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Final Master's Portfolio

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FINAL MASTER'S PORTFOLIO

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Submitted to the English Department of Bowling Green
State University in partial fulfillment of
the requirements for the degree of

Master of Arts in the field of English
with a specialization in
Professional Writing and Rhetoric

December 4, 2022

Dr. Susan Cruea, First Reader
Ms. Kimberly Spallinger, Second Reader

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Dec. 8, 2022

Analytical Narrative

The papers in this portfolio represent my work and progress as a scholar as I pursued my master's in English with an emphasis on professional writing and rhetoric at Bowling Green State University. I entered this program when I was a full-time ESOL instructor at a two-year college. I started the program because I wanted to expand my knowledge of teaching writing. I also wanted to refresh my knowledge and skills related to technical communication, a field that I had previously worked in and was interested in re-entering. Many of the master's in English programs focused on English literature and not the technical communications part of English, so when I discovered this program, I was excited because it met my academic needs and desires.

My career path includes both teaching and writing. I love both equally, and I have been fortunate enough to be able to work in both. When I started this program, I was working as a full-time ESOL instructor at a two-year college. Because of a college-wide re-organization, my instructor position was eliminated, so I started working as a senior digital editor and writer under a one-year grant. After that grant ended, I decided to work on another grant as an instructional designer to gain experience in the field, and I also started to work as an online adjunct ESOL instructor at the same college. I mention this career trajectory because my work in this program has touched all three careers, and

these projects combine my interests in professional writing and teaching. They also represent my growth as a scholar and a teacher in these fields. Each of my papers also has a practical purpose in that I wanted to learn more about a specific topic based on my own life.

The first paper in my portfolio is “Instructional Design for Technical Communicators: Where Does it Enter?” This paper came late in my coursework in Spring 2022. It is also the longest of the papers. I chose this paper because it serves as evidence of substantive research and was part of a class based on research techniques. I started out with a hypothesis on the connection between instructional design and technical communication. I had a lot of research to review to see how or if it fit with my hypothesis. It wasn’t easy to find research connecting the two fields, so I made connections based on research.

Revision to this paper involved expanding on ideas and concepts previously mentioned but not originally addressed because of the required page limit. In addition, I added and revised transitions between paragraphs that were not present. Finally, I spent a lot of time correcting citations. I had a lot of trouble with in-text citations because information wasn’t consistent between sources. I also re-read some of the research to expand on ideas.

The second paper in my portfolio is “Technical Communicators and an International Audience.” I wrote this paper in Fall 2021. I selected this work because it added to my interest in technical communication. It also adds to my interest in diversity and how to communicate with an international audience. This research showed that technical communicators must be part of the international community because their work is

viewed by an international audience. They also have an ethical duty to address this community without offending.

Revision for this paper involved continued work on MLA formatting. I also added to section headings and refined section headings to better fit with the content. I also added to the content by expanding on ideas. I did add more sources, but I added more content from the original sources when I clarified ideas.

The third paper in my portfolio continues with another project with a personal basis: "Teaching for Transfer in First-Year Composition Classes." This is a pedagogy- and teaching-based project. I wrote this paper in Summer 2022. I had never heard of the concept teaching for transfer, and this abbreviated summer class did not give me the chance to explore it as much as I would have liked, so I chose teaching for transfer as the topic of this paper for this class. The ideas in this paper have also influenced my teaching in that when giving assignments, I think of how it fits with classes in my students' majors.

One of my first revision strategies was adding a title, which I had forgotten on the original paper. From there, I corrected in-text citations for consistency. Then, I expanded on ideas that were vague. I specifically expanded on teaching for transfer. This was such a key concept for me that I did not consider the reader who was not in the class or who had not completed course readings. As such, I gave more explanation on what teaching of transfer was and how it could be used in the classroom. As I revised this paper, there were sentences in which the meaning was not clear, so I had to look at the original research to understand what was meant.

My final paper in this portfolio is “Gender and Technical Communications: Workplace.” I wrote this paper in Fall 2020, which was my first semester at Bowling Green State University. This was the only class I had taken that semester, and this was the first paper I had written that required this level of research. As such, I chose this paper because it was the starting point to show my growth as a researcher and scholar. It also started with a topic, technical communication, that I continued to focus on in subsequent classes.

Because this was the first paper that I had written upon entering Bowling Green State University, the revision process involved re-reading and correcting and adding content as I read. Dr. Heba’s comments provided a starting point for the revision process. Because many of his comments asked for an expansion of the ideas, I re-read some of the original sources not only to refresh my memory but also to expand on original ideas. I could see where in my original attempt at brevity, I did not provide enough information for readers to understand the importance of the research. Similar to previous papers, I attempted to keep to the word count by providing a too brief of a research summary. I also added transitions between paragraphs to connect ideas and to guide the readers to connect the ideas. I also added a conclusion, which I had previously missed, to explain why the research should matter to the reader.

I have learned so much in this program that I can’t even put it into words. I entered this program to become a better teacher of writing, and I have definitely done this. I have learned pedagogy to explain my teaching philosophy. Before this program, I didn’t have this background; instead, I operated based on what I saw worked for my students. Now, I have academic support for the decisions I make in the classroom

whether it is the type of feedback I give or the rubric I use. Also, instead of jumping into implementing an idea at work, I look at the research, and when I present an idea to my supervisor or co-workers, I report what the research says. This program has given me the confidence to work with academics and other researchers that I did not have previously.

This program has taken me from being a full-time ESOL instructor at a two-year college to being a full-time digital editor and writer at the same college to now working as a full-time instructional designer and an adjunct online ESOL instructor. I am not sure where my career or academic path will lead. I have, however, know that I will miss working with my classmates and the ideas I learned from my instructors.

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**Instructional Design for Technical Communicators:
Where does it Enter?**

Abstract

Technical communicators and instructional designers frequently find themselves in the same space. Both industries face similar issues in terms of changing job roles and changing job titles. There has even been talk of combining these two fields. This paper consists of a literature review to determine whether there are instructional design techniques that technical communicators can use for improving visual design and for improving the user experience. In the end, the research shows that these are two distinct fields in which practitioners use similar skills on their jobs. Technical communicators can use instructional design foundational principles to aid in issues related to visual communication and the user experience.

Introduction

My goal for this project is to determine the extent to which technical communicators use instructional design principles in their work. This information is significant because of the changing roles of technical communicators. It can also provide direction on skills needed to prepare for the future of the field. The literature review that I will conduct is an integrative review.

Background

Understanding the connection between technical communications and instructional design becomes even more urgent when researchers discuss the possible merging of the fields. In “Different Names, Similar Challenges: What’s Behind the Rumored Merger of Instructional Design and Technical Communication?,” Saul Carliner mentions that the two fields became aware of one another’s issues at their respective conferences, and it was these crossover discussions that lead to questions of merging the fields. In addition, both fields are moving along similar paths in terms of questioning their current job tasks and titles.

Adding to the discussion on a merger is that both technical communicators and instructional designers realize the limitations of each profession alone in addressing the needs of the information they handle and both wonder whether borrowing skills from the other would help manage this information. According to Carliner, instructional designers realize that an effective training program alone will not improve learner performance if other issues, such as understanding the emotional and social needs of the learner, are

not addressed (“Different Names”). Similarly, technical communicators have learned that good content cannot override poor document design. These are instances in what the other has to offer could help with each field’s separate concerns.

In addition to concerns related to job tasks, both fields are grappling with naming issues to determine what job titles better describe the work they perform (“Different Names”). Currently, some instructional designers call themselves performance technologists since their job is to improve learner performance. Similarly, some technical communicators have started to use more task-oriented job titles, such as information developers, designers, and architects (“Different Names”). Note that it is only some instructional designers and some technical communicators who have started using these particular job titles. There are other instructional designers and technical communicators who use different job titles to describe what they do, and this seems to be the case more often with technical communicators.

The different job titles are based on the specific job tasks needed for the job. Carliner’s research describes how some technical communicators who work with information have started calling themselves information designers (“Emerging Skills”). This is because the communication challenges organizations now face resemble marketing challenges instead of only writing and editing challenges because technical communicators must be adept at handling different types of information. Adding to these responsibilities, technical communicators must be aware of global issues and be able to address a global audience, which is a change from the previous local focus of the industry. Furthermore, the list of changing roles and skills continues to grow with technological advances as now technical communicators must also be able to create

eye-catching graphics and other visuals as well as manage existing information. Finally, there are the business concerns in terms of audience engagement that must also be considered. For these reasons, some technical communicators have started to call the work that they perform information design because they have become the information managers in many corporations and must manage a wide array of information (“Emerging Skills”).

Because technical communication is an interdisciplinary field in which its practitioners come from varied backgrounds and a range of skills is necessary to be successful on the job, determining a name that includes these differences as well as the similarities is difficult. Carliner writes that the field draws from “composition, rhetoric, cognitive psychology, computer science, linguistics, graphic design, and other disciplines” (“Emerging Skills”). This range shows the technical communicator’s role extends beyond writing and editing. It is because of this range that it connects with instructional designers who also consider themselves information designers as they also design and manage information. This connection leads to the question as to whether instructional design practices can assist technical communicators.

This then leads to the next question as to whether skills used by technical communicators can be used by instructional designers. The instructional design community, a field whose practitioners primarily structure content for learning, has come to realize that providing more than a good lesson or relevant information is needed for learning to occur. As a result, instructional designers have started to address concerns that affect learner’s performance (“Emerging Skills”). One of these concerns is visual design, which is also a focus of technical communicators.

This focus has been noted by Fernando Sanchez who writes that “visual design has become a commonplace skill that technical communicators have explicitly been expected to understand and implement in their work” (359). It hasn’t always been this way; however, with technological innovations, such as the Internet and the ease of using visual and web design software, visual design has been “absorbed into technical communication and professional writing” (Sanchez 360). To understand the degree in which visual design is used by technical communicators, it is necessary to understand the different types of documents technical communicators create. These documents include but are not limited to posters, Web 2.0 interfaces, instructions, manuals, websites, and forms (Sanchez). With these varied artifacts, the technical communicator must consider visual design along with content in the user experience. It is with visual design and the user experience that skills used by instructional designers may be of practical use to technical communicators.

Methods

This research is considered a comprehensive literature review. Anthony Onwuegbuzie and Rebecca Frels write that a comprehensive literature review is similar to conducting a research study because the information collected represents the data to be analyzed. They write that at one time, the literature review was one step in a larger and longer process. Now, the literature review represents an embedded study. The current study is a mixed research study because it includes a literature review of both qualitative and quantitative research of both technical communication and instructional design.

Most research was conducted using information from the online library at Bowling Green State University. Journals used include *Journal of Technical Writing and Communication*, *Technical Communication*, *Educational Technology Research and Development*, and *Technical Communication Quarterly*. Some research used information from professional sites for technical communicators and instructional designers. These sites provided leads for research that I conducted using Bowling Green's library database.

Although information from this database includes many sources, it wasn't easy gathering information for this specific research in that not much research had been done on the connection between technical communication and instructional design. To begin this research, I looked for published studies in academic journals that mentioned both technical communication and instructional design. From reading these articles, I could see the connection between the two fields in that they had similar job tasks. For example, both technical communicators and instructional designers organize information; it is the purpose, content, and audience, however, that differ. I could have gone in multiple directions with the research, but I decided to focus on visual design and the user experience because these two topics came up more often than other topics in my readings.

To understand technical communication, it is important to recognize the interdisciplinary nature of the field, and as such, issues faced by its practitioners vary. Despite the difference in job tasks of technical communicators, visual design is one issue they face regardless of their main job responsibilities. This issue is also one instructional designers face; however, the instructional design community is not as

interdisciplinary as technical communication, and its practitioners tend to have similar job tasks – creating and managing learning documents. In addition, the instructional design field has established methods that can be used to address visual design issues, which technical communication does not have. This research addresses the question as to whether instructional design methods can and should be used by technical communicators to address the field's concerns.

Because of the commonalities between the fields, the overall goal of this research was to answer the question as to whether discipline-specific skills used by instructional designers could also be used by technical communicators as technical communication is an interdisciplinary and evolving field without established guidelines and procedures to manage the work its practitioners perform. My research looked at instructional design by itself to better understand the field and to understand its guiding principles and methods. Then, it looked at the interdisciplinary and evolving nature of technical communication to determine whether visual design and the user experience as used by instructional designers would be beneficial for technical communicators.

Analysis and Interpretation

Instructional Design: Working via Systems

To understand how skills used by instructional designers can help technical communicators, understanding the field of instructional design is necessary. Two defining features of instructional design are “the use of media for instructional purposes” and “the use of systematic instructional procedures (often simply called instructional design)” (Reiser 57). A key word in understanding instructional design is “systematic” as

it is systematic in that it follows a system of procedures based on research from varying fields. One area it pulls from is psychology and the work of behavioral psychologist B. F. Skinner who described how human learning occurs in increments. As a result of his research, instructional materials are presented in “small steps, require overt responses to frequent questions, provide immediate feedback, and allow for learner self-pacing” (Reiser 59). In addition, research on task analysis, objective specification, and criterion-referenced testing combine to create a method of systematically designing instructional materials (Reiser).

Similar to technical communication, the widespread use of the personal computer and the Internet have contributed to changes in instructional design. These two technological innovations have increased interest in online education (Reiser). These two innovations have also increased the need for knowledge management in the field. Robert A. Reiser cites A. Rossett (1999) in explaining that knowledge management involves “identifying, documenting, and disseminating” information within an organization to enhance the performance of that organization (64). As these needs grow, instructional designers along with others in the information management field will be responsible for how this information is disseminated and managed in an organization (Reiser).

Instructional Design: The Four Pillars

Instructional design principles reach beyond the systematic principles based on research in the social and behavioral sciences. They also look at ideas related to social values and use. Brent Wilson writes that although instructional design is a growing field,

it must still adhere to its foundational principles because it is these principles that define it as a career and provide a framework for the discipline.

It is through these principles that we can see the connections with technical communication. Wilson explains these principles through what he calls four pillars:

- Pillar 1: The Individual
- Pillar 2: The Outside Connection
- Pillar 3: The Value Context
- Pillar 4: The Aesthetic

Pillar 1 is concerned with the individual. This pillar connects with the way individuals process information. Some information within this pillar includes cognitive load; instructional guidance; schemas and conceptual change, knowledge, skills, and attitudes; and optimal chunks and challenges. Within this pillar, instructional guidance is one of the practices that connects with technical communication (Wilson). According to Wilson, instructional guidance involves the learner receiving guidance on material that has been previously studied. It also involves guiding learners in a scaffolded manner for skills development. Technical communicators work in a similar manner in that they also create materials that have been previously studied; this is the testing that occurs in usability studies. In addition, the documents, especially instructions, are written in a step-by-step manner to ensure readers can complete the documented procedures. Technical communicators also guide users in a scaffolded manner, but the result is a completed task, such as creating a website or assembling a bookcase, and not skill development related to academic or professional learning.

The connection between instructional design and technical communication is also evident with pillar 2, which involves the learner's connection to the outside world and the information connected to the outside world. For this pillar, Wilson describes instructional design practices related to the social context of learning and performance; work context; tools and technologies; and timing and access. He writes, "In the 1980s and 90s, mainstream psychologists became aware that information is processed within a social and cultural context" (13). Essentially, learning does not occur separate from our environment and our culture. Everything about the learner and learner's environment affects how content is received. For instructional designers, this change meant they needed to consider the social context in which their materials would be used. Similarly, technical communicators recognize the social context of their content through their awareness that content they produce is no longer just for a local audience; it is for a global audience. This occurs when documents are translated, and content is revised based on the audience's culture. As such, like instructional designers, technical communicators are aware of the social and cultural context in which documents produced will be used and acted upon.

In addition to addressing the social context, both instructional designers and technical communicators must address and understand moral and political concerns. Wilson addresses these concerns in the third pillar, the value context. Within this pillar are practices related to representing expertise; social and work roles; multiple perspectives, privilege, and access; and workplace realities and incentives for use. Once again, these instructional design practices connect with concerns of technical communicators. For the representation of expertise, Wilson asks, "How is expertise

presented in instruction?” (13). One way expertise is demonstrated is through the format of instructions, including illustrations and the use of multimedia. This area also touches upon the credibility of the creator and how this is evident in the information presented. Technical communicators have these same concerns as they also determine the best way to present information and how to demonstrate subject-matter expertise on different topics. In addition, they also understand that the way information is presented determines its usefulness to the audience and audience engagement. This is done through the layout of design of information on websites and on document management platforms, such as SharePoint.

The final pillar is the fourth pillar and consists of the “aesthetic design of the immediate experience” (Wilson 12). The aesthetic design is not just about layout; it is also about the content. It is about presenting content in interesting ways to enhance the learner experience and to improve audience engagement. It is at this point instructional designers separate from technical communicators in that instructional designers are addressing visuals as a community whose audience is learners. This isn't to say that technical communicators do not care about visuals; the difference, however, is technical communicators deal with visuals as individuals within a larger field in which the purpose and audience varies by situation. Some technical communicators use visuals in their work writing instructions whereas others use visuals within a corporate communication context on an internal web platform. In both cases, visuals are used and important, but the purpose and audience differ.

Although the fourth pillar shows where instructional design and technical communication differ in terms of audience and purpose, there is still a connection, and

that connection is evident in all four pillars. Despite this connection, Wilson's pillars are not used by technical communicators. Nevertheless, the principles behind them can act as guides in the various situations technical communicators face.

Changes to the Role of Technical Communicators

The role of technical communicators is changing, and some of these changes align with skills used by instructional designers. These changes also indicate the direction the field is moving, which is evident in the variety of titles technical communicators give themselves. George F. Hayhoe writes that some job titles technical communicators now use better connect with their job duties. These titles include "usability expert, content management specialist, user experience designer, information development manager, instructional designer, user assistance professional, and Web master" (Hayhoe 281).

By looking at these job titles, it is possible to see the job tasks of a technical communicator go beyond writing and editing; however, these skills are still heavily used regardless of the job title. Within these job roles, technical communicators have learned the skills of instructional design and the creation of learning modules (Hayhoe). They have also learned to design for print and electronic media. On top of this, technical communicators also plan and conduct usability tests. This range of skills and duties show the field of technical communication is growing and changing and includes skills that are used in the instructional design community.

Similar to Hayhoe, Rebekka Andersen and Carlos Evia also discuss the changing roles of technical communicators. They, however, discuss the changing roles

by addressing the concern by some that technical communication is a dying industry. To counter this belief, they cite research from 2015, 2017, and 2018 showing that “technical writer is no longer the most accurate title” for the work performed by most technical communicators (Andersen and Evia 5). This, however, does not indicate technical communication is a dying field; it instead points to the need to recognize the changing nature of the field. This means recognizing that technical communicators work under different job titles in different industries. It also means acknowledging that the title “technical communicator” is what is changing and not the field or its practitioners as it remains an interdisciplinary field.

What is fueling this change is the same thing that is fueling change in other industries: technology. Andersen and Evia echo other researchers in that the changes in technical communication are due to the technological changes of computers and the Internet. They add that consumer demand for information that can be used in multiple digital formats also drives the changes as technical communication professionals must create content that can be “delivered in multiple formats, such as PDFs, websites, embedded user assistance, dynamic delivery, and mobile applications” (Andersen and Evia 5). In addition, technical communicators are involved in the user experience and “create video documentation, curate user-generated content, and manage social media communications” (Andersen and Evia 5). This is additional evidence that technical communication is not a dying field; it is, instead, a changing field where these professionals need more than expert writing and editing skills. According to Andersen and Evia, the Occupational Outlook Handbook projects an “10% employment rate increase for technical writers between 2014 and 2024” (6). The main point is that as the

industry changes, technical communication professionals and students need to have a “jack-of-all-trades” mentality that the field now requires (Andersen and Evia 9). One of these trades is instructional design knowledge as indicated by Hayhoe in his list of job duties of technical communicators.

The User Experience

Instructional Design: Improving the User Experience

Both instructional designers and technical communicators are concerned with how users interpret content. Technical communicators have noticed problems with the user experience that could be alleviated by using some instructional design principles. Similar to technical communication, instructional designers must be aware of the user experience. The instructional design community addresses this experience through its theories and ADDIE (Analysis, Design, Development, Implementation, and Evaluation), a key instructional design model (Bergstrom-Lynch). In her research, Yolanda Bergstrom-Lynch demonstrates how both ADDIE and other instructional design principles were used to improve the user experience for LibGuides.

One of the problems with the LibGuides was that they were created by librarians for students to use; however, these guides were rarely used by students. The research showed there were numerous design issues with the LibGuides that caused students to not use them or to rarely use them. These design issues related to a mismatch between content librarians thought students used and content students actually used. This could be seen with navigation issues where information students needed and used the most was not put in a location that they could easily locate (Bergstrom-Lynch).

To improve the user experience, changes implemented used instructional design theories and models to improve the design of the guides. The main model used was ADDIE as it is a “strategic plan for intentional instructional design” (Bergstrom-Lynch 216). Although ADDIE was originally designed to be a linear process, its modern usage is more recursive, which allows for more design leeway. The main point of Bergstrom-Lynch’s research was to demonstrate how instructional design “principles, theories, and practices” could be used to enhance the user experience (207). For technical communicators, this shows that ADDIE is an instructional design model that can address some of their concerns connected to the design of content and visuals as technical communicators also need to understand how content is used. In addition, it provides a strategy for technical communicators to follow starting with analyzing the work that needs to be completed and then moving to the design, development, and implementation stages and then evaluating the final product.

In addition to ADDIE, Bergstrom-Lynch also relied on instructional design theories in the re-design of the LibGuides. The three main theories used in instructional design are behaviorist, cognitivist, and constructivist. The behaviorist theory depends on trial and error, positive reinforcement, and active participation. The cognitivist theory relates to critical-thinking, problem-solving, and memory, and the constructivist theory is concerned with knowledge and meaning making based on prior experiences (Bergstrom-Lynch). Some specific changes included reducing the number of tabs from which users had to choose and eliminating the use of large blocks of text. Both these changes reduced the cognitive load on users. It was by using these instructional design theories and ADDIE that Bergstrom-Lynch was able to revise the LibGuides to enhance

the user experience and create best practices for their development. In a similar manner, technical communicators can use ADDIE to address design changes to improve the user experience.

Technical Communication: Addressing the User Experience

Addressing the user experience is not new to technical communication; however, there are not established principles that can be used to guide practitioners as there are in instructional design. In fact, Emma J. Rose and Joanna Schreiber express concern that the user experience in technical communication is not addressed enough. They cite Clegg et al. (2020) who found that less than 3% of undergraduate technical communication programs “explicitly focused on user experience, usability, or user-centered design” (Rose and Schreiber 345). Not only is the user experience not taught in the classroom, but it is rarely mentioned in technical communication research. This lack of technical communication research and education goes against the multitude of voices calling on “more focus, discussion, and opportunities” for teaching usability and the user experience (Rose and Schreiber 345). The problem with this lack of research and education is that technical communicators need this knowledge on user experience to ensure the content produced is useful for the intended audience.

Visual Communication

Technical Communication: Visual Design in the Workplace

An important part of a technical communicator’s job is visual communication. To understand the importance of visual communication in the workplace, Eva Brumberger

conducted research based on surveys to learn the extent professional communicators use visual design. Survey respondents were provided a list of job tasks and were asked to check the tasks they performed on the job. This included “writing, editing others’ writing; designing print, Web, or multimedia documents; training; and usability testing” (Brumberger 377). The top three tasks according to respondents were writing (98%), editing others’ writing (86%), and designing documents (78%). Brumberger noted 43% of respondents worked for companies that hired visual specialists, yet these technical communicators were still involved in the visual design of the documents they created.

Although the technical communicators had varied job roles, this study highlights the importance of visual communication skills in the technical communication workplace. Most of the visual design performed included page layout and design of print documents and creating or modifying images for existing documents and determining when and where to include visual content (Brumberger). Regardless of the respondent’s job task or academic degree, most acquired their visual communication skills through a combination of “on-the-job training, self-teaching, and the occasional professional workshop in addition to formal training” (Brumberger 383). Of these varied skills training, most respondents (75%) taught themselves the visual communication knowledge they needed to know on their job.

Considering the necessity of visual communication skills for technical communicators, this statistic is shocking. It shows that a job task that technical communicators need is not a skill acquired through professional or academic training. A majority (94%) say that based on their work experience, professional communication training should also include visual communication (Brumberger). This research shows

that just as technical communication programs teach writing and editing skills, visual communication skills should also be taught. They should be part of the core program classes students take and part of certificate programs. Considering that many current technical communicators are not in college or certificate programs, conferences are another place where these skills could be introduced. Because technical communication is an interdisciplinary field, there is the additional problem of reaching its range of professionals.

Technical Communication: Why Aesthetics Matter

When it comes to visual communication, understanding the role aesthetics play in technical communication is necessary. Charles Kostelnick argues that aesthetics is an important rhetorical tool that engages and persuades audiences and appeals to their emotions. He says that although aesthetics can be subjective, audience preferences can be measured and quantified and used in the design process. Essentially, technical communicators are not left to their own devices when it comes to visual design; there are ways to measure how visual design choices affect the user experience.

Because technical communicators believe in objectivity, the subjective nature of aesthetics goes against this objectivity and can seem superficial to some and, thus, unimportant. This, however, is far from the truth – it is essential for audience engagement. Not understanding this importance could explain why visual communication is not widely taught in professional development and academic courses aimed at technical communicators. Kostelnick's research attempts to explain why aesthetics, visual communication, is important. He notes that visual communication

includes “typography, page and screen design, data visualization, illustrations, and icons” (Kostelnick 7). We see these visuals in websites, instructions, social media, and other written documents. The pervasiveness of images demonstrates the need for awareness of design in visual communication to engage audiences.

In addressing the objectivity technical communicators prefer, Kostelnick notes audience engagement with aesthetics can be measured quantitatively and qualitatively. Aesthetics can also improve the user experience. When users find information visually appealing, they also find it to be more understandable. In addition, readers have better recall when illustrations are used, thus showing visual design serves a function. In addition, the functionality of aesthetics has been measured in usability studies that consistently show the importance of visual communication to the user experience. Kostelnick’s research demonstrates the importance of visual design in technical communication documents as it plays a major role “in designing texts, illustrations, and data displays” (6).

Instructional Design: Aesthetics

Not only are aesthetics important in technical communication, but it is also important with instructional design. Similar to Kostelnick, Patrick E. Parrish seeks to bring awareness of aesthetics to instructional design. He writes that instructional designers need to move beyond “learning outcomes and considering qualities of the designed experience” and also consider the aesthetic experience (“Aesthetic Principles” 512).

This aesthetic experience involves learners' deep engagement in the content and the overall learning experience. When aesthetics is not present or considered, users can become disengaged from the subject matter ("Aesthetic Principles"). Although most of this research relates to creating an emotional experience through content and storytelling, an important take away is that even in instructional design, aesthetics is important to audience engagement.

Instructional Design: Embracing Aesthetics

When people hear the term aesthetics, they sometimes discount it and consider it superficial ("Embracing the Aesthetics"). This is far from the case because it is an integral part in the user experience. Although Parrish's article is primarily aimed at instructional designers, it can also apply to technical communicators as he emphasizes the importance of understanding and implementing the layers of design that create a pleasing aesthetic. He writes that "instructional designs that encourage engagement through aesthetic experience may be a force in creating the conditions for learning" ("Embracing Aesthetics" 20). This can also apply to technical communicators because they are also creating content that audiences must engage with and act upon.

Research in technical communication and instructional design demonstrate the importance of visual communication in their work; however, instructional design has been able to address its issues in some part through ADDIE and other principles. In addition, the instructional design community recognizes the importance of visual design, and there is research to address it. There is not a lot of research, but research is being done that could aid both fields.

Parrish writes that aesthetics deals with “the surface of things,” such as the “shape, colors, and textures that appeal to our senses” (“Embracing the Aesthetics” 17), but what appears to be superficial is vital to the way content is received. When content is formatted in a way that is visually appealing, it touches our emotions and creates a positive impression. This then encourages the learner to enter the space created and do what needs to be done in this space whether that is learning mathematics or following instructions (“Embracing Aesthetics” 17).

Skills Needed

Technical Communication: Skills Used on the Job

As the technical communication field changes, the skills needed also changes. These skills, however, are not consistent across a range of industries or even within job titles. Eva Brumberger and Claire Lauer describe the jobs skills needed by today’s technical communicators by analyzing job postings, surveying technical communicators, and interviewing practitioners. From this data, they created personas because readers have an easier time remembering job traits and skills when they are aligned with personas that can be visualized. These personas “articulate the functions, characteristics, traits, skills, and workplace styles” of the different jobs a technical communicator might have (Brumberger and Lauer 310).

From this analysis, the researchers determined the eight skills that came up most frequently in job postings. The survey showed that four of the eight listed skills were deemed most important by technical communicators. These were “audience awareness, content development/management, editing, and written communication” (Brumberger

and Lauer 317). The other four skills – project planning and management, style guides and standards, visual communication, and web analytics – were ranked as moderately important. The personas based on the survey and analysis of the job postings created a narrative of the research findings that most people can connect with and remember. The personas were (1) the silent tech writer/editor, (2) the interactive web writer/editor, (3) the content developer, (4) the content manager, (5) the social media specialist, and (6) the UX specialist (Brumberger and Lauer).

The skills needed for these personas matched with the skills expected from the survey results except for visual communication skills. Based on survey results of the most important skills, visual communication was unlikely to be listed with “relied upon” competencies for any of these personas. This competency, however, was listed as a competency relied on for three personas – the content manager, the social media specialist, and the UX specialist. This is another instance in which visual communication skills are needed but not fully recognized as essential by the technical communication community by the fact there is no formal training to strengthen these skills.

Instructional Design: Range of Skills

In contrast to technical communication, research on instructional design jobs did not show as wide of range of necessary skills among industry professionals. Cara North et al. found that instructional designers work in many fields with differing job responsibilities and can be found working in “higher education, corporate, government, healthcare, and nonprofits” (713). Despite varying job responsibilities, the skills needed for their jobs remained the same. For example, more than half of survey respondents

who employ instruction designers said all new instructional designer must be able to “perform common activities of ADDIE” (North et al. 715). This is significantly different from technical communication in that there is not one specific set of technical communication skills required for all technical communicators regardless of the job.

Similar to technical communication, instructional designers did not receive most of their training from formal instructional design programs. They, instead, used their current knowledge and skills and adapted them to their job duties and requirements (North et al.). The researchers note that no formal instructional education prepares professionals for what they will face in the field. Therefore, professional development courses need to fill this gap, and most of these courses are offered through professional organizations that instructional designers belong to.

North et al. also found that instructional design job listings did not mention all the skills needed for the job. Thus, they were left to assume that some skills were not listed because it was assumed applicants already possessed these skills. The most frequent job skills in instructional design job postings included the ability to develop, deliver, and facilitate training and apply and use different technology tools, including Zoom, Microsoft Teams, and specific Learning Management Systems (North et al.). In addition to these job skills, applicants also were expected to have “excellent oral, interpersonal, and written communication skills” along with the ability to work with a team (North et al. 719).

Surprisingly, knowledge management and lifelong learning were rarely mentioned. Knowledge management was expected to be listed more because it is increasingly falling in the domain of the instructional designer. It may not have been

listed because knowledge management was not required for the specific instructional design job. In addition, being a lifelong learner is probably not listed as a job requirement because this is a personality trait that occurs more at the individual level and not the corporate level (North et al.).

Both these studies on job listings for technical communicators and instructional designers show that job skills vary depending on the job. Although both technical communication and instructional design are changing, they are not changing in the same ways. In addition, the changes are not moving in tandem because the end goals for their work is distinctly different. Looking at the job listings also shows that despite the talk of the fields merging, there is not enough connection to show the fields are similar enough to be one; however, they are similar enough that they each have skills that the other can use.

The Future of Technical Communication

A commonality in the research on the technical communication industry is that the field involves change and that its practitioners hold job titles other than “technical communicator.” Research by Nadya Shalamova et al. shows that writing is no longer the only and primary duty of technical communicators. It’s still important, but the writing required is varied. Now, technical communicators must be “able to write for a variety of platforms (including web, social media, and mobile) and work with multiple media (text, graphics, audio, and video)” (Shalamova et al. 15). In addition, they must have basic skills of visual design and the user experience. Good interpersonal skills for being an effective team member are also needed.

It is interesting to compare Shalamova et al.'s findings from 2018 to Giammona's survey from 2004. Similar to Shalamova, Giammona found that regardless of the technical communicator's job title, the one common denominator was the ability to write. Other key skills included "being proficient in instructional design, being big picture oriented and project oriented, having a user orientation" along with understanding the audience, being able to learn quickly, and "having strong interpersonal skills" (Giammona 350). Interestingly, some of the same skills practitioners needed almost 20 years ago are skills still needed today. Changes involve come from the increased need for technological skills brought upon by technological advances. Interestingly, instructional design is mentioned as a skill needed in the past, but it is not mentioned as a current skill need even though technical communicators create learning modules and materials in their workplace and for their clients.

Conclusion

The research shows instructional design has skills, theories, and practices that can be of use to technical communicators. One skill set that stood out is knowledge of ADDIE, a design system used by instructional designers. Understanding this system could benefit technical communicators as it is a system that has been shown to improve the user experience and visual design. It is also a model that has been used by the instructional design community for some time to guide their work. The use of ADDIE by technical communicators could act as a guide for issues they face as it helps create a strategic plan starting with analysis of needs, going on to design, development, implementation, and ending with evaluation.

Although technical communication and instructional design show similarities, a limitation of this research is that there is not a lot of research explicitly connecting the two fields. The focus for this study was the user experience and visual design. Although instructional design has foundational theories and models, they cannot address all issues brought about by technological innovations, which should not be a surprise because few could have imagined our current technological climate. As such, practitioners in both fields learn some skills, such as visual design, on the job, thus detailing a need for more training in both industries. The difference is instructional designers have formal principles and theories to guide them.

Recommendations for further research include shadowing instructional designers and technical communicators to observe their daily tasks. In addition, surveying these individuals as to what their primary job tasks are and where they feel additional training is needed would add to the research. This would provide a broader picture of both industries and how their distinctive skill sets could help the other. It may also show that there is more of connection than this current research shows that warrants them being within the same job domain similar to the range of jobs in marketing or medicine.

Overall, the findings of this research show that technical communication is a growing and changing field. Instructional design is also a changing field. The research, however, does not show that the fields are interchangeable. It seems that technical communicators are found in many fields and required more varied skills than instructional designers because instructional designers, regardless of the industry, work with learning materials whereas technical communicators' range is much wider. Instructional design, however, has systems and methods to guide their decisions, and it

is these larger systems and methods that could be of use to technical communicators.

What this research does show is that technical communication is a dynamic field that grows and changes with the times and has the capacity to do so.

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Technical Communicators and an International Audience

In our increasingly global community, the audience for technical communicators consists of individuals from a diverse range of countries and cultures. The cultures may be within the same country as the technical communicators, but it is becoming more common that the audience is an international audience whose culture is unlike the technical communicators. As such, technical communicators need to know how to address an international audience through the lens of cultural sensitivity. This is not always easy, but it is necessary to communicate well in our global marketplace.

Before the Internet, documentation was for a local audience. When content was eventually going to be prepared and read by a larger audience outside of the local one, there was time to translate content to other languages and possibly research the target audience and culture that would ultimately read the content. With the advent of the Internet, documentation became immediately available for an international audience. As such, cultures communicate and interact constantly, and documents easily cross artificial borders. As such, technical communicators must consider the international audience at the beginning of a project and not the end. In addition, it is not just for business reasons that technical communicators need to learn the skills to communicate

with a global audience, there are also ethical obligations related to addressing a global audience.

This obligation is mentioned by Allen and Voss. They detail ten basic values of technical communication. These values include honesty, legality, privacy, quality, teamwork, avoiding conflict of interest, cultural sensitivity, social responsibility, professional growth, and advancing the profession. For cultural sensitivity, they write that it is the technical communicator's "duty to reflect the growing diversity of the workplace in our technical communications" (Allen and Voss 38). The duty to reflect the growing diversity does not stop in the workplace; it also extends to an international audience. This reinforces the ethical obligations technical communicators have to be culturally sensitive when addressing a global audience.

Addressing the Global Workplace

One of the top concerns of technical communicators is that their work will be read by an international audience, and they do not have the skills to address this global audience (Starke-Meyerring et al.). Addressing a global audience requires skills in terms of knowing other cultures and how to address these cultures without offending. In their work, Starke-Meyerring et al. detail globalization trends and their influence on the technical communication workplace. One effect of globalization is that services are no longer produced where they are consumed (Starke-Meyerring et al.). For the technical communicator, this means documents produced are used outside of the locality in which they are produced. For example, at one time, pharmaceutical documentation written in the United States was mainly written for users in the United States. With globalization,

this same documentation is read by users in countries outside of the United States. As a result, technical communicators must determine the best way to address an international audience before beginning a project. Because documents produced for a global audience have an immediate effect, technical communicators need to be aware of cultural differences as feedback from disgruntled customers will be received soon after publication instead of later.

In addition, the globalization of corporations, especially the service sector, means that technical communicators now work in global teams and face the globalization of tasks along with direct engagement with a global audience (Starke-Meyerring et al.). For example, a technical communicator in Dallas, Texas, may work for a global company that has offices in England, Japan, and Brazil. Despite this technical communicator being based in the United States, this person may work with engineers and other technical communicators in other parts the world. All this indicates the need for technical communicators to have the ability to communicate within this global workforce, which is not limited to the users of the documentation.

According to Starke-Meyerring et al., technical communicators need to know the effect of “local and global policies, agreements, and corporate practices on their work” (141). These partnerships emphasize “cultural sensitivity, equal partner contribution, and mutual benefit” (Starke-Meyerring et al. 139). Note that cultural sensitivity is a key point. Without this, equal partner contribution and benefit cannot exist because both depend on respect and understanding of cultural differences. In addition, there are global digital networks that monitor corporations’ services and practices. This makes it

even more crucial for technical communicators to be sensitive to other cultures as watchdog groups pay attention to companies' products and services.

Because of the global nature of technical communication, technical communicators also participate in this world as global citizens. The norm now is that they will communicate with people who do not share their cultural contexts; however, technical communicators need to know these different cultural contexts. This includes the political and economic changes in the countries of the intended audience. Starke-Meyerring et al. state that these "changes involve a different sense of citizenship for technical communicators both as citizens in their various communities and as employees" of global corporations (145).

Visual Design that Crosses Cultural Boundaries

Sun and Getto write on the increasing and quickly changing global technical community. With these changes, technical communicators are now facilitators of "cultural fluency and sensitivity" (Sun and Getto 89) because the documents they create cross cultures; thus, they must be aware of the nuances and norms of these cultures. As technical communicators interact globally, there must be more awareness of cultural differences between the different cultures they interact with and how these cultures differ from their own. This awareness goes beyond social norms; it also extends to the design of the documentation itself.

When it comes to culturally sensitive design, technical communicators need to be sensitive to local cultures and "foster effective communication, and sustainable technological development" (Sun and Getto 89). Similar to documentation, design is no

longer local, and successful organizations recognize that their information must reach a global audience and awareness of how document design affects a global audience is needed. When this awareness does not occur, problems occur. One such example occurred with Ikea's 2017 local catalog to Israel's Haredi community. The catalog excluded women, and Ikea was criticized for giving the impression that families were all male (Sun and Getto). Because documents produced locally are also seen by a global audience, documents must be designed that recognize the global-cultural diversity of the technical communication audience.

This is where technical communicators must practice cultural humility. This means recognizing that they don't know all there is to know about another culture. It is also recognizing that one culture is not better than another culture. This cultural humility can develop in the technical communicator's own backyard; there is no need to travel to other countries. According to Sun and Getto, "The local is the major site for the negotiation work of the technical communicators looking to foster global cultural diversity" (192). It is through these local cultural interactions that the technical communicator learns the skills to address a diverse audience. These local intercultural interactions involve sensitivity to others and understanding of different cultures. These interactions can occur in the workplace or at cultural events and festivals in one's community. In the workplace, diversity training helps people accept and understand the types of diversity in the workplace, and local cultural events can immerse people in the foods and music of other cultures. In these local environments, there is a willingness to join in to learn about the other culture by experiencing its food and dancing to its music and sometimes even learning the dances of that culture. These skills of wanting to learn

about other cultures and not wanting to offend can be used when communicating with an international audience. It is used by wanting to know about the other culture to be a better communicator across cultures.

Legalities for the Technical Communication Researcher

According to McKee and Porter, technical communicators need to consider legal and regulatory challenges as part of intercultural aspects of addressing a global audience. They state that all research is global and, if it is not yet global, it is moving in that direction. As such, even though a technical communicator may intend to write to a small local audience, the research and writing needs to consider a global audience. One example McKee and Porter give is for usability testing related to mobile messaging systems. They detail how the research for this testing occurred locally, and testing occurred in another country. This fits with their belief that “technical communicators need to know about, and therefore conduct research on, cross-cultural audiences and communication issues” (McKee and Porter 283). Without doing this, products and services can’t truly address a global audience.

McKee and Porter also emphasize that researchers should never assume that what they write will only be read by a small audience; instead, there needs to be an awareness that written material can be read and will be read by a larger audience. Thus, awareness of other cultures is necessary to avoid unintended offense. This includes being aware of international laws and regulations. For example, there needs to be an awareness that international research could expose participants to harm from those who read the research (McKee and Porter). This can occur in countries where

information read online is under government surveillance. One example they give relates to technical communicators who work with researchers in other countries. McKee and Porter discuss how some governments monitor information entering and exiting their countries via the internet. Some of these countries forbid certain information from being read or even entering the country. Without this awareness, technical communicators could unintentionally expose another researcher to harm. This can occur with content containing a “pro-democracy sentiment” or expressing the view women can work outside the home. In some countries, citizens receiving this content can face legal penalties.

When writing to an international audience, technical communicators need an awareness of intellectual property in a global context both culturally and legally and in principle and practice. Quite often, this happens when researchers copy material or information related to intellectual property. This can be seen with how China, the United States, and Europe view intellectual property. In China, “intellectual property is viewed communally” (McKee and Porter 288). In contrast, work is considered more individually in the United States, and in Europe, authors have more rights when it comes to content they write and publish in the European Union. Without this awareness of the different laws related to intellectual property, technical communicators can unintentionally violate global laws and practices and offend at the same time. To avoid this, it requires understanding the importance of a global perspective when it comes to gathering research and an understanding of shared space if we are going to live and work together (McKee and Porter).

Recognizing and Respecting Diversity

Voss and Flammia emphasize the ethical issues involved when communicating with a global audience. Similar to other researchers, they recognize the ethical need for technical communicators to learn about other cultures and not stereotype these cultures. To avoid stereotyping other cultures, technical communicators need to be aware of and understand other cultures beyond a surface level, such as how time is viewed and directness of speech as well as “verbal usages and graphics that may be offensive to other cultures” (Voss and Flammia 72). At the same time, technical communicators need to not reduce these cultures to bits and pieces that make them seem dissimilar from their own. It’s a matter of recognizing and respecting the differences but also acknowledging the similarities between cultures.

In their discussion of addressing a global audience, Voss and Flammia list the ethics in technical communication: honesty, legality, privacy, quality, teamwork, avoiding conflict of interest, cultural sensitivity, social responsibility, professional growth, and advancing the profession. Of these, cultural sensitivity, legality, privacy, teamwork, and social responsibility are discussed in relation to ethics. Cultural sensitivity is a primary concern for technical communicators as this connects to the mandate to do no harm. When a technical communicator is not aware of other cultures, it’s easy to harm via an offense, but offending is not the only harm that can occur. Harm also occurs when users do not read the documentation that includes important information because wording or graphics are offensive to members of that culture. Voss and Flammia give an example of a user manual for speedboats in which the manual will be used by people living in countries on the Persian Gulf. They ask what is the proper attire for women in this area

on a speedboat? Would women be on a speedboat? If the graphic is depicted incorrectly, it could cause the information to not be read or not to be fully read because readers find the graphic disturbing. This example shows a situation where the technical communicator needs to know the norms and mores of this culture for the user manual to be used as intended.

As technical communicators abide by “do no harm,” the question as to how to decide what is harmful can be addressed by looking at the ideas of various philosophers (Voss and Flammia 73). One philosopher whose ideas can be applied to technical communication is Aristotle who defines ethics as character habits and not rules that govern conduct. He says that virtue guides ethical decisions (Voss and Flammia). This means that it is our habits that demonstrate one’s ethics. Aristotle emphasizes the theoretical when it comes to good ethics, and Aristotean ethics support a culturally sensitive approach to technical communications. This means that by doing right by others, which occurs by respecting others, technical communicators can make their own lives better. It is not enough to just think about doing right by others; it is necessary to show it through actions. For technical communicators, this is done through the content and documents created.

In relation to the ethical duty of technical communicators, Voss and Flammia also mention philosopher John Stuart Mills and his greatest happiness principle that says when it comes to ethics, the goal is the greatest happiness for the most people not just the individual. When connecting Mills to technical communication documents, this means documents should benefit the most people not just one group of people. In terms of cultural sensitivity, this means technical writers need to be inclusive and consider

how what they write affects multiple cultures. In contrast to Aristotle and Mills, philosopher Immanuel Kant believes it is necessary to have a list of rules to guide ethical behavior. Voss and Flammia mention Kant because there are some technical communicators who want a list of rules to abide by when it comes to intercultural communication; however, no two cultures are alike. A rule of behavior that works in one culture may not work in another culture.

When looking at ethical approaches that can guide the work of technical communicators, Voss and Flammia contend that there are two approaches that stand out. There is the universalist approach which deemphasizes cultural differences. With this approach, ethical principles apply universally despite differences. Then there is the relativist approach in which “behavior can only be judged to be ethical or unethical within the context of the culture in which it occurs” (Voss and Flammia 74). This approach says what is appropriate for one culture may not be appropriate or respectful in another culture. It requires technical communicators to address their own ethnocentrism when looking at what is culturally appropriate and sensitive. A perfect example relates to cultural values. In the United States, Americans value individualism, and this value can show itself through content. If a technical communicator were to input this same individualism into content for a collectivist culture, these readers may be offended. In instances like this, a universalist approach is a better fit for the work of a technical communicator because cultures must be looked at individually when applying cultural sensitivity to document creation and design.

The question then becomes why does this matter? Well, awareness of ethics can help technical communicators address a global audience and guide decision making.

It's not always easy to decide on the best manner to address issues in inter-cultural communication because there is a tendency to apply one's own values to another culture. To address these intercultural difficulties, technical communicators should observe and carefully listen before making decisions that involve an international audience. Thus, when preparing documentation for an international audience, technical communicators need knowledge of other cultures. They need more than a "superficial awareness" (Voss and Flammia 85); they need to understand the norms and nuances of other cultures. For ethical intercultural communication to occur, cultural sensitivity must be present.

Visual Design for Diverse Audiences

In Josephine Walwema's article, she writes that different cultures perceive aspects of visual design differently. For technical communicators, this means that visual elements must be part of document planning for intercultural communication. She says that at one time, this type of planning would have been difficult because so much content was in print format. With today's technological advances and because so much documentation is created to be viewed online, visual design is part of the content development process. The internet makes this possible because it can accommodate different cultures regardless of location; however, this digital culture has its own "norms of discourse" that a technical communicator must consider (Walwema 40).

A factor in intercultural visual design is whether the intended users come from a high- or low-context culture. According to Walwema, "High-context cultures rely on implicit meanings inherent within contexts and perceived in relationships" (40). In

contrast, users in low-context cultures prefer clarity with explicitness and “their preference for aesthetics with ambiguity” (Walwema 40). When applying this information to visual design, research shows that individuals from high-context cultures consider the design along with the context of the information. On the other hand, individuals from low-context cultures abide by “say what you mean” (Walwema 40).

To learn more about different cultural preferences in terms of visual design, Walwema also looked at preferences of specific cultures. For visual design with online media, design preferences related to cultural preference for search engines was studied. Walwema found that information and communication design (ICD) approaches do not translate across all cultures. She noted that Google controls 83% of the global search engine market; however, this control does not apply to every culture. South Koreans, for example, prefer Naver.com over Google because Google’s “bare-bone structure” does not appeal to their cultural design aesthetics (Walwema 41). This minimalist design does not appeal to South Koreans who prefer color and animation in web design. Recognizing this preference, Naver used an ICD approach in its localization and cultural adaptation to appeal to its users in South Korea. This is one example of how ICD differs between cultures.

Walwema also discussed the need for technical communicators to understand cultural norms and to reflect this knowledge back to the user culture. Culture establishes expectations and the way that people are socialized. These norms then establish socially and digitally derived customs that affect documentation. Again, the technical communicator needs to go beyond superficial understanding of a culture and understand design through localization and adaptation (Walwema). One such situation

is the marketing of Black Friday in the Middle East on an e-commerce site for Arab users. The technical communicator used localized design preferences and common knowledge when designing the site and addressing the audience. To accommodate the Arab culture, Black Friday was rebranded as “White Friday” because in Middle Eastern culture, Black Friday does not bring forth the same meanings as in Western parts of the world (Walwema). In the Middle East, Fridays are prayer days. To adjust to cultural expectations, “white” was used instead of “black” because in Arab culture, white is a symbol of peace and purity. In this case, changes were made to tailor content to a specific culture to make the content meaningful.

Cultural Context of Information Overload

When thinking of information overload, most people think the amount of information people consume leads to overload. Research, however, shows that whether one comes from a low- or high-context culture and how the information is presented can also contribute to information overload (Strother et al.). A major cause of this information overload in cross-cultural communication is when users must understand information that is presented in a manner that is different than what they are used to (Strother et al.). In consideration of this, a technical communicator must understand the cultural preferences of content delivery for international users. If information is presented in a manner that is much different than the information originating in users’ cultures, those users can not easily grasp the information because they must adjust the manner in which they synthesize the content, which can result in cognitive overload.

It is these varying discourse patterns when creating documents for an international audience that technical communicators need to be aware of. These discourse patterns differ with high- and low-context cultures. According to Strother et al., high-context cultures prefer documents that are indirect and with fewer details. There is also a focus on politeness. Thus, for the technical communicator, an awareness of tone is needed. These cultures tend to be homogenous; as a result, users will have a similar understanding of the content. In contrast, low-context cultures have a mix of cultures that may not share as much knowledge as high-context cultures (Strother et al.). When creating documentation for these cultures, information needs to be explained clearly and in detail to ensure that content is understood across cultures. In addition, messages need to be direct and concise to reduce misunderstanding.

Strother et al. cite research showing culture was the greatest factor in miscommunication. With this being the case, it is imperative that technical communicators understand the cultures with which they interact because patterns of communication can influence how information is understood. For example, English and Dutch users prefer documentation that is linear, direct, and focused. These cultures prefer to focus on one idea at a time. Although the French, Spanish, and Italian speak different languages, they share a similar romantic culture in which they discuss several things at once; thus, documentation can detail more than one idea at a time. Long digressions are common in Slavic cultures, and the German culture mode of communication is a combination of the romantic cultures and Slavic cultures. When looking at Asian cultures, such as those in Japan, Korea, and China, communication occurs in an indirect circular approach.

Understanding this storytelling pattern can “inform how the reader will unpack technical information” (Strother et al. 83). The challenge comes for readers who attempt to understand documents written in an unfamiliar discourse pattern. Strother et al. give an example of an Irish engineer, who is familiar with linear writing, reading documents from a Vietnamese engineer, who uses an indirect discourse pattern when writing. The challenge is for the Irish engineer to determine which information is important because it is not presented in the familiar linear pattern. Attempting to understand information presented in an unfamiliar discourse pattern can lead to information overload and a reader not fully grasping the information presented. Therefore, it is up to technical communicators to understand the discourse pattern of the intended audience and present information in a pattern the reader can handle (Strother et al.).

These varying cultural modes of communication demonstrate the need for content that is localized since localization helps companies serve their clients better because the documentation is written especially for that culture. In addition, localization decreases cognitive load, thus reducing the chance of information overload. Strother et al. believe “localization must include thorough audience analysis, consideration of cultural discourse structural preferences, as well as careful usability testing” (95). For technical communicators writing to an international audience, localization does not stop at cultural discourse; it also includes audience analysis and usability testing.

According to Strother et al., internationalization is another method technical communicators can use to communicate across cultures. This involves making content general enough that it can accommodate different cultures and languages. To do this, telecommunicators create content to address the needs of a target audience by

localizing the content so it meets the linguistic and cultural needs of this audience. This is easier when users share a professional culture, such as medicine, which can mitigate stressors in cross-cultural communication (Strother et al.). Despite this shared professional culture, cultural sensitivity is still necessary in this intercultural communication.

Intercultural Communication and the Technical Communication Classroom

Brady and José write that our global workplace increasingly asks students to be able to communicate in “culturally diverse contexts”: however, most U.S. classes do not teach students these skills (41). The authors believe that learning to communicate with an international and culturally diverse audience begins in the classroom. It is here that students learn the linguistically and diverse contexts of communicating globally. Brady and José also detail how the scientific and technical communication program at Michigan Technical University (MTU) added an international component to their program to teach these skills. This program went beyond the practical application of these skills; courses also taught critical analysis through theoretical and rhetorical approaches. The critical analysis component taught students to problem solve to manage the challenges that come with communicating with an international audience. The program at MTU also used a social approach to writing because it runs counter to the “artificial boundaries” some people have with written, verbal, and visual communication (Brady and José 43). With this approach, the technical communicator is placed in the “social, political, and historical currents,” and it questions the “accepted roles of conduit and translator” (Brady and José 42). One of the main goals of this

program at MTU is that it prepares students to be responsible members of the “scientific and technical communication community” (Brady and José 43). In our increasingly global workplace, programs such as this will prepare students for the world outside of their classroom.

Race in the Technical Communication Classroom

Haas adds to the argument that teaching students to write to a diverse audience begins in the technical communication classroom. Her research focuses on how race is addressed in the classroom. Haas’ research shows that how students learn about race directly affects how they connect with an international audience that may be racially and culturally different from themselves. To put her research into practice, Haas created a graduate course designed to teach students how to write to a racially diverse audience. In doing so, she pulled research from “cultural, critical race, rhetorical, and feminist studies” (Haas 282).

In describing the importance of her research, Haas notes the research on intercultural communication. She chose to add race as a component to this research because it is important for students to “understand the concept of race in the U.S.” as taught through the concept of critical race theory (282). It is only by understanding race in the U.S. can students understand the nuances of communicating with an internationally diverse audience. Haas notes that early technical documents dealt with race through four main approaches: color blindness (the refusal to see color), selective attribution (specific application of race), whitewashing (the removal of race for whites), and privileged language. Allowing students to see how race was dealt with in the past

helps set the stage for helping them understand how technical communication documents address race today. Haas believes the understanding of race in technical communications can lead to the creation of culturally responsive and “responsible texts that accommodate their users” (281).

Academic and International Partnerships for Global Learning

To prepare students to enter today’s technical communication field, Starke-Meyerring et al. urge technical communication program changes that expose students to “global digital networks with professional, peers, citizens, and experts from diverse contexts” (140). They explain the use of partnerships between local higher education institutions and international companies and international higher education institutions to provide these learning opportunities. These partnerships would provide students the opportunities for cross-cultural digital communication in which students would be able to practice “critical reasoning from multiple perspectives” (Starke-Meyerring 154). Quite often, these partnerships start at the faculty or department level where a faculty member has reached out to an international higher educational institute.

One key aspect of these partnerships is the experiential component that provides students with the hands-on knowledge that companies need. Many companies are global, and they require technical communicators who have the skills and experience interacting with a diverse audience and creating materials for an international audience. The intercultural aspect is key when it comes to training future technical communicators. These partnerships are not easy in that there are issues with resources, logistics, quality, cultural differences, organizational issues, and political climate (Starke-

Meyerring et al.). Once these issues are addressed, partnerships can provide students with the knowledge and skills needed to communicate with a global audience. Although these partnerships are not perfect, they provide opportunities for students to develop key skills to address an international audience as technical communicators.

Conclusion

Addressing cultures outside of our own is not always easy. Cultural differences can lead to misunderstandings and offense. For technical communicators, misunderstanding and offense can lead to larger issues in which important documentation is not read or understood, and the companies for which they work could be seen as culturally insensitive in a global marketplace. As such, technical communicators are obligated ethically and professionally to demonstrate cultural awareness and sensitivity.

To meet this ethical obligation, technical communicators need the skills to address an international audience. Learning the skills to address this audience begins in the technical communication classroom, but it is ultimately the responsibility of technical communicators to take the initiative to learn about other cultures. Research details the need for cultural sensitivity in addressing an international audience when creating documentation and when working with co-workers who may reside in different countries.

Intercultural communication comes with its challenges, and as technical communicators address these challenges, the documents produced will serve clients better. These documents will address the cultural needs both in the written discourse and the visual design. These two elements working together will lend themselves to the

creation of documents in which the message is received without conflict from cross-cultural misunderstanding.

Similar to other industries, technical communication is no longer a local industry although its practitioners are local. As such, it is imperative and ethically necessary for technical communicators to understand and be sensitive to the cultures their documents reach. It's not possible to know everything about another culture, but it is important for the technical communicator to be sensitive to these cultures. Technical communicator's work crosses boundaries and reaches many people. The information is vital and sometimes cannot and should not be ignored by the intended audience, which makes sensitivity to other cultures imperative and an ethical responsibility that cannot be ignored. What does this mean for the technical communicator? This means that "do no harm" must be the guiding motto when addressing local and international audiences.

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Teaching for Transfer in First-Year Composition Courses

Introduction

Trends in teaching writing come and go. When presented with a new teaching method or a new idea related to teaching writing, there is some hesitancy on the part of writing instructors. They wonder whether the new idea has staying power or is it just another trend that will be replaced with another new idea. If they adapt their teaching methods to the new style, will they regret it? Will the new ideas work? Will it improve student writing?

One teaching method that shows promise to improve student writing is teaching for transfer (TFT), a method in which concepts learned in writing classes are transferred to other courses and disciplines. Case studies on TFT are quite convincing; however, writing instructors and programs are understandably hesitant to add it to their curriculum. In this paper, I will show that TFT is a viable approach to teaching writing.

What is Teaching for Transfer?

TFT is teaching writing knowledge and skills in a way that the skills students learn in their writing class can be used in other contexts and other classes, such as

business and science (Yancey). In “Teaching for Transfer: A Passport for Writing in New Contexts,” Howard Tinberg adds that TFT is the teaching of writing explicitly geared for transfer to another course. This means that the writing assignments are designed to be applied to other courses. In his view, TFT teaches students a “portable theory of writing” that can be transferred to multiple courses and contexts, including the workplace (Tinberg 17). It is in contrast to a skills-based approach to teaching writing, which involves the focus on thesis statements and topic sentences. There are two critical elements in TFT. The first element is that there is a set of organizing principles and key terms. These key terms include “genre, composing, audience, rhetorical situation, peer review, reflection, exigence, knowledge, and concepts” (Tinberg 19). The second element is a series of writing assignments, “both informal and formal, that assist students in understanding and deploying those terms” (Tinberg 19).

Threshold Concepts in Teaching for Transfer

Linda Adler-Kassner and et al. explain in “The Value of Troublesome Knowledge: Transfer and Threshold Concepts in Writing and History” that TFT occurs through threshold concepts, which are concepts that a student in a particular discipline must know for learning to occur. The authors note that threshold concepts can expand across several disciplines and, thus, unite these disciplines. Through threshold concepts, students see how ideas they learn in one course can be applied to other courses. Writing classes, in particular, can act as incubators for TFT as “writing is how individuals gain entry and membership in communities of discourse” (Adler-Kassner et al.).

Essentially, students show their knowledge of their chosen discipline through writing assignments that pertain to their discipline.

Adler-Kassner et al. explain that writing classes are part of general education classes at most colleges. These classes are designed to prepare students for writing in their major; however, at most colleges, writing classes are skill-based classes and not connected with other disciplines. Thus, threshold concepts can be used to align general education courses with specific disciplines. In addition, threshold concepts can connect general classes to the purpose of postsecondary education, which is to prepare students for life beyond the walls of the academic world of scholars and research (Adler-Kassner et al.).

Transfer from High School to College

To understand how TFT works, it is first necessary to understand how transfer works and to see it at work with incoming freshman in first-year composition (FYC). Mary J. Reiff and Anis Bawarshi demonstrate how the ability to transfer leads to success in "Tracing Discursive Resources: How Students use Prior Genre Knowledge to Negotiate New Writing Contexts in First-Year Composition." When students enter college writing classes, they bring knowledge of a range of genres from school, work, and from outside of school and work. These include genres such as five-paragraph essays, lecture notes, blogs, book reports, and literary analyses. Reiff and Bawarshi show that it is the ability for students to recognize aspects of these genres in college writing assignments and transfer this previous knowledge to new writing situations.

This ability to transfer knowledge is not always easy, and this ability is partially based on how students view themselves. Students who view themselves as novice writers develop more as writers compared to students who identify as expert writers because these “novice writers” are more willing to transfer and adapt their knowledge to situations that may be similar to previous writing situations. Students who identify as expert writers hold tightly to their previous knowledge and attempt to use it in the same method as previously used without adapting it to the new genre (Reiff and Bawarshi). These two types of students are, respectively, referred to as boundary crossers and boundary guarders based on how willing they are to cross the boundary of previously learned genres and apply it to new genres.

Reiff and Bawarshi detail how incoming engineering students were asked to write a report in a genre that few had previously written. Success in this assignment depended on students’ ability to recognize how this genre fit with previous knowledge and adapt the knowledge to the new situation. The key element for this transfer to occur is “comfort with reformulating and transforming existing resources may serve students well in accessing and adapting to future writing contexts. In other words, ‘crossing’ may be a key element of transforming knowledge and learning” (Reiff and Bawarshi 330).

The importance of Reiff and Bawarshi’s research is that it shows that FYC is a transition point. If students can transfer previous knowledge to a new situation, they can transfer this knowledge to future situations. FYC, however, is the place where disruption should occur, meaning that this is where students need to learn to let go of their grasp on previous knowledge in the exact form in which it was learned and reformulate it to fit new situations.

Transfer Through Writing

The ability to transfer knowledge is important because writing teachers cannot prepare students for all the writing that students will encounter within the classroom or the work environment. Transfer allows writing teachers to prepare students for the different situations that they may face (Nowacek). As a result, teachers teach for transfer. This involves helping students see the connection between situations. This means a student could have a writing assignment in English class and another writing assignment in the biology class, and although the assignments are different, the student can also see the connection in terms of the format and the genre. In “Transfer of Writing-Related Learning,” Nowacek writes “students can make connections between classes they are taking simultaneously” (203). When students can do this, transfer occurs. She claims that knowledge of different genres, taught through threshold concepts, is what allows transfer to occur as students think critically about the connections between assignments.

The Role of Confidence on Writing Transfer

For transfer to occur across different contexts, it is not simply a matter of what the instructor brings to the writing classroom; it is also a matter of what the student brings to the classroom. In “(Dis)Positioning Writer Confidence, Reflecting on Writing Identity: A Writing about Writing Curriculum Aimed at Knowledge Transfer,” Lisa Tremain discusses the importance of self-efficacy and writing identity in the first-year writing classroom. Tremain writes that when it comes to prior knowledge that students bring from high school to college, this knowledge goes beyond cognitive information.

Knowledge of themselves as writers is also brought to the FYC class. This includes their confidence (self-efficacy) as writers and their capabilities to develop as writers. Self-efficacy is needed for students to take on new tasks and knowledge and to be able to use previous knowledge to make sense of the new tasks (Tremain). Without this confidence, students lack the belief that they can complete a new task. This is because “self-efficacy is inseparable from how individuals perceive their writing knowledge and writing identities” (Tremain 57).

All is not lost if a student enters FYC without this confidence. Tremain writes that research connects threshold concepts with self-efficacy and writing improvement. Similar to how threshold concepts disrupt knowledge for writing transfer, threshold concepts can disrupt the negative beliefs about writing that have resulted from negative writing experiences. These beliefs can affect how much students enjoy writing and how useful it can be. For example, students with high writing self-efficacy readily transfer knowledge between concepts; however, students with low writing self-efficacy struggled with this transfer. It is important to note that self-efficacy can improve. Tremain demonstrates that previous negative experiences can be changed through the teaching of threshold concepts. As students completed assignments based on threshold concepts, success on the assignments and how they viewed themselves as writers changed, and their confidence improved. This rise in confidence along with their success on these assignments demonstrate how “self-efficacy and writer identity are inextricable from how writing transfer is successfully enacted” (Tremain 66).

Transfer in a Writing about Writing Course

The point of education is to prepare students for life outside of the classroom. For this to happen, knowledge transfer is needed. As Jennifer Wells noted in “They Can Get There from Here: Teaching for Transfer through a ‘Writing about Writing’ Course,” her writing students were not able to transfer what they learned in their writing classes to other classes regardless of the variety of writing genres different teachers taught in their classrooms. She noted that students must think about their own learning as well as the connection between different ideas for transfer to occur in addition to what is taught in the classroom.

To help her students learn to transfer knowledge, Wells created a Writing about Writing course in which she focused on five different rhetorical elements: purpose, audience, genre, stance, and design (PAGSD). Students learned to identify these elements in different contexts. More importantly, students began observing aspects of PAGSD in their everyday lives. This showed Wells that transfer was possible.

Wells took the idea further with forward-reaching transfer in which students looked at writing situations that they might face in the future and used their current knowledge to access future needs. Through career-specific writing assignments, students came to recognize how a particular writing genre was used in different fields. In addition, students were able to use these genres on their own in different contexts. The students in Wells’ writing class demonstrated that students are able to transfer the knowledge that they learn to other contexts, especially when the focus is on studying rhetorical situations, which are similar between genres, versus focusing on skills, which may not always be transferable.

Reflection in the Writing Classroom

Although threshold concepts are taught in the classroom, a writing instructor must do more than teach the concepts for transfer to occur. In “Reiterative Reflection in the Twenty-First Century Writing Classroom: An Integrated Approach for Teaching for Transfer,” Kara Taczak and Liane Robertson discuss how reflection must occur for transfer. Student reflection is needed to “successfully transfer writing knowledge and practices across writing contexts” (Taczak and Robertson 42). Through reflection, students become more aware of themselves as learners, which facilitates transfer. When students reflect on their writing, they are encouraged to put what they learn into practice, and it helps them set goals for writing improvement.

Taczak and Robertson also emphasize that reflection is necessary when it comes to thinking about writing and thinking about the act of writing. Instructors can’t just have reflection as a passing activity that students do on their own; instead, reflection must be intentional, and it must be explicitly taught. Three key elements of teaching reflection include key rhetorical terms, reflection itself, and students’ articulation of the theory of writing. In addition, students must study reflection as a rhetorical concept and practice, thus creating a framework for transfer to occur (Taczak and Robertson).

In addition to the three elements that form the framework for reflection, students must be taught the direction for this reflection. According to Taczak and Robertson, students must be taught to look backward and think about what they have learned about writing. Then, it is necessary to look inward to review the current writing assignment. After this, students look forward to see how their current knowledge about writing

connects to future writing assignments in new contexts. Finally, students look outward and reflect on how their current identity as writers connect to the larger academic world. It is through this entire process that students evolve as writers and thinkers of writing (Taczak and Robertson).

In addition, once students realize that transfer is a goal, they begin to look for other opportunities for transfer to occur, which is one of the goals of FYC classes. Students who had not taken a FYC class in which TFT was a goal did not practice reflection. In addition, students who had participated in TFT classes required fewer prompts to recall course content compared to students in other FYC classes. Despite being enrolled in a TFT class, not all students in the classes transferred the knowledge. A key element missing in these cases was a student's willingness to transfer the knowledge. Without this willingness, TFT will not occur if a student does not want it to occur.

Taczak and Robertson emphasize the importance of reflection as a formal practice and the importance of students being explicitly taught key terms and concepts. Students need these key terms in college to discuss writing; otherwise, they resort back to what they learned in high school. When students enter FYC classes, they enter writing classes "regurgitating information" that they learned in high school and repeating a formulaic writing structure. Reflection opens doors for students to understand "writing as something the writer structures and makes choices about" (Taczak and Robertson 60). Similar to other researchers, Tackzak and Robertson demonstrate how reflection as part of the TFT curriculum can act as a disrupter of previous knowledge and lead to transfer of knowledge to writing contexts in the larger academic curriculum.

TFT in the Community College

A key component of TFT is what can be taken from FYC classes and applied to other courses. In “Teaching for Writing Transfer: A Practical Guide for Teachers,” Sonja Andrus et al. detail how the TFT curriculum can be changed to fit with the community college classroom. They note that transfer theory says, “knowledge can be applied in one context and deployed and repurposed in other contexts” (Andrus et al. 76). For this knowledge to transfer, key terms must be taught and used. These terms include audience, genre, rhetorical situation, reflection, discourse community, purpose, context, and knowledge.

For the community college classroom, all the key terms from the TFT curriculum were kept along with the four assignments. In addition, recurring reflection occurred throughout the entire class. An additional key element was conferencing, which was needed for successful implementation of TFT (Andrus et al.). Conferencing was essential because the class structure was quite different from previous writing classes that students had encountered. Because of this difference, students needed assurance they were going through the process correctly, and conferencing provided this reassurance. Finally, it provided just-in-time teaching, which was needed for the fast pace of the course.

More accessible readings were also added as some of the reading topics in the TFT curriculum are not a good fit for community college students. Andrus et al. write that community college instructors need to be more intentional about addressing key terms in relation to the assignment so students clearly see the connection. For

successful implementation of the TFT curriculum, it must be adjusted to meet the needs of the student population.

Difficulty with TFT

A full discussion on TFT must include a discussion of the problems with implementing a new process in the FYC class. Mark Blaauw-Hara discusses these difficulties in "Transfer Theory, Threshold Concepts, and First-Year Composition: Connecting Writing Courses to the Rest of the College." Similar to other authors, Blaauw-Hara notes that a key justification for general education writing classes is that these classes prepare students to write well in other classes. The reality is students "have difficulty applying skills and knowledge they learn in writing classes to other contexts" (Blaauw-Hara 354). It is this difficulty that encouraged him to implement TFT and threshold concepts into his FYC classes because they add the connection students need for other academic classes. When it comes to transfer, there are two types of transfer: low-road transfer and high-road transfer. Low-road transfer is an automatic transfer and includes grammar, mechanics, and citation methods (Blaauw-Hara). High-road transfer always requires reflection, which is a key part of TFT. Reflection in this context requires students to synthesize information from one context and determine how it connects with other contexts (Blaauw-Hara). High-road transfer also allows students to bridge contexts that may not be near one another. One key aspect of high-road transfer is that reflection must occur. All this is easier said than done.

Blaauw-Hara discusses the problems other researchers have had with TFT and threshold concepts, but he did not let this knowledge dissuade him from trying the

methods in his own classes. He notes that some problems with applying transfer theory in the classroom include resentment from faculty without a background in rhetoric who believed they were being asked to step outside their area of expertise. This is a valid complaint considering the workload of writing instructors and asking them to incorporate a new strategy that requires extra time and effort for a method that they feel pressured to learn and use.

To circumvent issues with enacting TFT on a large scale, Blaauw-Hara chose to test TFT in his own classroom and to immerse his FYC students in academic writing from different genres. His students reflected on the similarities and differences in writing across disciplines, allowing them to see how writing theories could be transferred in different contexts. He also gathered writing assignments from other disciplines and studied them himself to create writing assignments that incorporated writing requirements from the assignments he gathered. By doing this, students were actively learning skills in his class that could be transferred to other disciplines.

He noted that threshold concepts and TFT would not be as easy to incorporate to FYC because of the pre-set curriculum. He acknowledged that the change was not easy. He also noted that the process was new, and that all new concepts are difficult to implement at first because instructors must modify assignments and make changes as they learn what works and does not work. Although TFT and threshold concepts are not easy to incorporate in FYC classes, BlaauwHara said it is necessary “to engage these two theoretical models if we are to increase the relevancy and effectiveness of general education writing courses” (361).

Conclusion

New practices and theories are not always easy to implement in a classroom. When looking at a FYC class, it is important to look past the difficulties and to look at what can be achieved. As has been mentioned previously, the purpose of FYC classes is to prepare students for writing in other contexts through transfer of knowledge. Currently, this is not occurring; however, TFT and threshold concepts hold promise.

Research demonstrates that transfer can occur through TFT and threshold concepts. This involves writing instructors making changes to their current assignments and teaching practices. It also involves students' willingness to be involved in the process. More importantly, it involves both students and instructors and writing departments enduring growing pains that come with implementing changes to the existing curriculum. Despite the difficulties, TFT adds to the relevancy of FYC classes and the goal of helping students become successful in future classes.

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Gender and Technical Communications: Workplace

Introduction

This paper seeks to review the current literature concerning women in technical communications. From there, it seeks to determine the industries where women are employed in general. Once women are in the technical writing workplace, their experiences or the factors that shaped their experiences are examined. In reviewing the literature on this topic, this paper seeks to show that it is necessary to discuss female experience in the technical communication workplace and that we have not reached the point where it is no longer necessary to pay attention to gender and issues related to gender. This paper reviews the current research on gender and the technical communication field to show the history of gender in the technical communication research, gender as it relates to the technology industry, gender experiences in the workplace, and how women navigate within the technical communication workplace. Women are employed in the technical communication workplace, and it is important to see the evolution of women in this field through research to see where change can occur and how it can occur.

Feminism in Technical Communication Research

In Kate White et al.'s article "Are We 'There' Yet? The Treatment of Gender and Feminism in Technical, Business, and Workplace Writing Studies," the authors look at the current writing on women in the technical writing field. The impetus for their research is because of the "increased interest in women in technical and business workplaces" (White et al.). They discuss the overall idea that the workplace is neutral and nongendered; they write that academic journals and textbooks create a false narrative of a nongendered environment. For example, the authors reviewed their textbooks and journals related to gender and technical writing and discovered nothing had changed in 25 years; there was still no mention of women and the issues women face in the workforce (White et al.). This is problematic because when people believe that an area is nongendered, gender issues are not discussed, and problems go unaddressed. When looking at research on whether there is diversity in technical communication as it pertains to women, White et al. found gender was mentioned in activities women were actively engaged in, such as clothing to wear in the workplace.

There were instances, however, in which women were active participants in technical communication. Researchers Laura Gurak and Nancy L. Bayer also look at women in the workplace in their article "Making Gender Visible: Extending Feminist Critiques of Technology to Technical Communication." Their article is separated into four categories: (1) women as technologists, (2) women's technologies, (3) women, technology, and the workplace, and (4) technology, cyberspace, and the body. This article provides an overview of articles related to feminism and technology. This article brings forth other questions for possible research for other researchers. The writers

conclude that technical writers need more awareness of feminist perspectives related to technology writing and understand that the critiques relate to the technical writing itself. Without this awareness, it is possible to write documentation that offends readers; this could be content in which sexist assumptions are made about the user. Gurak and Bayer also recommend that feminist critiques become part of the technical writing curriculum. Lastly, they suggest that feminist criticism be used when developing products.

The importance of women in the technical communication's field is made evident in Linda LaDuc's and Amanda Goldrick-Jones article "The Critical Eye, the Gendered Lens, and 'Situated' Insights--Feminist Contributions to Professional Communication." In this article, LaDuc and Goldrick-Jones contend that technical communication is a social action because communication is social. As such, technical communication is not objective because it takes place within a patriarchal culture, so the communication contains some of the values of the culture in which it is produced. This awareness is important because if writers don't recognize that there may be biases in what they write, they won't know to look for them or correct them. This could show up when the writer uses the pronoun "she" when discussing the user in a technical document for a kitchen appliance. This use of "she" shows the writer's bias that it is woman who will use the product because of stereotypes related to women and cooking. LaDuc and Goldrick-Jones emphasize that feminist research is "not reducible to one voice or set of political views" (LaDuc and Goldrick-Jones 254). This point recognizes that not one party or political belief represents all feminist ideas. Without this recognition, other voices and ideas are left out of the conversation. The authors continue that gender is a "social force

that shapes and is shaped by professional communication practices and readership” (254). By looking at technical communication through the lens of gender, technical communication can be a means through which social change occurs.

Who Works Where?

When looking at women in technical communications, it is first necessary to see where women work, meaning the industries in which women work. This can tell us whether women are employed equally in different industries or whether women are primarily employed in certain industries. David Hesmondhalgh and Sarah Baker address this in “Sex, Gender and Work Segregation in the Cultural Industries.” Based on their research, the authors found that many industries are segregated by gender. They found women are prevalent in marketing and public relations, production coordination, technical writing, and similar roles. In contrast, there is a high presence of men in prestigious creative roles and technical industries. According Hesmondhalgh and Baker, this segregation is a result of stereotypes that women are caring, supportive, and nurturing and better communicators and better organized, and “men are more creative because they are less bound by rules” (23). This study was based on job statistics from the United Kingdom. For technical communications, this data provides a starting point for the industries in which women are employed.

Women are also segregated into specific jobs within IT. In “Women in Hybrid Roles in IT Employment: A Return to ‘Nimble Fingers’?”, Judith Glover and Yvonne Guerrier write about the gendered development of hybrid jobs in the IT industry, which are essentially two jobs combined into one. Hybrid jobs are jobs with two different roles

that require different skill sets. For example, an employee's primary task may be a computer programmer with a secondary job as a client liaison. The two categories for hybrid jobs are inward-facing jobs, which are jobs primarily done by women, and outward-facing jobs, primarily done by men. Inward-facing jobs are jobs that "require skills of project management, team-building and empathy with other employees" (Glover and Guerrier 90). Outward-facing jobs require direct contact with the client and technical expertise for on-site consultancy at a client's location. These jobs allow employees to make contacts and gain skills that allow them to advance with their current employer or another employer.

The importance of this characterization is that outward-facing jobs are more prestigious and better paying because they provide more contact with clients (Glover and Guerrier). This is another instance in which jobs that primarily employ men pay higher salaries than jobs that primarily employ women. Although both job categories of hybrid jobs require soft skills, the value of the soft skill is determined by gender. Essentially, soft skills in men are seen as talent whereas soft skills in women are seen as natural (Glover and Guerrier); thus, perpetuating the stereotype of women being caring, nurturing, and supportive. Because men who have soft skills and hard skills are seen as talented, they receive more outward-facing jobs that allow them to make more money and move up in the corporate hierarchy. This results in women being employed in inward-facing jobs that require more teamwork and less pay and not being given the same opportunities for advancement that could change how women are viewed in the technical industry.

Gender Experiences in the Workplace

Some of the gender segregation we see in the job force can be attributed to how women are seen by society. Isabelle Thompson looks at gender differences in technical communication from the perspective of social role theory. This theory states that men and women are taught how to behave according to gender stereotypes by society. Thompson notes that the changes in the way children are socialized has affected the way women and men behave in the workplace, and she looks at whether these social roles come into play in the behavior of women in the technical communication workplace. In general, the longer women are in the workplace, the more women behave like their male counterparts (Thompson). This study shows that gender stereotypes are simply stereotypes and are not ingrained because men and women behave similarly in the workplace. Her research is also significant because it shows that gender stereotypes used to not hire women in jobs primarily performed by men is not valid as women's behavior resembles male behavior in the same job. In terms of how men and women viewed their jobs, Thompson's research found that job satisfaction depended on status, and the difference in gender pay was one difference, which has been observed in other studies. Women and men find satisfaction in their jobs, but the gender pay gap affects women's job satisfaction, which could result in women leaving certain industries.

In addition to the gender pay gap, on-the-job discrimination affects women's job satisfaction. Philip Taylor et al. looked at everyday discrimination in the Australian workplace. Examples of everyday discrimination include being ignored by colleagues or being treated as if they didn't exist, being left out of social gathering at work, being excluded from a work meeting, being set up for failure, and being passed over for

promotion (Taylor et al.). The researchers note current models used to measure discrimination may not accurately detect the level of discrimination that women of all ages face in the workplace because the experiences are widespread. It is so widespread that women, regardless of age, experienced similar rates of and types of gender discrimination. In addition, individuals, regardless of gender, who had impaired functional capacity were more likely to experience everyday discrimination. Education and household income were another predictor of discrimination faced regardless of gender. Taylor et al. found that for women, “industry sector was relatively frequently and robustly associated with the probability of experiencing everyday discrimination, compared to the other control variables and age” (251). Interestingly, Taylor et al. do not clearly state the industry sectors with a higher probability of everyday discrimination for women. In looking at the data, however, it is possible to see women experience higher rates of everyday discrimination, such as being ignored or treated as if they don’t exist, in specific industries, such as construction; information, media, and communications; public administration and safety; and education and training.

Despite evidence of the on-the-job discrimination women face, some believe the gains women have made negate the discrimination. “From the Research: Myths Worth Dispelling: Gender-Still a Long Way to Go” by Jeanne Farrington looks at the myth that gender no longer needs to be studied because of the achievements women have made in education and employment. Farrington looks at the workplace areas where there is not gender equity. She discussed inequities related to gender and pay, gender equity by position, and gender discrimination in hiring. This research shows that although women have made employment gains, they still face inequities in different areas, such as pay,

hiring, and position. Farrington noted the instances in which women took themselves out of running for positions because of the large number of men in the roles. Women removed themselves from the running because of “stereotype threat,” which is a “form of negative internalized stereotyping” (Farrington 109-110). This is when women believe that they don’t belong in a certain industry because they believe the stereotypes of women not belonging in the industry. In other cases, women were not considered for certain roles because of gender stereotypes in hiring. Both internal and outside forces related to gender stereotypes keep women from receiving gender equity in male-dominated fields. Farrington ends her analysis with the good news that teaching about stereotypes can reduce the harmful effects, meaning that performance suffers less and participation increases.

Because women face discrimination in the workplace, the next question was whether women face discrimination in the technical communication before they even enter the field. To help answer this question, Mary-Ellen Cummings and Isabelle Thompson look at the role of gender in empowerment in the technical writing class. The purpose of their research was to determine whether the sexism that is found in the technical communication industry is also found in the technical writing classroom. This observational report focuses on the workings of one group in a technical writing classroom. The team consists of one woman and three men. This research shows how the woman was chosen as the leader of the group. It also looked at how this group acted opposite from what research expected to happen. For example, the report shows that the female became the leader because she was the only female in the group. One male group member says, “Everyone pretty much let her because of her being female

and she would kinda shoot ideas down and rewrite stuff in the paper the way she wanted it to sound. So things were better letting her have the rope” (Cummings and Thompson 6-7). The female group member was “pleasantly surprised” by her experience in this group as she expected resistance to her ideas as the group leader; as a result, the female group member said she would pursue leadership roles in the future (Cummings and Thompson 7). It also challenged the role of women as natural collaborators as this group’s primary mode of collaboration was hierarchal. Cummings and Thompson also analyzed group recordings and looked for instances where the female leader found herself in a double bind, meaning that a strong woman is considered unfeminine, and a feminine woman is not strong. This research showed the female leader of this group did not experience this double bind and was successful in a situation that feminist research would have theorized her failure. In addition, the men in the group deferred to her because they recognized her as the group leader.

Another aspect of women and technical writing is in sexist language used in written communication. Phyllis R. Randall looks at sexist language in speech communication texts. She notes that her examination of the texts show that the writers worked hard to avoid “sex role stereotypes” and that the inclusion of sexist language is based on unawareness of sexist language being used (Randall 128). Some of these cases are the use of “mankind”, “policeman”, and “cleaning lady” (Randall 129). Some writers did not consider “mankind” sexist because they believe it refers to both men and women. She notes that one way to explain the addition of sexist language is that it is not important to the writers. Another explanation provided for the use of sexist language is that the writers may not believe that changing language (meaning not using sexist

words) would have a societal affect. Both these explanations reinforce the need for a feminist perspective in technical writing classrooms and research. If this perspective were present, technical writers would understand the societal aspect of their writing and the harm that using sexist language, whether it is intentional, does.

Recognizing sexist language is affected by the culture we each inhabit. Penelope Eckert and Sally McConnell-Ginet look at how gender and language intersect in “Think Practically and Look Locally: Language and Gender as Community- Based Practice.” In their article, they look at the power relationships in relation to gender and language to determine if language was used to exert power in gender relationships. These authors looked at gender and language in a variety of contexts but could not come up with “a coherent view of the interaction of gender and language” (Eckert and McConnell-Ginet 484). They observed that the way gender is used varies by culture and sub-cultures within the dominant culture and is affected by categories such as class, age, and race. They cautioned on generalizations without a deep understanding of the community being studied. Eckert and McConnell-Ginet’s research is wide reaching and looks at gender in different communities and regions in the United States and abroad. The main point is when looking at sexism and discrimination, it is important to be aware of how our own worldview affects what we see, thus researchers need to look at a community in its entirety.

In understanding women’s current experiences in technical communication, it is important to look at the history of women in this industry. This is what Katherine Durack does in her article “Gender, Technology, and the History of Technical Communication” where she looks at the absence of women in the history of technical communication.

One point she brings up is that “women’s work has long escaped the notice of historians” (Durack 251). She notes two assumptions as to why women have been absent from the history: (1) women have not been significant contributors of science and technology and (2) women’s tools are not technical enough for study. Durack disproves these assumptions. She provides a list of women’s technological achievements. This goes against gender stereotypes that women are not inventors and technicians. In terms of the tools women’s use, Durack writes that the household is a place where technology is used. The awareness of this highlights that technology is used by both women and men. Understanding that technology used at home is just as important as technology used in the workforce equalizes the significance of both types of technology. It also goes against beliefs that some women and men have of women not being good with technology. Durack concludes that for women to be included in the history of technical communication the divide between “public and private, household and industry, and masculine and feminine labor” needs to be severed (257).

Although women were absent from the history of technical communication, this does not mean they did not work in the field. Monica Madaus discusses how gender shaped communication in health and safety publications in “Women’s Role in Creating the Field of Health and Safety Communication.” According to Madaus, women were able to work in this aspect of technical writing because of the view that caring for others was part of a woman’s job. Women who entered this field brought an “ethical perspective to the workplace” (Madaus 274). This research shows women have made tremendous contributions as leaders and creators to the technical communications industry of health and safety. It also shows that women’s way of seeing the world

brought ethics into the field of health and safety communication. Despite the achievements of women in health and safety communications, this paper shows that women worked in this field because it fit with gender stereotypes of women as nurturing and caring.

How do Women Establish Authority in the Technical Writing Workplace?

When it comes to gender discrimination, there is a question as to whether women can establish authority as content experts in technical communication. Jo Allen discusses how women establish authority in technical communication documents in “Women and Authority in Business/Technical Communication Scholarship: An Analysis of Writing Features, Methods, and Strategies.” Allen looks at how women establish authority in the context of the need for authority in technical and business writing juxtaposed with the way women use language in communication. Some characteristics of women’s language include hedging words such as might, would, could, and possibly. At first, it might appear that these words indicate a lack of authority; however, at closer glance, the opposite is true. The use of hedging words is used to indicate a conciseness in the writing. For example, a woman may write, “Washing this thermos in the dishwasher might result in damage to the exterior.” The use of might in this context indicates a possibility not a definite occurrence. This is one way in which a female writer uses hedging words to provide information to a reader. In looking at women’s writing in the technical communication field, Allen notes that some of the writing falls “within traditional, standard patriarchal guidelines for establishing authority, particularly in

academic communication” (Allen 286). Although other characteristics of women’s writing does not fall within these guidelines, authority is still established.

Another aspect of gender and technical writing is audience awareness. Deborah Bosley looks at how the male and female technical writers connect to their audience in “Feminist Theory, Audience Analysis, and Verbal and Visual Representation in a Technical Communication Writing Task.” Bosley notes the need for audience awareness when it comes to technical documents because instructions and other written materials are meant to be used. This analysis consists of factors related to the gender such as attempting to connect information, establishing context, and overall attention to audience. The result was that most instructions showed no significant differences, meaning that women show no greater ability to connect to the audience than men. This is noteworthy because current psychological theory is that women are “more concerned with self-in-relationship and interdependence” (Bosley 302), which could lead to the conclusion women are, thus, better at connecting with an audience. Because of the difference between what Bosley found and what current psychological theory would have predicted, she concludes that more research needs to be done on gender and technical communication and poses the question as to whether research needs to include a historical and cultural perspective. Research so far shows that a historical and cultural perspective is necessary as culture changes and childhood shaping of gender roles changes, too, which then affects the way technical communicators connect with their audience.

Women as the Catalyst of Change the Technical Communication Workplace

Although women face discrimination in the technical communication workplace, they are also actively pushing for improvements in the way women are treated. Emily Peterson's research based on interviews with women in technical communication adds another layer to what occurs in the field. This is important because the numbers alone give one perspective of women in the technical communication workplace; interviews give another perspective that may not be easily translated into numbers. Peterson explains her own difficult work experiences in the technical communication workplace including sexual harassment, less pay than male co-workers, and lack of female co-workers and mentors. This resulted in her leaving the field and then looking back to see how women who entered the field fared once she left. She wondered whether women remained in the field, and if they remained, what changes did they make and had the field changed to accommodate women. Peterson interviewed 39 women who detailed negative workplace experiences because of power imbalances. These women did not accept the experiences or allow them to continue; instead, they worked within the power structure to change it to accommodate their needs. This included working remotely once they had established themselves in the field. Other women joined committees in which they could work with people who had the power to make changes. They also advocated for pay raises. To remain in the industry, these women used different methods to maneuver around situations or turn a situation around to their own benefit. Peterson's research shows that the women advocated for themselves for the changes that they wanted to occur. If these women had not advocated on behalf of themselves and other

women, they may have left the field. This research also shows it was women who had to push for change that may not have occurred otherwise.

Conclusion

This paper was an overview of research of women and issues related to women in technical communication. There isn't a lot of research, but the research shows that women are present in the field, and that women have made an impact on the field and will continue to make an impact in the field. It is also hopeful research in that although women face discrimination in the industry, women are in the forefront of advocating for changes in the field.

The research also shows a continued need for current research on women in technical communication. This additional research needs to look at the percentage of women working in the field and the issues that women continue to face in the field. It also needs to look at the positive changes that have occurred in the field that mimic societal changes. As this paper shows, it is through looking at what is going on in the field, that problems can be addressed and improvements can occur that benefit technical communicators and their audience.

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