Chesapeake Bay Program partnerships, other Integration and Application Network staff, and staff at the Chesapeake Biological Laboratory where the meeting was held. The meeting was held at this laboratory to foster stronger working relationships with researchers at this University of Maryland Center for Environmental Science facility.

Responsibilities
To complete this presentation and help to build stronger working relationships with staff at Chesapeake Biological Laboratory, I was given the following responsibilities:

- Interviewing Integration and Application Network staff to gain insight into their projects and objectives,
- Summarizing project goals and objectives, and
- Creating and giving an effective 10-minute presentation.

After fulfilling these responsibilities, I was able to give a presentation that contributed to the mission of the Integration and Application Network.

Contribution to Integration and Application Network’s mission
“A Summary of Integration and Application Network’s Projects” was able to contribute to the organization’s mission by creating an opportunity for researchers and science communicators to work together to solve environmental problems. Discussions prompted by my and other presentations led to the start of several collaborative projects. For
example, a Chesapeake Biological Laboratory faculty member worked with us to present a seminar on "Identifying high-payoff areas for restoration investments."

**Communicating Science Effectively: print projects**
The second presentation I created was entitled “Communicating Science Effectively: print projects” and was given during the Integration and Application Network’s annual 5-day Science Communication course. Each year, participants from all over the country attend the course to learn the principles of science communication, gain skills in Adobe software, and apply their new knowledge to projects for their own organizations. To maximize participants’ learning experiences, the entire Integration and Application Network staff gave presentations, led tutorials, and ran hands-on workshops. As part of my contribution to the course, I updated and presented a lecture on how to create effective print projects. Of course, to create an effective presentation, I conducted an audience analysis.

**Audience**
Because those who attend the Science Communication course have a vested interest in science communication, our course, including my presentation, is tailored to a specific audience. In general, course participants come from academic institutions, government agencies, non-profit organizations, and research centers. This year, our participants consisted of University of Maryland Center for Environmental Science graduate students and professionals from organizations such as the National Park Service and National Oceanic and Atmospheric Administration. Thus, my presentation focused on practical applications that would be useful in the workplace. After talking to Integration and Application Network staff and reading comments from previous students, I was able to analyze the needs of the audience and outline the tasks I would need to perform.

**Responsibilities**
To emphasize the practicality of science communication to participants, I was responsible for updating and presenting a lecture on creating effective print projects, particularly posters and newsletters. I met this responsibility by completing the following tasks:

- Updating the presentation with figures from the future Integration and Application Network publication *Communicating Science Effectively: a handbook for integrating visual elements*,
- Editing slides,
• Practicing the timing of the presentation, and
• Answering participants’ questions.

By completing these tasks, I was able to produce a presentation that contributed to the success of the course and advanced the Integration and Application Network’s mission.

**Contribution to the Integration and Application Network’s mission**
In general, the Science Communication course advanced the Integration and Application Network’s goals by helping members of the environmental science community understand how to communicate more effectively with the public. My presentation, in particular, helped participants gain the skills they needed to produce effective print documents for their own organizations. The participants were not the only ones who benefited from my presentation. Giving this presentation and working with participants re-energized my enthusiasm for science communication and was the most meaningful teaching experience of my career.

**Summary**
Though my work for the Science Communication course put me in the role of teacher, I often felt more like a student during my internship. Working on these booklets and presentations afforded me the opportunity to learn new professional skills and build on the skills I gained through my coursework in the Master of Technical and Scientific Communication program. My learning experience at the Integration and Application Network was so great, that it is difficult to limit a description of these lessons for this report. However, the following is a list of the most valuable skills I gained during my internship:

• Using Adobe Illustrator skills to create conceptual diagrams and maps,
• Designing more effective layouts by using advanced text features in Adobe InDesign,
• Balancing clients’ needs with the principles of good design,
• Managing several multi-faceted projects simultaneously, and
• Discovering and using support networks for science communication such as the Adobe online forum and Open Photo websites.

My learning was enhanced by the willingness of my co-workers to share their knowledge and provide support.
To further illustrate what my internship has taught me about technical and science communication, I will use one of my major activities to demonstrate how I used theories regarding intertextuality to create a document acceptable for a larger writing community.
CHAPTER 3 – DESCRIPTION OF MAJOR ACTIVITY: DEFENDING OUR NATIONAL TREASURE

By describing my objectives for creating Defending our National Treasure: A Department of Defense Restoration Partnership Initiative 1998 – 2004 booklet, I will illustrate how my activities as an intern at the Integration and Application Network contributed to my development as a science communicator and provide the context for understanding how intertextuality influenced my work. In order to describe this major activity, I will give a brief introduction to Defending Our National Treasure, list the objectives I set for the booklet, and discuss the methods I used to meet those objectives.

Introduction to Defending Our National Treasure

As the owner of 1% of the land in the Chesapeake Bay’s 6,400-square-mile watershed, the Department of Defense plays an important role in Chesapeake Bay restoration. For example, the Department of Defense is a partner in the Chesapeake Bay Program, a federally mandated organization that works with government agencies, local officials, scientists, and residents to improve Bay health, (chesapeake.net). As a Chesapeake Bay Program partner, the Department of Defense has signed the Chesapeake 2000 agreement. Organizations that signed this agreement pledged to protect and restore living resources, vital habitat, and water quality; promote sound land use; and encourage community engagement. In 1998, the Department of Defense published Recovering and Protecting the Chesapeake Bay: A DoD Initiative to illustrate how it meets its commitments to the partnership and restores the health of the Bay. The Integration and Application Network was contracted to produce the latest booklet, which will be 150-page full color book with a soft cover and saddle stitch.

When I began working at the Integration and Application Network, the Defending Our National Treasure project had been running for almost two years. About one year into the project, the Department of Defense employees working with the Integration and Application Network moved on to other positions. Thus, the project was put on hold until a new team could be assembled. At the time I joined the project, the new team had been working for approximately six months and had been able to make some decisions regarding chapter titles and basic page elements. Otherwise, little progress on the layout of the book had been made. Therefore, I was given the responsibility of revitalizing the
As I worked on the booklet, I made sure that all my actions supported the project objectives.

Methods for meeting objectives
Once the objectives were set, I used the principles of effective communication to develop a draft of Chapter 1.

Provide meaningful content
Because the booklet will reach many people who may or may not be familiar with the issues impacting the Chesapeake Bay, I strove to provide meaningful content simple enough to inform all members of the audience yet rich enough to illustrate the complex processes that influence Bay health and restoration. I used several tools to produce meaningful content for Defending Our National Treasure: referencing other Bay reports and experts, incorporating a lecture given by Dr. William Dennison (Director of the Integration and Application Network), including sidebars with definitions and further explanations, and creating easy-to-read visuals.

The first method I employed for providing meaningful content, referencing other reports and experts, enhanced the credibility of the booklet. For example, I paraphrased a Chesapeake Bay Program document in Chapter 1 to describe how nuisance algal blooms result in low dissolved oxygen in bottom waters. I also cited an Environmental Protection
Agency report in a table describing the oxygen tolerances of some common Bay organisms. Because the Chesapeake Bay Program and Environmental Protection Agency are highly recognizable authorities on Bay health, including their quotations added to the authority of the booklet.

Another important method for creating meaningful text was incorporating the “Chesapeake Bay Overview: key issues and emerging trends,” a lecture given by Dr. William Dennison. This lecture, based on a PowerPoint presentation, was created for the general public. Thus, it effectively served as the base for the Chapter 1 text. Though the PowerPoint and recorded lecture were valuable tools, turning the lecture into text appropriate for the project proved to be a challenge. The first step was transcribing the lecture. Next, I reorganized the material to meet the needs of the audience, created headings and sub-headings to support the reorganization, and adapted visuals.

In order to make the concepts presented in the lecture more appropriate for a broad audience, I used sidebars to provide supporting information. These sidebars, which include further information or definitions of key terms and phrases, expanded the explanation of concepts that might be new to some readers without boring readers more familiar with the subject matter (Figure 4).

Another effective tool for providing meaningful content are easy-to-read visuals. For this project, such visuals served the dual purpose of helping to provide meaningful content and promoting the language that is part of Integration and Application Network’s mission. Because easy-to-read visuals are so important to the project and Integration and Application Network’s mission, I included them in a separate objective.

**Describe environmental issues through easy-to-read visuals**

In addition to helping to provide meaningful content, easy-to-read visuals also help attract and inform the targeted audience. However, visuals are only effective if they can clearly convey a message. Therefore, I used conceptual diagrams, active titles, and narrative captions to create meaningful and easy-to-read visuals.

Conceptual diagrams are featured in all of the Integration and Application Network’s documents because they illustrate complex processes to broad audiences. Thus, one of my primary tasks was to use conceptual diagrams to describe environmental
Figure 4 – Sidebar in Chapter 1: Chesapeake Bay

**Defending our National Treasure**

**Special features of estuaries**

One of the natural processes key to understanding the bay is the flow of water in an estuary. Chesapeake Bay has a classic two-layer flow with lighter, less dense freshwater from rivers at the surface moving towards the sea and heavier, more dense salt water flowing underneath (Figure 1). The isolated saltwater at the bottom of the bay is often called the salt wedge. The salt wedge affects fish dynamics and many species have specially-adapted larvae that thrive in the higher salt concentrations. The two-layer flow is uninterrupted until strong storms mix the bottom waters. However, the trough in the central mainstream of the bay is rarely mixed and frequently experiences anoxic or hypoxic conditions.

In estuaries, water clarity is influenced by the mixing of water. When water from the tributaries reaches the bay, it dumps the sediment and other suspended particles it was carrying. These particles decrease the clarity of the waters in the upper bay. The river waters also bring nutrients to the bay, encouraging algal blooms (phytoplankton) and turning the water green in some areas. Oceanic waters around the mouth of the bay are more classically blue because they do not contain suspended particles or phytoplankton (Figure 1). Thus, the color of the bay water changes as one moves toward the ocean.

**Key terms and phrases**

**Anoxic:** The condition where no oxygen is present in water. Frequently, anoxia is brought on by the decomposition of large algal blooms which rapidly consumes oxygen.

**Estuary:** A semi-enclosed body of water that has a free connection with the open ocean and has freshwater from rivers or streams mixing with saltwater. Estuarine waters are decreasingly salty in the upstream direction and increasingly salty downstream. The ocean tides are projected upstream to the freshwater tributaries that feed the estuary.

**Hypoxic:** A condition where very low levels of oxygen are present in water.

**Salt wedge:** A sharp boundary between the water masses, with freshwater floating on top and a wedge of saltwater on the bottom. Some mixing does occur at the boundary between the two water masses, but it is generally slight.

Sources: [http://www.chesapeakebay.net/education/](http://www.chesapeakebay.net/education/)

The side bar (top right) contains definitions of terms used in both the text and the conceptual diagram. Putting supporting information into side bars helps to reach a broad audience.
issues and processes. In some cases, I modified previously existing conceptual diagrams for my specific purposes. Other times, I created new diagrams to depict special circumstances described in the booklet. Whether modifying or creating a conceptual diagram, I strove to provide the reader with an interesting and informative visual.

Other types of visuals I incorporated into the booklet included tables and pie charts. When creating these tables and charts, I was very careful to avoid what Tufte calls “chart junk” or the decorative clutter that distracts readers from the actual data being presented (2001). Thus, none of the graphics include “vibrations, grids, or ducks” (Tufte 2001). For example, the pie charts depicting nitrogen and phosphorus sources use small symbols within the pie slices to represent sources (Figure 5). Thus, the information is not obscured by any artistic elements, which Tufte refers to as a “duck,” in reference to a store designed in the shape of a duck (2001).

Figure 5 – Example of visuals incorporating symbols without obscuring the message being presented

Though these pie charts contain symbols to help readers visualize the sources of nutrients in the Chesapeake Bay, the symbols do not distract from the main message – how waste discharge, development, and agricultural inputs contribute to nutrient pollution.

Other tools I used to create easy-to-read visuals were active titles and narrative captions. This supporting text provides context for the visuals and allows readers to comprehend meaning (Williams and Harkus 1998), and narrative captions help readers understand the document’s main message independent of the body text. Including these
descriptive captions ensures that reader cannot misinterpret the message behind the visual (Anderson 2003). Based on these principles, I created active titles and narrative captions for all the visuals in *Defending Our National Treasure* (Figure 6).

**Figure 6 – An example of a figure with a narrative caption**

*Figure 6 – Imperious Surface Cover in 2000.*

Legend

- Chesapeake Bay watershed
- Chesapeake Bay

Increased impervious surfaces such as roofs and roadways prevent rainfall from slowly permeating the soil. Instead, rainfall pours into rivers and streams in a high-energy flow that causes erosion and streambank destabilization.

Narrative captions allow visuals to stand alone. Thus, readers can obtain the main message of the document even if they do not read all the text.

**Adapt template to changes in content**

Like visuals, effective design can help readers understand a document’s main message. Ideally, technical writers and science communicators are able to anticipate all the content in a document and make decisions regarding layout accordingly. In reality, changes in content require new levels of headings or changes in design. Such was the case with *Defending Our National Treasure*. For example, the clients chose to include all five of the *Chesapeake 2000 Agreement* goals in one chapter, *Chapter 3: Department of Defense Initiatives*. Each goal is comprised of many sub-categories. For instance, the living resources goal in the *Agreement* is broken down into five sub-categories: oyster
restoration, exotic species management, resident and migratory fish passage, multi-
species management, and blue crab management (Chesapeake Bay Program 2000). Thus,
in order to separate the sub-categories from other goals, I adapted the chapter’s design
template. I decided to create a sub-chapter heading that would divide the goals and their
sub-categories. To clearly show the start of a new goal, I incorporated a visual element in
the heading based on the previously made template. The additional sub-chapter heading
included the same colors, photo element, and intersecting lines that appear in the chapter
heading (Figure 7).

Creating the new sub-chapter heading is just one example of how I altered the
template to meet changes in content. Other such alterations included designing the
preface and forward, adding a folio, and changing the color of the headings to match the
color scheme of the book.

Figure 7 – Example of chapter and sub-chapter design elements used in Defending Our
National Treasure

The sub-chapter heading (right) reflects the design elements used in the chapter heading (left),
particularly the intersecting lines and photo elements.
Illustrate the Department of Defense’s support of *Chesapeake 2000*
Because the Department of Defense’s restoration efforts are guided by the *Chesapeake 2000 Agreement*, the booklet’s organization and headings reflect that of the *Agreement*. For example, all the headings in *Chapter 3: Department of Defense Initiatives* mimic those included in the *Agreement*. The choice to use headings that reflect the *Agreement’s* format was a deliberate move to connect the Department of Defense’s restoration efforts and the *Agreement* in readers’ minds.

**Improve readers’ ability to visually scan pages**
Many of the changes I made to the template also helped improve readers’ ability to visually scan pages for information. For example, using color headings created a clear hierarchy and helps readers locate the information they seek. In addition, bold text distinguishes installations’ names from the other body text and helps readers scan the pages. Other methods I used to improve the ability to scan the page include the use of figures and narrative captions.

**Include language and design acceptable to both discourse communities**
This objective, more than any of the others, prompted me to investigate intertextuality. I was working with two distinct discourse communities (the Department of Defense and the environmental science communities) that used different languages to discuss environmental issues. To make the document acceptable to both communities, I needed to incorporate both languages in *Defending Our National Treasure*. Establishing intertextuality in my document allowed me to achieve this objective.

Working to meet the objectives described above, helped me to meet the needs of the audience and develop a draft of the booklet that appeals to both discourse communities.
CHAPTER 4 – INTERTEXTUALITY AND THE LARGER WRITING COMMUNITY

When I first began working on *Defending Our National Treasure*, I immediately recognized the challenge of writing for two distinct discourse communities – the Department of Defense and the environmental science community. Because these two discourse communities–what Porter describes as the “group[s] of individuals bound by a common interest who communicate through approved channels” (1986)–often used different language and conventions to describe the issues impacting the Chesapeake Bay, I sought a method that would allow me to create a document to which both communities could relate.

After some research, I discovered that by examining and applying the techniques of intertextuality, I could use source documents as a guide for developing the content and visual language of *Defending Our National Treasure*. I also determined that intertextuality could help me create a document acceptable to both discourse communities within the larger writing community–all the discourse communities that work together to produce new discourse. In this case, the larger writing community consists of the Department of Defense and the environmental science discourse communities.

To illustrate how intertextuality helped me achieve my objectives, I discuss the development of *Defending Our National Treasure*. In this discussion, I provide a brief introduction to intertextuality, describe the relationship between intertextuality and technical communication, and examine how intertextuality influenced the content and visual language of *Defending Our National Treasure*.

**A brief introduction to intertextuality**

The concept of intertextuality was first developed by two well-know theorists: Bakhtin and Kristeva. Though he never used the word intertextuality, Bakhtin’s thoughts on dialogism would later serve as the foundation for this theory. In short, dialogism is the theory that language is based on continuous dialogic clashes of ideologies and interpretations (Allen 2000 pp.21-30). Because words and their meanings are constantly being altered by these clashes, words are “never wholly one’s own, [they are] already permeated with traces of other words, other uses” (Allen 2000 p. 28). This idea suggests
that a writer’s skill does not rely on originality but on the way he or she arranges previous meanings to make new discourse.

Bakhtin’s theories opened the door for Kristeva, who first introduced intertextuality in the mid-1960s. Since she focused her theory on written texts, she defines intertextuality as the “intersection of textual surfaces” (Duff 2002 p. 58). According to her, texts are a compilation of pre-existent texts and cultural texts or “the institutionally sanctioned structures and systems which make up what we call culture” (Allen 2000 p.36). When presented, Kristeva’s ideas initiated lengthy discussions about rhetoric and literary theory. In fact, her influence is still very strongly felt today (Lesic-Thomas 2005).

Kristeva’s references to “sanctioned structures” may remind some of genre theory. In actuality, the theories of intertextuality and genre have a complex relationship. Genre, defined as the conventional patterns for constructing a communication (Anderson 2003), helps writers format texts and develop superstructures. Thus far, the distinction between genre and intertextuality is clear. The former helps writers organize information and the latter helps writers identify the phrasing, assumptions, and references needed to make a document credible.

However, the distinction between intertextuality and genre becomes more blurred when broader definitions of genre are considered. For example, Miller’s description of genre as a social action suggests that genres are a method for incorporating the interests of several groups (1984). Similarly, intertextuality helps writers blend the voices of different groups. Yet, genre theory and intertextuality are not interchangeable phrases; the scope of intertextuality is greater than that of genre. Kristeva explains that intertextuality can transpose one sign system (or the pieces of written communications that symbolize accepted meanings) into another (Duff 2002 p. 63). A genre is one type of sign system; thus, intertextuality incorporates genre, and goes beyond genre to allow writers to mix signs and meanings (Duff 2002 p. 63). In general, genres help writers identify what themes to write about (i.e. results, methods, overview of alternatives) and intertextuality helps writers identify how to write about those themes by providing the accepted language and conventions with which to create new discourse.
Since the idea of intertextuality was first presented by Kristeva over forty years ago, writers from various fields have applied intertextuality in one form or another to their work. In fact, intertextuality has been used so frequently that Duff describes it as “an umbrella word for any critical procedure or creative practice involving two or more texts” (2002 p.55). This broad application has caused many experts to reconsider the definition of intertextuality. For example, Kristeva suggested replacing the term intertextuality with transposition (Duff 2002 p. 60-61). Other experts debate how dialogism and intertextuality should be applied. Todorov suggests that dialogism should refer to analysis of verbal exchanges and intertextuality should be applied only to text, (Lesic-Thomas 1983 p. 2). In addition, the wide use of intertextuality has prompted many experts to create their own theories.

Indeed, there are so many intertextuality-derived theories that in 2000, Allen was prompted to publish a book describing, among other things, the structuralism, post-structuralism, and post-modern interpretations of intertextuality. I mention these theories to illustrate that, from its inception, intertextuality has sparked much discussion and debate. I do not intend to join these debates. I am interested in understanding the practical applications of intertextuality, particularly for technical writers. I believe that intertextuality can be valuable to our profession because it helps people learn to write for the discourse communities they choose to enter (Porter 1986) and enables writers to meet the needs of multiple discourse communities.

**Intertextuality and technical communication**

Though intertextuality has been applied more broadly than some experts would like, it does have a place in technical communication. Intertextuality can be valuable to technical communication because of its ability to identify “the many voices in a text” (Bazerman 1995 p.179). These voices help writers use words, views, and attitudes of others to support their own purposes (Bazerman 1995 p. 180). In “Intertextuality: How texts rely on other texts” (2004), Bazerman suggests that writers can identify the voices in a document by searching for the six “techniques of intertextual representations”:

- Direct quotation;
- Indirect quotation or reference;
- Mentioning of a person, document, or statement;
• Comment or evaluation on a statement, or text;
• Using recognizable phrasing and terminology associated with specific people or groups; and
• Using language and forms (genres) that seem to echo certain ways of communicating (p. 94-95).

By identifying these intertextual representations, writers can learn what techniques and patterns are acceptable to a particular discourse community and apply them in the documents they create.

Examining intertextuality can also be helpful to technical writers when we work with several discourse communities. Certainly all technical writers belong to more than one discourse community. At this moment, I act as a technical writer, Miami University student, Integration and Application Network employee, and on the project I am discussing in this paper, a Department of Defense contractor. Because they are part of larger communities, technical writers must become “socialized writers who are full-fledged members of their discourse community, producing competent, useful discourse within that community” (Porter 1986 p. 42). When working with multiple discourse communities on a project, we must find ways to produce discourse useful to all the discourse communities. Porter suggests that the key criterion for competent, useful discourse is acceptability (1986 p.43). Acceptability, defined as “borrowing the appropriate traces of discourse from the discourse community,” is achieved by establishing intertextuality in a text (Porter 1986 p. 43). Therefore, documents are only acceptable to a larger writing community when they contain intertextual elements from all the discourse communities involved.

**Intertextuality and the content of *Defending Our National Treasure***

Once I determined that including intertextual elements for the Department of Defense and environmental science discourse communities would make *Defending Our National Treasure* acceptable to the larger writing community, I used the theories of intertextuality described by Bazerman and Porter to shape the language and content of the booklet. I discuss the method I employed by describing • source documents, • recognizable phrasing and terminology, • references, and • mentions of people, documents, or authorities.
Source documents for Defending Our National Treasure

Almost immediately after beginning work on the project, I realized that I relied on a few key IAN documents to help me develop Defending Our National Treasure. Imitating effective documents in new projects is a technique frequently used at IAN, where employees often cite Tufte’s familiar quote, “Don’t get it original; get it right” (2001). As my work progressed, I was unintentionally using intertextuality. However, as debates about key issues and wording became more frequent at meetings between the Department of Defense and environmental science discourse communities, I began to wonder why these seemingly obvious points were being debated. Based on the group discussion, it was apparent that both communities had common goals; it was equally apparent that they had different methods for communicating these goals. Thus, I turned to works on technical communication to help find a process for alleviating the miscommunications arising within the larger writing community. My search led me to Bazerman’s writing on intertextuality. After reading his article “Intertextuality: How texts rely on other texts” (1995), I realized that intertextuality could enable technical writers to blend the voices of the different discourse communities within a larger writing community. I determined that if I developed formalized steps for establishing intertextuality in a document, I could create new discourse acceptable to both members of the larger writing community for which I was writing.

The first step towards establishing intertextuality was selecting documents from each community that I could use to weave together new discourse. These documents served as sources for the accepted language and visual elements in both communities that needed to be reflected in Defending Our National Treasure. Therefore, these documents are called source documents and can be formally defined as documents that reflect the acceptable content, language, and organization of communications in a particular discourse community. Source documents are the raw material from which technical writers can extract bits of meaning to incorporate into a document that serves a larger writing community. Source documents are not merely references. Of course, references and citations are one aspect of intertextuality (Bazerman 2004); however, source documents do more than provide facts or lend credibility to a document. Nor do source
documents serve as the only sources of information for a new document. Instead, they act as guides to help writers identify the topics they should discuss and how to discuss them.

As a part of the environmental science community, I was already familiar with some of the content, language, and organization accepted by this group. I felt fairly confident that after reviewing a few texts I could select an effective source document from this community. What I needed was perspective on the accepted content, language, and organization employed by the Department of Defense. I needed to learn which issues, techniques, and references were valuable to this community. Therefore, I began to search for a Department of Defense document on environmental issues that could serve as a source document by meeting the following two criteria: 1) providing an in-depth discussion on the environmental issues important to this community and 2) including language that commonly appears in Department of Defense documents.

After viewing many documents from each community, I selected source documents I felt could provide intertextual elements—the language or visual elements that direct readers’ minds to accepted, pre-existent texts. To illustrate how source documents provide intertextual elements, I will give a general description of the three source documents that helped shape the content of Defending Our National Treasure: 1) “Chesapeake Bay Overview: key issues and emerging trends”, 2) the testimony to the Subcommittee on Readiness and Management Support, and 3) the Chesapeake 2000 agreement.

The first source document, “Chesapeake Bay Overview: key issues and emerging trends,” efficiently summarized the Chesapeake Bay issues important to the environmental science discourse community. This lecture, originally given by Dr. Bill Dennison to Department of Defense personnel in 2005 (in order to make the information within the presentation readily available, Dr. Dennison repeated the lecture on January 10, 2005 at the IAN building in Cambridge, Maryland), also included sources for data and references held in high regard by members of this community. Though I was reviewing many communications published by the environmental science community, I chose this document because it not only included the accepted language, but also contained many references to the research and experts commonly referenced in other publications produced by the community. For instance, this document referred me to the
Virginia Institute of Marine Science and its studies on aquatic grass distribution in the Chesapeake Bay. Using maps created by this organization enabled me to include a reference that established intertextuality in *Defending Our National Treasure*.

Like “Chesapeake Bay Overview”, the testimony to the Subcommittee on Readiness and Management Support of the Committee on Armed Services of the Senate from Major General R.L. Van Antwerp on “Encroachment issues having a potentially adverse impact on military readiness” helped me discover what Chesapeake Bay issues are important to the Department of Defense. The testimony not only describes what environmental issues are of interest, but it also provides this community’s rationale for why the issues need to be addressed. Being new to this community, I needed to gain insight onto this group’s rationale for discussing environmental issues. Ultimately, that is why I chose this document over the others I reviewed. Many of the Department of Defense documents I read summarized activities or made general claims about the importance of environmental protection that could describe the mission of many organizations. However, this testimony described how issues like urban encroachment impacts daily operations and provided the perspective I needed to understand why the Department of Defense believes restoration to be important. This understanding allowed me to use this discourse community’s arguments in the booklet to establish intertextuality and create new discourse.

These two source documents revealed that the two discourse communities address some of the same issues for different reasons. For example, the environmental science community is concerned about urban encroachment fragmenting habitat and reducing biodiversity. The Department of Defense, a Chesapeake Bay partner, is also concerned about preserving biodiversity. However, it is not their primary focus. Urban encroachment troubles the Department of Defense because it reduces the buffer between residential areas and the installations where live training is conducted. Residential areas in close proximity to these installations may force the Department of Defense to alter or reduce the training operations necessary to preparing effective military personnel. In order to make *Defending Our National Treasure* acceptable to both discourse communities, I needed to make sure it had provided the context for these two
perspectives on urban encroachment and describe how biodiversity can be protected on installations where live training occurs.

The third source document I used in Defending Our National Treasure came from the Chesapeake Bay Program. Though this organization did not collaborate on the project, and therefore is not a member of the larger writing community, its connection to the Department of Defense’s restoration efforts made it necessary to include a source document from this group. Thus, the Chesapeake 2000 agreement was used to organize the structure of Defending Our National Treasure. Though the Agreement contributes to the booklet by providing the organizational structure, I did not use it as a guide for the language of Defending Our National Treasure because the language use in it is too broad.

**Recognizable phrasing and terminology and source documents**

In addition to helping to identify appropriate topics, source documents also help writers choose the recognizable phrasing and terminology used by discourse communities. To illustrate this point, I describe some examples of phrasing I found to be unique to the individual discourse communities, phrasing common to both discourse communities, and phrasing that was inconsistently used by the two discourse communities.

The environmental science discourse community uses a multitude of phrasing recognizable to its members. One of the most notable phrases is *functionality*. *Functionality* is frequently used to describe the health of the Chesapeake Bay. We can find such a description in “Chesapeake Bay Overview”: “…by concentrating on improved functionality, restoration efforts can rehabilitate some of the increased damage from human perturbation the bay has experienced since the 1950s” (Dennison 2006). Because this phrasing is used so frequently, it had to be included in Defending Our National Treasure to ensure its acceptability to this discourse community. However, this phrasing would not resonate with the other discourse community in the larger writing community. Thus, I had to provide a definition for this group in the booklet. The following excerpt from Defending Our National Treasure illustrates how this was achieved: “The goal of restoration efforts in the Chesapeake Bay is to restore functionality (biofiltration and productivity)—they are not attempts to return the bay to its historic conditions”. This text promotes intertextuality by using recognizable phrasing;
however, it remains accessible to people outside of the environmental science discourse community.

A more subtle example of the recognizable phrasing used by the environmental science community is the use of *tributaries*. The rivers that flow into the bay (such as the Potomac and the James Rivers) are more frequently described as tributaries rather than rivers. Because this discourse community’s interest centers on the Chesapeake Bay, these rivers are discussed in regard to their relationship to that body of water. Therefore, I refrained from using *rivers* in *Defending Our National Treasure* and replaced the phrase with *tributaries*, which acts as an intertextual element.

The Department of Defense, the other discourse community in the larger writing community, also uses some unique phrasing. For example, it uses *munitions expenditures* to describe live weapons fire. To be consistent with other Department of Defense publications and to create an intertextual reference in *Defending Our National Treasure*, I used *munitions expenditures* to describe the problems associated with urban encroachment.

Though each discourse community uses different phrasing, they also have some recognizable phrasing in common. The use of *steward* and *stewardship* is one of the similar phrases used by both discourse communities. For example, the Department of Defense uses *steward* to describe its responsibility as an authoritative figure: “…the Army tries to ‘balance’ its testing and training mission with its requirement to comply with environmental regulations and its desire to act as good stewards of the natural resources under our authority…” (Van Antwerp 2001). In this context, *stewards* suggest that the Department of Defense has an obligation to protect and wisely manage natural resources. Similarly, in “Chesapeake Bay Overview,” the environmental science community uses *stewardship* to describe the public’s responsibility to the bay it uses for recreation and industry: “Only through good stewardship, can we ensure the future beauty and utility of the Bay” (Dennison 2006). The texts implies that if you have ever enjoyed swimming in, boating on, looking at, or catching your dinner from the Chesapeake Bay, then you have a responsibility to protect it. These quotations reveal that both discourse communities view stewardship as an obligation, and stewardship is therefore described as such in *Defending Our National Treasure*. The inclusion of
steward and stewardship in Defending Our National Treasure creates intertextual elements that are recognized by both discourse communities.

In addition to common phrasing, there can be inconsistencies in the phrasing used by different discourse communities. The first inconsistency I observed between the environmental science and Department of Defense discourse communities was the use of dredge spoil and dredge material. The Department of Defense discourse community felt spoil carried a negative connotation and requested we use dredge material, which was their preferred phrase. Thus, dredge material is used in the booklet. This compromise will not decrease the acceptability of Defending Our National Treasure because dredge material is known (but used less frequently) in the environmental science discourse community. I noted another inconsistency in phrasing with oyster bar and oyster reef. The Department of Defense frequently used oyster bar in reference to the habitat where oysters settle and grow. However, environmental scientists frequently use oyster reef to describe the same habitat. Because the inconsistencies were present in the two source documents I was using to shape the language of the booklet, I could not rely on either document to settle the discrepancy. Therefore, I turned to an oyster hatchery expert who revealed that an oyster reef is a healthy ecosystem and an oyster bar refers to a location where oysters are harvested from a reef (Tobash-Alexander 2006). Though they guided much of the language I used, this example illustrated that source documents could not serve as the only authority on the content of Defending Our National Treasure. Writers will frequently need to consult other sources when their source documents reveal inconsistencies or conflicts between the discourse communities in the larger writing community.

References and source documents
In addition to recognizable phrasing, source documents also helped me select many of the references used in Defending Our National Treasure. Perhaps references are one of the more straightforward types of intertextual elements. Readers see a reference and are immediately aware that a piece of information comes from another authority. However, all references do not carry the same weight. Only references from respected sources persuade readers and members of the larger writing community (Bazerman 1995). To ensure that I chose references from respected sources for the booklet, I cited authorities.
used in the source documents whenever possible. For example, I referred to the Environmental Protection Agency in my discussion on oxygen tolerances because both discourse communities referred to the Environmental Protection Agency in their source documents. Though technical writers frequently use references in their documents, they might not know that they are establishing intertextuality in their writing.

*Mentions of a person, document, or authority and source documents*

Mentioning a person, document, or authority, like referencing a source, helps writers support their arguments. However, this technique does not provide further information and “relies on the reader’s familiarity with the original source” (Bazerman 2004). For instance, if I said, “Individual freedoms were first outlined by the *Magna Carta,*” my argument is based on the assumption that you are familiar with the *Magna Carta* and you interpret it the same way I do. This type of intertextual element was not helpful in my situation because I did not want to force readers to make assumptions. Thus, I found very few occasions to use it. However, in a section pertaining to the high cost of restoration, I do mention the General Accountability Office. I did not explain the organization of this federal authority or its responsibilities. I am assuming that readers understand that restoration funds are overseen by a non-partisan group.

The previous examples demonstrate how the intertextual elements extracted from source documents shaped the language and content of *Defending Our National Treasure.* In addition to influencing language, source documents and intertextuality can also help writers chose the appropriate visual language for their document.

**Intertextuality and the visual language of *Defending Our National Treasure***

Just as intertextuality helps writers identify the written language needed to create acceptable documents, intertextuality can also help writers identify the visual language acceptable to the larger writing community. Visual language can be described as the design elements that provide meaningful content or help establish a hierarchy of information. For example, the large sub-chapter heading created for *Defending Our National Treasure* informs readers that a new section is beginning and the photo reflects the content that follows (Figure 8). Thus, the heading is a piece of visual language.
because it trains the reader to prepare for a change in topic. However, the graphic in the folio (the number of each page and the text or graphics that accompany it) is simply a decorative element. It is not a piece of visual language because it does not provide content or help establish a hierarchy (Figure 8). Visual language is important to the success of a document because visual elements persuade readers (Wysocki 2004). Just as discourse communities use different languages to persuade readers, they can also use different visual elements. In order to make *Defending Our National Treasure* acceptable to both discourse communities, I had to apply their visual languages to the booklet. Therefore, I selected source documents to help me establish intertextuality in the visual language.

**Figure 8** – The difference between visual language and decorative elements

The Vital Habitat sub–chapter heading (top left) marks the start of a new topic and the photograph forecasts the content to follow. The sub–chapter heading is a visual element because it provides meaningful content. In contrast, the folio design (the five squares on the bottom left and right corners) serves as a decorative element and does not provide further information.
The three source documents consulted for the content of *Defending Our National Treasure* did not provide many clues into the accepted visual languages of the larger writing community. Thus, I had to select different source documents for the visual language of the booklet. I chose these documents by reviewing publications produced by

Figure 9 – An example of intertextuality in the visual language of *Defending Our National Treasure*

The photo strip acts an intertextuality element in the visual language of *Defending Our National Treasure* because it mimics the collages frequently used by the Department of Defense to illustrate its restoration activities.
members of the larger writing community and selected three documents based on two
criteria: ability to attract the audience’s attention and inclusion of design techniques
commonly used the discourse community. These documents include *Recovering and
Protecting the Chesapeake Bay: A DoD Initiative, Maryland Coastal Bays In
Perspective*, and the *Morten Bay Study*. To illustrate how each of these source documents
helped develop intertextuality in the visual language of *Defending Our National
Treasure*, I discuss how they each shaped the design of the booklet.

The Department of Defense’s previous publication on Chesapeake restoration,
*Recovering and Protecting the Chesapeake Bay: A DoD Initiative*, was useful as a source
document because it illustrated the visual language commonly employed by the
Department of Defense discourse community. However, this text was not used as a
source document for the content of the new document because the Integration and
Application Network wished to alter and expand the content of the new booklet. Several
visual elements from this source were imitated in the new edition. For example, the
previous edition frequently used photo collages to summarize themes mentioned in the
text. To work within the expected visual language and to directly link the photographs
with the text they support, I adapted the collage into a photo strip (Figure 9). The photo
strip is similar enough to a collage to be accepted by the discourse community; however,
it contains more information than the collages used previously. For example, the text in
the blue stripe refers to the quotation from Deputy Assistant Secretary Davis (shown at
the top of the page) and each photo has a caption. In addition to providing supporting
information, the photo strip acts as an intertextual element because it mimics a rhetorical
strategy used in previous editions of *Defending Our National Treasure*.

Another visual language source document, the *Maryland Coastal Bays in
Perspective* (Thomas et al. in press), provided insight into the visual elements acceptable
to the environmental science community. I drew visual elements from this text for the
chapter headings. For instance, the chapter headings in this source document influenced
the chapter headings used in *Defending Our National Treasure*. In addition, this source
document demonstrated that members of this discourse community expect to see specific
information in maps: compass rose, scale bar in both metric and standard units, and an
insert map to orient readers. Thus, I included these pieces of visual language in the maps
I created for my booklet. Including these elements supports intertextuality because they allow the map to adhere to the conventions of the environmental science community and increase the credibility of the visual.

The third visual language source document, the *Morten Bay Study* (Dennison and Abal 1999), is important as a source document because it uses visuals that capture the attention of the environmental science discourse community. I was concerned about attracting this group’s attention, because scientists will often discount the content of a document if it does not look similar to journal articles or white papers. However, the *Morten Bay Study* is a well-received document that uses interesting visuals to provide meaningful content, particularly on its cover. The cover uses four thumbnail-sized pictures to illustrate the key methods used to complete the study and one large

Figure 10 – The intertextual elements in the visual language of *Defending Our National Treasure* drawn from the *Morten Bay Study*.

The cover of the *Morten Bay Study* (left) influenced the visual language in the draft cover of *Defending Our National Treasure* (right).
background photo showing Morten Bay (Figure 10). Because the audience for the Morten Bay Study included the environmental science discourse community, it is likely that the visual strategy of the Study's cover could also prove useful for Defending Our National Treasure. Thus, in the draft of Defending Our National Treasure cover, I included five small photos that reflect the five goals of the Chesapeake 2000 Agreement (Protect and restore living resources, protect and restore vital habitat, protect and restore water quality, promote sound land use, and encourage stewardship and community engagement). A photo of a military installation acts as the background photo (Figure 10). The visual language on the cover of Defending Our National Treasure serves dual purposes: 1) the visual language acts as an intertextual element referring to the Morten Bay Study and 2) the photos link the Department of Defense, the restoration goals of Chesapeake 2000, and the importance of protecting the Chesapeake Bay in readers’ minds.

The previous examples illustrate how visual elements can serve as intertextual elements. By blending the visual language used in well-respected documents from each discourse community, Defending Our National Treasure will contain the visual language needed to satisfy the larger writing community.
CONCLUSIONS

Intertextuality is a tool technical writers can use to blend meanings into new discourse acceptable to one or more discourse communities. Therefore, based on my experience creating Defending Our National Treasure, I have developed the following method to help writers in our field establish intertextuality in their documents:

1) Practice identifying intertextual elements in other documents,
2) Select source documents,
3) Identify the acceptable phrasing and terminology,
4) Choose references, and
5) Identify the acceptable visual language.

Practice identifying intertextual elements in other documents
As Bazerman suggests, understanding how other writers use intertextuality helps technical communicators employ it in their own writing (1995). Technical writers can practice looking for intertextuality in newspaper articles and magazines by answering the following questions:

- Does the document contain quotations, references, references to a person of authority, unique language, jargon, or genres? (These are intertextual elements.)
- What is the source referenced by the intertextual element? Does the document give any indication about how this source is viewed by the discourse community?
- Did the intertextual element prompt you to agree with the writer’s argument?

Learning to recognize the intertextual elements used in specific discourse communities will help technical writers determine which source documents to select for their projects.

Select source documents
The key to establishing intertextuality in a document is selecting a few choice source documents that will provide the bits of meaning needed to create new content and visual language. Remember that it is important to review many documents in each discourse community. However, referencing a few key source documents will help technical writers isolate the language needed to meet the expectations of the larger writing
Technical writers should ask the following questions when selecting a source document:

- Does the document discuss the subject in which the discourse community is interested?
- What intertextuality elements does the document contain?
- Does the document use language particular to a specific discourse community? Is it the community the writer wishes to address?
- Does the document use visual language to provide meaningful content or establish a hierarchy?

Keep in mind that technical writers may need to select one set of source documents for the content and another for the visual language of the new document. In addition, ideas for source documents will often come from members of the discourse community. They might suggest including a theme or visual used in a pre-existent document. It is up to the technical writer to evaluate the effectiveness of using the text as an intertextual source.

**Identify the acceptable phrasing and terminology**

After the source documents have been selected, they can be used to determine the acceptable phrasing and terminology that should be incorporated into your document. Technical writers can use the following list of questions to help identify the acceptable phrasing:

- What phrasing is frequently used in each discourse community?
- What phrasing is common to all the discourse communities?
- What phrasing is unique to each discourse community?
- Do the discourse communities use any inconsistent phrasing and terminology?

Try to incorporate the common phrasing of each discourse community in the new document. If the discourse communities use inconsistent language, consult an authority outside of the larger writing community to help you determine which phrasing to use.

**Choose references**

When it comes to content, source documents can also help you choose references. Of course citing authorities mentioned in the source documents can be persuasive, but analyze the texts further to find people or agencies that might also make good references.

Answer the following questions when choosing references:
• What references are used in the source documents? Will these references support arguments in the new document?
• Do the source documents mention a person, agency, or organization that could be used as a reference?
• What authorities are discussed by members of the larger writing community? Can they be used to support the arguments made in the new document?
• What other persons or authorities are respected by the larger writing community? Do they support the arguments presented in the new document?

When choosing references, select the authority that has the most credibility with the larger writing community and readers.

**Identify the acceptable visual language**
In addition to content, source documents can also help technical writers develop the visual language of the new document. This visual language will help technical writers provide meaningful content and establish a hierarchy of information in a manner acceptable to the larger writing community. Technical writers should ask the following questions when trying to identify the acceptable visual language:

• What visual elements in the source documents help organize information?
• Do the headings include visual elements that provide further information?
• What visual elements in the source document help readers visually scan pages for information?
• How do visuals relate to the text? Are they referenced in the text? Do they have titles? Are they numbered?
• Does the discourse community favor a particular rhetorical approach in their visuals? Will that approach benefit the new document?

If there appears to be a clear pattern in how a discourse community uses visual language, implement that pattern in the new discourse whenever possible. In addition, try to mix the visual languages of the multiple discourse communities. Remember that analyzing the different visual language should help guide the design; the analysis does not dictate the design.

After using source documents to identify the appropriate phrasing, references, and visual language, incorporate these bits of meaning in the new document and discuss the draft with the larger writing community. If possible, meet with members of the different communities simultaneously. Group discussions that include a variety of members make finding inconsistent language and perspectives easier to identify.
Keep in mind that the method described above contains loose guidelines. There is no clear cut method for blending meaning into new discourse. Ultimately, technical writers must rely on their training and knowledge of audience consideration to create documents acceptable to the larger writing community. However, technical writers can use intertextuality to help identify the needs and expectations of clients and readers.

**Conclusion of internship**

At the conclusion of my 13-week internship, my work at IAN helped advance the organization’s goals, improved my skills at a technical writer, and allowed me to explore intertextuality in the context of the larger writing community. The guidelines I developed during my exploration of intertextuality formalized a process intuitively used by IAN staff. Formalizing this process will make applying intertextuality easier and more effective, as seen in *Defending Our National Treasure*. Comments from members of the larger writing community indicate that the language and content of the booklet are acceptable. Before intertextuality was formally established, questions regarding phrasing and design would frequently arise among the discourse communities. However, as new content containing intertextual elements was presented to the community such questions became less and less common. Using intertextuality helped me anticipate the needs of the larger writing community and avoid miscommunications before they occurred. I believe that applying these guidelines to future projects will help create informative and visually appealing documents for varied audiences.
REFERENCES


Thomas, Jane et al. (in press). Maryland Coastal Bays in Perspective. Cambridge, Maryland: Integration and Application Network.


# APPENDIX 1 – INTEGRATION AND APPLICATION NETWORK’S VARIOUS COMMUNICATIONS AND PARTNERS

<table>
<thead>
<tr>
<th>Document</th>
<th>Partner(s)</th>
<th>Audience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Book - <em>State of Maryland Coastal Bays</em></td>
<td>Maryland Department of Natural Resources (DNR) • Maryland Coastal Bays Program</td>
<td>General public • Educators • Legislators • Members of non-profit organizations</td>
</tr>
<tr>
<td>Newsletter – <em>Creating a Framework for Reporting Ecological Conditions</em></td>
<td>Coastal Louisiana Ecosystem Assessment and Restoration (CLEAR) • Louisiana University</td>
<td>General public • Legislators • Researchers</td>
</tr>
<tr>
<td>Poster - “Eye Opening Approach”</td>
<td>National Park Service (NPS)</td>
<td>NPS resource managers and scientists • General public</td>
</tr>
<tr>
<td>Presentation – “Developing a classification system for Caribbean seagrass community”</td>
<td>Smithsonian Tropical Research Institute • Andrew W. Mellon Foundation</td>
<td>Attendees of the Estuarine Research Federation conference</td>
</tr>
</tbody>
</table>
APPENDIX 2 – CHART OF THE TIME SPENT ON EACH INTEGRATION AND APPLICATION NETWORK (IAN) PROJECT

- Defending Our National Treasure Booklet: 45%
- National Estuarine Eutrophication Assessment: 40%
- Workshop program: 10%
- Science Communication Course presentation: 2.5%
- Summary of IAN’s Projects presentation