TECHNICAL COMMUNICATION
STC 2021 SUMMIT
CONFERENCE & EXPO

Proceedings

SOCIETY FOR TECHNICAL COMMUNICATION

5-9 JUNE 2021

#STC21

www.stc.org

summit.stc.org

3251 Old Lee Highway, Suite 406
Fairfax, VA 22030 USA
+1.703.522.4114
www.stc.org

Design and layout by Avon J. Murphy, Murphy Editing and Writing Services

TECHNICAL COMMUNICATION STC 2021 SUMMIT CONFERENCE & EXPO

Table of Contents

2021 Society for Technical Communication Summit

Overview

The 2021 Technical Communication Summit takes place 5–9 June as a virtual conference. This 68th annual Summit offers more than 100 education sessions over five days with topics covering all aspects of technical writing, editing, graphic design, information design, usability, project management, and publication production. Practitioners, professors, researchers, and students at all levels of experience convene to learn from expert presenters and from each other.

Conference Committee

The Conference Committee builds the conference program by managing the call for proposals, reviewing the proposals, and selecting speakers who can present information on a wide variety of topics of interest to attendees.

Cindy Currie

Conference Co-Chair

Management, Leadership, and Career Development Track Manager

Aiessa Moyna

Conference Co-Chair

Content Design and Delivery Track Manager

Jane Wilson

Conference Co-Chair

Tools and Technologies Track Manager

Carolyn Klinger

Volunteer Manager

Nathaniel Lim

Attendee Outreach Manager

Carrie Sheaffer

Speaker Manager

Becky Todd

Publicity Manager

"Information Architecture? In *My* Content?": What You Need to Know About IA

Josh Anderson and Peihong Zhu

For a practice that is about "making the complex clear," information architecture (IA) remains notoriously hard to define. What is IA and why should technical communicators care? As it turns out, information architecture provides the structure you need to prepare your content to be found and understood by not only your users, but also search crawlers and machine learning algorithms. Technology is driving change to how we structure content. Your organization will need to adapt. However, the move toward structured content does not need to begin as an enterprise-wide endeavor. IA provides methods and tools that can help technical communicators improve their content today, while better preparing their content for tomorrow's emerging technologies. We use concrete examples and a real-world case study to illustrate the benefits IA can bring to content creation.

Information architecture (IA) provides the structure technical communicators need in order to prepare their content to be found and understood by both human readers as well as search crawlers, machine learning algorithms, and other technologies. IA provides methods and tools that can help technical communicators improve their content today, while better preparing their content for tomorrow's emerging technologies.

Introduction to Information Architecture

Throughout the decades, the phrase "information architecture" has been used by different groups of professionals to describe distinct—but related—practices relating to the organization of information. Richard Saul Wurman, the man who coined the phrase in 1975, meant it in the sense of information design. His goal was to "make the complex clear" through infographics, diagrams, and creative two-dimensional page layouts.

With the publication of *Information Architecture for the World Wide Web* by Peter Morville and Louis Rosenfeld in 1998, "information architecture" became a way to apply the lessons of library science to the nascent World Wide Web. The focus was on improving the labeling, navigation, search, and findability of content on websites.

The scope of the practice of information architecture has steadily expanded since the 2010s, beginning with the publication of *Pervasive Information Architecture* by Andrea Resmini and Luca Rosati in 2011. Now that digital experiences take place across multiple devices and contexts, information architects play close attention to how language and design can be used to create a coherent sense of "place" for users even as they move from screen to screen.

Two Approaches to Information Architecture

Information architecture connects users to the content they need. This can be done by, for example, organizing the content on a website or app under intuitive navigation schemes. It can also be done by embedding structure and semantics directly into the content itself with code (often an XML standard such as DITA) so that the content can more readily be accessed. Generally speaking, user experience designers will focus on the first approach, and technical communicators will focus on the latter approach. That being said, both approaches are necessary to build a complete and coherent information architecture.

How Information Architecture Concerns Technical Communicators

Information architecture has implications for the way technical communicators write, the tools they use, and the audiences they reach. Writing should be topic-based and modular so that content can be reused and personalized as the audience or context requires. General-purpose writing software such as Microsoft Word will prove less useful than something like Oxygen XML Editor, a powerful tool that gives writers much better insight into the code-level structure and semantics of their content. Before hammering out the structure and semantics of their content, however, technical communicators will want to reevaluate the audiences for whom they are writing, especially since the transformed content will end up reaching new delivery channels and devices.

Getting Started with Information Architecture

Practicing information architecture begins with understanding your domain and the needs of your business and users. Once you understand what needs to be written, for whom, and why, you will want to write your content not in terms of "pages" but in terms of "chunks" that can be reused across all of your outputs. For now, take a look at the content you already have and create a content inventory. This will allow you to find patterns, recognize which pieces need updating (or deleting), and identify opportunities for reuse or chunking.

Case Study

The side-by-side comparison image seen in Figure 1 demonstrates how technical communicators at Precision Content Authoring Solutions Inc. were able to transform content to great effect. It is not so much that the technical communicators "added" information architecture; all content has some sort of inherent information architecture, whether it was designed purposefully or not. But by strategically and creatively re-organizing the information, the technical communicators were able to build an improved experience for readers.

In the image on the left, the content is dense and complex. The language is inconsistent and confusing. It is difficult for readers to scan and quickly make sense of the information.

In the image on the right, the content has been transformed. There is a clear and direct structure, superfluous words have been eliminated, and the added labels and visual elements make the information much easier to parse and understand.

Information architecture is not merely editing; it identifies, labels, and organizes the structure behind the words. Without a full view of the underlying code, it may not be apparent, but in addition to being more easily readable by humans, the content is also now more easily readable by machines because of the semantics associated with the text. These semantics will help algorithms make sense of the content and thus enable the algorithms to leverage the content in exciting ways today and far into the future.

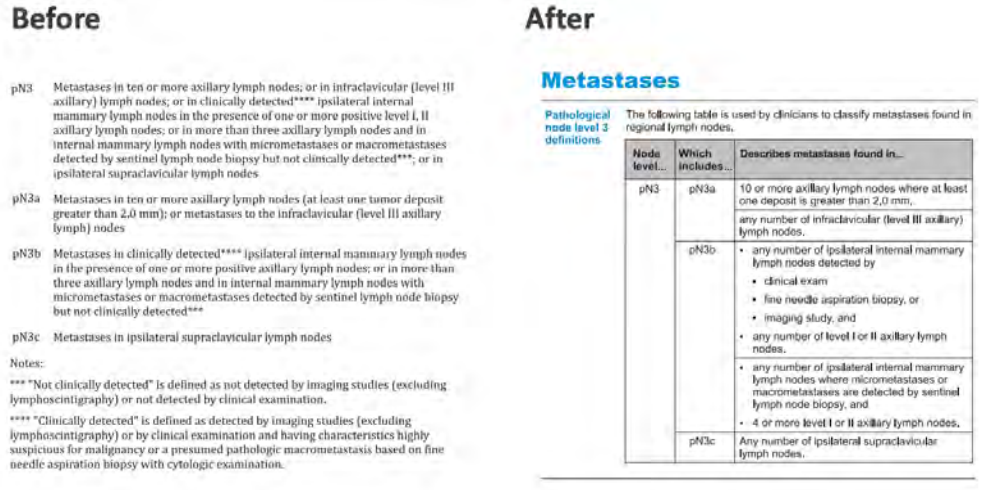


Figure 1. Content before and after its transformation

Conclusion

Information architecture is a deep and fascinating discipline that is highly relevant to any technical communicator who wants to ensure their content can be easily understood, used, and enjoyed by anyone—humans and machines alike.

Resources

Hanna, R., & Meyer, L. (2014, May 8). Transforming the application of cancer staging with intelligent content. Intelligent Content Conference, San Francisco, California.

Resmini, A., & Rosati, L. (2011). *Pervasive Information Architecture: Designing Cross-Channel User Experiences*. Elsevier.

Rosenfeld, L., & Morville, P. (1998). *Information Architecture for the World Wide Web*. O'Reilly & Associates.

Wurman, R. S. (1996). *Information Architects*. Graphis Press Corp.

Author Contact Information

Josh Anderson
Associate Information Architect
Precision Content Authoring Solutions Inc.
180 John St 6th Floor
Toronto, Ontario M5T 1X5
Josh@precisioncontent.com
(437) 703-2780

Peihong Zhu
Associate Information Architect
Precision Content Authoring Solutions Inc.
180 John St 6th Floor
Toronto, Ontario M5T 1X5
Peihong@precisioncontent.com
(437) 703-2779

Author Biographies

Josh Anderson is an American-Canadian Associate Information Architect at Precision Content. He analyzes and structures content to reveal the insights that come from the creative organization of information. Josh was an English teacher in Japan and an SEO Specialist in the Chicagoland area before earning a Master of Information at the University of Toronto. In 2020, Josh co-organized and hosted a World IA Day event at the Shopify office in downtown Toronto. In his free time, Josh creates and listens to a wide variety of music.

Peihong Zhu is an Associate Information Architect at Precision Content Authoring Solutions Inc, a technical writer, and a member of the Society for Technical Communication. With previous work experience in life science and bioinformatics, she has intimate knowledge about scientific research, the pharmaceutical industry, and the software industry. Armed with years of experience in researching, organizing, and analyzing information, as well as formal training in DITA, user experience research, and technical writing, Peihong is passionate about using her skills to communicate the importance of information architecture.

Bridging Products, Portals, and Content Gaps with Learning Maps

Tyrin Avery and Erin Wagner Tidwell

Your company allows customers to do complex, amazing things. But your customers struggle to do them in a complex information landscape—one with multiple information products, portals, and content types. How can you help them find what they need, without forcing them to trudge through massive amounts of content or invent the world's wittiest Google searches? Learning maps help by guiding customers using best-in-class curated links to achieve real business value.

What's a Learning Map?

Salesforce learning maps are single-page web apps that bridge the information gaps between separate portals or products. Learning maps present an interactive multimedia experience that integrates training courses, videos, traditional help topics and more. Learning maps let writers create an interactive multimedia experience that integrates training courses, videos, and traditional help topics to guide customers on a learning journey. They're very flexible—content owners have the freedom to adjust their learning maps to set the right content strategy for their audience, purpose, and team.

Learning Maps as Solution

Some of the problems you need to solve might look like this:

- Doc, videos, blogs, training courses, and other documentation live in separate portals, even if they're about the same product
- Customers don't have an overview of all the tasks they need to do
- New acquisitions have content in different portals, and customers don't know where to look
- Customers in different roles get their information from different sites

Technical writers at Salesforce developed learning maps to solve these and other problems.

Bring Together Multiple Portals

Learning maps let you pull together resources from across different portals into one seamless interface. The Customer 360 Data Manager learning map (Figure 1) aggregates a collection of documentation from inside multiple Salesforce repositories and links to handy open-source documentation to give customers the right resources without overwhelming them.

Encourage Product Adoption

The Journey to Lightning Experience learning map (Figure 2) helps customers manage the huge transition between the classic Salesforce interface and modernized Lightning Experience interface—a huge project for companies with customized implementations. It breaks down transitioning tasks into three phases—Discover, Roll Out, and Optimize—then breaks down each phase into ordered steps. The structure of the map makes it easier for customers to understand everything they need to do for a successful transition, and tackle the tasks one at a time.

Enable Complex Implementation

The Salesforce Shield learning map (Figure 3) helps customers tackle the thorny landscape of data security with Salesforce Shield. Every customer wants better data security, but actually understanding how to get it working is a huge and complicated task. The resources on this learning map are arranged to help Salesforce administrators focus on one aspect of data security at a time.

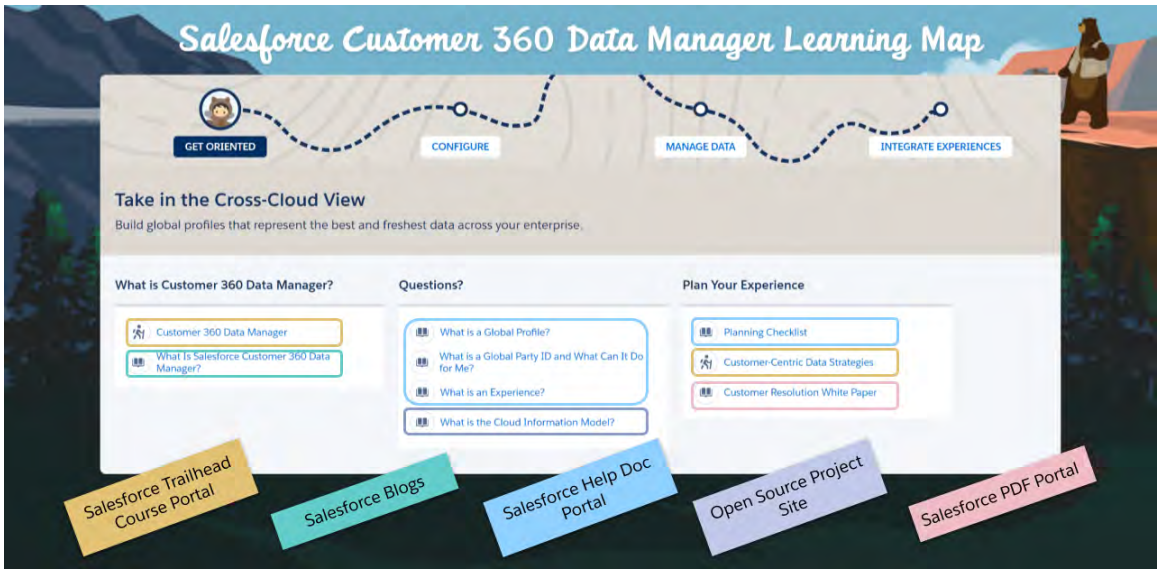


Figure 1. The Customer 360 Data Manager learning map

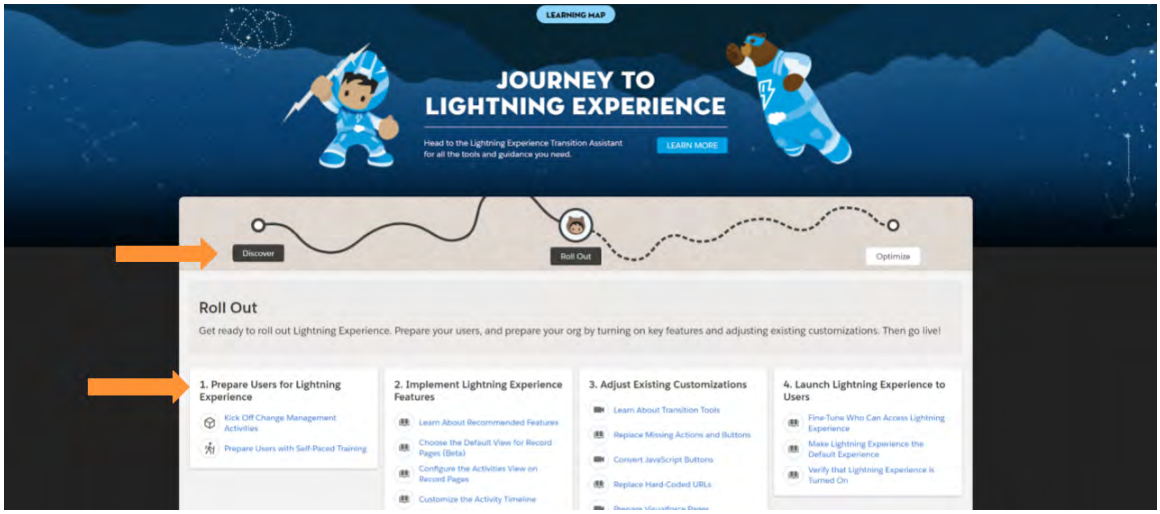


Figure 2. The Journey to Lightning Experience learning map

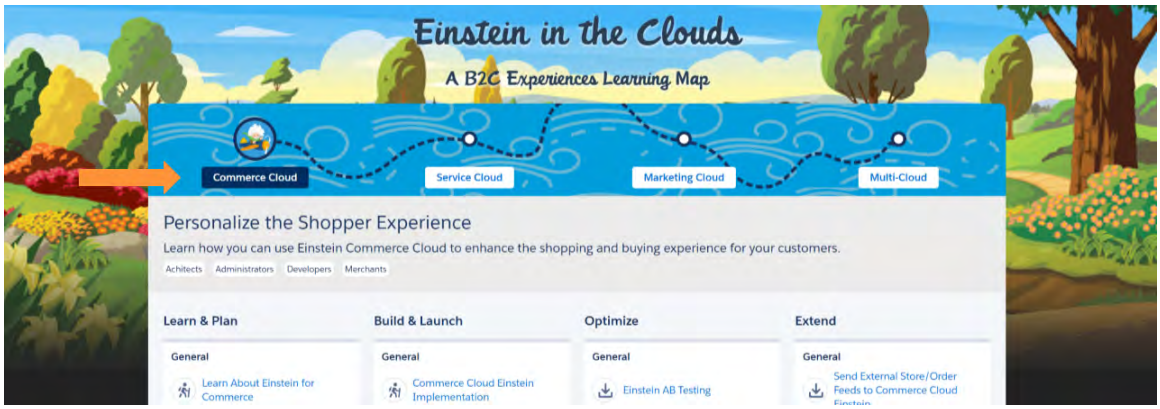


Figure 3. The Salesforce Shield learning map

Organize Resources for Multi-Platform Products

Salesforce products are typically organized into groups called Clouds. Customers may buy service in just one cloud, or across several clouds. The Einstein in the Cloud learning map (Figure 4) organizes project resources by cloud, so customers can quickly locate the right documentation for the clouds they've purchased.

Perform Complex Tasks Across Multiple Roles

The Customer 360 Guide for Retail learning map (Figure 5) helps customers in the retail industry navigate the complexities of implementing complex cross-platform use cases. Its content brings together information for every phase of the project, from getting executives on board with inspirational customer stories and high-level diagrams, to understanding Salesforce's architecture, to providing guidance on recommended solutions. Resources are organized into phases, with customer roles involved in each phase stated up front.

Learning Map Content Strategy

Content strategy is the secret sauce of learning maps. Developing a content strategy also helps technical writers better understand their customer, discover the resources your organization has, build alliances, and identify where new content is needed.

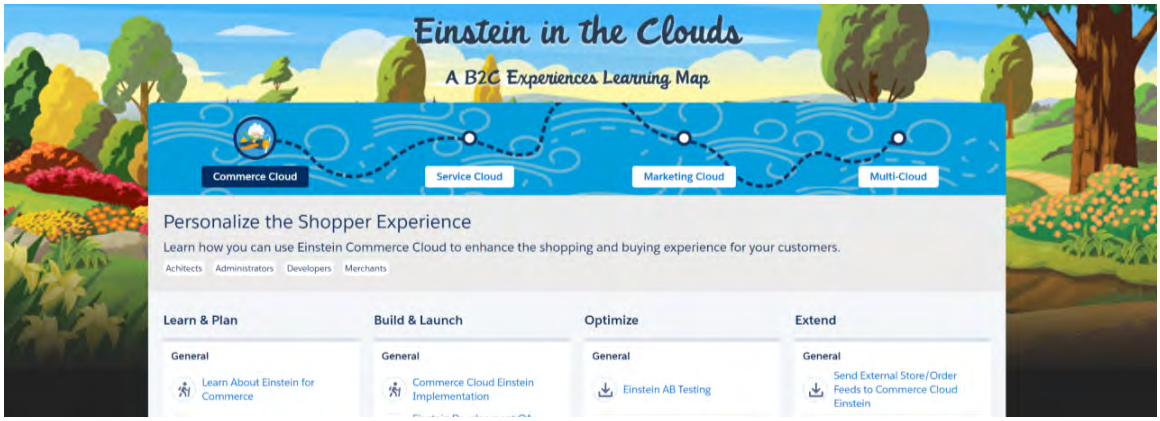


Figure 4. The Einstein in the CloudlLearning map

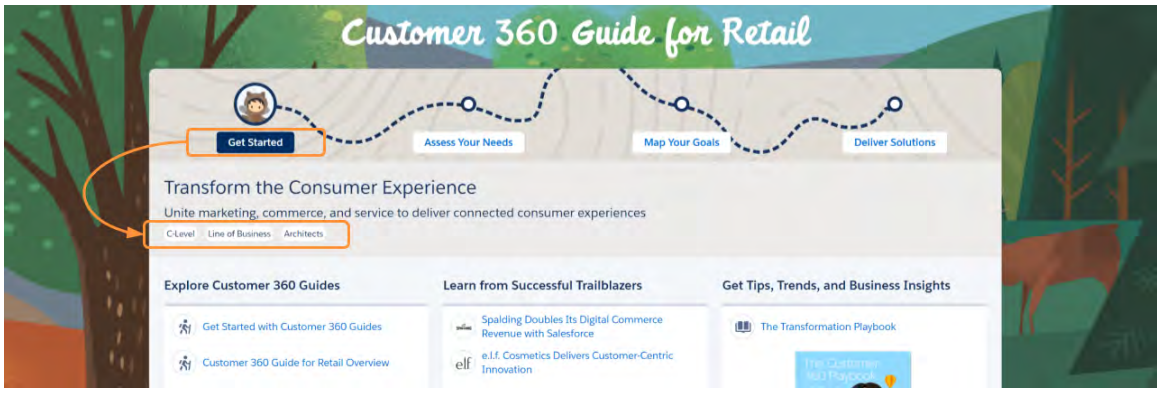


Figure 5. The Customer 360 Guide for Retail learning map

Understand the Customer

Audience. The first question to consider is who is using your learning map. What roles are involved? What skills are required? Will your content serve administrators, developers, analysts, architects, or a combination of roles? Will they be working alone or as a team? What kind of content are they looking for--a video, a cheat sheet?

For complex tasks, that span roles or products, it can be important to identify when someone is undertaking tasks they aren't familiar with or need to communicate with other roles.

Journey. Consider the customer's journey from, from developing basic understanding to achieving their goals. What tasks do customers need to complete to succeed? Having a complete and detailed idea of all the jobs to be done from setup to successful implementation is key to identifying gaps in existing content.

Consider these additional questions: What obstacles do your customers face? Are there places where they're having trouble adopting the product or feature? Do they need to complete any training courses or build a team to be successful? What products, platforms, and APIs do the customers need to put together?

Business value. A learning map helps customers complete a task that's important to their business. Technical writers creating learning maps need to have a clear understanding of what constitutes success for their customer and how the customer determines their own success. Customers need to know what metrics are useful in evaluating their own progress and how to iterate to optimize business value.

Form a Working Group

The most successful learning maps were constructed using working groups. In these groups, technical writers took the lead, creating groups who could help them find the best resources and align across the organization.

When forming a working group, look for members from different roles. For example, product management can help identify customer needs and feedback. User experience often has industry knowledge and research. Marketing can help identify key business value for your customer, accessibility experts can provide guidance on making your map available to more customers. Subject matter experts can help tease out areas of a task that might not be obvious. Not every work group is going to have all of these areas of expertise, but all of these kinds of contributors add value to maps, helping writers uncover resources they didn't know existed, and aligning groups on what customers need.

Content Design and Mockup

After the group has identified content that customers need, it's time to hash out the structure of the learning map. Learning maps are flexible content repositories, but they all follow a similar structure.

- Three to five major content groupings which form "pages" on the learning map
- Three levels of content: major grouping, content grouping, and content item
- Limited amounts of content so that customers can zero in on the best resources

Creating a mockup of some kind helps you decide how to arrange your content. Mind maps can be useful to understand your content and create clear groups. Mockups on slides can help collaborators envision the final product. A spreadsheet or table lets writers arrange content into groups while easily recording titles, text, and URLs to link to. Any of these systems are flexible enough to let writers and working groups see their creation as it begins to come together.

Part of the appeal of learning maps is the highly visual nature of the type of content aggregation. When planning a learning map, writers can add visual interest and handy in-page content with extra features.

- Embedded images add visual appeal and give viewers a preview of where links will take them
- Embedded videos give customers the opportunity to watch without leaving the page
- Pop-out modals let customers view images or videos at a larger size, or click to see blocks of text on the page.
- Customized column arrangements fit the map to the information it holds. Each page can fit up to four columns horizontally. When using two or three columns, writers can choose to make the columns evenly sized, or make one column wider.

Learning Map Technology

Learning maps are single-page node.js apps. They are composed of HTML, CSS, and JavaScript. While all learning maps start from a common code base, any map can be customized for a specific product or team. Design Guidelines are used to create guardrails for customization. Version control is managed using Git. Most learning maps are published on the Heroku platform.

Learning maps are made accessible to dozens of technical writers who have all levels of technical ability through the use of a map template and comprehensive documentation. Our writers only need to set up the right tools, follow our step-by-step instructions, and understand a bit of HTML to publish a basic learning map. If a writer has experience with CSS, they can easily tweak colors, sizes, and graphics to make their learning map zing.

References

Avery, T., ed. (2019). Customer 360 Data Manager learning map. Salesforce.com. https://c360datamanagerlearningmap.com/

Barnard, M., ed. (2021, April). Einstein in the Clouds learning map. Salesforce.com. https://einstein-b2c-exp-salesforce.herokuapp.com/

Rahn, T., ed. (2019). Journey to Lightning Experience learning map. Salesforce.com. http://lightningtransitionlearningmap.com/

Schmiedeskamp, V., ed. (2020, July). Salesforce Shield learning map. Salesforce.com. https://shieldlearningmap.com/

Tidwell, E. W., ed. (2020, June). Customer 360 Guide for Retail learning map. Salesforce.com. https://retail-guide-salesforce.herokuapp.com/

Author Contact Information

Tyrin Avery
Lead Technical Writer
Salesforce
415 Mission Street, 3rd Floor
San Francisco, CA 94105
tvaery@salesforce.com

Erin Wagner Tidwell
Lead Technical Writer
Salesforce
929 108th Ave NE, St 1800
Bellevue, WA 98004
etidwell@salesforce.com

Author Biographies

For over twenty years, Tyrin Avery has created leading-edge documentation tool chain solutions and help systems. Among the first to build a DITA toolchain in 2004, she has continued to innovate new solutions for organizations of every size. The solutions Tyrin has created have sprung from her experiences and needs as a working writer. From being the sole writer at a startup to a principal writer working as part of a larger team, she's created documentation for financial modeling, data quality, and ecommerce software. Currently, as a lead writer for Salesforce, she is responsible for API documentation and supports multiple development teams. Tyrin created a template learning map that could be easily adopted and used by other technical writers in her organization.

Erin Wagner Tidwell is a lead technical writer and content strategist for Salesforce Customer 360 Guides. Her team helps customers navigate complex multi-cloud implementation with architectural resources, business analytics, cross-product solutions, and more. Erin re-created the original learning map as a responsive, mobile-friendly product. She is a certified usability analyst with a Master's degree in teaching. Prior to her joining Salesforce, her clients included the University of Washington, Microsoft, and F5 Networks.

precision content

INTRODUCING

Precision Content® Writer Training

Learn structured writing best practices proven to make content easier to use for both people and systems.

Preview the Introduction to Precision® Content Writing module at **pcas.info/eLearning-Intro**

INCLUDED

Self-Paced

Self-paced eLearning and access to our Learning Management System for 1-year

Learning Materials

Precision Content® Writer Training Standards Guide and Quick Reference Card

Community

6-week email support program with tips, tricks, and useful reminders

Exclusive Offer for STC Summit attendees

Register before June 30 and get 50% off the Fundamentals and Methods courses

Special Conference Price: $299 (Regular price $599)

Visit our booth to get your promo code

www.precisioncontent.com

User Research on a Lean to Zero Budget—Strategies and Tips

Laurel Beason and Zohra Mutabanna

When you think of persona development, card sort activities, usability tests, and other forms of user research, you are generally thinking large budgets and a team of usability specialists. However, if you are working for a small company on a lean budget, your avenues to conduct user research are either limited or next to nil. Also, getting buy-in from management may not be easy. In this case study, we share the creative journey that two technical writers embarked on to conduct user research to shape our content strategy, gain insights into search engine optimization (SEO), and enhance the overall user experience of our documentation.

Session Takeaways

- Tips for enlisting internal users when you do not have access to customers
- Guidelines for conducting user research on a limited budget and in a short time frame
- Strategies to develop personas, conduct card sorting activities, and run usability tests
- Advice for creating questions that solicit the feedback that you need

Background

Like other technology companies, our company wanted to move its print assets, mostly in the form of PDFs, to a website. We chose MadCap Flare as our authoring tool and content management system. The company's Word and FrameMaker files were imported into Flare for single-sourced documentation.

Within a few months of the launch, our audience started requesting the original PDFs because navigating the site had become a bigger challenge for them. We will refer to this version as Version 1.0.

Some of the critical issues with Version 1.0:

- Side navigation with a deeply nested TOC on the homepage made topics hard to find.
- Search did not yield the right results.
- Content models of topics were inconsistent.

The team worked on quick-fix solutions to resolve the issues, but it quickly became evident our current site needed a reassessment.

Requirements for Version 2.0

Following several brainstorming sessions, the team identified high-priority items that we considered requiring immediate fixes.

- Launching a new homepage to fix navigation issues
- Improving the findability of topics

We will call this new site Version 2.0.

We had ideas, of course, but our discussions quickly descended into frustration. We all voiced the same concern: Who were *we* to determine what our customers needed? We had brainstormed enough inside the team. It was time to look outside. We attempted a survey, but with no specific answers to the identified problems. We needed to do other types of research. We would have to determine how to do it without any budget and while keeping up with our regular job tasks.

Persona Development

Because one of our top concerns was "who are our users," our research efforts began with personas. Personas are "fictitious users you create based on your user research. Personas summarize your user research findings and provide a practical approach to understanding the requirements of your target audience and keeping user perspectives in mind" (Jahagirdar & Martin, 2010). In addition, a persona "fosters empathy for the specific users we are designing for" (Harley, 2106). Ideally, personas should arise from

interviews, site visits, surveys, and similar research methods. As Usability.gov (2013) recommends: "Remember, your personas are only as good as the research behind them." However, in our workplace, we didn't have access to users or abundant time for thorough research. Yet we believed that internal research could provide valuable information. Our colleagues surely had information about users; we needed to draw it out from them.

Based on our previous analysis, we started exploring two personas: Admin and User. Hoping to spark conversations, we posted two sheets of easel paper on a wall in our team's work area. Our questions were simple:

- Who is this person?
- What kind of company do they work for?
- What's their job title?
- What do they do with our product?
- Why do they do it?

When people stopped by to discuss projects or passed by on their way to the break room, we asked them to share their thoughts. As they talked, we encouraged them to pick up a marker and add bullet points. We received a windfall of information one day when the director of development visited our site. He was curious about the display and immediately saw the value. He talked with us for 30 minutes. We soon realized that the Admin section should be subdivided to depict additional roles. For example, one person planned and implemented the overall architecture for the product implementation. Another took responsibility for the content files and file organization. Soon we had three Admin personas, a developer persona, and an end-user persona. We drew a cartoon face on each sheet and added a name. With these additions, the posted sheets attracted more attention and spurred more conversations.

Although relying on internal resources for persona development is not the ideal, it is not uncommon in smaller organizations. *UX Magazine* (Gothelf, 2012) uses the term "proto-persona" to describe this technique. Rather than arising from user research, these personas are developed through brainstorming sessions in which "company participants try to encapsulate the organization's beliefs (based on their domain expertise and gut feeling) about who is using their product or service and what is motivating them to do so." Proto-personas can be "a starting point" and a way to create "some early design hypotheses." The *UX Magazine* illustration (Figure 1) from a proto-persona brainstorming session (Gothelf, 2012) is quite similar to the posters that we had on our wall. This illustration also helps you to see how low-tech and "zero budget" this approach can be.

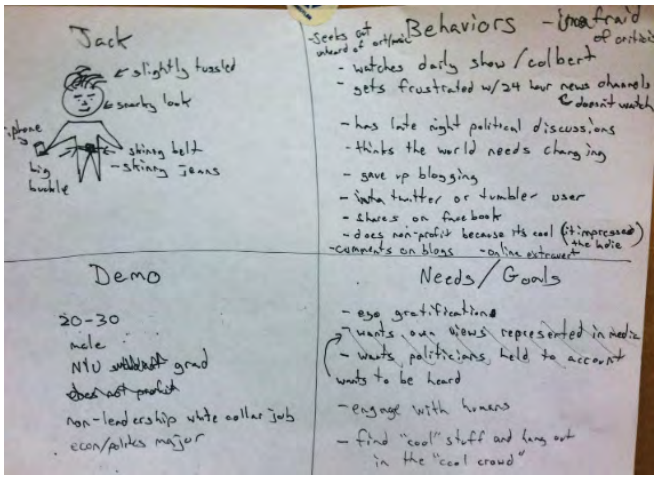


Figure 1. Proto-persona brainstorming session

We wrapped up this project by revising the character descriptions and adding a clipart image for each one. We made the personas official by adding them to our team's policies and procedures. Through the conversations that the personas had generated, we had gained a much clearer picture of our users. Our manager and others were so enthusiastic about the personas that they became the basis for product training. As writers, we began to apply the personas while gathering information from SMEs and writing our documentation. We also used them in our next research activity.

Persona-Guided Card-Sort Activity

While we were working on the personas, we also were designing our new help site. We had a rough idea of how it would look. We had seen other help sites with homepages that displayed "tiles" representing the high-level topic categories. The tiles were visually appealing, featuring colorful icons and short labels. When a user clicked on a tile, a topic list appeared. You can see an example of this design in MadCap Flare's "Silverado" template, illustrated in Figure 2. We liked the modern design and the single-page topic listings, which seemed better suited to help people find content, as compared to the rather complex, multi-level TOC navigation in our existing site. However, we could not agree on the taxonomy. Some of us wanted a task-based approach (Install, Secure, and so on), and others wanted a product-based approach (Component

A, Component B, and so on). We came back to our core doubts: Who were we to make these decisions? How could we know if our ideas would work for the users?

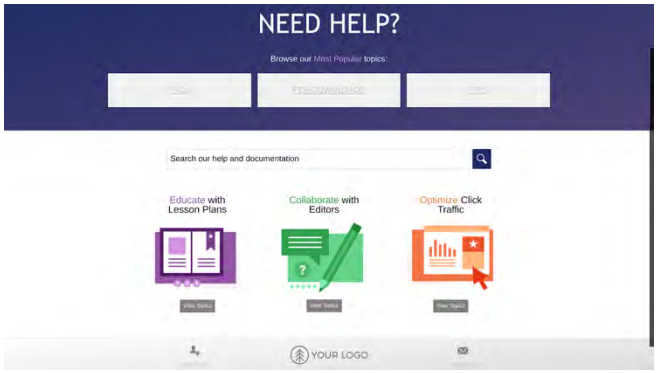


Figure 2. MadCap Flare's "Silverado" template

Continuing to rely on internal participants, we recruited colleagues from the Support and Implementation teams. They would serve as good stand-ins because they worked directly with the users when they needed help—and our main interest was the users' help needs. We also would leverage the personas to act as user stand-ins, in a sense. We decided to do a card sort activity, with the goal of seeing which category "tiles" would be needed to accommodate the topics that these users need help with.

We devised this agenda for the 90-minute session:

1. Introduce the purpose: We need their insights about users so that we can design a better help site.
2. Introduce the idea of personas: Personas represent our users, based on their roles and their job tasks with our product.
3. Display three sheets of easel paper, each blank except for the category label (Installation, Security, Configuration), plus one sheet labeled with a question mark (for topics that did not fit the other categories).
4. Brainstorming
    - Present a persona (one per round).
    - Hand out sticky notes and allow three minutes for the participants to jot down questions and problems that this person typically needs help with.
    - Ask the participants to place each sticky note in a category, or on the question mark page if no category seemed to fit.
    - Discuss each sticky note to elicit further details.
    - Discuss the sticky notes on the page with the question mark and see if any new category labels emerge.
    - Try to draw out additional topics from the discussion, and add new sticky notes.
    - Repeat the process for the next persona.
5. Wrap up: What else would they like us to know?

Leading up to the session, our writers were somewhat nervous. Not only were we stepping outside our comfort zone, but we were also straying beyond our "silo" in the organization. However, from the beginning of the session, the participants were incredibly enthusiastic. They listened attentively to the persona descriptions and shared more details about the users. They eagerly filled up their sticky notes and sorted them onto the sheets. The discussion periods were lively and generated even more topics. As several sticky notes ended up on the page with the question mark, we realized that we needed a category for Troubleshooting. We posted a new sheet and moved several topics over there. The discussion also revealed the need to add an API category for our developer persona.

We considered our card sort activity a success. We used the categories from this session to develop the new help site for the beta trials. As we added our content over the next few months, we found that the taxonomy aligned well with the topics that we needed to deliver. Yet lingering doubts remained. How could we know for sure if these categories would help people to find the information that they need?

Usability Testing

We decided to do usability testing. According to Usabiliy.gov, usability testing refers to evaluating a product or service by testing it with representative users. Typically, during a test, participants will try to complete typical tasks while observers watch, listen, and take notes. The goal is to identify any usability problems, collect qualitative and quantitative data, and determine the participant's satisfaction with the product.

Usability Testing Preparation

We focused on the following elements to prepare for the usability testing:

- **Version 2.0 of the website**: The team wanted to compare Version 1.0 and Version 2.0. The major difference between the two was their homepages; the underlying content was the same.
- **Test Script**: The script serves as a guide to the usability session; it directs the participant to conduct certain activities, prompts with questions, and generally shapes the conversation between moderator and participant (Nam, 2010). We used a general template and modified it for our purpose. We used specific and open-ended questions.

  Examples of specific questions:

  - What types of relational databases are supported in Product XYZ?
  - How do I change my own password?

  Examples of open-ended question

  - What do you expect to see in our product in the future?
  - What other feedback would you like to share?
- **Number of Test Participants**: We recruited five participants. The main argument for small tests is simply return on investment: testing costs increase with each additional study participant, yet the number of findings quickly reaches the point of diminishing returns. There's little additional benefit to running more than 5 people through the same study; ROI drops like a stone with a bigger N (Nielsen, 2012). It was easy for us to recruit participants and get a quick approval from our Manager. If we wanted to conduct more rounds of usability testing, this number was very manageable to recruit.
- **Profile of Test Participants**: Our participants were representative of our external customers:
  - Product analysts—Represent high-level admin and user roles. Our team worked closely with this group.
  - Implementation—Represent technical admins.
  - Support—Represent admin and user roles.

  As Usability.gov recommends, use your internal staff as participants only if…

  - They have had no involvement in the design or development of the site or product, and
  - They represent a target audience.
- **Format and Timing of the Test**: The test was limited to 30 minutes. Our objective was to spend the first 20 minutes conducting the test and the remaining time on open-ended questions. The timing was important to us, as we also had to fulfill our daily responsibilities.
- **Data Analysis**: Each session was recorded. After each session, the writers captured their observations in a shared document. Both the recording and the data helped us to compare our notes and discuss things later.

Usability Testing in Phases

The team decided to conduct the usability test in three phases: **Beta**, **Pilot**, and **Final**. If usability testing is conducted at several points along the development timeline, the possibility of finding major issues right before launch can be avoided (Lebson, C. 2012).

Beta Phase. For this phase, we ran a mock session to practice within the writing team. We conducted the mock session like we would run our test with the actual participants. This phase served as our template for the next two phases. Also, it allowed our team to get over any anxiety, validate our test script, and the format and timing of our test.

Pilot Phase. For this phase, we invited the product analysts. Since we worked frequently together, we felt comfortable conducting our pilot with them. Our objectives for the Pilot:

- Compare (A/B Test) Version 1.0 and Version 2.0. Although we were aware of the issues with Version 1.0, this was our opportunity to confirm in a test scenario.
- For Version 2.0, we wanted to test the new homepage with its navigation and the taxonomy with the new card layout.

Based on our findings, we made these changes at the end of the Pilot phase:

- The test confirmed the issues our users faced with Version 1.0. Our participants preferred performing test tasks using Version 2.0. For the

Final phase, the team decided to test only Version 2.0.

- We observed we had more meaningful insights when we asked open-ended questions. As a result, we changed the script to let the participant do the tasks naturally, rather than being told what to do.

Final Phase. For the Final phase, we invited participants from the Solutions Delivery and Support teams. Since we had run the mock session and the pilot, we were better prepared to conduct the last and formal phase of usability testing. Our objectives for the Final phase:

- Test only the updated Version 2.0 of the site.
- Observe participants do the tasks naturally like they would in their natural environments.

Our findings revealed, when left to their own methods, the participants exclusively used the search bar. **This was an important find for us.** All along, our entire focus had been on the cards and taxonomy of the new homepage. This phase also showed—the more experienced the participant—the more they used the search bar. Our site was meant to be used by both new and experienced users. The homepage with the cards and the taxonomy worked well for a new user. We had not paid much attention to the findability of content using the search bar. To improve search results, we researched search engine optimization (SEO) strategies. We added index keywords, descriptions, search phrases to headings, and microcontent (similar to Figure 3) to improve search results.

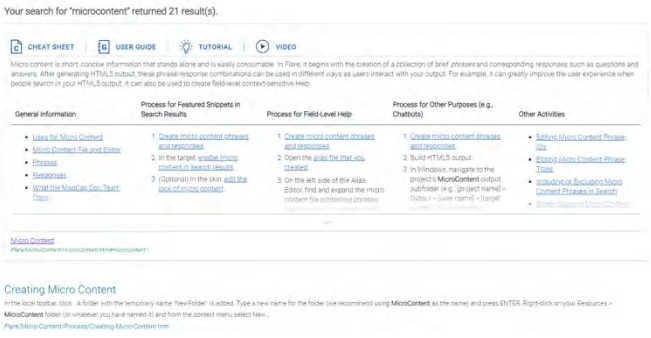


Figure 3. Added SEO elements

Conclusion

The entire process—from persona development to conducting the usability tests — gave the writers an opportunity to collaborate with team members from other departments. It allowed us to establish a dialog with the broader cross-functional teams for constructive feedback. As writers, we now had the opportunity for continuous improvement of the website.

Table 1 shows the total time we spent from persona development to running the usability tests:

User Research from Start to End	Time Taken (Hours)
Persona development	5
Card sorting	3
Beta phase	1
Pilot	2.5
Final	2.5
Recording the observations and reviewing after each session	3
Preparing the script	3
Total time taken (not per user)	20

Table 1. Time spent on user research

We completed the user research in about 20 hours (total time taken as a team) and without any budget. This was certainly a win-win for us. It is important to note not all users were spending time on preparing the script or revising the website after each phase. Overall, user research helped the team with consensus building, task prioritization, and focusing on a user-focused content strategy.

Recommendations

Although research might seem to be the realm of academics or colleagues with "researcher" in their job titles, fundamentally, it is about problem solving: "Research is a systematic approach to provide answers to questions, answers that may be abstract and general, as is often the case in basic research, or concrete and specific, as is often the case in applied research." (Spyridakis, 1992) As technical communicators, we often need to find "concrete and specific" answers to complex problems. When you have a lean-to-zero budget and other job duties that take priority, it is critical to take a "systematic approach" so that you can

make good use of your time and deliver actionable results.

We recommend these guiding principles:

- **Keep the scale small.** When research is not your primary job duty, small is exactly the right size for your research projects. And small-scale research can deliver solid information to support your decision-making. In fact, Jakob Nielsen (2000) strongly recommends small-scale studies: "The cost-benefit analysis of user testing provides the optimal ratio around 3 or 5 users."
- **Sharply define the purpose of your research activity**. "Focus your question as much as is possible at this point so that you have a clear notion of the answer your question will prompt and the value of that answer for addressing your workplace challenges." (Campbell, 1999) A well-focused research question helps you to determine the participants to recruit and the activities to use. It helps to ensure that you can manage the scope and duration of your small-scale project. In our case, each research activity answered the questions that we needed to address at that point in time. When new questions arose, we conducted additional research.
- **If you can't recruit customers, recruit stand-ins.** If the stand-ins have direct access to your customers or represent the critical characteristics of your target population, they can help you to gain valuable insights. A recent *Intercom* article recommends reaching out to colleagues in different roles and departments and "anyone who has voiced concerns about users struggling with the product" (Gay, 2020). Although you might be reluctant to approach busy co-workers, their own commitment to user success often will motivate them to get involved. In our case, we found that our colleagues were enthusiastic about the activities. Working with them helped to break down silos in our organization.
- **Actively involve the participants and use open-ended questions to draw out their insights and preferences**. Although much can be learned from interviews and surveys, we preferred to actively involve our participants: writing bullets on poster paper, generating and sorting topics, and searching for topics on our help site. "Observed behavior (watching what people do) has higher credibility than self-reports (having them tell you what they do)." (Hughes & Hayhoe, 2008, p. 79). With these activities, we learned much more than we had from a past survey.
- **Work as a team.** As a best practice, involve multiple people in designing the study, observing the participants, and interpreting the findings. These techniques improve the credibility and overall quality of qualitative research (Campbell, 1999, and Hughes & Hayhoe, 2008). From our standpoint, there was a practical benefit: We needed to involve our whole writing team because we needed consensus in order to move forward together, fully committed to the solutions that emerged.

Our team found it beneficial and empowering to do our own user research. If you are getting started on this path, we recommend exploring websites and publications that describe various activities and their respective benefits. Keeping with our "zero budget" theme, you can find useful information for free at Usability.gov and in the online *UX Magazine*. Don't forget the resources that are included in your STC membership: *Technical Communication* and *Intercom*. This guidance will help you to organize and focus your activities, to justify your plans to others, and to feel confident that your solutions are based on credible evidence.

References

Assistant Secretary for Public Affairs. (n.d.). Recruiting usability test participants. Retrieved 17 April 2021, from https://www.usability.gov/how-to-and-tools/methods/recruiting-usability-test-participants.html

Babich, N. (2021). User & usability testing questions: Ultimate guide. Retrieved 17 April 2021, from https://xd.adobe.com/ideas/process/user-testing/usability-testing-questions-tips-examples/

Campbell, K. S. (1999). Collecting information: Qualitative research methods for solving workplace problems. *Technical Communication, 46*(4), 532-545. Retrieved 7 March 2021, from http://www.jstor.org/stable/43090402

Card sorting. (2013, 9 October). Retrieved 7 March 2021, from https://www.usability.gov/how-to-and-tools/methods/card-sorting.html

Gay, L. D. (2020, 31 January). Let your users teach you: Document quality and usability testing. Retrieved 7 March 2021, from https://www.stc.org/intercom/2020/01/let-your-users-teach-you-document-quality-and-usability-testing

Gothelf, J. (2012, 1 May). Using proto-personas for Executive Alignment. Retrieved 7 March 2021, from https://uxmag.com/articles/using-proto-personas-for-executive-alignment

Harley, A. (2016, 15 February). Personas make users memorable for product team members. Retrieved 7 March 2021, from https://www.nngroup.com/articles/persona/

Hayhoe, G. F., & Hughes, M.A. (2008). *A Research Primer for Technical Communication Methods, Exemplars, and Analyses*. Routledge.

Heather, Nam (2010). Usability script and moderator's guide: 2 tools or 1? Communicating with study respondents, from https://uxpamagazine.org/usability_script_moderators_guide/

Jahagirdar, N., & Martin, A. J. (2010, 18 October). Using personas during design and documentation. Retrieved 7 March 2021, from https://www.uxmatters.com/mt/archives/2010/10/using-personas-during-design-and-documentation.php

Lanius, C., Weber, R., Spiegle, J., Robinson, J., & Potts, R. (2020, 30 October). Drawing on personas: How user personas affect creativity. Retrieved 7 March 2021, from https://www.stc.org/techcomm/2020/10/28/drawing-on-personas-how-user-personas-affect-creativity/

Lebson, Cory. Making usability a priority: Advocating for the value of user research, from https://www.stc.org/intercom/2012/11/making-usability-a-priority-advocating-for-the-value-of-user-research/

Nielsen, Jakob (2012, 3 June) How many test users in a usability study? from https://www.nngroup.com/articles/how-many-test-users/

Nielsen, Jakob. (2000, 18 March). Why you only need to test with 5 users. Retrieved 7 March 2021, from https://www.nngroup.com/articles/why-you-only-need-to-test-with-5-users/

Personas. (2013, 9 October). Retrieved 7 March 2021, from https://www.usability.gov/how-to-and-tools/methods/personas.html

Spyridakis, J. (1992). Conducting research in technical communication: The application of true experimental designs. *Technical Communication*, *39*(4), 607–624.

Usability testing. (n.d.). Retrieved 10 April 2021, from https://www.usability.gov/how-to-and-tools/methods/usability-testing.html

Author Biographies

Laurel Beason has more than 25 years of experience in technical communication. As a technical writer, she has conducted various user research activities, including surveys, interviews, site visits, focus groups, card sort activities, and usability tests.

Zohra Mutabanna has over 15 years as a technical writer. She has a Master's in Professional and Technical Communication and a Certificate in User Experience Design. She has worked with cross-functional teams on product research and discovery.

Architecting and Operating an Enterprise Content Supply Chain

Bill Burns and Kit Brown-Hoekstra, Fellow

Content silos are normal, natural, and unavoidable. They aren't going away—but they can be bridged with patterns and orchestration. Instead of centralizing content acquisition, we need to plan for a future in which content can move across channels and through supply chains in a fluid manner. [A] works with clients to develop novel architectures for these content supply chains. However, this process requires smooth transformations from point to point along the chain.

Building a modular, decoupled information system is not an isolated project. Systems fail without people and process integration, as well as change management. This paper traces the progression of capabilities needed to achieve an intelligent customer experience.

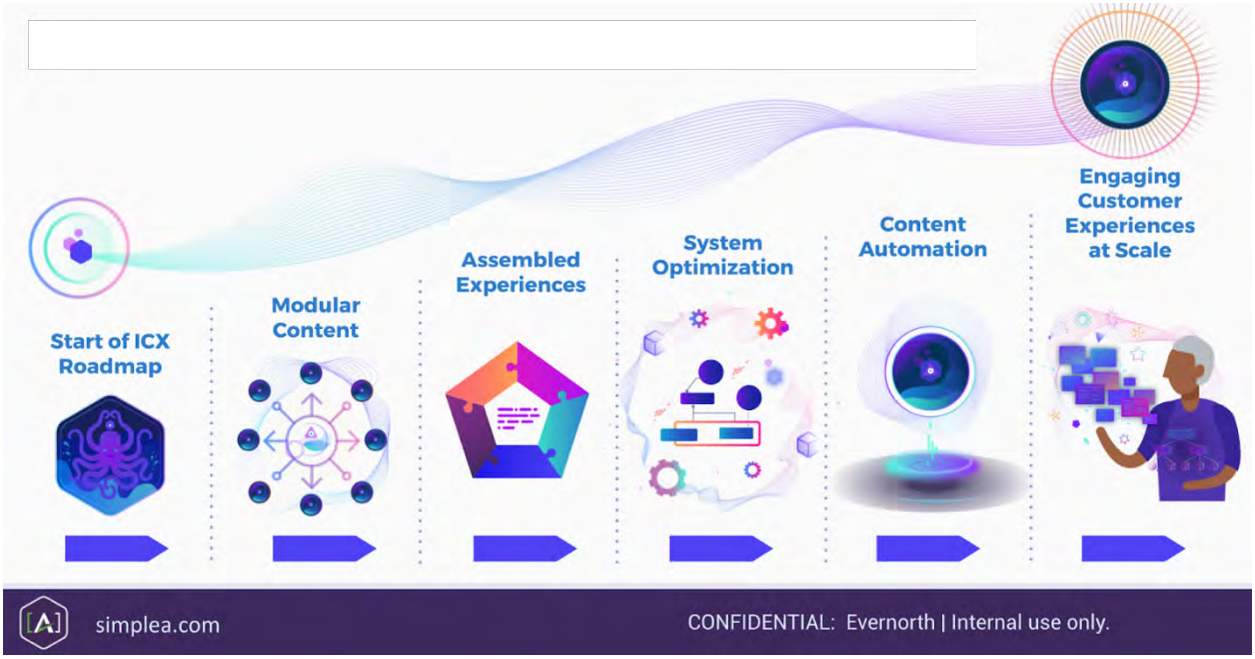


Figure 1. Road to intelligent customer experience (ICX)

Challenges of Acquiring Content

Multiple content teams across an enterprise frequently have their own systems and tools for creating and managing content, lack communication with (and in some cases, knowledge of) each other, and lack a common framework to support the content supply chain. The content itself is often unstructured or incompatibly structured, sourced using different tools, and not well-optimized for localization.

This lack of efficiency costs organizations money in the form of lost opportunities, brand dilution, duplication of effort, redundant tooling, lack of reuse, and friction at each point in the content supply chain. The problem becomes particularly apparent when small issues in the source content and processes are magnified exponentially during localization, reducing quality and significantly increasing costs.

Because these teams have different requirements and responsibilities (and no one wants to give up their shiny new tool), finding "one tool to rule them all" usually works only in theory. What does work is accommodating these disparate needs within a common, flexible framework that allows each team the autonomy needed to fulfill their mandate, while reducing friction in the supply chain and facilitating resource sharing when it makes sense to do so. Having a common, flexible framework has the added benefit of providing a more cohesive, consistent customer experience as well.

The Problem with Misaligned Content Models

Incompatible formats and structures don't happen only upstream where we acquire content. The tools that we just use to move content from one system to another often don't align either. What we capture from the author often has to be converted or transformed into some other state for systems downstream, whether that's a storage format like XML or a presentational format like HTML or JSON. Because organizations often do not coordinate content structure across departments, movement of content along a delivery pipeline often creates friction, if not outright blockage, to delivering on-demand content in a form appropriate to all channels. Without alignment of content models across the organization, transforms break and the flow of content stops dead.

Most companies do not coordinate content-modeling efforts among the various organizations and departments producing content across the enterprise. When the same channels are used to deliver content developed using separate content models (or worse, no content models), the content can look inconsistent and sloppy, and the effort to transform it for presentation can result in duplicate effort. Lack of consistent content structure also produces sub-optimal customer experiences across content sets and prevents intelligent customer experiences.

Somehow, we need to bridge silos and bring some central coordination to content-modeling efforts. We need to make content models a core asset in our organizations. We need a Core Content Model™.

Introducing the Core Content Model

The Core Content Model (see Figure 1) is [A]'s methodology for creating and maintaining a centralized content model that coordinates structured content development for an enterprise and then aligns all expressions or forms that structured content needs to take in all systems, through all transformations, and in all channels in that enterprise.

To develop this model, we identify all content types for the domain we're modeling. We begin with the abstract structure of the content types based on extensive content analysis. Considerations for presentation are set aside during this process so we can focus strictly on the content structure and semantics that will inform our model. We then step through each phase of the content delivery pipeline—content acquisition, management, publication, and delivery—and we determine how the expression of that content model looks for each stage. So, we might acquire content in some semantically rich form of XML markup, like DITA or DocBook, and that might also be the form in which we manage and maintain the content. We could also use form-based authoring interfaces that could be transformed into XML markup prior to import into a content management system. As long as we know how each of those elements maps to our content model, we can plan for transformation from one expression to another: DITA, HTML, Schema.org, or JSON. And that can work even if we're acquiring content from semi-structured forms like styled Microsoft Word docs or Markdown.

This Core Content Model becomes the means by which we orchestrate content transformation across our entire enterprise. So what we deliver to our channels is acquired, managed, and maintained consistently. Any changes to the model in one place can initiate updates in other places along the content delivery pipeline.

Architecture for Intelligent Customer Experiences

Content intelligence requires a more sophisticated content system architecture than traditional publishing processes provide. The more we cling to old methods and approaches for content delivery, the less agile our

content will be, and the less scalable the customer experience. What's more, we lose the opportunity to automate time-wasting manual processes that bog down content delivery.

We need systems that talk to each other. The Core Content Model gives us a common language and a Rosetta Stone to enable comprehension among systems and tooling, but if the systems and tools don't integrate and allow for hand-offs and transformations, we will be back to manually moving content from system to system and manually reformatting (read "cut and paste") to prepare content for different channels. Content intelligence requires intelligent system architectures.

One way that companies trap themselves into suboptimal experiences for authors and for intelligent content is by selecting systems that lock them into a particular vendor, in particular those systems in which authoring and content storage are tightly coupled. Many web and headless content management systems operate on this model. They give us few options for producing semantically rich structured content and often force authors into a one-size-fits-all approach. Often these systems do not provide the range of opportunities that companies need without integration with other tooling: personalization engines, master metadata management systems, and semantics platforms. And, on their own, they can't meet the needs of an omnichannel world. They're still delivering websites while the content delivery ecosystem has expanded to an omnichannel world.

We need to have appropriate component content management (CCMS) with decoupled authoring capabilities to allow content acquisition from numerous sources. We need workflow management, centralized collaborative review capability, reporting, and data analytics. A good CCMS can provide all of this. Several cloud-based CCMSs can be licensed on a subscription basis and provide a lower-cost entry point than some of the bigger customer experience platforms.

We also need to stop trying to manage translation the old-fashioned way. Translation memory is great technology, but if we're still manually managing localization projects, we can't scale. We need to integrate our CCMS with translation management systems, many of which have connectors for the more popular CCMSs. And again, several cloud-based solutions provide subscription offerings. We need to look seriously at delivering solutions based on Content as a Service (CaaS). Doing so enables channel developers to access content via RESTful or graph APIs and assemble them into experiences for their clients. And structure and semantics enable these personalized, on-demand experiences.

Figure 2 illustrates a theoretical content intelligence system architecture with the various components that it might entail. A live architecture might include different combinations of components and different configurations, but a mature architecture will address each of the stages along the content delivery pipeline to one degree or another. Scalable omnichannel delivery requires it.

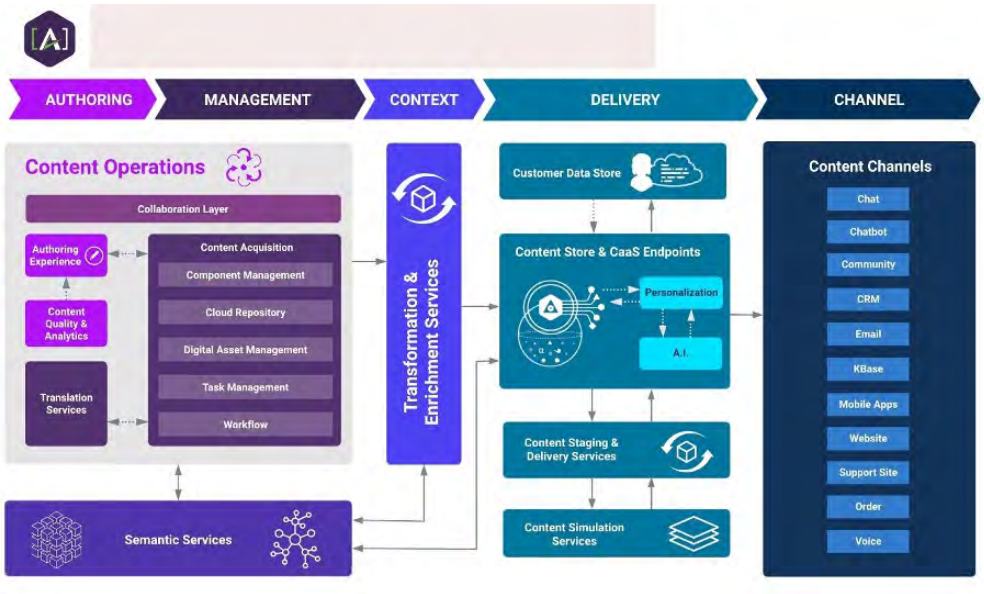


Figure 2. Theoretical Content Intelligence System Architecture

Aligning Organizations on a Single Content Vision

Even in organizations with C-level sponsorship and adequate budgets, the journey toward the intelligent customer experience is challenging and requires that the organization be committed to the following:

- **Change management:** The number one reason that big initiatives fail is poor change management. No amount of technology will solve people and process problems, particularly when we are asking teams to approach their work and each other in different ways than they are used to. Take a proactive, human-centered approach to managing the change, building on what's working and on the organization's strengths.
- **Enterprise content strategy:** To gain efficiency and alignment across the content organization, the teams need a shared vision of why they are doing this and what they are doing. Strategic planning for content needs to happen above the product team level, and often even above the business unit level. The shared vision, tied to organizational strategic goals, then drives the implementation across the organization. In large organizations, the content strategy team might set up advisory councils composed of key stakeholders to ensure that the content strategy stays on track.
- **Governance framework:** Lifecycle governance, a reuse strategy, semantics governance model, style guides, and an interoperability plan significantly reduce the issue of content incompatibility across the organization while strengthening the brand as well as improving quality and consistency of the customer experience.
- **Metrics that support clearly defined success criteria:** As the old adage goes, "If you can't measure it, it didn't happen." While it can be challenging to directly measure content outcomes, we need to clearly define success criteria and ensure that we collect metrics that show how well we meet those criteria. Without metrics, we have difficulty proving the value to the C-level and getting the funding we need to ensure that the content services organization can meet the demands of today and tomorrow.

Content strategy, operations, and engineering come together in the Content Orchestration Model (COM) to facilitate this alignment throughout the content supply chain and across each layer of activity needed to create quality content that meets the needs of our customers, wherever they live and work, and in whatever channel they come to us. The COM acts as a guidepost as we develop and maintain these complex systems. (See Figure 3.)

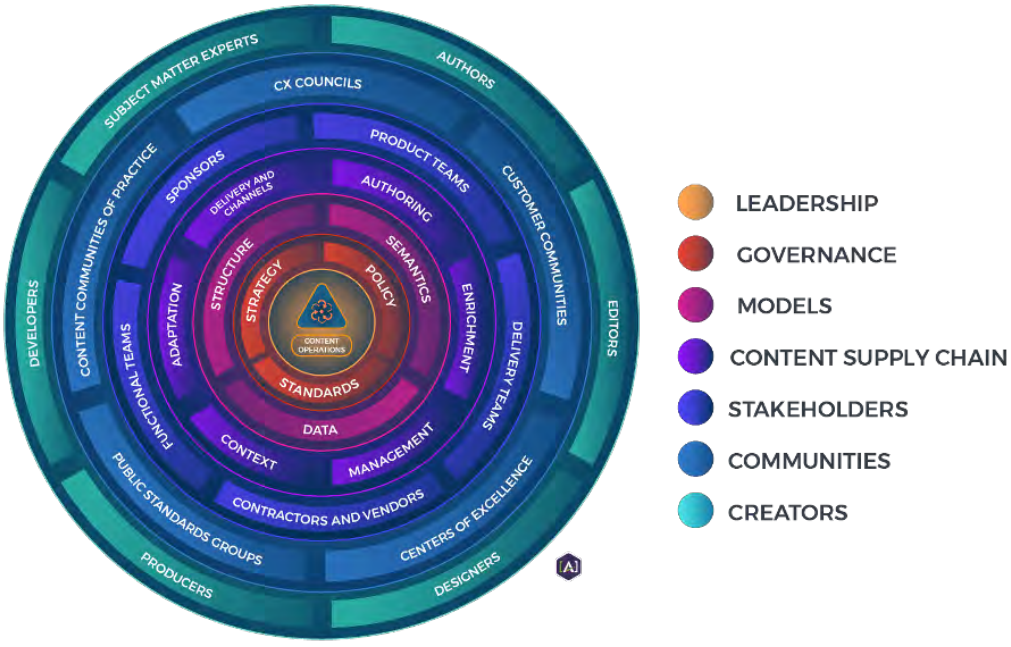


Figure 3. Content Orchestration Model (COM)

Conclusion

By taking a holistic approach to content systems, we can build strategies that lead to flexible frameworks for content engineering and operations, allowing content teams to work across silos to provide intelligent customer experiences. This is important because customers don't care what is happening inside an organization or how many different teams work on content. They see our organizations as a single entity and expect a consistent experience. Aligning content operations and engineering allows us to present a unified front and singular, intelligent experience.

Author Biographies

Bill Burns is an experienced content engineer and publishing consultant. He brings 27 years' experience in technical consulting and training, specializing in XML technologies, content management, XSL publishing processes, single-source process development, technical writing, and content internationalization. He presents regularly at national and international conferences, seminars, and other forums.

Kit Brown-Hoekstra brings a background in life sciences, medical, and localization industries, as well as 25+ years of experience to [A]'s Content Intelligence team. As the Content Operations lead, Kit works with the Content Strategists and Content Engineers to help companies build better frameworks so that they can create global-ready content that effectively serves customers wherever they live and work.

A Fellow and former Society president for the Society for Technical Communication, Kit has a deep commitment to the field of technical communication and to growing the value of the content teams she works with. She mentors, acts as Principal for Comgenesis, LLC, speaks at conferences globally, regularly contributes content to industry magazines, and has published two commercial books: *The Language of Localization* (2017, editor) and *Managing Virtual Teams: Getting the Most from Wikis, Blogs, and Other Collaborative Tools* (2007 with Brenda Huettner and Char James-Tanny).

Revisiting the Hypergram: A Multimodal Opportunity for Technical Communicators

Tom K. Burns, PhD

Ted Nelson, progenitor of hypertext, also coined the lesser-known ancillary term, hypergram. Part diagram, part animation, part user-interface, and part webpage, the hypergram serves as a visual index to a larger body of information. As technical documentation becomes increasingly filled with interactive, multimodal imagery designed to accommodate device users of all types, opportunities for technical communicators to expand the scope of their practice will appear. Revisiting Nelson's concept through a historical review of interactive imagery suggests the hypergram as an ideal vehicle for engaging these future opportunities.

What's a Hypergram?

Ted Nelson (1965) famously coined the term *hypertext*, which he called "a body of written or pictorial material interconnected in such a complex way that it could not conveniently be presented or represented on paper. It may contain summaries, or maps of its contents and their interrelations" (p. 96). Although known primarily for inventing this foundational concept driving the World Wide Web, in his later idiosyncratic, bifurcated book, *Computer Power/Dream Machine*, he introduced the "hypergram" to the general public, describing it as "a picture that can branch or perform on request," noting also that it is a "[q]ueriable" illustration (1974, p. 19) responsive to user interaction by providing more information when a part of an image is selected.

Nelson (1972) also ventured into the third dimension, writing "[c]onsider another hypergram: a picture of the human brain which the user may actually manipulate in three dimensions. The user should be able to rotate, magnify, zoom in, change perspective and viewing angle, brighten different subsystems, and obtain annotations" (p. 186). Framing these concepts as computer-aided teaching tools, he implied they may also be useful in the production of technical manuals (Nelson, 1974, p. 48). My presentation proceeds with the premise that Nelson's original hypergram concept has not been completely explored and theorized within the context of existing and emerging technology. By taking a second look at this obscure concept, I suggest it may be revitalized into a more viable form for the benefit of technical communication practice.

Nelson (1974) located the hypergram concept under the umbrella term "[*h*]*yper-media* [noting they] are branching or performing presentations, which respond to user actions, systems of pre-arranged words and pictures (for example) which may be explored freely or queried in stylized ways" (p. 18). He advocated shifting the development of hypermedia from programmers, instead to be "designed, written, drawn and edited, by authors, artists, designers and editors" (p. 18). Instead of a single abstract concept linking to additional content, the hypergram provides an assemblage of visual information arranged in a rhetorical fashion serving as an index linking to additional content. Thus, the hypergram, within this expanded rhetorical dimension, is more versatile and provides more opportunity for technical communication practitioners to apply their craft within an expanded domain.

Why Revisit the Hypergram?

Developed before personal computers were readily available, History has shown the enormous impact Nelson's visionary ideas have had on how we interact with information technology today. Although hypertext in general has been well theorized, the potential of hypergrams has not been fully explored from a technical communication perspective. Revisiting Nelson's pioneering vision will shed light on what is perhaps an overlooked opportunity to recontextualize technical communication practice and take advantage of emerging technologies and the corresponding information markets.

Variously referred to as image map, smart drawing, knowledge diagram, intelligent illustration, smart graphic, configurator, etc., the hypergram, although obscure, has been present as a concept in one form or another in many forms of technical communication. Because of this wide variety of nomenclature, the

original hypergram concept lacks an overarching definition and remains under-theorized in practice. Accordingly, there is a lack of research on how hypergrams may be composed and arranged with a rhetorical strategy. A look at the state of our profession, our technological playing field, and our evolving audience will help to fill this gap.

Changes in Practice

The roles we play as technical communicators are constantly evolving with reinvented responsibilities, and to sustain our profession we find ways to accommodate these changes. As opportunities in print production and other forms of conventional technical communication continue to diminish, practitioners should adjust their scope and employ newer technologies to take advantage of emerging prospects for expression. To achieve that end, practitioners of technical communication should develop strategies of finding ways to become better embedded and integrated into the industry they serve.

Changes in Technology

The advent of HTML5, more computing power with more powerful video display cards, faster Internet speeds, improved browsers, and the rapid movement to mobile devices has provided a ripe opportunity for practitioners to test professional boundaries. Additionally, methods for delivering technical documentation have become increasingly visual, and images in many forms are becoming ubiquitous. Once discrete and isolated, illustrations are beginning to merge into multimodal compositions that may include text, imagery, and video. In this way the boundaries between document types and the practices of those who create them are blurring. The information contained within this type of combined document has the potential to be expressed through a visual interface such as a hypergram that responds to interactive query.

Changes in Audience

As more commerce is conducted with mobile devices, more technical documentation will need to be formatted for viewing on these personal devices. Furthermore, the Internet of Things (IoT) will be a great driving force for a convenient and efficient method to view documentation on portable devices, making it imperative to use more visual maps leading to additional information. Hypergrams provide a path for technical communicators to create documents that are more responsive, mobile friendly, and better integrated into the overall enterprise.

The technical communicator, with access to a wide variety of technical artifacts, is placed at a unique nexus of mediation between subject matter expert and user. The potential to take advantage of integration opportunities in technology that influence the structure of information and how this structure may be presented is great. The hypergram can leverage this potential to articulate imagery and text drawn from disparate sources into interactive multimodal structures that guide users through a compelling visual gateway.

Hypergrams As an Exordium

A hypergram presents an entire concept at a glance while acting as a visual index to further information. This index operates through Nelson's conception of hyperlinking where the links are in the form of an assemblage of meaningful imagery leading to other more granular information about selected features portrayed in the composition. A rhetorical formulation invites the user to analyze the displayed concept by selecting interactive features and drilling down for additional information A fundamental strategy of the hypergram composition is the orchestration of these interactive features.

Nelson (1974) described these orchestrations as "computer-based presentational wonderlands, where a student (or other user) may browse and ramble through a vast variety of writings, pictures and apparitions in magical space, as well as rich data structures and facilities for twiddling them." (p. 18). As an interface, the hypergram serving as a visual index and exordium can become an important interactive structure useful for technical communication.

How Has the Hypergram Been Used for Technical Communication?

The hypergram is something of an orphan falling into a gap between technical illustration and web design, but technical communicators bring capabilities that fill this gap in a way that distinguishes them from web developers and others professionals associated with interactive communication. They have subject matter knowledge and the rhetorical capabilities to apply that

knowledge, but are unaware of the capabilities of hypergrams. A better understanding of the potential for the practical use of hypergrams is needed, and a theoretical framework connecting current practice with that of our past would benefit our field.

The First Hypergrams

In the 1960's, when Nelson developed his vision, expressive software as we know it did not exist. He worked in a world with main-frame computers, magnetic memory tapes, drum drives, light pens, and video display tubes. Introducing the hypergram concept with a simple line drawing, he displayed an image of a partially dissected frog splayed across a viewing screen. Explaining its function, he showed how a user selecting parts of the frog can digitally dissect it with a light pen. Nelson's concept of the performing hypergram was fundamentally realized for practical use in 1983 with the LisaGuide, an electronic manual included with the Apple Lisa computer. Later in 1984, Apple improved that guide with the release of the "Tour of the Macintosh" produced by VideoWorks. Following minimalist principles, it was an interactive animated tutorial designed to encourage early computer users to explore the then novel mouse and other features of the Macintosh GUI.

Image Maps

According to Bloom (n.d.), in 1993, Mosaic—one of the first Internet browsers—introduced image map capability to the Internet. Other than supplying coordinates of pixels designated as interactive hot-spots, an image map does not have a direct relationship with the geometry portrayed in the image. Image maps are a technical communication standard often used in HTMLHelp or compiled help files such as those created by Robohelp.

Flash

The pioneering company, VideoWorks, morphed into MacroMedia, which later acquired Flash in the mid-1990's and combined it with their Shockwave Format (SWF) to make it more versatile. Flash animations, which exploded in popular use by the turn of the century, allowed individual vector objects to be interactive, but the resulting file was compiled into a binary format with content that was not visible to web crawlers and not capable of complying with Section 508 of the Americans with Disabilities Act. Flash interactive animations were often used in interactive education materials exemplified by the "Virtual Knee Replacement Game" provided by Edheads.org.

Scalable Vector Graphics

The W3 Consortium introduced the Scalable Vector Graphics (SVG) file format in 1999. At its face, SVG is very similar to the SWF format generated by the Flash application. Both formats, typically vector, can also contain rasterized imagery, can be animated, and can be made interactive. Flash uses Actionscript and SVG uses Javascript. An important difference is that SVG files are open source, and unlike SWF are non-compiled and contain fully searchable ASCII content. Every single line, block of text, or path in the SVG document is addressable, and unlike the image map, which references a group of pixels on the display, SVG uses Extensible Markup Language (XML) to tag a specific part of the geometry within a composition. Furthermore, this geometry can be styled/animated with Cascading Style Sheets (CSS) and can also be linked to an outside database. Combining the hypergram with XML provides an opportunity to integrate technical communication practice into an overall enterprise and increase the scope of its application.

Second Life

In a special issue of *Technical Communication* focusing on virtual worlds, 3D environments such as Second Life were touted as possible avenues of practice (Schmid, 2008). SecondLife was configurable to a certain extent, and it may be included in the hypergram category because it showed early potential for the rhetorical arrangement of technical information in 3D and because it had the capability of adding hyperlinks to 3D objects. It was viewed as a convenient social space to convey technical information. One commercial experiment had Toyota and Pontiac establishing virtual car dealerships to configure and market physical automobiles (Valdes-Dapena, 2006).

3D PDF

A concurrent product, 3DPDF was included in the Adobe Technical Communication suite for a short time in 2007. The 3DPDF user typically views a single object with accurate geometry repurposed from pre-existing 3DCAD. Unlike SecondLife, additional 3D objects cannot be added or subtracted from the 3D

PDF. Although widely used as a collaborative tool in engineering communities, it is not easily edited and adapted as a hypergram.

Web Graphics Library

Combining some of the best parts of 3DPDF and SecondLife, Web Graphics Library (WebGL) appeared in 2011. It overcomes previously described limitations, and, with a truly configurable design environment, provides the opportunity to select features from geometrically correct 3D objects and assign attributes to them. It allows the developer to create an interactive 3D window that operates within a webpage environment and is supported on both desktop and mobile devices. WebGL as technical communication can be seen in documents such as part configurators, shed builders, automobile customizers, and many other forms. Although currently under-appreciated, WebGL has great potential to provide opportunity for technical communicators. It is open-source, addressable, and user-configurable. Combined with SVG, it has great utility for documentation.

How Can Hypergram Be Redefined?

A guiding question in this presentation asks how hypergrams, overlooked for the most part as a viable genre for technical communication, can be redefined to accommodate the evolution of expressive technology in a manner that expands the scope of technical communication in both academic and practical domains. Nelson provided a durable and useful definition for hypergram, but in the early rush to embrace hyperlinking and hypertext, it has been largely overlooked as a unique tool for technical communication. As described earlier, the disparate nomenclature describing 2-D responsive imagery blurs the purpose of these documents. Furthermore, interactive 3D objects introduce additional complications that remain unaddressed. With new technology and the capabilities of XML in mind, I propose expanding Nelson's original definition to include any static 2D or navigable 3D graphical object that can branch and/or perform on request, is addressable by user selectable graphically expressed features leading to additional information, and includes the ability to become configurable with other like objects within an open system. With an expanded definition of the hypergram, technical communication practice can become better positioned to provide value to users with existing and emerging technology and thus be better represented within enterprise.

Technical communication as a practice can use hypergrams to advance better integration into enterprise in many ways. Here are some examples:

- Test the capabilities of browsers designed to be embedded into IoT type interfaces such as Chromium and Ekioh Flow.
- Explore new forms of medical communication and record-keeping using SVG and WebGL.
- Develop a novel performing hypergram that borrows some of the principles of Product Lifecycle Management (PLM).

Additionally, technical communicators can begin to bring hypergrams into their individual practice in the following ways:

- Embrace the renewed interest in SVG.
- Develop a common library of SVG, CSS and Javascript snippets focused on Technical Communication
- Expand our understanding of visual rhetoric to include a 3D grammar.
- Cultivate relationships with WebGL researchers and open-source developers.

Conclusion

Technical communicators in both academia and practice have always adapted to new expressive technologies, but we also often wait passively depending on outside sources to provide us with guidance in developing new forms of documentation. My presentation develops a framework comparing Nelson's descriptions of hypergrams with techniques and technologies used over time to create interactive visual graphics for the purpose of accommodating users to technology. It also proposes an expansion of Nelson's original definition that encompasses new and emerging technology. As practitioners and scholars in a quickly evolving technological environment, we can use this framework, and other like it, to be proactive in steering the future of our practice.

References

Bloom, Z. (n.d.). A Quick History of Image Maps. EAGER. https://eager.io/blog/a-quick-history-of-image-maps/

Nelson, T. H. (1965, August). Complex information processing: a file structure for the complex, the changing and the indeterminate. In *Proceedings of the 1965 20th national conference* (pp. 84–100).

Nelson, T. (1974). *Computer lib/Dream machines*. Hugo's Book Service.

Nelson, T. H. (1972). Computopia and Cybercrud. Alternative Futures in American Education, In Appendix 3 to Hearings on HR 3606 and Related Bills to Create a National Institute of Education Before the Select Subcommittee on Education [of The] Committee on Education and Labor, House of Representatives, 178.

Schmid, R. (2008). Real text in virtual worlds. *Technical Communication*, *55*(3), 277–284.

Valdes-Dapena, P. (2006). Real cars drive into second life. CNN.com AUTOS. http://www.cnn.com/2006/AUTOS/11/17/2nd_life _cars/

Author Contact Information

Tom K. Burns
Technical Illustrator/Document Designer
AutomationDirection.com
3505 Hutchinson Road
Cumming, GA 30040-5860
(678) 643-7015
tomkburns@gmail.com

Author Biography

Tom Burns began his career in communication creating product illustrations and advertising layouts promoting merchandise ranging from soft drinks to footwear. Seeking a career shift, he pursued a BS in Technical and Professional Communication and MS in Information Design from Southern Polytechnic State University. He later earned his PhD in Technical Communication and Rhetoric from Texas Tech. He has worked as a Technical Illustrator and Document Designer for AutomationDirect since 2004.

UX Writing at Workfront: How Technical Writers Started Writing for UX

Courtney Christensen and Luke Penrod

UX writing is gaining popularity in the technology space, which is great. The problem? Not all companies have the resources or budget to add roles dedicated to UX writing. Fortunately, skilled content and technical writers can easily step into this role with a little help.

Learn how to market your technical writing team, with their existing skillset, to fill the role of UX writers within your organization. Both your organization and your customers will benefit as your technical writing team applies product knowledge and word prowess to the interface text to expertly guide users.

Learn Strategies to Get Initial Buy-in and Partner with UX

Your technical writing team has the skills to be a strong partner with UX, but how do you get started? There are a few key things we did at Workfront to get the ball rolling and build a formal relationship.

Decide on a Top-Down or Bottom-Up Approach

Figure out what approach will work best for your situation:

- **Top-down**: Pitch the idea to the head of UX and then share the strategy with the rest of the UX team.
- **Bottom-up**: Start working with individual UX designers to prove the value of the relationship.

Establish the Need for UX Writing

Show why your organization should consider focusing on UX writing:

- Find UX writer job postings from reputable companies.
- Find quotes from the UX industry supporting your claims.

Make It Clear Your Team Has the Skills

Find skills unique your writing team. Here is a quick list to get started:

Technical writers

- Know the users
- Are grammar and word experts
- Write for international audiences
- Write clearly and concisely

Show the Mutual Benefits

Show the benefits of technical writers writing your UI text. Here is a quick list to get started:

- Early involvement and access to functionality
- Promotion of consistency between the UI and the documentation
- Writers who are already learning about the functionality
- One less person to ask questions or to involve in meetings—the technical writer is already there

Cultivate Strong Working Relationships with UX

Once you've gotten support to partner with UX, there are a few things you should do in order to make that relationship a success. Taking the time to cultivate a

relationship upfront will help you build a healthy, collaborative culture with UX for years to come.

Create a Style Guide for the User Interface

Create a separate style guide that's friendly to nonwriters. Here is a quick list to get started:

- Figure out an appropriate voice and tone for your interface.
- Use your documentation style guide to inform punctuation and capitalization if possible.
- Ask UX to sign-off on the style guide.
- Designate a style guide.

Meet Regularly with Designers

Meet with your designers to work on text while the designing is happening. Here is a quick list to get started:

- Decide on a meeting cadence.
- Find a convenient time and keep it on the calendar.
- Sit next to your designer if you can.
- Create a meeting agenda.

Become Part of the UX Sign-Off Process

Know how sign off works at your company, and show management why you should be a part of the process. Here is a quick list to get started:

- Get familiar with your sign-off process.
- Find examples where your UI could have benefitted from a final check, and show a decision maker.
- Get permission from management.
- Let your team know you'll be helping with sign-off.

Create a Repository of Approved Text

Create a repository of reusable UI text to save writers time and guarantee a more unified experience across your interface. Here is a quick list to get started:

- Identify repeating messages in your UI.
- Create a table with starter text that aligns with your style guide.
- Distribute the table to writers and designers.

Validate that the UI Text Your Team Produces Has Improved the User Experience

As writers, we know the importance of knowing who your audience is and what they need. Pairing up with UX and utilizing their usability expertise not only helps your UI text, but can also help as you write documentation.

Use Your UX Team's Usability Testing Sessions to Get Feedback on Text

Get your text into the design early, and attend usability sessions to validate your writing approach. Here is a quick list to get started:

- Work with your designer early in the process to get your text into the mock before customers see it.
- Use the UX team's usability testing to validate the text.
- Attend these meetings when you can to validate your assumptions.

Do A/B Testing to Validate That Your Text Is Helping Users Accomplish Their Tasks

Use A/B testing to validate that designs with text written by a writer is more helpful to the user. Here is a quick list to get started:

- Work with your designer to set up A/B testing for tricky UI problems.
- Do your own A/B testing to validate that text written by a UX writer is more helpful.

Author Biographies

Luke Penrod, Technical Writing Manager at Adobe, has been a professional technical writer in the enterprise software industry for 13 years. He's enjoyed partnering with UX designers all that time to help produce clear, accurate, and friendly text in the user interface. For the last couple of years, he's led his technical writing team at Workfront in officially filling the role of UX writers, in addition to continuing to create product documentation. When Luke's not writing, you can find him spending quality time building Legos or riding bikes with his 3 young daughters.

Courtney Christensen, Technical Writer at Adobe, is a skilled technical writer and a budding UX writer. She's written everything from step-by-step instructions to UI copy in the SaaS space over the past 5 years. When Courtney's not writing, you can find her playing video games, kicking back with a Sanderson novel, or running along the mountain trails behind her home.

Docs-as-Code: Source Control with Git

Peter S. Conrad

Git doesn't have to be hard to understand—in fact, it's simple. The difference between Git and traditional source control boils down to two things: it is decentralized, and it tracks changes rather than files. Git makes branching easier and provides better safety and reliability than traditional centralized source control. This paper provides an explanation of how Git works.

Version control, or *source control*, is a system for keeping track of the versions and changes to files in a project. Traditionally, source control has been used for tracking application codebases. With the rise of the docs-as-code movement, it has also become useful for documentation. It's now common to use source control systems for DITA, Markdown, reStructuredText, AsciiDoc, and other plain text markup languages. The goal of source control is to guarantee that files are stored securely and made available to the right people, that the contents of the files are known and verified, and that changes are tightly managed. With source control, you can see every change and who made it. If needed, you can roll back to previous versions of any file.

Centralized Source Control

Traditionally, source control has been *centralized:* a central repository of files provides a single source of truth. Whatever is in the central repository is legitimate; everything else doesn't matter. To make changes to a file, you "check it out," like a library book. While you have a file checked out, you can edit it on your own computer (your "local machine"). While you're working on it, the repository's version of the file is locked so that no one else can make changes to it. (See Figure 1.)

When you're done editing the file and your work is tested and approved, you check the file back in. It is then available for other people to check out. In this way, centralized source control ensures one version of the truth.

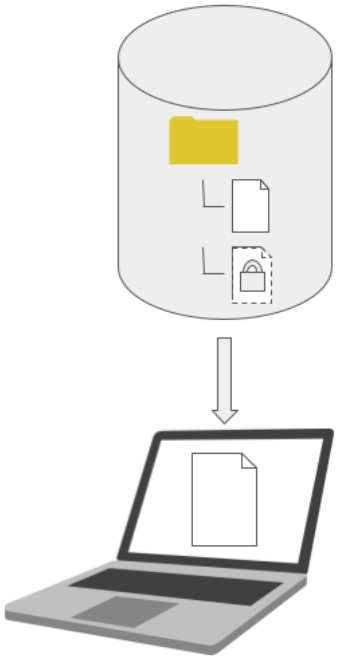


Figure 1. Checking out a file in centralized source control

There are downsides to centralized source control:

- Only one person can work on any given file at a time, creating a bottleneck.
- Everything that's checked in becomes the truth, including bugs.
- Server traffic from a high volume of check-ins can cause lagging.
- The repository is a single point of failure.

This last problem is a fatal weakness. If something happens to the repository, the whole project can be lost.

How Git is Different

The solution to these problems turns out to be decentralization. With no central repository, there's no bottleneck and there's no single point of failure. Branching is easier, making it simple to insulate people from each other's work and curb the spread of bugs. People can work in parallel without worrying about server traffic or locked files. With Git, every contributor has a complete source control system with a full copy of the repository. (See Figure 2.)

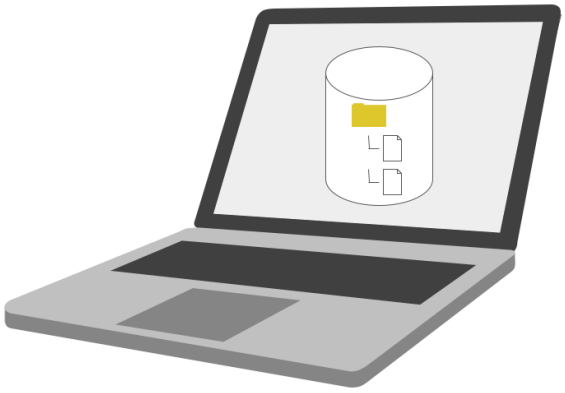


Figure 2. A complete source control system on your computer

This means thinking a little differently. When you use Git, you don't "check out" files, because there's no central repository to check them out from. You don't lock files, because you don't have to worry about someone else trying to work on files on your own computer. This means you don't get a central source of truth—but you don't need one. You are creating and sharing the truth as you work. If two contributors disagree on the truth, there is a way to decide which version to keep.

In this way of thinking, file versions become far less interesting than *changes*. If two people work on the same file, it's possible to see who made which changes and when. It no longer makes sense to think about the version of a file, because changes by different people can overlap chronologically. Instead of keeping score on file versions, Git tracks changes. When you roll forward or backward in time, or if you switch branches, Git applies the changes to show you the correct "versions" of the files. In fact, changes can be lifted from one point in time and "replayed" elsewhere when needed.

There is usually a central repository, but it exists only to keep everyone in sync. Each contributor's own local repository is the source of truth. If the central repository were destroyed, it could be restored in minutes by anyone who had downloaded the most recent changes.

Git Concepts

Git doesn't really care about files; Git cares about changes. As you add, edit, and delete files, Git tracks the changes you're making. From time to time, you create a checkpoint that groups a bunch of changes together as a snapshot called a commit—a point in time you can roll back to if needed.

With Git, all you need to do is:

1. Make changes.
2. Tell Git which ones to track—this is called *staging*.
3. Track them—this is called *committing*.

When you commit your work to Git, you aren't telling Git about new versions of files. You are telling Git about a group of changes you've made since the last commit. Editing or adding a file is a change—and so is deleting a file. (See Figure 3.)

Git doesn't just grab every change that happened, because it doesn't know which changes you intend to keep in source control. Git gives you the opportunity to specify which changes to commit. When people talk about a staging area, they mean the list of changes you are preparing to formalize in Git. The add command means *add this change to the list.* Remember: you're tracking changes, not files. When you delete a file from Git, that creates a change that you must add!

As you go along, working and committing, you end up with a history of commits. You can roll back to any commit, if you need to. (See Figure 4.)

If you ever roll backward or forward to a different version of your code, or switch branches, all you're doing in Git is pointing to a particular commit that represents the way things were on that branch at that time. Git automatically applies all those changes to the working directory. In other words, the working directory automatically shows the correct view of that version of the files. Magic!

Figure 3. Staging: choosing which changes to include

Figure 4. A history of commits, showing a simple branch and merge

If you're collaborating with a larger team, it's useful to keep the main branch clean and always releasable while everyone's working. You can create your own working branch just for yourself, or a smaller team can have a long-standing branch. In either case, the concept is the same: a series of commits independent from main (or any other branch). (See Figure 5.)

Figure 5. Keeping everyone's repositories in sync

When it's time, those changes get merged back into the main branch (or whatever development branch your organization uses). Usually this happens on the central repository, also known as the remote repo, where people can have a chance to review it. When you work with Git, you frequently pull down the latest changes, to make sure your work stays in sync with what everyone else is doing. When you are ready to share your work with others, you push your changes up to the remote repo so they can review your work. Once it's approved, you can merge it.

Summary

To understand Git, just remember three things:

- Git tracks changes, not files.
- Source control happens on your computer, not a server.
- You are the source of truth.

Once you get used to decentralization and thinking about changes rather than files, everything else about Git becomes easier to understand.

Note: This paper is excerpted from the book *Git Doesn't Have to Be Hard*, available in summer 2021.

Resources

Conrad, Peter. (2020, 4 Jan.) "Git doesn't have to be hard." Medium, Level Up Coding. https://levelup.gitconnected.com/git-doesnt-have-to-be- hard-e1e115be6668.

Conrad, Peter. (2020). *Markdown Dreams: How to Do Things with Markdown and Git*.

Author Contact Information

Peter S. Conrad
Senior Content Designer
Atlassian
www.peterconrad.com

Author Biography

Peter S. Conrad is a writer and artist in the San Francisco Bay area. His writing has helped people build online stores, create cloud applications, manage data centers, integrate with social media, collaborate, and watch television. He has been designing content, documenting APIs, and designing and delivering curriculum since before the turn of the century, and creating serial graphic stories for twice that time.

Aligning Content with Reality: Practitioner Perspectives on Textbook Keywords

Samantha Cosgrove, PhD, and Bremen Vance, PhD

The divide between academic research and industry practice has been an ongoing challenge in technical communication. While researchers have sought to understand the state of the field by engaging with practitioners, developing surveys that are representative of the curriculum of technical writing courses is a challenge. In this presentation, we will present findings from part one of our two-part study of the most common and technical communication topics through a corpus-driven keyword frequency analysis and a survey of professionals. The findings can help educators make informed decisions about which subjects, skills, genres, and tools should be addressed in technical communication courses.

Introduction

There is an existing divide between practitioner and academic perspectives in technical and professional communication practices. This paper represents findings from part one of a two-part study in which we conducted an analysis of technical communication textbooks to determine what topics most commonly occur. The second half of the study, which has not yet been completed, will be highlighted in the discussion. The goal of the first half of the study is to examine technologies and digital communication topics most frequently addressed in technical communication textbooks through systematic and replicable methods. In the analysis of textbooks, we are developing a meta-index of subjects covered in technical communication courses, as represented by the available textbooks. Such an analysis will help scholars and educators address the need to adapt policies, curricula, and professional development needs caused by the increasingly technological nature of writing instruction. This study establishes a comprehensive topic list that measures the prevalence of topics across technical writing curricula for the purpose of developing data-informed research materials.

Literature Review

The speed at which technologies and organizations have evolved in recent decades create a variety of pressures on educators and classrooms to update. For educators in technical communication, getting 'up to speed' may be a daunting task though, due to the astonishing breadth of materials from both scholarly and industry sources, a challenge that Derek Mueller refers to as "the reading problem" (2017, p. 7). Administrators also face this problem when updating policies or developing professional development opportunities. Operationalizing disciplinary knowledge involves condensing substantial bodies of research, resolving conflicting perspectives, and recasting theory into comprehensible and actionable forms. Studies that examine practices at the disciplinary level are valuable because they can help clarify and strengthen connections in the field (Mueller, 2017). Such studies are forms of what Mueller refers to as "disciplinography," which he defines as "a genre that writes the field and is written by scholars in the field, and as such is a genre that is responsive to the growth of the field and its changing, contested state(s)" (2017, p. 13). In other words, scholarship that examines theories and practices at the disciplinary level is useful because we can use it to compare more local experiences and theories about writing and writing instruction to broader trends.

Scholarship that makes sense of diverse, expansive, and evolving intellectual landscapes are essential for the livelihood of a discipline because it creates shared understanding about the subjects and values of a field of study, or at least it furthers the conversation in productive ways. Research that consolidates and aggregates information about a field of study is useful for scholars, teachers, administrators, and graduate students new to the field or keeping up with current trends. Strategies to gain a sense of current practices in

writing instruction can take a variety of forms. Each approach has its strengths and can provide some level of insight. Studies using surveys have been successful in measuring educators' comfort with, and use of, technologies in the classroom (Anderson et al., 2006; Reid et al., 2016; Robinson et al., 2019).

Other approaches draw on experience and materials to consolidate and summarize disciplinary thinking. Joswiak and Duncan (2020) analyzed the top 10 best-selling textbooks through "informative" and "persuasive" lenses. Still, others have considered their use with particular audiences, such as engineers, or topics like game design and usability (DeAnda & Kocurek, 2016; Wolfe, 2009). Our study is different because our process allows for a comprehensive analysis of subjects covered in technical writing textbooks, as represented by their indexes. Instead of looking for specific subjects in each textbook, we are using a data-driven approach to identify the most salient topics across technical writing courses based on the content of the field's textbooks. We argue that such an analysis creates meaningful opportunities to understand the curriculum and to pursue questions about the direction of the field through data-driven methods. A comprehensive list of the subjects of technical writing courses creates opportunities to consider the relationship between the classroom and professional contexts through the development of data-informed instruments, such as surveys.

Methods

To begin, we developed a list of current technical communication textbooks, which was compiled by visiting the websites of academic textbook publishers McGraw-Hill, Macmillan Publishers, Pearson, Cengage, Routledge, and Wiley. Online texts, course packs, and open education resources are worth examining; however, the systematic comparison of these texts is complicated by the format differences. We determined that "current" texts would be defined as textbooks using the term(s) "technical communication" or "technical writing" and had been published within the past 10 years. While future studies may include a longitudinal analysis, the goal of this study is to examine the subject matter covered by recent texts so we can characterize current trends. Restricting the time frame ensured that multiple editions of the same text could be avoided, and the sample would be manageable for the purposes of this study.

Collection of texts began in October of 2020 and continued into May 2021. The total number of textbooks was 25. Some of the texts were immediately available on our own shelves, those of colleagues, or our university libraries. We also requested copies through interlibrary loan (ILL). After exhausting our resources, the final list of available textbooks used for the study was 9. Table 1 explains the composition of the textbook index, including the number of word types and word tokens.

Textbooks	9
Types	3,742
Tokens	35,508

Table 1: Textbook Index Corpus

Using custom Python applications, we generated a complete word list that includes the number of textbooks that each word type appears in. Linguists distinguish between word types (a category) and word tokens (an individual occurrence) to differentiate between a list of each unique word that occurs and the total number of times that each word occurs. Word types represent the variety of words in a text while tokens represents the total number of words, including repeated instances. In this study, frequency is a measure of the number of indexes each word appears in instead of the total number of occurrences. This approach to frequency is a dispersion measure to establish how many textbooks include the word.

Counting the number of textbooks each word appears in instead of the total number of occurrences ensures that no single textbook can create the perception that a term occurs frequently across the materials. In addition to the single word frequency, we created another word list that identifies all of the words that cooccur with each word type and the number of textbooks in which they cooccur within a single index entry, that is within a single line or within a combination of a heading and subheading. After generating the wordlists, we reviewed the most frequent terms to identify words representing genres associated with communication practices.

Results

Below we present a portion of the results most relevant to our initial research goals. The results of this methodology are much more extensive than can be

presented here. In Table 2, we are able to categorize what topics related to digital communication that occur within the largest number of textbooks. The table shows words or topics that appear within 5-8 textbooks. Words that appear in over half the textbooks were considered significant and worth further exploration. The existing table does not include frequent words that were unrelated to digital communication.

8 Texts	7 Texts	6 Texts	5 Texts
media	charts	bar	color
presentation	communication	blogs	conflict
	copyright	collaboration	discussion
	design	computer	electronics
	digital	contrast	flowcharts
	document	data	google
	electronic	documentation	graphs
	journals	elements	icons
	online	facebook	illustrations
	presentations	figures	internet
	social	gantt	journal
	text	graphics	library
	user	linkedin	microsoft
	voice	photographs	orientation
		pie	outline
		sites	outlining
		technology	powerpoint
		tools	prezi
		twitter	readability
		view	search
		virtual	searches
		visual	size
		visuals	software
		web	sources
		wikis	symbols
			usability
			video
			websites

Table 2. Selected words occurring in 5 or more textbooks

The list of cooccurring terms provides additional insight into the possible usage of each word. Table 3 shows words that cooccur in an index entry (within a line or as a combination of a heading and subheading) in 3 or more textbooks. Further analysis of cooccuring terms can illustrate how broadly certain words are being used.

Media	social, 5, communication, 4, electronic, 3, online, 3, organization, 3, reports, 3, research, 3, search, 3
Design	reports, 4, style, 4, aids, 3, chunking, 3, communication, 3, computer, 3, creating, 3, document, 3, documents, 3, footers, 3, graphics, 3, guidelines, 3, job, 3, organizational, 3, page, 3, research, 3, resume, 3, resumes, 3, sources, 3, time, 3, using, 3, visual, 3, web, 3
Presentation	presentations, 4, software, 4, powerpoint, 3
Presentations	technical, 5, audience, 4, charts, 4, oral, 4, persuasive, 4, presentation, 4, proposals, 4, research, 4, style, 4, communication, 3, descriptions, 3, extemporaneous, 3, formal, 3, graphics, 3, impromptu, 3, job, 3, letters, 3, memorized, 3, questions, 3, reports, 3, scripted, 3, slides, 3, social, 3, software, 3, sources, 3, tools, 3, use, 3, using, 3, visual, 3, voice, 3, web, 3
Digital	*n/a*
Electronic	electronic, sources, 5, checklist, 3, mail, 3, media, 3, resumes, 3
User	instructions, 3, manuals, 3, testing, 3

Table 3: Selected words cooccurring in 3 or more textbooks

Discussion

The corpus itself is an interesting product from this study. In a sense, this corpus of textbook indexes represents a meta-index of topics covered in technical communication courses. As a meta-index, the language contained in the corpus has the potential of assisting researchers focused on a variety of topics to quickly identify the ways the subject is framed and discussed for students. The corpus in effect enables the generation of composite indexes that locate terms indexed in each index, including page numbers. Researchers with access to this corpus could quickly identify texts and pages of any topic covered in these texts (based on the information available in the indexes).

Frequency data can provide some insight into the most common topics of technical writing curricula. Among the most frequent individual terms are *technical* and *writing*, but also *references*, *presentations*, and *examples*. By identifying frequent terms and groupings, we can then contextualize their use and analyze their function among different textbooks and across time.

Media, Digital, and Electronic

The terms media, digital, and electronic are used within the majority of textbooks across the corpus. The prevalence reinforces the notion that digital tools are essential; however, a deeper analysis of the usage of these terms may reveal substantial variability in our attention to these related terms. Media cooccurs with electronic, as well as other terms such as social and communication.

Design

Design cooccurs with a variety of words and occurs in 7 of 9 textbooks. The majority of its cooccurences are related specifically to document design (chunking, style, report, etc). It also cooccurs with "computer," underlining the relevance of advanced formatting and design in technical documentation.

Presentation/s

Presentation and presentations cooccur in 4-5 texts and appear in 7-8 textbooks total. These terms, specifically presentations, are used surrounding a variety of other genres, skills, and modes of communication. It is interesting to note that "audience" cooccurs the most frequently with presentations (aside from technical), showing the rhetorical aspects of the teaching of technical communication.

User

User appears in 7 or 9 textbooks and cooccurs with "instructions," "manuals," and "testing" in 3 textbooks. This is an interesting finding considering the growing significance of usability studies within the field of technical communication, and the lack of emphasis shown in these textbooks. Additional research is needed to determine how the term is being used, and where there could be room to add topics like usability and testing more frequently.

Clearly, a deeper analysis of each word, its cooccurences, and its usage across the textbook corpus would yield implications for future technical communication textbooks. The results here, though, illustrate the potential of a corpus-driven analysis for uncovering trends worth further investigation. Additionally, the second half of the study will survey practitioners based on the most frequently addressed topics to determine how closely aligned academic and practice currently are. By identifying these similarities and differences, we can work towards creating a curriculum that considers industry interests and expectations.

Conclusion

In phase one of our ongoing two-part study, we have developed comprehensive word lists and established frequency to help educators identify common subjects and trends across technical writing curricula. The goal is to develop a systematic approach for understanding the current state of technical communication education and to create data-driven instruments for bridging the divide between academia and industry. By conducting a corpus-driven frequency analysis of common technical communication topics, we are systematically and definitively illustrating the most salient topics as represented by textbooks. We plan to continue this project by surveying practitioners on these topics to determine how closely aligned the field of technical communication studies is with practitioner perspectives. This work is important because developing a clear, accurate representation of the content covered in technical writing classrooms can allow us to compare the expectations that we have as educators or as practitioners to the reality of the curriculum. We can more accurately identify the consensus and points of departure through the type of analysis conducted here. Additionally, this type of analysis is scalable and repeatable, making it possible to measure changes in content over time.

References

Anderson, D., Atkins, A., Ball, C., Millar, K. H., Selfe, C., & Selfe, R. (2006). Integrating multimodality into composition curricula: Survey methodology and results from a CCCC research grant. *Composition Studies*, *34*(2), 59–84.

Boettger, R. K., & Friess, E. (2016). Academics are from Mars, practitioners are from Venus: Analyzing content alignment within technical communication forums. *Technical Communication*, *63*(4), 314–327.

DeAnda, M. A., & Kocurek, C. A. 1. (2016). Game design as technical communication: Articulating game design through textbooks. *Technical Communication Quarterly*, *25*(3), 202–210. https://doi.org/10.1080/10572252.2016.1185161

Joswiak, R., & Duncan, M. (2020). Inform or persuade? An analysis of technical communication textbooks. *Technical Communication*, *67*(2), 29–41.

Mueller, D. N. (2017). *Network Sense: Methods for Visualizing a Discipline*. The WAC Clearinghouse; University Press of Colorado.

Reid, G., Snead, R., Pettiway, K., & Simoneaux, B. (2016). Multimodal communication in the university: Surveying faculty across disciplines. *Across the Disciplines*, 13(1). https://wac.colostate.edu/atd/articles/reidetal2016.cfm

Robinson, J., Dusenberry, L., Hutter, L., Lawrence, H., Frazee, A., & Burnett, R. E. (2019). State of the field: Teaching with digital tools in the writing and communication classroom. *Computers and Composition*, *54*. https://doi.org/10.1016/j.compcom.2019.102511

St.Amant, K., & Meloncon, L. (2016). Addressing the incommensurable: A research-based perspective for considering issues of power and legitimacy in the field. *Journal of Technical Writing and Communication*, *46*(3), 267–283. https://doi.org/10.1177/0047281616639476

Wolfe, J. (2009). How technical communication textbooks fail engineering students. *Technical Communication Quarterly*, *18*(4), 351–375. https://doi.org/10.1080/10572250903149662

Author Contact Information

Samantha Cosgrove
Assistant Professor
University of North Texas

Bremen Vance
Assistant Professor
Mercer University

Author Biography

Dr. Samantha Cosgrove is an Assistant Professor of Technical Communication at the University of North Texas. Her main research interests are risk communication and user experience.

Dr. Bremen Vance is currently an Assistant Professor at Northwest Missouri State, and he has accepted a new position at Mercer University. In his research, he examines pedagogical concerns associated with teaching technologies in communication courses, and he uses text-mining and quantitative methods to research the relationship between communication and technology in professional and educational contexts. He has experience with content management, web design, and instructional design, and he has been teaching writing and communication courses since 2011.

Distilling a Large Document into an ISO ISMS Process Document

Jackie A. Damrau, Fellow

Writing a corporate policy, standard, or process document requires the use of minimalistic writing when it is being written as an ISO (International Organization for Standardization) document. This can be challenging depending on the content, yet possible with express attention to what is "really" needed, what is not, and never repeating any information that is already published in a policy or standard. A simple reference in your process document is sufficient. In this presentation, you will hear about my recent journey taken to reduce a 140-page document to 39 pages using the ISO-recommended format that was further modified with my company's global stylesheet and stored on the corporate intranet following the Information Security Management System (ISMS) structure.

Project Overview

Cybersecurity has many regulations that companies must follow, including documentation, if a company is seeking or striving to retain an industry certification like ISO (International Organization for Standardization).

Global companies are further regulated by country regulations like GDPR (General Data Protection Regulation) or CCPA (California Consumer Privacy Act).

Result: Documents must be created; they must follow a specific guideline/format; and they must be simple, easy to read, and digestible.

For this project, the mission was to take a 140-page soup-to-nuts document (lovingly referred to as "the Data Privacy Cookbook") and get it down to fewer than 40 pages AND into ISO's ISMS (Information Security Management System) framework. Edits upon edits upon edits; meetings upon meetings; and success reached.

The Data Privacy Cookbook (later renamed) was written as a guiding document for application development teams to use and understand the basic data privacy protections and mechanisms needed when coding their applications. This entails making sure that they are securing personal data safely with minimal risk of exposure.

Was there any content left, you ask? Yes, here's the process followed, with the first parts being educating on ISO/ISMS, and then what resulted.

ISO & ISMS

ISO is an "independent, non-governmental international organization with a membership of 165 national standards bodies" (ISO website, About Us page) that was founded in 1947 to promote worldwide proprietary, industrial, and commercial standards.

ISO is a certification that companies apply for and achieve stating that their ISMS (Information Security Management System) business practices meet the ISO standards of **implementation**, **maintenance**, and **continual improvement**.

The most popular ISO standards include:

- 27001 Information Security Management
- 14000 Environmental Management
- 37001 Anti-Bribery Management
- 9000 Quality Management

ISMS is a documentation methodology built by ISO to make sure that companies follow a specific standard when categorizing documents. Figure 1 shows the ISMS methodology with examples of what would be included in each methodology component (Lineman, 2014, Figure 2).

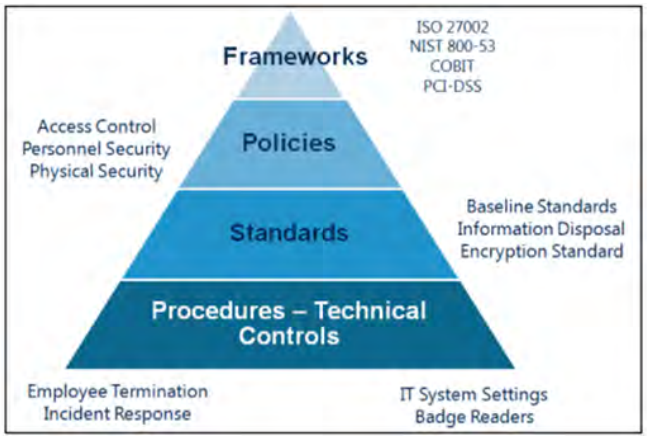


Figure 1. ISMS Methodology components

A brief explanation of each ISMS methodology component appears below:

- **Frameworks:** categories of security controls
- **Policies:** high-level Business Rules that define the "what" and "who"
- **Standards:** controls used for enforcing Policy implementation within the company using different technologies
- **Procedures:** step-by-step instructions to measure "how" the Policies and Standards will be followed and enforced by the Technical Controls

According to Lineman (2014), ISMS components do have specific characteristics that should be followed. Table 1 shows Lineman's information in an easier format for readability.

Document formats may vary based on company interpretation. The company that I worked with had a specific format that is discussed in the next section.

ISMS Type	Should	Should Not
Framework	• Map specific policies to one or more Frameworks • Provide a crucial link between Compliance frameworks and a company's Information Security program	Rely upon one Framework to be the "sole" directive
Policies	• Describe at a high level the security controls that can be enforced and measured • Be viewed as a "contract" between the Company and its stakeholders • Include specific words, like **will** or **must**, to define behaviors or technical implementations	• Be considered optional • Refer to specific technical platforms • Be frequently updated/changed unless a regulatory body requires such
Standards	• Address a wide variety of technical systems • Translate statements into meaningful controls that are enforceable and measurable • Include specific words, such as **should**, to define behaviors or technical implementations	• List specific tools and systems • Include processes or procedures within the Standard • Contain exceptions criteria
Procedures—Technical controls	• Provide repeatable step-by-step instructions or a set of steps that must be followed to implement a security control • Required when a security control **may** or **must** be enforced by people and technology	

Table 1. ISMS characteristics

Document Overhaul Process (a New and Improved Structured Document)

The documentation overhaul process started with looking at a 140-page document (the original "Cookbook) and trying to distill the content down to just what needed to be shared. This meant removing much of the theory or other "fluff" that had been originally written into the document.

Figure 2 outlines a part of the process we followed. The full process is:

Step 1. Assign two people to read the document thoroughly one section at a time.

Step 2. While reading, highlight content with the following colors: Keep, Possibly Remove, ~~Delete~~. (See Figure 3 for an example.)

Step 3. Decide if content is better represented in a table or figure format (note this in the right margin with "Make a Table" or "Make a Figure").

Step 4. Gain consensus and build a draft removing the Delete items.

Step 5. Repeat steps 1–4.

Step 6. With the finalized document (shortened to a more manageable shape), determine if any supporting documents need to be created, such as a Quick Reference Sheet/Card.

Step 7. Have someone else read and edit the document for soundness, clarity, and accuracy. The goal here is to make sure that no meaningful content has been removed and that all information is clearly understood.

Step 8. Publish the document, including support documents (if applicable), to the ISMS Document Library or to an intranet page (company-specific).

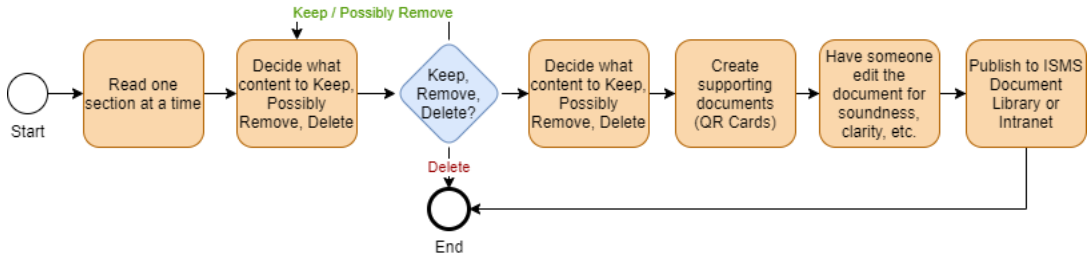
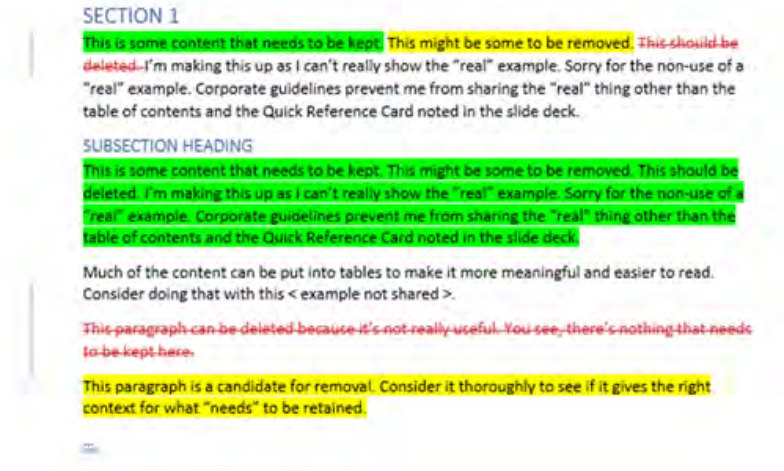


Figure 2. Document overhaul process


SECTION 1

This is some content that needs to be kept. This might be some to be removed. ~~This should be deleted.~~ I'm making this up as I can't really show the "real" example. Sorry for the non-use of a "real" example. Corporate guidelines prevent me from sharing the "real" thing other than the table of contents and the Quick Reference Card noted in the slide deck.

SUBSECTION HEADING

This is some content that needs to be kept. This might be some to be removed. This should be deleted. I'm making this up as I can't really show the "real" example. Sorry for the non-use of a "real" example. Corporate guidelines prevent me from sharing the "real" thing other than the table of contents and the Quick Reference Card noted in the slide deck.

Much of the content can be put into tables to make it more meaningful and easier to read. Consider doing that with this < example not shared >.

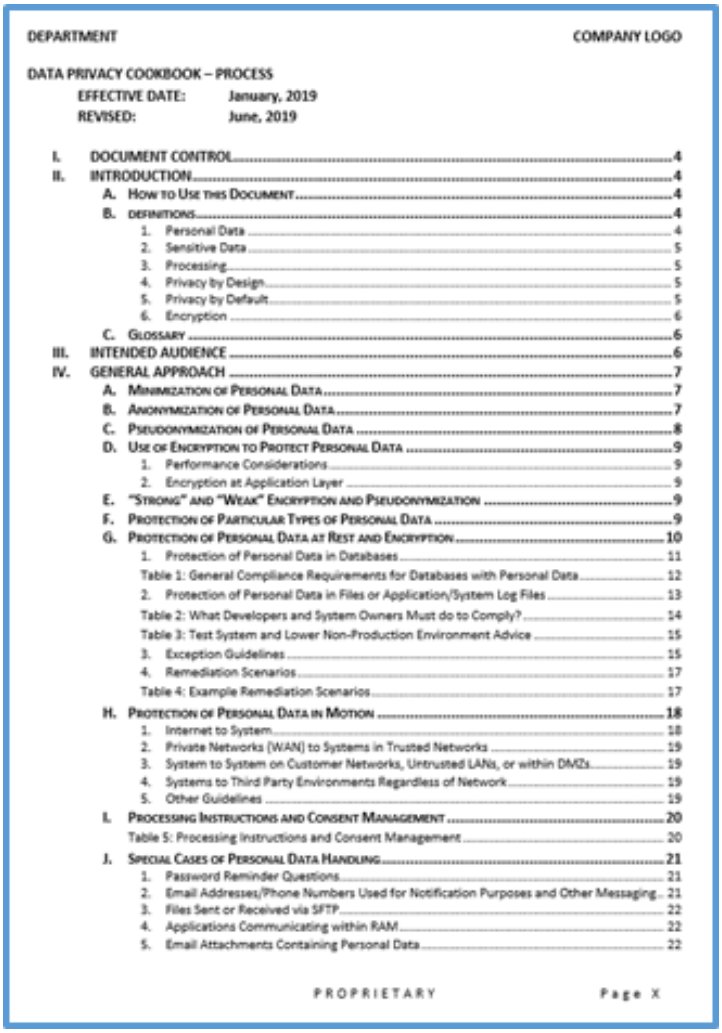
~~This paragraph can be deleted because it's not really useful. You see, there's nothing that needs to be kept here.~~

This paragraph is a candidate for removal. Consider it thoroughly to see if it gives the right context for what "needs" to be retained.

Figure 3. Highlighting iteration example

By following this process with more than two iterations, we were able to get the document down from 140 pages to 39 pages. We did distill a lot of information into shortened bullets or tables with a few areas being more illustrative than textual.

The resulting Table of Contents (the only thing that I can share, as this is a proprietary document) appears in Figures 4 through 6.



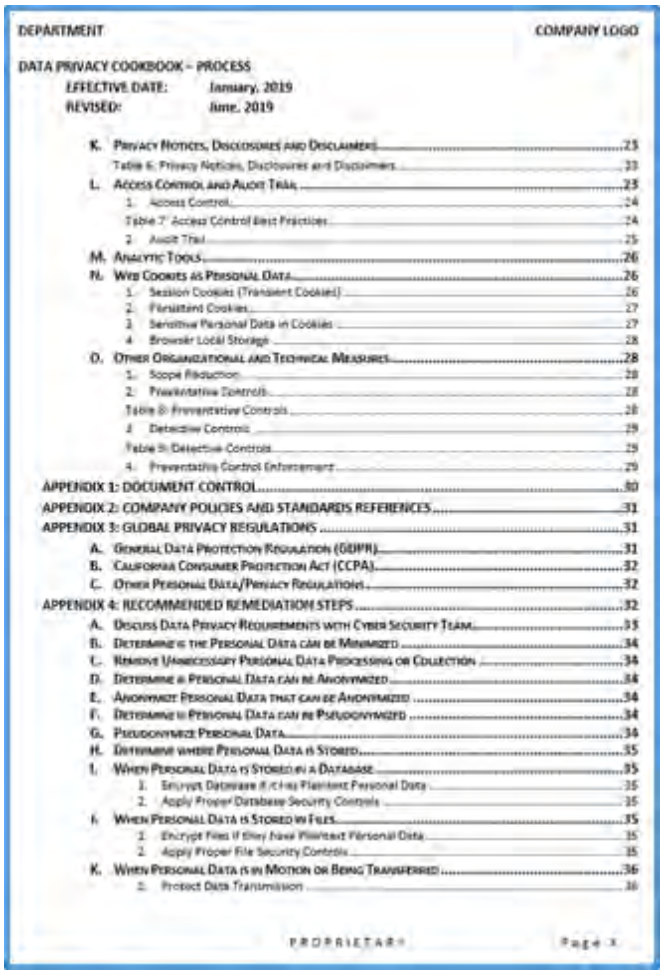
DEPARTMENT COMPANY LOGO

DATA PRIVACY COOKBOOK – PROCESS

EFFECTIVE DATE: January, 2019
REVISED: June, 2019

PROPRIETARY Page X

Figure 4. Table of Contents, Page 1 of 3



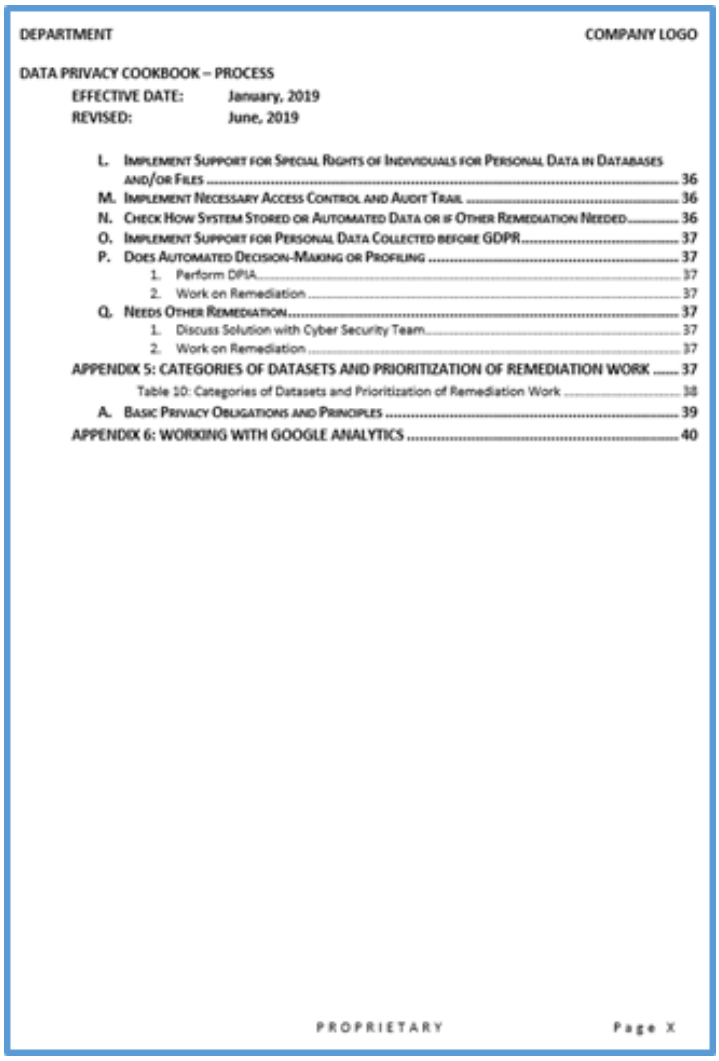
DEPARTMENT COMPANY LOGO

DATA PRIVACY COOKBOOK – PROCESS

EFFECTIVE DATE: January, 2019
REVISED: June, 2019

PROPRIETARY Page x

Figure 5. Table of Contents, Page 2 of 3



DEPARTMENT COMPANY LOGO

DATA PRIVACY COOKBOOK – PROCESS

EFFECTIVE DATE: January, 2019
REVISED: June, 2019

PROPRIETARY Page X

Figure 6. Table of Contents, Page 3 of 3

Supporting Documents

This document did result in the need to create a Quick Reference Sheet so that the applications development teams could have a handy reference that outlined the key "Cookbook" elements without having to read the 39-page document. This also followed a process that many technical communicators use: 1) search for a template, 2) draw it out first (imagine it), and 3) create the Quick Reference.

Even with this process, we had a finite amount of space to fit information into. So iteration upon iteration occurred again until we were able to get to the relevant information.

Figures 7 through 9 show an in-house template from another ISMS document (Figure 7), the drawn-out draft (Figure 8), and the prototype document (Figure 9).

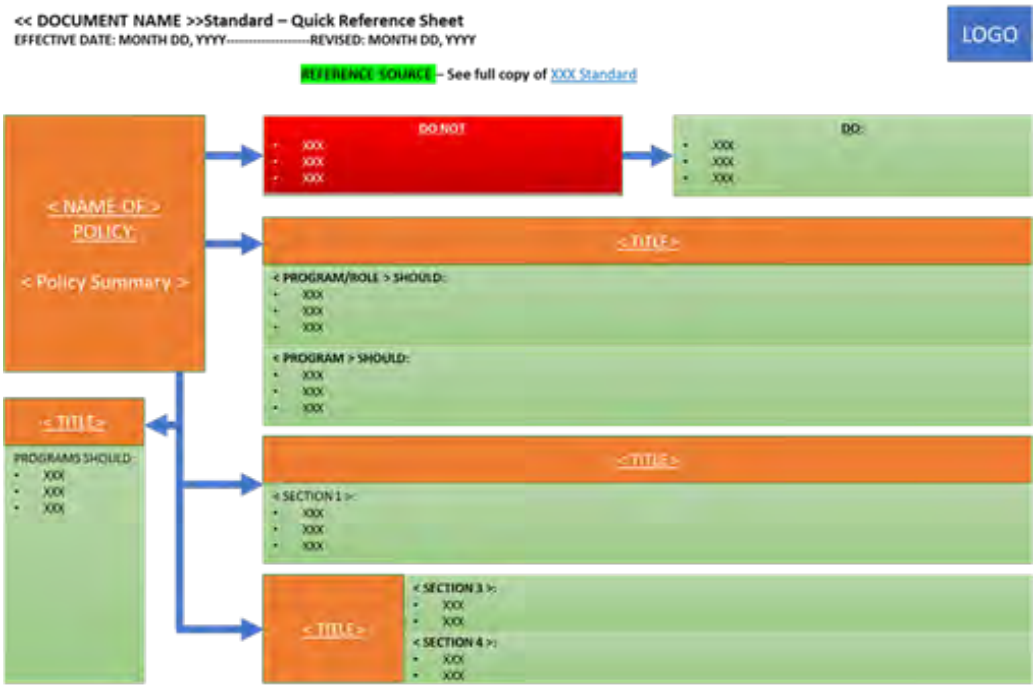


Figure 7. In-house ISMS quick reference sheet template

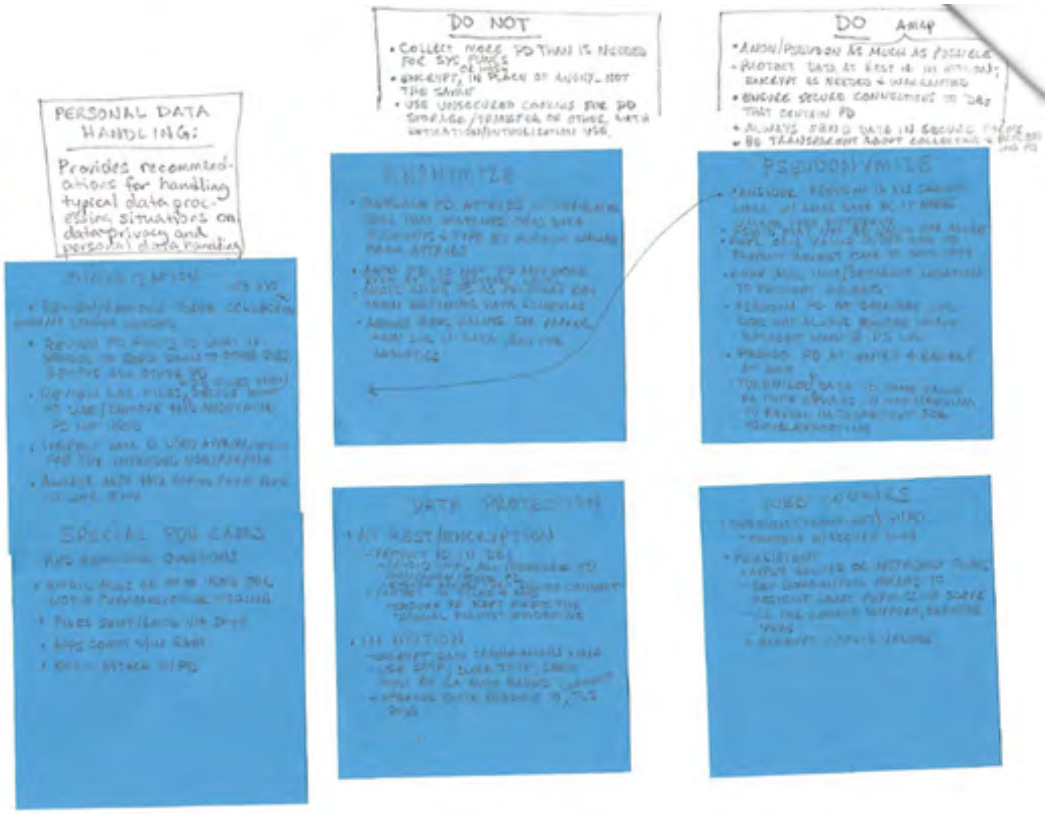


Figure 8. Draft "Cookbook" drawing and content

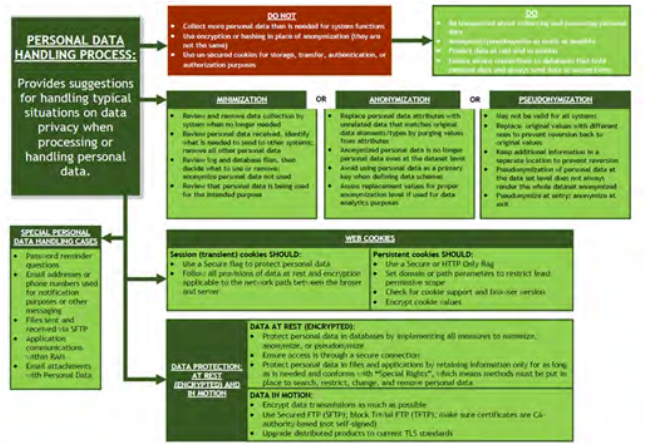


Figure 9. Prototype "Cookbook" document

Project Success: Lessons Learned

This process took about three months of work to get to a published state. There were multiple cross-reference links to other corporate policies, standards, and references that had to be continually updated as we were transitioning between different document repositories at the time.

The final goal was to get everything published onto a Global Intranet page for the Procedures (or Processes), the category into which the "Cookbook" fit.

To summarize our project success:

- Start by reading with different colored highlighters, marking:
  Keep, Possibly Remove, ~~Delete~~
- Place document in prescribed format
- Repeat first step until you get just the content you "really" need
- Publish on corporate website or into corporate ISMS library

References

"ISO: About Us." (December 2020). https://www.iso.org/about-us.html

Lineman, David. (2014). "Security Policies, Standards and Procedures: What's the Difference?" InformationShield. https://informationshield.com/2014/10/27/security-policies-standard-and-procedures-whats-the-difference/

Author Contact Information

Dr. Jackie A. Damrau
Sr. Business Analyst II
jdamrau3@gmail.com
(214) 505-0100

Author Biography

Dr. Jackie Damrau is a Fellow and the Book Review Editor for *Technical Communication* with the Society for Technical Communication. She also serves on multiple STC committees.

Jackie was a Senior Project Manager at a global commercial real estate company where she managed data governance projects and supported the Global Data Privacy Office initiatives for data governance and privacy.

She is now a Senior Business Analyst II for Carrollton Enterprise Services working on a global client project for a major pharmaceutical customer using her business analysis/process modeling knowledge, scrum/agile knowledge, and documentation background.

In her spare time, Jackie enjoys raising her two grandchildren and reading murder mysteries along with other esoteric subjects. Find more about Jackie on LinkedIn (linkedin.com/in/jackiedamrau).

UX Research During a Pandemic: Remote Methods and Testing Tools

Meghalee Das

Remote user experience (UX) research and usability testing has become increasingly convenient due a wide availability of testing and video conferencing tools. However, conducting contextual inquiry remotely can be challenging, especially at a time when the COVID-19 pandemic has restricted travel and budget. In this presentation, I draw on my experience as a graduate student researcher, and suggest methods which can help beginner and intermediate practitioners gather rich contextual information, and direct usability tests remotely.

In the first part of the session, I will briefly address the challenges of remote UX research and discuss the following takeaways for industry practitioners and foundation-level attendees like graduate student researchers:

- Cultivating flexibility in UX research and usability test plans
- Exploring contextual inquiry alternatives
- Using synchronous and asynchronous remote testing tools

In the second part of this session, I will share a content example and findings from a remote usability test I had conducted for a graduate UX research class using the testing tool Loop11. The purpose of presenting this content example is to:

- Share how an on-site testing plan was adapted to a remote one at short notice due to the enforcement of social distancing rules
- Discuss the advantages and barriers of using a moderated remote testing tool
- Share the lessons learned from this experience, and make recommendations on the application of these methods

Remote UX and Usability Methods

Remote UX research and usability testing is not new. But with increasing availability of video conferencing and testing tools, and circumstances like a pandemic forcing social distancing rules and travel restrictions on a global scale, remote UX has gained renewed interest among researchers. According to a survey on UX researchers, 40% of respondents started working remotely after the COVID-19 pandemic began (Quintero, 2020). While there is a general consensus among UX experts, including Jakob Nielsen, who believe that to get deeper insights in user experience, one cannot reply completely on remote methods (Nielsen, 2020), there are certain approaches and tools that can help us become effective remote UX researchers:

Being Flexible and Responsive

Cultivating flexibility is an important skill that can help researchers promptly respond to unexpected circumstances. Rigidity in methods and priorities will prevent one from utilizing multiple alternatives available that can lead to new insights which might not have been possible earlier. For example, if you are interested in a multinational user base and, like me, study intercultural technical communication, remote UX research is an opportunity to collaborate between different cultures. It also gives us access to large groups of participants, not restricted by travel budgets and geographical constraints.

Creativity in Contextual Inquiry Options

One area which can pose a problem to remote UX researchers is the limitations of contextual inquiry methods. While there is no doubt of the importance of in-person research and testing, we can be creative when it comes to remote contextual inquiry, too. For example, we can ask participants to record their work surroundings through wearable recording devices, or

on their tablets and phones. These recordings can be detailed or brief narratives, but they will help researchers observe the user's ecology and conduct an environmental analysis accordingly. Other methods to gather more contextual information are to browse user forums, support logs, content analytic reports, and research reports (Dhanagopal, 2018).

Remote Testing Tools

There are also different types of usability testing tools available, and I present my experience with using one in the next section. These tools can be moderated or unmoderated, usually have either audio or video recording or both options, and automatically record and calculate numerous metrics. Some popular tools are Morae, Loop11, Maze, dscout, UserTesting, and so on. Video conferencing software like Zoom and Skype also have video recording and screen share options, which can be an inexpensive and convenient way to observe and conduct a usability test.

Now I will talk about the application of these remote UX and usability methods in the project I did for a graduate class.

Background of Remote UX and Usability Project

During spring 2020, I was researching the user experience of international patrons of my university's library to make recommendations on tailoring the website for a more multicultural audience. The University Library at Texas Tech University (TTU) serves as a site of learning, research, and socializing, and is a vital source of information for students and faculty. A significant part of the library user population is its diverse group of international patrons like students and visiting scholars. As of Spring 2020, international students comprised 24% of total graduate students and 37% of doctoral students (TTU Institutional Research, n.d.). TTU also has partnerships with 172 international universities, where scholars come here from their home countries to study, teach, and conduct research (TTU International Affairs, n.d.).

These international patrons sometimes face unique challenges while using the library website because of cultural, linguistic, social, and technological differences. The purpose of this evaluation project was to analyze international patrons' experience carrying out key tasks through the library website to make recommendations for a satisfactory and useful user experience. I started by creating user journey maps, low-fidelity website prototypes, and a site visit, where I followed a Chinese visiting scholar as he navigated the library website and the building. The final step of this project was to do a usability study of the library website, and for that I made an in-person test plan. But as the COVID-19 pandemic and lockdown hit in full swing, my university shut down, and I had to convert my test plan to a remote one.

A Rollercoaster of Challenges and Resolutions

While I had the luxury of gathering rich contextual data through a site visit of the library, I had to think fast about how to make a remote usability test with much less resources, time, and experience. I also had to account for the additional burden I would be placing on my test participants, who were already overwhelmed due to the sudden shift to working from home, internet disruptions, or caring for children, as well as my own mental health in the middle of a pandemic and inexperience with using remote tools.

To alleviate some of the challenges, I promptly sent a survey to the test participants to note their technical proficiency, website use behavior, relevant personal challenges, and access to the internet. In the meantime, I started exploring remote test tools by posting my question on online UX forums and social media UX groups, where I learned about the usability testing tool Loop11. As a graduate student, I also appreciated that it had a free trial version, which gave me a choice to pay for the full version later.

I modified my test plan to incorporate this tool and create a moderated remote usability test. I also made a few changes in the task scenarios which would be more suitable for an online format, learned how to operate the tool myself, and conducted a pilot study. The flexibility not only helped me to create a more robust test, but also gave me access to various metrics which would be automatically calculated, thus saving time and resources. The tool also had unmoderated testing options which adds even more flexibility.

However, in spite of conducting a pilot test, there were still some barriers to the test which I had not anticipated. For example, during one test, a participant could not start the tool, which kept on buffering due to slow internet speeds on his end. After trying many

times, we gave up, and as he did not have access to internet anywhere else due to the lockdown, I could no longer test this user. In another test, the tool froze midway through the test, again because of internet issues. We had to start the test from the beginning, and this led to a loss of time during our already busy schedules.

It was also difficult to build the connection and camaraderie that organically happens in a face-to-face test. My participants had a wide range of linguistic and cultural differences that made communication more challenging, and although I could hear them live, Loop11 recorded only their screens, and not their faces. I could also sense there was some additional frustration occasionally as they used the tool to perform the tasks on the library website, and I felt some of their cognitive load and emotional reactions were not indicative of the website I was testing, but was rather due to their unfamiliarity with the testing software, which could potentially skew the UX data I was gathering.

Lessons Learned

The first lesson I learned from this experience was to extend grace to my test participants, and also to myself. Empathizing with users is key to understanding their needs and experiences, which can make us more effective observers and testers. Preparing the users ahead of the test, sending them instructions about the tool such as download or navigation instructions, and keeping extra time for the test to accommodate any additional time that is spent in operating the software during the test is important. If the users are from a different cultural background, as were mine, it is a good idea to learn about their general cultural values and communication styles, not to stereotype anyone, but as a starting point to familiarize ourselves with user profiles we have not worked with before.

The next important takeaway was that it is very important to have a pilot test, especially when we are using a tool for the first time. Observations in an in-person usability test can be conducted with as less as a pen, notebook, and watch. But if we are using a remote testing tool, there could be a learning curve for both the tester and user. Conducting a pilot test with a representative user or even one role-playing as a representative user can help us catch errors in the test plan and fix them before the actual test.

Another lesson I learned was to carefully consider which metrics we want to analyze so that they help us reach the project goals. Most testing tools offer a plethora of metrics and analytics that can lead to rich and sound findings. However, not all of them will be applicable to your test, and therefore prioritize the ones which provide relevant information about the experience of your users. I activated quantitative features on Loop11 such as average page views, task completion rate, average time spent in each task, and heat maps to study efficiency. I analyzed learnability through the time-stamped note-taking feature and participant path analysis. Loop11 also comes with the System Usability Scale feature that I added to the test as a post-task questionnaire to test satisfaction. These methods, along with the Think Aloud Protocol, helped me gather qualitative and quantitative data, and the audio and screen recording options allowed me to verify if the information was correct.

Conclusion

The world of technology is always in a state of flux. As UX researchers, we cannot control or anticipate all our circumstances or how our users will behave. But we can use technology to our advantage, and one way to do that is to use remote UX and usability methods to not only reach out to a more diverse user population, but also gain innovative insights facilitated by technology. In spite of the challenges that come with remote methods, this is an exciting field that will likely see more developments in the future.

References

Dhanagopal, K. (2018, November 9). Understanding our users: A comparative analysis of the techniques we can use. *Intercom*. https://www.stc.org/intercom/2018/11/understand ing-our-users-a-comparative-analysis-of-the-techniques-we-can-use/

Nielsen, J. (2020, April 10). Can UX be 100% remote? NNgroup. https://www.youtube.com/watch?v=MG64QcjRL8c

Quintero, S. (2020, April 28). How the COVID-19 crisis is affecting UX teams. *Customer Insights Blog*. https://blog.getenjoyhq.com/how-the-covid-19-crisis-is-affecting-ux-teams/

State of Texas and Texas Tech University. (n.d.). *International Affairs*. TTU. https://www.depts.ttu.edu/international/intlrsch/partnerships/showAgreementList.php

Texas Tech University—Fact Book. (n.d.). *Institutional Research.* TTU. http://techdata.irs.ttu.edu/FactBook/Enrollment/E NRETHCLASS.aspx

Author Contact Information

Meghalee Das
PhD Student
Texas Tech University
5202 Auburn St, Apt 817
Lubbock, TX, 79416
(512) 806-3567

Author Biography

Meghalee Das is a PhD student in the Technical Communication & Rhetoric program at Texas Tech University. She teaches courses like first-year composition, and introduction to technical writing and has received the First-Year Writing Outstanding Instructor Award at Texas Tech University. She was also awarded the 2021-2022 Society for Technical Communication (STC) and STC-Chicago student scholarships.

Her research interests include intercultural technical communication, user experience, social justice, inclusive pedagogical practices, and digital rhetoric, and she has published articles on these topics in STC's *Intercom*. Meghalee is originally from India, where she worked as a journalist. She also has master's degrees in English literature and business administration.

Automating and Simplifying Quality Reviews

Aryn E. Frizell and Megan E. Jensen

Cerner's Product Documentation team established a process to measure adherence to documentation quality and process. Cerner established eight distinct quality areas scored with a numeric value when a technical writer's documentation is reviewed for compliance to these standards. Automatic reporting then compiles this data to allow leadership to view quality score trends by individual technical writer and collective team. By measuring documentation quality, Cerner identified team-wide areas for additional education, identified individual performance gaps, and improved the overall quality and usability of their documentation.

The session will help you understand how to:

- Establish a process that can work for any team, regardless of the tools you have available.
- Create a set of core documentation quality values that your team can use to start measuring quality.
- Implement tools that can potentially help you save time and improve quality.
- Implement a process that your team can use to ensure that the documentation that is created meets the standards that are outlined.

Note: If you attended this session last year, this year's session can help you gain a better understanding of how we implemented tools like Acrolinx to help us streamline the quality review process.

Initial Goals of the Quality Review

In 2015, it was determined that our team needed some sort of Quality Review process. Our team was low on capacity and resources, but an internal audit recommended that we incorporate a way to ensure that quality was being met in our documentation. We gathered a group of documentation architects and brainstormed ways to implement the process based on the tools and capacity available to the team. As we thought about how we wanted to create the process, we kept the following goals in mind:

- Provide technical writers feedback so they can grow in their career.
- Provide visibility to leadership about how the technical writers are doing from a quality standpoint.
- Provide training opportunities as we identify common areas that had low scores.
- Use the tools that we have available to conduct the review.

The following tools were used as part of the first Quality Review process:

- Atlassian Confluence (which Cerner refers to as the Cerner Wiki)
- Atlassian Jira
- Microsoft Excel

A comprehensive Microsoft Excel document with over 70 checkboxes for the reviewers was created. Because the review was such a large task, we decided to review random Jiras in a Closed status for each technical writer every six months.

Issues With the Quality Review

This process was overwhelming to maintain, and technical writers were getting feedback six months after they published a document. Technical writers were frustrated, because by the time they received the feedback, they had already moved on to other documentation tasks and did not want to revisit documentation that had already been published. We knew that we needed to provide feedback to the technical writers more quickly so they could learn and apply those skills to subsequent documents as close to the publication date as possible.

Leadership was unable to understand how the team was doing at the time, because the feedback was always running six months behind. This prevented us from providing additional training opportunities that the team or individuals needed to improve. Often, the technical writer would only hear about their results at their annual review, so they had no time during the year to apply the feedback they received.

Current Quality Review Requirements

In 2017, we knew we needed to address the following issues with the Quality Review process:

- Technical writers were not getting feedback until six months or more after they published a document.
- Reviewers were spending a lot of time reviewing the extremely comprehensive checklist that was created.
- The Microsoft Excel spreadsheet was very detailed and contained many calculations, which required a lot of work on top of the product work that the reviewers were also responsible for creating.

To give technical writers feedback in a more timely manner, we established a core group of documentation architects to evaluate and refine the Quality Review process. We wanted to ensure that technical writers were getting just-in-time feedback and that we could track progress and training opportunities. This core group evaluated the tools that we were already using and determined that we could use these tools to simplify the process for both the technical writer and the quality reviewer. We also conducted a survey and asked the team what type of reviews would be helpful to them and how we could improve the process. With the feedback we received from the team, we started brainstorming ways to improve the Quality Review process.

We decided to eliminate the Microsoft Excel spreadsheet and move the process to Atlassian Jira. Careful analysis went into reducing our existing 70-item checklists into eight broader categories. Once we evaluated the categories that we wanted, we updated our workload management tool, Jira, to include these categories. This enabled the technical writers to use their current tools to receive feedback on the new documents that they created. We did not want the quality reviews to disrupt the technical writer's workflow, so finding a way to integrate the quality review into what they were already doing was important.

In 2019, the Product Documentation team implemented Acrolinx to help provide just-in-time feedback to technical writers. With this tool, the Product Documentation team added over 2,600 custom words and phrases based on the Cerner Style Guide. This tool has helped the Product Documentation team monitor quality, as well as streamline the feedback the team is receiving.

Quality Review Scores

The following eight categories are part of the Quality Review process:

- Planning, Drafts, and Turnaround Time
- Formatting and Templates
- *Acrolinx* Score
- Cerner-Specific Style and Terminology
- Grammar and Proofreading
- Technical Writing Standards
- Interface-Specific Terminology and Usage
- Publication Workflow and Storage

Each of these scores corresponds to a numerical value. This enables the data to be pulled into a *Power BI* report. The following scores are available for each of these categories:

- Met - 3
- Met – Other - 3
- Mostly Met - 2
- Not Met - 1
- Partially Met - 0
- Not Applicable – No score

In addition to providing scores, the reviewer adds comments to further explain the feedback, so the technical writer understands why the technical writer received the score. The reviewer meets with the technical writer biweekly to discuss areas for improvement as well.

Implementing the Quality Review

To implement this new process, we conducted extensive training with the quality reviewers and the technical writers. We addressed concerns and

reiterated that quality reviews were intended to help them improve. Once we completed the training and updated the work instructions, we used two months to conduct trial quality reviews before officially rolling out the process on January 1, 2018. We encouraged feedback from the technical writers during this trial period and made any last-minute tweaks based on feedback and observations. This was critical to ensure that the technical writers understood the process and purpose, as well as let them feel empowered to provide feedback. We also moved from using the word *audit* to *review*. We found that technical writers were more intimidated by the term *audit*, so we eliminated this word and stressed that the purpose of the review is to help them improve by providing continual feedback.

Current State of the Quality Review

The following tools are used as part of the Quality Review process:

- Acrolinx
- Atlassian Jira
- Atlassian Confluence (Cerner Wiki)
- Power BI

The following workflow describes how a quality review is conducted:

- The technical writer is logged into Jira to create a new page from the technical writer's engineering team.
- The technical writer creates the new page in the Product Documentation Templates space in Cerner Wiki.
- The technical writer reviews the content and runs *Acrolinx* on the page.
- The technical writer makes any changes based on the results that *Acrolinx* returns.
- *Note***:** The technical writer needs to ensure that all pages are submitted with at least a score of 80 or higher.
- The technical writer ensures that the new page meets all publishing requirements.
- The technical writer logs a subtask for a documentation architect review. Ideally, this is logged before the document is published.
- The documentation architect reviews the page in two weeks (or sooner depending on the release date) and provides feedback to the technical writer.
- The technical writer provides the changes to the page and sends the page to their subject matter expert for approval.
- The documentation architect scores the review in the Jira subtask.
- When the page is published, the documentation architect does a final review to ensure that all process requirements were met.
- The documentation architect provides any additional feedback.
- The parent and subtask Jiras are closed.

Reviewing Results in *Power BI*

The results from the scores that are entered in Jira are stored in a data warehouse. This enables the data to be pulled into a Power BI report that can easily be reviewed by managers and other leadership roles.

The Power BI report consists of the following reports:

- Average by Quality Area
- Average by Document Type
- Comment by Document Type
- Trendline—Technical Writer
- Trendline—Whole Team

Managers meet with their direct reports bi-weekly to review their results, then leadership meets quarterly to review each individual's progress, opportunities for improvement, and exemption qualifications.

Exempting Technical Writers from the Quality Review

The goal of the quality reviews is to not only provide feedback to the technical writers, but to also eventually exempt them from the process. This is an achievement for the technical writer, and it allows the reviewer to focus on newer technical writers and technical writers who need additional feedback. Team leadership determines which roles are required to submit documentation.

A technical writer can be exempted from the Quality Review process when all the following criteria are met:

- At least one year in the technical writer position.
- Overall average scores of at least 2.75 for both quality and process reviews for two quarters.

- A minimum of 10 documents to be reviewed before a technical writer is exempt from any documentation type in the Product Documentation Jira project.
- Review and approval of the exemption by documentation architects and leadership.
- Other factors that documentation architects and leadership may consider when determining exemptions to meet business needs, for example, the technical writer's average scores for each document type.

Current State of the Quality Review

In conclusion, the Quality Review process helped the Product Documentation team prove that we are achieving the quality review metrics that we have defined. We are constantly striving to improve by soliciting feedback from the technical writers and from stakeholders. As new tools become available, we will update our process to ensure that we are providing
just-in-time feedback to the technical writers.

With the information that we learned, we think other teams can implement quality review processes with the resources and tools that they have available to them.

Author Contact Information

Aryn E. Frizell
Lead Documentation Architect
Cerner Corporation
8779 Hillcrest Rd.
Kansas City, Mo 64137
(816) 446-1402

Megan E. Jensen
Manager, Lead Documentation Architect
Cerner Corporation
8779 Hillcrest Rd.
Kansas City, Mo 64137
(816) 201-6463

Author Biography

Aryn and Megan are lead documentation architects and managers at Cerner Corporation, a health care software company with more than 29,000 associates. Megan and Aryn also are managers of the documentation team, which consists of 60 associates and includes managers, documentation architects, and technical writers. Aryn and Megan define the content strategy and processes for Cerner's solution-labeling documentation. With more than a combined total of 25 years of technical communication and 15 years management experience, Aryn and Megan are excited to improve quality by gathering the necessary data to identify training opportunities. Aryn has a B.A. in English with an emphasis in Technical Communication. Megan has a B.A. in Journalism, a B.B.A. in Marketing, and a graduate certificate in Instructional Design.

Teaching with Google Workspace Platforms in Agile, Team-Based Communication Situations

Philip B. Gallagher, PhD, and Bremen Vance, PhD

Collaborative projects are central in technical communication. But,COVID-19 forced us to adopt new processes. In many situations, technical communication learning and teamwork moved online or incorporated social distance restrictions. These challenges created opportunities to innovate. Inspired by Agile and Design Thinking, we made activities that encourage students to test, explore, design, and refine projects using online collaborative tools. We mapped these stages to tools and features in Google Workspace. This enables communities of learning and online collaborative workflows in distanced spaces. By focusing on how to use these tools, we facilitate successful collaboration and seek to share our methods.

For virtually everyone, it has been a tough year. The COVID-19 pandemic has made our lives more difficult in a multitude of ways. As technical communication educators and professionals, we've had to move online, adopt digital platform solutions, and find new ways to work together in environments undergoing digital shifts that have pulled us apart (Frith, 2021; Soto-Acosta, 2020; Teräs et al., 2020). The number of remote job listings in the U.S., mostly from technology, finance, and law sectors, doubled in the last year (Gardner, 2021). Further, according to *The New York Times*, an increasing number of colleges and universities that moved courses online may bring only some of them back (Hartocollis, 2020). In many ways, the work of technical communication professionals did not change, as many of us taught online, worked in virtual teams with global partners, and used a plethora of software applications before the pandemic. Still, the pandemic has shown the value and power of the work that typifies our field.

As many of us reconfigured our home and work lives, the form and meaning of human presence changed drastically after March 2020 (Nuere & de Miguel, 2020). In the academy and private sector, the pandemic upended normal activity with friends, students, and colleagues. Our work-groups, meetings, classes, reports, presentations, and social events moved online and we have not been able to reintroduce that human element back into our lives in a way that is "normal" in pre-pandemic terms. Despite continued high productivity regarding deliverables (Thompson, 2021), the collaboration of technical design teams inside and outside of classrooms has encountered challenges with the rapid introduction of unfamiliar tools used to solve wicked problems (Wickman, 2014). Further, these digital collaborations have largely been unable to leverage human sharing, scaffolding, and collective intelligence previously observed in shared, face-to-face spaces (Stewart, 2017). Reacting to this problem and the limitations of the COVID-19 environment, this document offers a way forward for technical communication professionals to focus on human presence in collaborative coursework. We discuss how Agile philosophy and Design Thinking methods inform our use of online collaborative tools, like those available through Google Workspace, to develop productive collaborative opportunities.

Hereafter in this paper, we develop and discuss how Agile philosophy, Scrum processes, and Design Thinking respond to the needs of online collaborative teams. Then we address Google Workspace tools and scaffold activities that encourage students and users to test, explore, design, and refine projects using Google Drawings and Google Jamboard in two common technical communication classroom scenarios. The design stages and tasks of these activities are then mapped with Agile principles and Design methods, as well as the features and affordances of these tools.

The COVID-19 Environment

The current technical communication climate may best be described as "fractured" and "constraining" due to online-only mandates, social distancing

requirements, and a host of COVID-19 mitigation efforts impacting the classroom and the workplace. Even though the limitations in these spaces are being reduced while the number of vaccinated individuals climbs, many constraints to person-to-person workflows and habits will endure into the future (Gardner, 2021; Milanesi, 2020). According to scholarship from Stewart (2017), changes to the amount of human presence--whether social, teaching, and/or cognitive presence--within our discourse communities weakens interactive learning and our ability to make and leverage co-created knowledge (p. 72). Therefore, our interactive learning experiences require the presence of others and the collaborative activities of sharing, scaffolding, and using each contributor's knowledge, creating what Pierre Levy (1999) termed "collective intelligence" around a particular topic of interest within a "knowledge culture" (Jenkins, 2008) or "Community of Inquiry" (Anderson et al., 2001). The same need for presence is true in our digital team environments. During the pandemic, a reduction in human presence has weakened collaborative innovation in the workplace. The technological solutions that universities and organizations have implemented include impressive features, collaborative functions, and marketing pitches that appear to ensure human presence, making digital systems seem to be a panacea.

While many believe the adoption of "media-rich" online platforms allow participants to naturally communicate and interact effectively, the success of these systems is not guaranteed. In a recent study on student use of Google Docs for collaborative writing, students did not use the rich assortment of collaborative sharing tools (co-authoring, comments, chat, etc.) to boost their presence or communication (Stewart, 2017). The author suggests that the unsuccessful use of "media-rich" affordances during collaborative work shows a lack of planning and scaffolding for personal communication among team members, so students in the study did not develop sufficient investment in navigating multiple perspectives in ways that come from developed relationships when collaborating face-to-face. Stewart suggests that human presence and personal exchange are largely omitted by teams using these kinds of platforms (Stewart, 2017, pp. 74–75), which can have deleterious effects on the outcomes. Feature-rich systems may appear powerful and intuitive solutions, but the implementation must be accompanied by direct training or instruction that is informed by robust theory. For this reason, it is important when using tools like those in Google Workspace that we carefully scaffold teaming (both in classrooms and offices) via approaches like Agile philosophy (and its Scrum process) and Design Thinking, which we have adopted for managing our online collaborative teams putting people and communication first (Beck et al., 2001).

Combining Agile, Scrum, and Design Thinking

The Agile philosophy originated in computer app and software development teams of the 1990's and early 2000's. Agile and Scrum have been documented extensively by scholars and practitioners; we offer a brief summary of some key features here. According to Pope-Ruark (2015), the concept of agility for project management in TPC comes from The Agile Manifesto. The manifesto posits that we should put "individuals and interactions over processes and tools...customer collaboration over contract negotiation," and "responding to change over following a plan" (Beck et al., 2001). This ideology in project management emphasizes the self-organization of teams, an exploratory planning process, and teamwork focused upon scaffolding progress toward objective outcomes via small iterative tasks. For us and Pope-Ruark (2015), Agile philosophy and practice ask us to put people first in our work by embracing their value, contributions, and input.

Agile as a way of thinking about teamwork encourages flexibility, simplicity, reflection, and interpersonal communication (Beck et al., 2001). As a philosophy, Agile prescribes values that can be implemented in multiple ways, and a variety of Agile models have been developed. A popular model, Scrum, offers valuable scaffolding for empowering collaborative teams working on projects (Perkowska, 2020). Scrum, as a management tool, involves staging workflow across four phases: planning, implementation, review, and reflection. Additionally, Scrum prescribes significant roles in the collaborative process of project owner, scrum master, and the development team. During each phase, members of the team align their values and mindset to allow members to create and adapt as needed.

Taken alongside Agile philosophy and Scrum processes, Design Thinking concepts heighten focus on collaborating with end-users by situating them as

the locus for assessing deliverables and positioning them as a driving force behind ideation. Based on the model produced by IDEO of the Stanford d.school, Design Thinking is a human-centered, "problem-solving process" (Leverenz, 2014, p. 5). School program director Tim Brown (2009) describes Design Thinking as a means to address complex problems using innovative thinking in conjunction with today's user-audiences. That is, in its most common iteration, Design Thinking involves using a non-linear, recursive design process to achieve innovation, much "like the writing process" (Purdy, 2014, p. 627), but tied firmly to working with outside partners. According to Purdy, Design Thinking has six steps; they are "understand, observe, define, ideate, prototype, and test" (p. 627). These are the steps we use to prepare our student teams for innovative TPC design work.

Bringing together Agile, Scrum, and Design Thinking methods, we have developed classroom activities that encourage our students to work together meaningfully on projects despite their distance from each other. These approaches nurture their abilities to test, explore, design, and refine projects all while being present virtually. In what follows, we introduce Google Workspace and its tools and we share activities we've used that encourage students to participate meaningfully in projects using Google Drawings and Google Jamboard to address common technical communication scenarios, making tough decisions and brainstorming on multivariate teams.

Google Workspace, Tools & Activities

As a suite of tools focused on distanced collaborative work, Google Workspace platforms offer features fit for professional projects and workflows (Mendoza, 2020). According to Milanesi (2020), Google Workspace integrates collaboration and communication around content production for the remote COVID-19 environment and beyond. Google platforms contain an ideal suite of features across their collaborative platforms that support Agile's teamwork principles and center interaction in ways that support the three important types of "presence" identified by Stewart (2017). For these reasons, we adopted two tools from Google Workspace into our Covid era classrooms suited to our Agile and Design approaches to team projects in TPC, Google Drawings and Google Jamboard.

Google Drawings is a collaborative drawing tool best for creating diagrams and flowcharts. Google Jamboard functions like an online whiteboard space with expanded capabilities through image searching and hyperlinking. The collaboration features of these tools have supported vital conversations within and between teams in the distanced classroom and online. In our project-based courses, we use these tools to facilitate collaborative steps that we align with the stages of Scrum: Planning, Implementation, Review, and Reflection.

Google Drawings & Co-authoring Flow Charts

As part of our technical communication courses, resource assessment is mission-critical to developing strong proposals and recommendation reports. In a typical project, student teams are provided the global task of discovering emerging technologies that may solve a "grand challenge in engineering" (NAE, 2021). These teams must collect academic and practitioner resources as they explore their challenge. Once teams compile a list of 12 to 15 resource URLs, they come together in the classroom (regardless of the current form of distancing) to collaborate on the assessment of resources using CRAAP testing. As part of this assessment, teams are tasked with planning, designing, reviewing, and revising a decision tree that they must use to evaluate resources for currency, relevance, authority, accuracy, and purpose.

Before designing flow charts in Google Draw, we implement a collaboration model and process that facilitates an effective team dynamic. Acting as scrum leader, we facilitate the activity. We first offer guidance grounding the work in Agile philosophy and useful Design methods for working on teams. To accomplish this before supplying the prompt, we tell our students how important it is to get teams together and form a sense of community.

During the planning stage of the activity, students use prior referencing and document management knowledge to leverage the benefits of a shared workspace. Usually working from Google Docs, self-lead teams generate yes/no questions together in a document that may be used to evaluate their resources. During this stage, students are instructed to use collaborative affordances of Google Workspace—chat, comments, meet, and synchronous co-authoring—to share their ideas on the experience, workflow,

questions, and types of evaluation that are important for choosing strong resources.After teams feel they have generated enough questions, they move into the design phase, which occurs in Google Drawings. Students work together to design a series of root, branch, and leaf nodes for assessing their collected resources. As they begin this phase, students are reminded of the agile principles and to use the Workspace collaboration features within to support human-centered communication (Beck et al., 2001). Once the designs are finished, students are required to trade links, review, and offer feedback on another team's flow chart, furthering the knowledge built and shared by the community.

The share feature allows teams to review each other's work with various levels of participation, such as viewer, commenter, and editor. Teams are asked to share their decision trees with editor privileges enabled because review teams are expected to not only use the comment feature but also to draw inside the tree using call-out shapes (Figure 1) to critique the design and offer substantive commentary directly where it is relevant.

Review teams are asked to assess the content and visual representation of the flowcharts. Conducting this in-depth review process as a team generates substantial feedback for the design team who created the drawing, and it provides an authentic opportunity to gain competence with the reviewer features of the platform. Hence, the review and feedback stages of this activity support the refinement of the work for all parties within the collaborative environment supported by Google Drawings.

Google Jamboard & Storyboarding User Journeys

In our courses, we have students collaboratively develop another visual deliverable important to technical writing: storyboards of user journeys, which we ask them to complete in Google Jamboard. In addition to drawing and communication features, Jamboard allows users to use digital sticky notes and import online content across multiple Jamboards to structure and tell the story of their projects. In the manner of online connectivity, this tool surpasses the traditional analog whiteboard through the ability to pull in digital content.

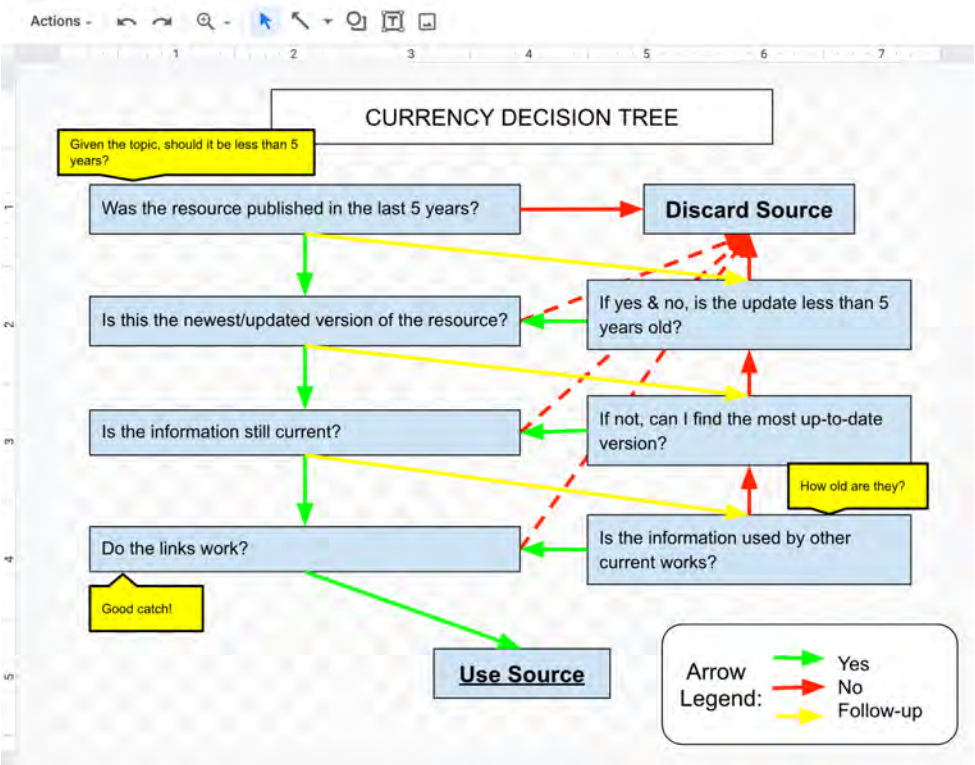


Figure 1. Google Drawings decision tree

Like our flowcharts activity, this activity asks student design teams to work together following the principles of Agile philosophy. We ask them to

- Conduct self-organization within their teams based on strengths and interests
- Use exploratory planning processes based on user needs
- Scaffold their progress using actionable tasks to accomplish a larger objective

During the planning stage, student teams investigate online communities of software users to identify typical problems and questions described by new adopters. They examine member profiles of these users and make observations about the user base, focusing on educational, professional, and experiential insights about real users. From this information, students work to develop an understanding of the target user for their software and form user personas. Each persona functions as a focal point to explain the inciting incident for taking-up the software, the process of learning it, and the results of successful use.

For the design stage of the project, students use Google Jamboard collaboratively to plan the narrative series of events (Lupton, 2017) for their user journeys using the sticky note feature, online imagery, and text descriptions (Figure 2).

Then, design teams participate in a round of critique, reviewing their own storyboard from the perspective of a user. After the critiques, student design teams use images they created, found online, or repurposed to tell the user story from the initial problem through successful use of the software. Student storyboards not only capture the experience of learning the new software, but also work as persuasive communications between team members and other stakeholders.

Entering the review and feedback stages of this activity, student design teams are expected to test their user journeys with audiences unfamiliar with the team's software choice, user research, and visualization drafts. Like in our first activity, reviewers are asked to both write a formal review responding to a series of questions, and they interact with, comment on, and place callouts in the Jamboard document itself. This aspect of the Google Workspace tools is a perennial source of strong collaboration and communication during review, but only if this level of communication is an expectation, as explained by Stewart (2017).

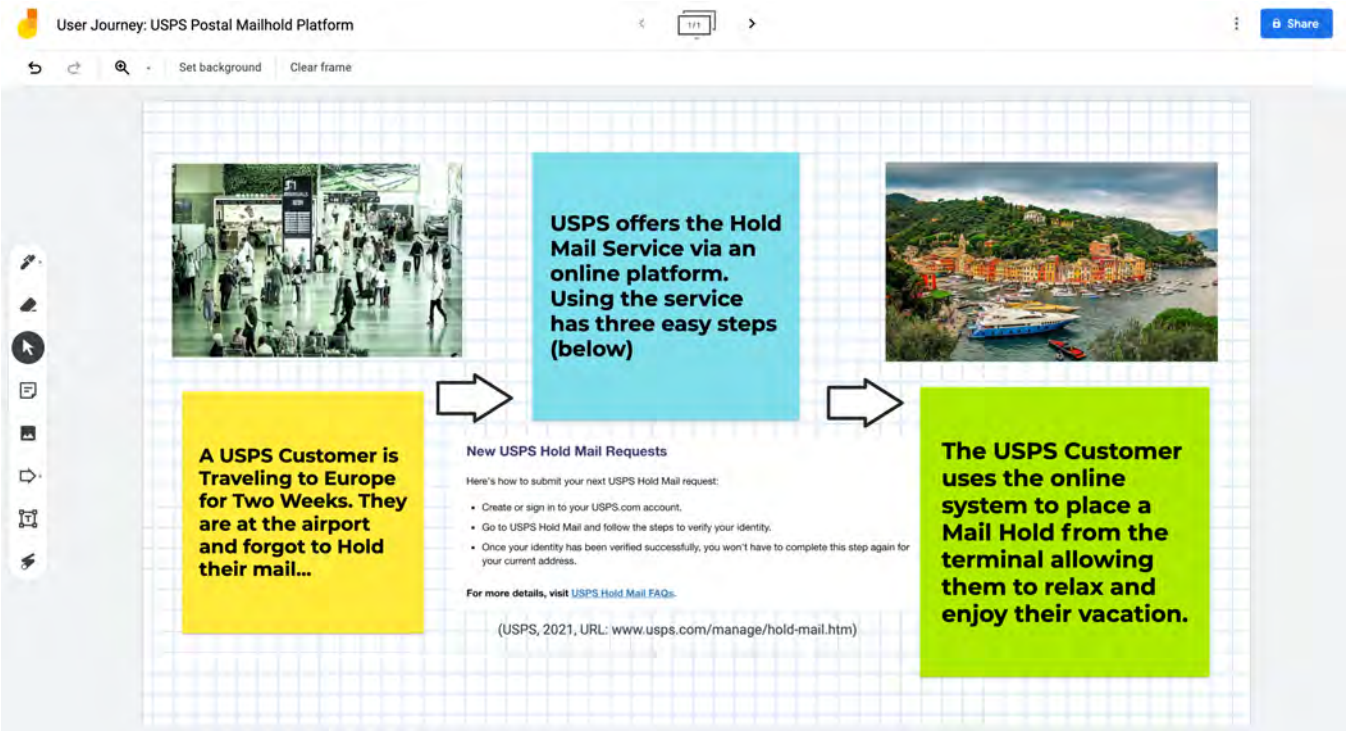


Figure 2 Google Jamboard user journey

Afterward, students not only use the feedback to revise their journeys, but they also write a collaborative team reflection. Based on Pope-Ruark's (2015) explanation of the Agile review, we include topics for this reflection ranging from team reflection on "what they did well, what they would like to improve on, [to] what skills or knowledge they have developed" (p. 123). These sharing activities, from her perspective and ours, "helped to normalize...the activities of self-reflecting, admitting to challenges, asking for help, and learning from successes and mistakes" (p. 123), all-important to working teams of students and professionals in technical and professional disciplines. Thus, the review and feedback stages in this activity support the refinement and learning experiences of the work using collaborative features within Google Workspace.

Conclusion

While the social climate has placed more priority on digital collaboration, for technical writers, adapting to online collaborative tools involves the same goals and skills that are central to our work. As instructors of technical communication, one of our pedagogical imperatives is to provide learning opportunities that promote practical and theoretically informed spaces for online collaboration. Google Workspace, and similar online collaborative applications, exemplify the digital affordances our students must be comfortable with, and using these tools ensures our students will be prepared for the distanced, digital, collaborative tasks that they are likely to encounter in their professional lives.

Collaboration and communication technologies are mainstays of technical communication training and work, and instructors may consider alternative flowchart tools (e.g. Lucidchart or diagrams.net) and alternative whiteboard apps (e.g. Miro or FigJam) to facilitate similar activities. When selecting online collaborative tools for the technical writing classroom, we recommend:

- Developing a people-first atmosphere
- Explaining collaboration's value
- Assigning practical, user-centered deliverables
- Staggering engagement between the tool and team communication

Both Agile philosophy and Design Thinking methods provide valuable frameworks for developing activities involving digital collaboration. The instructor as Scrum master approach recommended by Pope-Ruarke can also help provide a useful mindset for these types of activities and facilitate an emphasis on human presence during online collaboration. In our activities, we encourage students to be mindful of their own flexibility, the design's need for simplicity, the value of reflection, and the importance of interpersonal communication for co-authoring this kind of project and making the best deliverable (Beck et al. 2001). Our aim is to generate an atmosphere of accountability, growth, and adaptability, all while preparing our students to respond to emergent situations nimbly.

References

Anderson, T., Liam, R., Garrison, D. R., & Archer, W. (2001). *Assessing teaching presence in a computer conferencing context*. https://auspace.athabascau.ca/handle/2149/725

Beck, K., Beedle, M., Bennekum, A. van, Cockburn, A., Cunningham, W., Fowler, M., Grenning, J., Highsmith, J., Hunt, A., Jeffries, R., Kern, J., Marick, B., Martin, R. C., Mellor, S., Schwaber, K., Sutherland, J., & Thomas, D. (2001). *Manifesto for agile software development*. https://agilemanifesto.org/

Brown, T. (2009). *Change by design: How Design Thinking transforms organizations and inspires innovation*. HarperBusiness.

Frith, J. (2021). Introduction to business and technical communication and COVID-19: Communicating in times of crisis. *Journal of Business and Technical Communication*, *35*(1), 1–6. https://doi.org/10.1177/1050651920959208

Gardner, A. (2021, March 16). Remote work listings in U.S. doubled in year, job site finds. *BNN Bloomberg*. https://www.bnnbloomberg.ca/remote-work-listings-in-u-s-doubled-in-year-job-site-finds-1.1577529

Hartocollis, A. (2020, April 15). After coronavirus, colleges worry: Will students come back? *The New York Times*. https://www.nytimes.com/2020/04/15/us/coronavirus-colleges-universities-admissions.html

Jenkins, H. (2008). *Convergence culture: Where old and new media collide* (Revised edition). NYU Press.

Leverenz, C. S. (2014). Design thinking and the wicked problem of teaching writing. *Computers and Composition*, *33*, 1–12. https://doi.org/10.1016/j.compcom.2014.07.001

Levy, P. (1999). *Collective intelligence: Mankind's emerging world in cyberspace* (R. Bononno, Trans.). Basic Books.

Lupton, E. (2017). *Design is storytelling*. Cooper Hewitt, Smithsonian Design Museum.

Mendoza, M. (2020, October 21). *Fuel up your remote collaboration with Google Workspace and Pluto7*. Business Wire. https://www.businesswire.com/news/home/20201021005187/en/Fuel-up-Your-Remote-Collaboration-With-Google-Workspace-and-Pluto7

Milanesi, C. (2020, October 7). *Google Workspace elevates collaboration by focusing on the task at hand*. Tech.Pinions. https://techpinions.com/google-workspace-elevates-collaboration-by-focusing-on-the-task-at-hand/60144

Author Contact Information

Philip B. Gallagher, PhD
Assistant Professor
Mercer University
1200 Prince St.
Macon, GA 31201
gallagher_pb@mercer.edu

Bremen Vance, PhD
Assistant Professor
Mercer University
vance_br@mercer.edu

Author Biographies

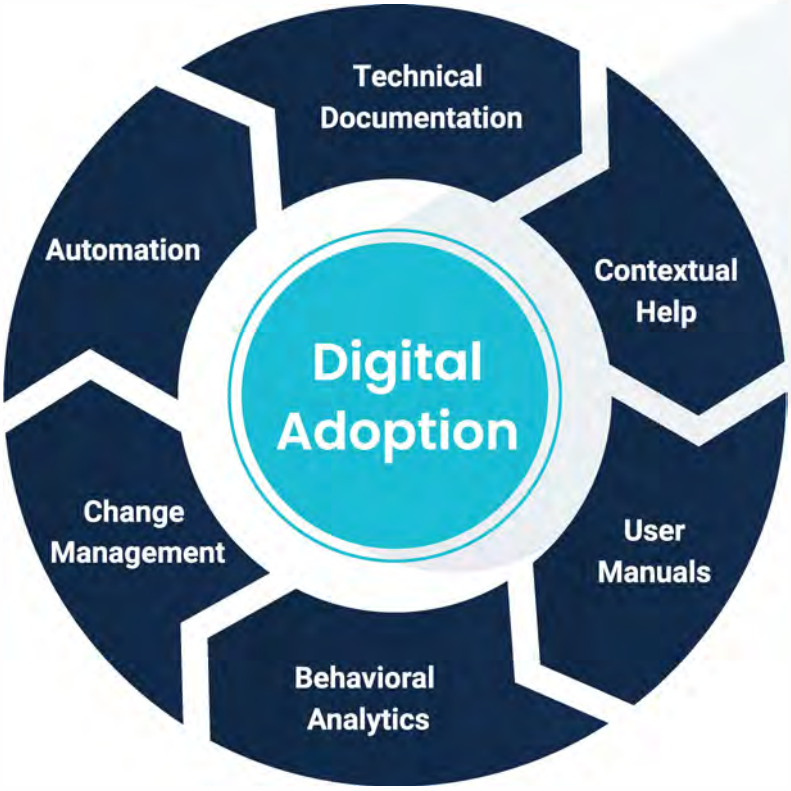
Dr. Philip B. Gallagher is an Assistant Professor of Technical Communication at Mercer University. He's a member of ACM's Special Interest Group on Design of Communication, STC, and ATTW. His current research examines TPC design pedagogy for STEM, UX Eye Tracking research of UCD, and technology in writing ecology. He's published on digital rhetoric and design in technical communication in the Journal of Interactive Technology and Pedagogy, ACM's SIGDOC proceedings, and forthcoming in Computers & Composition.

Dr. Bremen Vance is currently an Assistant Professor at Northwest Missouri State, and he has accepted a new position at Mercer University. In his research, he examines pedagogical concerns associated with teaching technologies in communication courses and he uses text-mining and quantitative methods to research the relationship between communication and technology in professional and educational contexts. He has experience with content management, web-design, and instructional design and he has been teaching writing and communication courses since 2011.

whatfix™

Are You Still Using Traditional Product Help?

Whatfix helps you transform your product documentation, making it interactive, engaging and available in real-time within the app.



How Does Whatfix Help You?

- Compatible with all web-based applications
- Efficient multilingual authoring, instant publishing and editing
- Measure your product documentation effectiveness
- SCORM compliant content production available instantly in multiple formats like Pdfs, videos, slides, and smart URLs

sales@whatfix.com | +1800-459-7098 | @whatfix

Building and Sustaining a Career in Technical Communication

John Garison, Fellow

The quality and longevity of your tech writing career doesn't depend solely on your expertise and knowledge of tools, or software, or a specific industry. While those are certainly important, the key factor is YOU. How you deal with change, how you manage opportunities, how you cope with pressure, and how you interact with colleagues are every bit as important if not more. Here's how to be the master of your career.

I have been a technical writer since 1974. That's 47 years. I have had the most amazing and rewarding career possible and my LinkedIn profile—linkedin.com/in/johngarison—will give you a sense of some of the things I've done. But not everything. It won't list the things I've learned, or the people I've worked with, learned from, and mentored. It won't provide any insight into the opportunities that came my way, most of which turned out as good or better than I hoped, or the few that I regret not taking.

This isn't about me per se; it's about the lessons I learned along the way. My hope is that by sharing this I can help you learn some lessons without having to live through the circumstances.

Change is Inevitable

Pretty much everything has changed since I started:

- The tools have changed.
- The medium of information transfer has changed.
- The content has changed.
- The pace of change itself has changed.

My bet is that the next 47 years will have even more change, and faster, too.

Let me give you an example: My first document described a financial application written in COBOL that ran on a timeshare IBM mainframe. The document was written using C-Script, a text formatting language. It was printed on paper and distributed in a three-ring binder. I wrote drafts using a line printer terminal with a keyboard (video monitors were rare and expensive), and a technical typist transcribed the final camera-ready copy using a state-of-the-art proportional space IBM Selectric typewriter. We used a pen and plastic stencil to draw a screen-like border around examples.

Nowadays you carry a phone and laptop that put the computing power of the mainframe to shame, everything is online, you can dictate if you don't want to type, and what you produce can be available around the world seconds after you press Enter. Well, the pressing Enter part hasn't changed, but literally everything else has.

The C:> prompt has given way to GUIs, we've gone from using a text formatter to a wiki authoring environment, from printed books to websites. Text on a paper page is now text on a screen. Online help systems integrated with graphical user interfaces are the norm and were unthought of then. The number of word processing and help authoring tools learned and forgotten is more than I want to think about.

But What We Do Has Not Changed

While how we do things has changed totally, what we do hasn't. As my friend Rick Lippincott said, "We explain things." There will always be a need for people who can transfer knowledge from those that have it to those that need it. Our core competencies won't change:

- **Conceptualize**—The ability to quickly grasp concepts, understand user interfaces, and infer the challenges of explaining it to others.
- **Investigate**—The ability to find out as much as possible by reading specifications, playing with prototype code, and talking with developers, customers, and support teams. This starts early and finishes late and takes a lot of time. It's a

challenge to stay up to date with the latest changes, too. Building relationships and integrating with teammates can be crucial to hearing about changes.

- **Assimilate**—The ability to internalize knowledge and understanding gained from investigating so that it is in your mind in such a way that you can follow connections, trace inputs to outputs, and see the whole as more than the mere parts.
- **Organize**—The ability to impose order on chaos so that you can structure the knowledge you have assimilated in the easiest and best way for someone else to learn, understand, find, and use the information they need.
- **Regurgitate**—The ability to generate content appropriate for your audiences of users.

Note that the word "write" doesn't appear in that list. While words are still important, some ways to transfer knowledge an information are today not in writing, but in YouTube videos or well-crafted user interfaces.

The challenge we continue to face is to keep looking for, finding, and adapting to new and better ways to communicate complex information.

What Not to Do

There's a Dilbert for everything (see Figure 1).

What DO You Do?

Do Your Job

Be really good at all facets of your job.

Researching. Use all the information available to you to learn about what you are doing: attend planning meetings and provide input regarding terminology and word usage. Get access to code sandboxes where early versions of applications are developed and tested. Read specifications and clarify any confusing language that might confuse others. Ask questions and listen to the answers.

Organizing. Figure out how you to structure your content. Determine the best approach for presenting the information—hierarchically? chronologically? — and develop an outline that both explains your approach and illustrates it with short examples or segments. Experience has shown that tackling the most challenging components first makes everything that comes later easier. Present your outline to others—product, development, other communicators—both to show them that you're on top of what is being done and to get input.

Writing. A successful career as a tech writer takes for granted that you consistently produce clear, concise, accurate, and readable content. Become expert and innovative with the tools you use. Follow your

Figure 1. Dilbert cartoon on office politics

company's style guide, but also look for new and better ways to create and present content. For example, web content may have features that allow your users to expand those content sections most relevant to them, reducing the perceived length of pages.

Working well with others. Cultivate good relationships with knowledgeable subject matter experts, ally with your tech comm peers, and build relationships with other teams. especially tech support (since they talk to your users all the time) and testers/quality assurance (because they have inside knowledge of what doesn't work, and importantly why). Friends and allies in other teams may be able to get you access to resources that you might not get otherwise. For example, testers can give you access to their systems that contain complete data and access privileges—something difficult for you to create in your own environment. Know your company's development processes and procedures in detail, not only for what you do, but what your teammates do as well to ensure that issues are discovered and resolved early.

Learning. Learn as much as you can about as much as possible. The more you know about the industry and application area you work in, about who your users are and what their pain points are, the more focused, relevant, and useful your documentation will be.

Share your knowledge with others—mentor, teach, onboard new hires. Try as many new things as you can as early as possible. If a chance arises where you can be the first one to do something, volunteer for it—you'll become the resident expert and have opportunities to share your new-found knowledge and skill.

Take advantage of situations where things don't work out. You often learn the most when things don't work perfectly … or at all. If you or someone else makes a mistake, own up to it, learn from it, and don't repeat it. Take difficulties, even failure, in stride. Churchill is purported to have said, "Never let a good crisis go to waste," and indeed, when something fails it is often a chance to implement a new and perhaps radical change for the better.

Be Someone People Want to Work With

I started out as a customer service rep with absolutely zero experience in any sort of writing field other than a BA in English and Philosophy and a job stacking shelves at a bookstore. After showing some aptitude for helping people as a customer support rep and expressing a willingness to learn, the tech pubs manager approached me when one of his writers quit. I had found my tribe. The same kind of situation still happens today—for example, if you're an intern or someone in an entry-level position and you work hard, show a willingness to learn, and work well with others, you may be offered a job after the internship ends.

If there's a single point to remember, it's to try and get along with everyone. It's not always easy or even possible, but make the effort. Treat people the way you want to be treated: Be friendly, but not overly effusive. Don't gossip or spread rumors. Keep confidences. Give credit where credit is due—there is no better way to make an ally than by giving them credit for something they did in front of others.

Don't waste people's time; do your homework and look for answers before you approach someone with questions. And it's always good to verify your understanding of how things work.

Build alliances with teammates and co-workers. Over time they will be the foundation of your personal network. LinkedIn is a great way to keep in touch with former coworkers. When people move on to new jobs, they expand your network into new companies and product areas.

Communicate openly and frequently. Be honest. If a sticky situation arises, don't lie, don't get defensive, and don't lash out at others. Instead, be calm. Be the voice of reason, and focus on finding and fixing the core problem. Own up to your mistakes—there will be some! And if the place where you work is unforgiving of mistakes, that's an excellent reason for starting to look elsewhere as it is a sign of a toxic environment.

Make worthwhile investments in your future. Express your desire to learn and grow. Show that you have ambition, that you want to grow and improve, but don't do so flagrantly or obnoxiously.

Don't burn bridges. Leave things better than they were when you started.

Don't take things personally. "It's not personal. It's strictly business."

Be YOU

Do not pretend to be someone you are not. Believe in yourself and be confident in your abilities… but don't be arrogant.

Be positive and have an up-beat attitude; a little self-deprecation and humor helps.

A Few Words About Jobs

Changing Jobs Has Advantages

In this day and age, it's not unusual to change jobs; in fact, it's almost necessary if you want to get experience in different industries or different organizational structures, use different tools, or make more money. If you're using FrameMaker in a waterfall environment documenting financial applications, you may want to consider finding a new job using DITA in an agile environment documenting biotech applications.

It's not unusual for someone to have five or six jobs over the years, but job hopping—changing jobs every year or two—can be interpreted negatively. You may appear as someone who either will not or cannot stay in a job for very long, and some managers may be looking for more stability.

Changing jobs is not always motivated by a desire for something new: a legitimate reason may be to get out of your current situation. You may be bored with doing the same old thing again and again. You may have a lousy manager, or a long commute, or work for a company that doesn't treat or reward you the way you feel you deserve. If your manager is negative, uncommunicative, or maybe just an unprofessional jerk, it may be a good reason for you to look elsewhere. But make sure you present a positive motivation for moving on, not one based solely on negativity.

You may need to beef up your skills, learn a new tool, or even take some courses to prepare yourself—and your resumé—for a new opportunity. One great way to start that journey is to do exactly what you are doing today: go to a professional conference. Attend presentations about industries and topics that are new and interesting. Stop by the Expo Hall to see what vendors are there and pick up as much information you can about new tools and techniques. Ask for a demo! Take full advantage of opportunities to talk to your peers. My experience has shown that tech writers are great people who are always willing to help! Expand your network by talking to people who are doing what you want, or who work at a company you're interested in. You never know when you might meet someone who knows of an upcoming opening in their team.

Another way of putting yourself out there is to use online services such as LinkedIn. It's time well spent to make sure your profile information is complete and up to date. Approach some people you worked well with and ask them to write a recommendation for you. You can't change what they write, but you can choose whether to post what they send. If you see an opportunity at a company, you can find out if you know anyone who works there and may be able to put your resume into the right hands. When I was freelancing I got an email with the subject "Gig offer." Someone had seen my profile on LinkedIn and offered me an interesting contract.

Finally, staying in one company for years can result in compensation stagnation. Going along with few if any promotions and just cost of living or small merit increases can mean that you fall behind your actual market value. It may be worth looking to see what sort of salaries are being offered. Pro tip: If you give notice at your current job and they offer to match your new salary, it's usually not the best idea to accept the counteroffer: they know you were willing to leave, so you may become a target.

The pandemic year has drastically changed hiring practices. Companies have learned that the best people may not live close to their offices. Working remotely is now widely adopted which has had two huge effects on hiring practices: you are no longer limited to what jobs are available within commuting distance, and salaries in lower paying areas are increasing to attract and retain employees. Companies have learned that they can be just as successful with many employees working from home. Keep this in mind when you're looking for a new opportunity and expand your search area.

Interviewing Tips

When a new opportunity appears, think about how you present yourself in interviews. Explain your background and experience and express what you're looking for as positively as possible. Explain why you want to make a change without disparaging your current situation. If your boss takes credit for your work and refused you a promotion, don't air dirty laundry, but say that you are looking for a positive forward-looking workplace where you can learn and grow. Show that you have a positive attitude.

Having a portfolio that shows work you've done is important, but take care in how you make it available. Some companies restrict access to product

documentation, so make sure anything you make available doesn't cross any lines. You can restrict access significantly by creating a document in Google drive, limiting who you share the link with, and removing them from the access list after a suitable time.

When in an interview, treat it as your chance to interview them as much as they interview you. Ask the kind of questions that will tell you what you want to know: Do you promote from within? What is the working environment like? Do they provide training in the company's products? Pro tip: don't ask about time off or salary increases in the first meeting—wait for them to bring up such topics.

The most important guideline: be yourself, not who you think they want to see. There's nothing worse than getting a new job that's a bad fit. Finding the right job is better than finding just any job.

A Few Words About Careers

What you are doing now may not be what you always do. What aspects of your current work do you truly enjoy? What do you really dislike? When a new opportunity becomes available that pushes your hot buttons, try it—it could lead you in a new direction.

Lots of people use their tech comm skills and network of contacts to move into different areas. As a writer, you deal with people in a number of other areas—product management, marketing, even development, testing. and QA. If one of these areas piques your interest, pursue it. Our technical communications skills are very valuable and easily adaptable in many other areas, including management.

Consider if there's a way to adapt something you've learned in a different situation. For example, I was the sole writer at one company, and my manager asked me to write an article explaining how I did my job. In my next company I used that to propose and then teach a class retraining employees as tech writers, and then used that to begin a 15-year side career as an adjunct faculty member teaching in tech comm certificate programs at a couple of colleges. Maybe after you finish documenting an application, you could teach classes to users. You may discover better analogies to use in your documentation like I did, and you might learn that you love to teach too!

Be open to new ideas and directions. Resisting change is futile. Things will change whether you like it or not, and whether you deal with it or not. Refusing to adapt to change can be a career-limiting move. How you adopt and adapt can make the difference between getting let go or being promoted.

The best advice I can give is to keep looking ahead and ask yourself "What can I learn from new challenges and opportunities?"

Take a Self-Assessment

- What have I already learned?
- How does this prepare me for the Next Big Thing?
- How does my future look if I don't make a change?
- Where will my next opportunity come from?
- How do I see my profession changing?
- How am I preparing myself for the inevitable changes ahead?
- What lessons will I learn?
- How can I share my knowledge?

References

Adams, S. (2006). [Cartoon]. https://dilbert.com/strip/2006-11-05

Author Contact Information

John Garison
Lead Technical Content Strategist
Medidata, A Dassault Systèmes Company
441 Blood Road
Chester, VT 05143
(802) 875-5310

Author Biography

John Garison has been a technical writer since before CRT monitors were a thing. He delights in sharing information and war stories about his experience in writing about everything from operating systems to healthcare applications and currently clinical trials. His career includes writing, managing, consulting, running

conferences, and 15 years teaching in university technical communication certificate programs. His gigabit fiber optic internet lets him telecommute from a dead-end dirt road in Vermont to New York City, where he is Lead Technical Content Strategist for Medidata, a Dassault Systèmes Company. John received the STC Fellow honor this year.

Making Agile Work for YOU!

John Garison, Fellow

The agile development methodology has taken the software world by storm, but technical writers aren't as positive about it. This session helps demystify agile, explains its core principles, components, and celebrations, and shows you how to make the best use of what it has to offer.

What Is Agile?

Agile is a development methodology initially focused on building software products. It was created over a long weekend in 2001 by a by a group of software programmers who met to discuss a better way of developing software applications. The result of their meeting was The Agile Manifesto, which says in part:

> We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:
>
> - Individuals and interactions over processes and tools
> - Working software over comprehensive documentation
> - Customer collaboration over contract negotiation
> - Responding to change over following a plan
>
> That is, while there is value in the items on the right, we value the items on the left more (Highsmith, 2001).

My Spidey sense tells me it was developed in an effort to wrest control over the development process from project managers who were more focused on delivery dates than content or quality.

Dispelling One Big Agile Myth

You may have heard that "Agile means we don't need documentation." (See Figure 1.)

It doesn't mean that at all. What it does mean is that we don't want to expend a lot of effort to develop extensive detailed requirements and development plans and specifications that are likely to change. But it does not mean that there's no need for end user documentation. You're still developing software, and software needs explaining.

Figure 1. Dilbert office staff on the Agile methodology

What's So Special About Agile?

Agile has at its core the concept that software is developed by a team of people with different capabilities, viewpoints, and strengths—all of which are necessary to develop products. Everything in an agile project is done by the team. Product owners identify the requirements that the product needs to address. Developers determine what will be coded, and how. Project managers ensure that the team follows appropriate processes. Testers ensure that the results work correctly and meet quality metrics. Tech writers create user assistance and documentation. And the team together agrees on what they will deliver, when they deliver it, and how they measure their progress during development.

One of the cornerstones of agile development is that it is flexible—the development process can change to meet the needs of the team and the project. And since each team develops its own practices, no two teams do things the same way, even in the same company.

Agile is largely a reaction against the traditional waterfall method of developing applications where teams would spend a lot of time and effort to design the software system in its entirety and then build exactly that and deliver it by a specific date.

Instead of a series of steps one after the other, agile uses an iterative model where a series of steps is repeated. Each iteration of the steps is called a sprint.

The steps vary from definition to definition but generally include:

- Review requirements to see if anything has changed.
- Design what we're going to build this sprint.
- Build it.
- Test it.
- Evaluate how we did.

This process allows for change and correction as you go along so that what the team develops is what is needed.

Agile Terminology

Agile has its own terms for its components.

Concepts

- **Fibs**: (Short for Fibonacci series:1, 2, 3, 5, 8, 13 ….) Fibs are the measures the team assigns to a story. Each team determines what fibs mean to them—it's more or less like a combination of level of effort tempered by degree of difficulty and risk. A story with a fib score of 8 is more work than one with a 5. One team may rate a story as a 5 while another team might rate the same story as a 3, and another as an 8.
- **Velocity**: After a few sprints, the team can determine their velocity, or the approximate number of fibs they can successfully complete in a sprint.
- **Capacity**: Once the team has determined their velocity, they can determine the amount of work (fibs) available in a release or across several sprints. Over time agile teams become accurate in determining how long it takes to develop applications, and this leads to accurate predictions about what can be done, and when.

Milestones

- **Task**: A single component of a story that can be done by one person in a sprint or less
- **Story**: A single component, feature, or action that can done in a sprint
- **Sprint**: A fixed time frame—two weeks for example—when stories are designed, developed, and tested
- **Epic**: A group of related stories that may take multiple sprints to complete
- **Release**: A group of epics that are released at the same time

Meetings

What agile does not require in detailed upfront planning it makes up for in ongoing meetings. There are a lot of them, and some are more important—and useful—than others.

- **Grooming**: Team leads plan what stories should be considered for the upcoming sprint, determine priorities, make preliminary time estimates. Attend if you can as this is a good overview of upcoming items. This is especially important if the release includes significant new functionality.
- **Sprint planning**: Development team identifies sprint stories and details, determines fibs, makes assignments. Attend if at all possible as this is where details are discussed and questions are answered, where fibs are assigned to stories, and stories and tasks are assigned to team members.
- **Daily scrum**: 15-minute standup daily status to identify and resolve impediments and answer questions. Attend as needed, especially if you are a member of several teams, each of which has a scrum.
- **Reveal**: After each sprint, team members present what they developed during the sprint. Attend if possible—developers demonstrate code they worked on during the sprint, so it's an opportunity to take screen shots, ask questions, and suggest wording changes to on-screen text.
- **Retrospective**: After sprints and especially releases, team discusses what worked, what didn't, and what to do to make things better. This is your opportunity to express your concerns or problems that interfered with your ability to get things done, and to propose improvements. This is what makes agile agile—the ability to make changes to your processes.

Tools

Agile leverages information in a planning and reporting tool of some sort. This tool tracks bugs (defects) and suggestions from customers about improvements. It also supports agile milestones and their interworkings: Epics contain stories, stories contain tasks, and so forth. My company uses Jira, which works very well and can be changed as needed to accommodate new and updated processes.

Documenting in an Agile Environment

Documenting in agile isn't much different from documenting in a waterfall environment. In fact, it can be easier since the planning and grooming meetings provide opportunities for writers to get much of the information they need, and tools like Jira give you access to all the information available.

One thing that needs to be said involves some core agile premises. Agile technically allows for—and some say it mandates—the release of updated code at the end of every sprint. This may be true for situations where small updates occur regularly—if a new release comes out every few weeks or once a month, it can make sense and is certainly possible to do. Writers document in real time as developers produce code. But it is far from ordinary. I have presented this talk about a dozen times over the last few years and only one person has said that their company releases after every sprint.

The nature of software development often means that there are underlying components that need to be built and tested before they can be used to support the full functionality of a software product. If you are developing a new product, releasing after every sprint is virtually impossible. Even developing new features or significant enhancements can require months of work over a number of sprints.

In all these cases, using your agile tools can make your life as a documenter easier. You can look up what stories are in an epic and what each story provides. This structure simplifies your task of finding out what you need to explain and describe.

It is always good practice to write about something close to the time it's being created. Developers are more willing to talk about what they are working on now than what they worked on last month. By using the tools available you can easily see the status of development activities, such as which stories are not yet started, which are in progress or in test, and which ones have been completed and accepted. All of this information makes it easier for us to do our jobs.

One final point: agile is team based. Writers are part of the team every bit as much as programmers and testers. Agile is focused on giving everyone on the team a voice in how the team works. If something you need isn't forthcoming, attend the daily scrum, and say they you're blocked until you get the information that's preventing you from finishing your task. If a documentation task is incomplete, the story cannot be closed and the team won't get credit for completing the story on time And the team's velocity may be affected.

Making Agile Agile

The agile process is all about making things easier and better for the team. That means that processes are inherently flexible—if something is difficult to do, propose a way of making it easier and the team may adopt it. Most suggestions for improvements are implemented by adding to or changing the agile tools you use. Following are some things that have been added or changed to make the team more efficient and productive.

More and Better Information

Add information to epics that explain not only what you are doing, but why. For example, if your team adds Elevator Pitches and descriptions of Business Value to every epic, that information becomes available to everyone in your company without requiring any one person to explain it.

Detailed Descriptions

Stories, tasks, and bugs should contain all the detail necessary for someone to understand the problem/goal and solution, as well as the risks involved. Consider how much time could be saved if every bug description not only included information about the steps needed to replicate a bug, but also described what the expected result is.

Small Specialized Meetings and Tool Tweaks

I can hear it now—"What?!? MORE meetings???" Yes—short, focused meetings with just a few targeted people can be immensely helpful. Adding small changes to your processes and incorporating them into the tools you use can pay large dividends.

- **Phase Zero:** Meeting between UX/UI, Product, and technical communications to discuss the on-screen wording, including error messages, warnings, and basic terminology. This addresses and resolves terminology and wording issues before stories are presented to development.
- **Post-Scrum**: If a scrum discussion goes off course, stop it and pick it up after the main scrum has ended. This respects people's time and involves only those needed.
- **Mini-groom**: When a small but important problem arises that needs immediate attention, a representative from Product, Development, and Testing get together to discuss what to do. This minimizes the disruption that could occur.
- **Melting Pot**: Melting pot issues are very small changes that require less than a couple of hours to resolve. These issues get created as individual tasks under a single story and minimize the administrative time needed.
- **Add New Fields to Your Agile Tool**: Our tech comm team added a checkbox to the story template so that developers could check "Requires changes to end-user documentation." This provides an easy and fast way for writers to see which stories they need to include in their documentation planning.
- **Story Types**: If your teams don't already identify stories by type—feature, enhancement, technical—consider doing so. This helps identify the level of effort required.
- **SuperHero**: Designating a single developer as the person on-call to handle customer problems for every sprint goes a long way toward minimizing interruptions and distractions.
- **Spikes**: A new feature or enhancement can require time from developers to figure out the best way to implement something. If more than a few hours are needed, consider a Spike task that is dedicated to researching possible solutions and identifying the best one.

What Can I Do to Make the Most Out of Agile?

A lot of the answers can be gained from [blatant plug] another presentation I'm doing at the Summit this year: "Build and Sustain a Career in Technical Communication," but it comes down to these basics:

- Be good at what you do.
- Be an active participant—just like STC, the more you put in, the more you get out.
- Build alliances—working closely with other teammates, especially testers, pays benefits.
- Volunteer if it will give you a chance to learn something new.
- Respect other people's time—do your homework before you ask for help.

More specifically regarding agile:

- Attend the important meetings.
- Speak up if you have something to say or suggest. If you don't, nothing will change.
- Don't be afraid to ask for something that will help you, especially if it won't add a significant burden to someone else.
- Meet your deadlines.
- Learn more about agile and consider, taking the training needed to become a scrum master where you lead some of the meetings.

There are no guarantees that an agile environment will work out in your company. Agile is not a panacea; it takes work and commitment to be successful. Agile has the best chance of working when it is endorsed, supported, and enforced from the top down. Guidelines need to be followed: if someone can get away with breaking a rule—such as closing a story when not all tasks are complete—it eventually leads to anarchy.

How Do You Know If Agile is Working?

Agile is working when things are continually and incrementally getting better.

References

Highsmith, J. et. al, (2001). Manifesto for Agile Software Development. https://agilemanifesto.org/

Adams, S. (2007) [Cartoon]. https://dilbert.com/strip/2007-11-26

Author Contact Information

John Garison
Lead Technical Content Strategist
Medidata, A Dassault Systèmes Company
441 Blood Road
Chester, VT 05143
(802) 875-5310

Author Biography

John Garison has been a technical writer since before CRT monitors were a thing. He delights in sharing information and war stories about his experience in writing about everything from operating systems to healthcare applications and currently clinical trials. His career includes writing, managing, consulting, running conferences, and 15 years teaching in university technical communication certificate programs. His gigabit fiber optic internet lets him telecommute from a dead-end dirt road in Vermont to New York City where, he is Lead Technical Content Strategist for Medidata, a Dassault Systèmes Company. John received the STC Fellow honor this year.

Using DITA XML to Deliver Content Dynamically to Support AI and XR

Hanna Heinonen

KONE utilizes artificial intelligence to make its services intelligent. With real-time data from the equipment, the need for maintenance can be predicted and technicians are summoned only when needed. To support their work, KONE creates modular and reusable content that is delivered dynamically to the technician's mobile device. However, with hands-busy type of work, it is often not possible for the maintenance technician to hold a mobile device to check instructions. Therefore, KONE has also been testing the use of smart glasses. DITA XML has proven to be an excellent format for the delivery of technical instructions to different devices.

Background

The traditional way of delivering maintenance instructions is by distributing paper copies. Paper documentation has been problematic from many viewpoints: Printing the manuals costs money, delivering them takes time and effort, and users might end up using outdated instructions. Confidential information might also be leaked to competitors if paper copies are left at the site after a maintenance visit. To overcome these challenges, many companies have set up online portals, and maintenance technicians can use those to access instructions with their mobile devices. However, what to do if the maintenance technician's hands are busy holding equipment parts and tools, and they cannot operate their phone while performing a task? What if they are required to wear personal protective equipment such as cut-resistant gloves and operating the phone with them is more or less impossible? To resolve these problems, KONE has started experimenting with the delivery of instructions to extended reality (XR) devices.

The Beauty of Single Sourcing and Reuse

Single sourcing can be described as *write once, reuse many times, and publish everywhere*. In short, you can reuse the same piece of content to produce instructions for several different products or users, without having to copy and paste it. You can also use your content to publish to several output channels: for example, PDF and HTML, but also to XR solutions.

Figure 1: Maintenance technicians performing maintenance tasks using ODG R-7.

Single sourcing saves times and money as you use content as it is. It also harmonizes the content across your whole documentation set as you only need to update any piece of content once. There is no need to find other instances describing the same thing and trying to keep them harmonized with each other; instead, updating the information. The ultimate goal of single sourcing is, naturally, good management of the content in the repository and the efficient production and update of any of that content.

Dynamic Delivery

We all have browsed through a large technical instruction, desperately searching for that section that applies to the product and context that we have. We have also performed searches, trying to figure out the

correct keyword to find that one all-important detail. What if you did not have to search for the information but, instead, you would get the details you need when you need them? Dynamic delivery is made possible by topic-based authoring. Each topic is an independent piece of information answering to a specific question, and, with the help of metadata, the topics can be linked to specific tasks and queried by applications. With well-designed DITA XML content and a smart metadata schema, the maintenance technician no longer needs to look for the information that they need. Instead, that information is delivered to them right when they need it. For example, when troubleshooting topics are linked to equipment's error codes and displayed when needed, it reduces the troubleshooting and callout time considerably.

Augmenting the Reality

There are plenty of beautiful and enticing XR demos of instructions augmented and animated on top of equipment. However, the creation of such instructions requires a lot of resources, and updating is also time-consuming when the design of the equipment or the maintenance method changes. Moreover, many simpler maintenance instructions can easily be presented with text and graphics. Augmenting every single detail would be over-engineering and a distraction to the maintenance technician. For example, a KONE maintenance technician routinely goes to the roof of the elevator. Presenting that as an augmentation would probably be annoying to the maintenance technician. Instead, a simple text-based instruction or an icon works well for this type of simple task.

Figure 2: Information Designer testing instructions displayed on HMT-1.

KONE has been testing the delivery of DITA XML content to XR solutions and validated that it works well. In a production setting it is very important that the content can be reused as it is and there is no need to tailor anything for XR solutions. With a single click, you can utilize the same DITA XML content for XR that you use to create your PDF or HTML rendition.

What to Consider When You're Designing Schema?

- Metadata comes in different types. The types are based on your needs and also the system you are using.
- Do not add metadata just for the fun of it. Add only what you need—each value must have a purpose.
- Coordinate with your application development experts. If you want to deliver content dynamically, you have to have coordinating IDs.

How to Create Content for Small Screens?

1. The principles of minimalism help you provide the right amount of information at the right time—it's not just about "being short."
2. Readability means the ease with which a reader can understand a text, and it is subjective—the same text is differently readable to different readers. Readability is impacted, for example, by vocabulary, syntax, presentation of the text, media and devices, users' location, and acuity.
3. Know your audience and the environment they are working in. Talk to the users of your instructions to find out their needs.
4. Test your ideas and content. Usability is often tested after the content is all done—and in many cases it is too late then for any redesign.

Figure 3: Maintenance method developer testing instructions displayed on HMT-1

Resources

Ahola, P. (2020). Instructions on small screens: Analysing the multimodality of technical communication through a design experiment. University of Helsinki, Faculty of Arts, Department of Modern Languages. http://urn.fi/URN:NBN:fi:hulib-202009154094

Siltanen, S., & Heinonen, H. (2020). Scalable and responsive information for industrial maintenance work—developing XR support on smart glasses for maintenance technicians. *AcademicMindtrek '20: Proceedings of the 23rd International Conference on Academic Mindtrek, Tampere, Finland*. https://doi.org/10.1145/3377290.3377296

van der Meij, H., & Carroll, J. M. (1995). Principles and heuristics for designing minimalist instruction. *Technical Communication*, *42*(2), 243-261. www.jstor.org/stable/43087895

Author Contact Information

Hanna Heinonen
Digital Content Lead
KONE Corporation
Myllykatu 3
05830 Hyvinkää, Finland
+358 44 3554840

Author Biography

Hanna Heinonen is the Digital Content Lead at KONE Corporation and a doctoral researcher at Tampere University. She has 20 years of experience in the field of technical communication as a writer, illustrator, information designer, and other related roles. Her specialties include information architecture and design, user-centered, task-based documentation, topic-based structured content creation (DITA XML), and content management systems and tools. She is pursuing a PhD in Interactive Technology at Tampere University, researching what XR can offer to technical communication.

Develop Engaging, Interactive Online Training Sessions

Mark Kleinsmith and Steve Morgan

This session describes how MiTek developed engaging virtual training for their customers.

Background

Online training. Historically, an afterthought, a painful distraction from work where attendees click through slides on one screen and do their "real work" on another. Then, March 2020 arrived, and there was no more choice. ***All*** training shifted to the online variety. Now, the question is, "Do you want to stick with the status quo and develop endless slides that attendees view as a chore?" Or do you want to engage online students and have them walk away, saying, "I want more!"

Flashback to March 11th, 2020, at MiTek headquarters in Chesterfield, MO:

Software training classes were humming along in person, and we had attendees from all over the country, from Alabama to California. Then, on Thursday, everyone went home, and all travel halted for the immediate future. However, we were on week one of a six-week training session! Did we cancel the remaining weeks and hope for a typical travel schedule in April? Did we send participants a string of PowerPoint presentations?

No. Instead, we regrouped and made it a goal to maintain, and even surpass, trainee engagement for online classes.

Session Takeaways

- Create a learning environment where all attendees feel comfortable sharing experiences and engaging with the group.
- Use technology to drive engagement.
- Measure engagement during training.

Session Details

MiTek develops integrated solutions for affordable, healthy, sustainable, safe, efficient, and resilient homes. Our 4,500 customers utilize our products and software solutions to create breakthroughs in building. MiTek's Technical Documentation Team creates content to educate internal and external customers via:

- "Live" virtual training classes
- An eLearning portal
- The MiTek Support website

In late 2019, MiTek's Technical Documentation Team began laying the groundwork for a series of live, regional training classes to increase software adoption rates. After a successful "in-person" program launch in January and February, the pandemic hit, and MiTek, along with every other company on the planet, was forced to rethink the way we train internal and external customers. The question now became, "How do we engage customers in a virtual environment?"

Our answer was to develop virtual training sessions that required participation and created an environment that promoted learning.

This session concentrates on how MiTek developed virtual training that customers describe in the following terms:

- "Very well put together. I'd say even better than in person training."
- "Take it. Trust me you won't be disappointed."
- "Effective, informative, just like in person!"
- "Very interactive and informative. Learn by doing."

Author Contact Information

Mark P. Kleinsmith
Director of Technical Communications
MiTek
8450 East Crescent Parkway
Greenwood Village, CO 80111
303/517-9913

Steven Morgan
Software Training Manager
MiTek
16023 Swingley Ridge Road
Chesterfield, MO 63017
618/444-3491

Author Biographies

Mark Kleinsmith has over 25 years of technical communications experience in the software industry. He has installed and supported software applications, and written traditional help systems, training manuals, and created online video help libraries. Mark has also presented software training classes to live and virtual audiences. Mark is the Director of Technical Communications for MiTek, Inc., and oversees a global team of technical communicators responsible for creating and deploying content used by over 5,000 software users. From April through October of 2020, Mark's team converted its existing software training curriculum to virtual sessions and successfully trained over 150 internal and external customers.

Steven Morgan is the Software Training Manager for MiTek, Inc., and has 18 years of experience with MiTek, Inc. This experience, coupled with Steven's previous roles in the construction industry, uniquely position him to successfully train internal and external MiTek customers on its suite of software solutions. Steven has a long list of professional accomplishments, from designing trusses for custom homes and commercial projects to providing technical support to MiTek customers and deploying complex software applications to over 5,000 customers. Steven was an integral part of the planning, development, and customer rollout for Structure, MiTek's flagship software application. In 2019, Steven moved into his current role on the Technical Documentation Team. Currently, Steven uses a unique blend of leadership, vision, and knowledge to create and facilitate engaging, interactive software training courses for internal and external MiTek customers.

Kelsey & Ben's Excellent Adventure: A Mentoring Story

Kelsey Loftin and Ben Woelk

Kelsey and Ben share the most excellent moments from their mentoring adventure. Along the way, they jump through time and discuss what brought them together, how they've built trust and friendship over the years, how they found the right mentor-mentee fit, and why being honest and vulnerable has been so important to their successful growth. Key moments include authoring for Intercom, championing neurodiversity, identifying personal and professional growth opportunities, and finding the most outstanding value in their similarities. They discuss what's worked, what hasn't, and what they consider to be their most excellent adventures.

Back to the Beginning

Introductions

The start of their mentoring adventure is different and kind of serendipitous because it was not planned. One of the things Ben decided to do when he joined LinkedIn was make beneficial connections for others. He worked to increase his network as much as he could, so it was large and diverse enough to make meaningful connections for others.

While Ben was perusing LinkedIn in 2016, an unknown algorithm showed him one of Kelsey's posts where she mentioned she was looking for a position in Austin, Texas, as a User Experience Researcher. Ben realized he had a family friend who worked at a company called Blizzard in Austin, so he made the introduction. At that point, they had connected on LinkedIn, so we started seeing each other's posts.

Ben had started posting about introverts and leadership, and Kelsey commented on a few of those discussions. They messaged back and forth, discussing those common interests further.

Working Together

In 2017 Ben approached Liz Poland, who was the editor of *Intercom* magazine, about whether there was space for an article about introverts and leadership in technical communication. Instead, Liz offered him the entire issue. With an entire issue to fill with articles about temperament and neurodiversity in the technical communication field, Ben posted on LinkedIn that he was looking for information. He asked for people to contact him if they wanted to share their story or knew someone who might want to participate.

Kelsey responded because she has a friend who works in technical communication who also happens to be on the autism spectrum. She offered that connection to Ben, and they started chatting about using temperament types like Myers-Briggs or Keirsey as an alternative way to create personas for UX design work. It wasn't long before Kelsey was writing an article for the issue as well.

Partnering on that project together was a lot of fun, and they looked for ways to work together. For example, when Ben was getting ready to launch his podcast, Introverted Leadership, he needed graphics and marketing material. As a UX Designer, Kelsey was happy to help out on such a creative project.

Becoming a Mentor/Mentee

After a while, it was a stretch to find enough projects to work on together, but they wanted to continue their conversations. While working together, they explored thought-provoking personal and professional topics and found them to be mutually beneficial. Ben's interest in the connections between introverts and leadership had grown organically to include mentoring a few of the people he met and connected with along the way.

Each saw the value in their discussions and was eager to continue meeting on a regular basis whether they were working on a project or not. In addition, Kelsey

had already shared some of her personal struggles with imposter syndrome at work, so there was a natural avenue for their friendship to transition into a mentor-mentee relationship. Ben's mentoring style was exactly what she needed because it focuses on helping mentees realize their talents, use them to the best of their ability, and reach their full potential.

The Excellent Adventure

Beyond a Catchy Title

Ben and Kelsey realize there are clear stages along the way to building a strong, successful mentoring relationship. The results each have seen over the years were made possible by their foundation in friendship, common interests, similar temperament types, and a desire to "be excellent to each other" as Bill and Ted would say. Although *Bill and Ted's Excellent Adventure* is a rather silly cultural icon, it does allow them to have a lot of fun with this topic and contains many words of wisdom.

Work-Related Challenges

As mentioned, Kelsey has struggled with imposter syndrome throughout her career. She didn't get a degree in design. Instead, she took on every design project she could find while employed as a technical writer so she could build up her resume and make the transition. She accomplished a lot but still felt like she was lying to everyone on some level and that one day they would figure out she wasn't really a designer.

Ben helped her see the value she brought to design projects, pointed out times when she was thinking uniquely from a design perspective, and showed his confidence in her skills by asking for her help on his podcast cover art. He showed Kelsey where she could contribute and proved to her that she was not just pretending to be a designer—she is one, a great one. This is not to say that imposter syndrome can be solved with one fun project, but this was the beginning of a journey, and Kelsey was no longer travelling that road alone.

Life-Related Challenges

Kelsey and Ben built a strong foundation of trust that made it easier to share personal struggles with each other. In the beginning, Kelsey hid her struggles with anxiety and depression, but not prioritizing her own self-care led her to retreat into herself and miss meetings with Ben. Her communication faltered, and there was a time where Ben thought their mentoring adventure had come to a close.

Ben kept reaching out, and eventually Kelsey broke through the fog and met with him to explain what had been going on. As it turns out, Ben could relate to many of the feelings that were overwhelming Kelsey at the time, and their adventure took a new turn. That vulnerable moment opened the door for so many important and helpful conversations that have positively impacted Kelsey's career and personal life.

Finding the Right Fit

When working on one of their earliest projects together, Kelsey and Ben tested many temperament type frameworks, which led to great discussions about their personal temperaments. Theirs happened to be very similar, which has been a very important factor in their mentoring adventure. Knowing your temperament helps you understand your own mental processes, opportunities, and strengths. When discussed alongside another's temperament type, you can compare your similarities and differences.

Those who are intuitive or abstract thinkers are often challenged to work with concrete or sensing thinkers. There is an inherent disconnect in the individual ways they work and communicate. Knowing your temperaments as potential mentor and mentee candidates can reveal if you're a good fit for each other. Although, you don't need to have matching temperament types to be a good fit.

Discussing your temperament types as a framework for understanding your differences and similarities can reveal a lot about how successful your working relationship could be. Your temperaments inform how you work together and what will most likely be of interest to you. For example, Ben and Kelsey attempted to stick to a curriculum in the early days of mentoring.

However, neither was great at sticking to the plan, and conversations would always organically turn to the highest-priority challenge each was facing at the time. So they tweaked their framework and let their current challenges guide the conversation. With that small change, each began to see more successful progress while also feeling less like a failure each time they couldn't stick to their assignments.

Key Takeaways

- A successful mentoring partnership is not an overnight process.
- The fit has to be right, and you should be mindful of that.
- You have to build trust and must also be trustworthy.
- Mentoring should be a judgment-free connection.
- Empathy is key as we are here to listen to each other and learn enough to be helpful.
- Honesty and vulnerability opens opportunities for deeper work on ourselves.
- You don't have to stick to a curriculum, but you must meet regularly to have success.

References

Herek, S. (1989). *Bill and Ted's Excellent Adventure*. Orion Pictures. Theatrical release.

Woelk, B. (2017) Guest editor. "Personality, temperament, and technical communication." *Intercom*, *64*(2).

Woelk, B. (2018). "Follow the yellow brick road: A leadership journey to the Emerald City." *AMWA Journal*, *33*(2), 76–77.

Woelk, B. (2018). "The introvert in the workplace: Becoming a leader and influencer." *Intercom*, *65*(3),16–18.

Woelk, B. (2016, 17 Oct.). "Lessons learned on an introvert's journey to leadership. EDUCAUSE Review, The Professional Commons Blog 2016. https://er.educause.edu/blogs/2016/10/lessons-learned-on-an-introverts-journey-to-leadership

Author Information

Kelsey L. Loftin
User Experience Researcher
Ziff Media Group
12109 Mill Hollow
Austin, Texas 78750
(512) 748-7506

Ben Woelk
ISO Program Manager
Rochester Institute of Technology
151 Lomb Memorial Dr
Rochester, NY 14623
(585) 475-4122

Author Biographies

Kelsey Loftin lives in Austin, Texas, with her dog Harvey. Her love of tropical plants and gardening has led those who visit to describe her place as a small jungle. She advocates making an effort to understand the complexities of your own mental health and champions the idea that neurodiversity is a strength, not a weakness. As a User Experience Researcher who works with editorial and shopping brands at Ziff Media Group, she spends her days diving deep into user behavior to identify design opportunities that will delight people as they surf the web.

Ben Woelk, Associate Fellow, lives in Fairport, NY and is a past president of STC. He follows his passion in three areas: mentoring introverted leaders, working to develop successful cybersecurity awareness programs for higher education, and working in and teaching technical communication. Visit benwoelk.com to see what he's currently working on, and listen to the Hope for the Introvert podcast to discover how introverts overcome challenges in the workplace.

How to Design Great API Documentation

Charles D. Miller

Our evolution from manually written text to a hybrid combination of OpenAPI specification and supporting contextual information exhibits baseline models conforming to efficiency and efficacy. This hybrid approach powerfully combines automated and manual information.

A Genealogy of Sorts

In this section, I present four types of articles that my team and I created throughout the years. History has taught us that technically accurate information delivered on time reduces the distance between information producer and consumer. These include:

- The Archetype—Encapsulates technical and human-readable knowledge about APIs.
- The Looking Glass—Code comments directly from the source code.
- The Clone—Information reuse that retains the need for a single source of truth.
- The Automaton—API description and endpoints "coded" in an OpenAPI YAML specification.

Structure

What elements produce a structure that delivers meaningful API documentation? I dive into the building blocks for designing API documentation that developers say they want. The upshot is that meaningful API documentation should contain no "filler" or "boilerplate" content that adds little or no value to what's obvious. Topics that I cover include:

- Developer Experience—How developers feel using your API.
- Developer Emotions—Sensor analysis of developer physiological reactions to information stimuli.
- API Documentation That Users Want—Based on user surveys, show what API information developers find most meaningful.
- Reader Types—How API developers read technical information.

Dark Matter and the Meaning of It All

Overview/reference information is a top priority information type that developers seek in API documentation. How do context and semantics interact to create meaningful structures? Topics that I cover include:

- What Meaning Does—Meaning helps users imagine possibilities beyond what is already known
- What Is Context?—Context is what constrains problem-solving without intervening in it explicitly.
- Context and Meaning—Context sets the boundaries within which we solve problems and helps us focus our writing.

The Raw and the Cooked

Structural anthropology studies symbolic binaries central to human culture. This section investigates the binary of unstructured versus structured information.

- User Search for Answers—Stages of a user seeking meaning.
- Minimalist Structure—The minimalistically informative API site structure.
- Tips for Writing Meaningful API Documentation—Pointers to create richly meaningful information.

References

Brézillon, P. (n.d.). Context in artificial intelligence: A survey. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.16.1573&rep=rep1&type=pdf

DuVander, A. (2013). API consumers want reliability, documentation and community. https://www.programmableweb.com/news/api-consumers-want-reliability-documentation-and-community/2013/01/07

Girardi, D., Novielli, N., Fucci, D., & Lanubile, F. (2020). Recognizing developers' emotions while programming. https://arxiv.org/pdf/2001.09177#:~:text=As%20for%20strategies%20developers%20implement,and%20shi%20towards%20positive%20emotions

Lakatos, D. (2017). The ten essentials for good API documentation. https://alistapart.com/article/the-ten-essentials-for-good-api-documentation/

Lauret, A. (2015). The data, the hypermedia and the documentation. https://apihandyman.io/the-data-the-hypermedia-and-the-documentation/

Meng, M., Steinhardt, S., and Schubert, A. (2019). How developers use API documentation: An observation study. http://sigdoc.acm.org/cdq/how-developers-use-api-documentation-an-observation-study/

Rangel, F. (2015). APIs for humans: The rise of developer experience (DX). https://www.hellosign.com/blog/the-rise-of-developer-experience

Srikrishnan, Y. (2015). REST API documentation—Part 1. https://dzone.com/articles/rest-api-documentation-part-1

Resources

Floridi, L. (2013). *The Philosophy of Information.* Oxford University Press.

Author Contact Information

Charles D. Miller
Lead Technical Content Strategist
Medidata, a Dassault Systèmes Company
175 Wyman Street
Waltham, MA 02451
(215) 317-6196

Author Biography

Charles Miller writes end-user and API documentation for platform services. He currently works with development teams to document services and RESTful resources using the OpenAPI specification and an in-house API document generation script that automatically integrates rendered content with Confluence knowledge spaces.

He has won two national and international Society of Technical Communicators Distinguished writing awards for online documentation. He also has won an Honorable Mention.

Miller is father to seven beautiful children and grandfather to eight. He survived the '70s, Disco, and Punk. He once partied with Williams S. Burroughs and Alan Ginsburg. And he successfully grew corn, tomatillos, and chiles in northern Minnesota.

Published poet and article on Wittgenstein and dreams. He has plays, movie script, and philosophical essay on Kierkegaard and Plato in the dresser drawer.

Don't Panic: How to Manage Scope Creep and Unresponsive SMEs

Yesica I. Mirambeaux

Whether you're a technical communicator or manage a team of learning specialists, you've probably encountered any number of challenges with SMEs and project scoping that end up affecting your timelines, deadlines, and deliverables—and occasionally your nights and weekends—and often, even your own personal stress levels.

In this session, we'll discuss how to bring more transparency, clarity, and accountability to the projects you and/or your team take on. We'll also discuss how to set clear boundaries and communicate effectively with your SMEs and stakeholders, and share some supporting materials and best practices to help keep you and your projects stress-free.

Session Takeaways

By the end of this session, you'll be able to:

- Set yourself up for success so you can anticipate common pitfalls related to scope creep and unresponsive SMEs
- Respond proactively when forces outside of your control begin to affect your responsibilities and deliverables
- Learn best practices and access supporting materials you can use to help you navigate your projects successfully

Background

Some of the issues I've encountered in the past when taking on new projects include the following:

- Lack of clearly defined project owners
- Lack of clearly defined deliverables
- Vague, ambiguous, unrealistic/unfeasible, and/or incomplete project scoping
- Lack of accounting for incidentals, the human element, and standard project management tasks (time spent in project tracking, meetings, communications, etc.)
- Lack of/poor change management processes leading to changes in project scope mid-flight

One of the major areas I identified in which I could improve my approach is immediately identifying any new or changed elements that might affect (directly or indirectly) the following:

- The scope of a project
- The timeliness of any specific deliverable
- The ability to meet final deadlines

These new or changed elements can come in the form of any of the following examples:

- New materials and/or information discovered that may change the scope of work
- Additional requirements tacked on to the project after initial scoping
- Changes in existing requirements that may affect scope of work
- Difficulty communicating with SMEs:
  - SMEs not being available in a timely fashion
  - SMEs providing partial/incomplete information due to poor communication
  - SMEs not having sufficient knowledge to provide accurate or complete information
  - Identified SMEs who are not appropriate SMEs for the subject matter at hand
- Additional or changed projects or responsibilities outside of the current project (i.e., your manager asks you to have X side

project done by Y date, which will interfere with your attention/time given to the current project)

Workflow Steps

In this session, we'll discuss a workflow I developed to mitigate the issues described above and improve my team's approach to project/task management. The workflow contains details on how to complete each step/phase, as well as some best practices and supplemental material to help along the way.

Please note that the success of this technique depends, among other things, on proper tracking and communication. This means a project management app/tracker will be one of your biggest allies in this effort, and email updates with the appropriate folks cc'd will also be instrumental in achieving your goals.

A quick summary/highlights of the project steps we'll discuss:

- Schedule a project kickoff meeting
- Scope the project fully
- Communicate with the primary project owner.
- Get confirmation on the plan
- Use a project management app/system to track the project
- Rescope, re-communicate, reconfirm, and document as needed when changes arise.
- Get feedback once the project is complete

The steps noted above sound simple, but we'll go over specifics for each and discuss why they're important and how they contribute to successful project outcomes

When Things Go Off-piste

After that, we'll get down to brass tacks. What do you do when you hit a snafu? The workflow is all good and well when things go as planned, but as you may be aware, this is real life, and oftentimes, things don't always go the way we want them to.

This is the part where we'll talk about what you can do when you identify scope creep, or when you encounter challenges with your SMEs.

Best Practices and Supporting Docs

Last, but not least, I'll share with you some best practices for interacting with SMEs and task management systems. And most importantly, I'll share with you a document containing the workflow guidelines and a template for you to use to easily manage your projects.

Author Biography

Yesica Mirambeaux manages internal documentation at Twilio. She has spent years in the tech industry managing internal and external communications and bringing order and clarity to a variety of flavors of corporate communications. She is passionate about learning tools to improve our lives, whether at work or in our personal realms (and savoring the intersection of both!) and sharing those tools with the people around her.

When she's not working, she's writing poetry and the occasional flash fiction piece, making collages (digital and analog), and playing house music for anyone who cares to give a wiggle on a makeshift or legitimate dance floor.

Convergence in Branded Video Content: A Case Study of The Home Depot's YouTube and Facebook Marcomm and Tech Comm Practices

Chase Mitchell and Brandon C. Strubberg

Technical communication (tech comm) and marketing communication (marcomm) are converging in business-to-consumer (B2C) contexts. In this paper, we examine how The Home Depot deploys tech comm and marcomm in their social media video content, examining both form and function. Each company produces videos that (a) function primarily as marcomm but also incorporate elements of tech comm, and (b) function primarily as tech comm but also incorporate marcomm conventions. This kind of convergence in B2C content is common in the home-improvement industry, but such practices have been neither strategic nor systematic, and are limited in scope of application across the customer lifecycle.

In 2017, Adobe published two white papers that focus on what it calls the *convergence* of marketing communication (marcomm) and technical communication (tech comm). Samuels and Aschwanden (2017) suggest, "End users don't distinguish between the source of content they experience—you should be aiming for a seamless, coherent experience for them" (p. 6). Urbina (2018) put it more bluntly: "customers don't care about your organizational chart" (p. 6). This paper considers convergence by examining what have traditionally been conceived of as pre- and postsale video content and analyzing their characteristics in relation to a convergent genre.

According to Eriksson and Eriksson (2019), there were 585 million how-to videos available on YouTube as of March 2018. Most current research into instructional videos focuses on making them effective tech comm products by drawing from educational psychology and instructional design (Van der Meij and Van der Meij, 2013). Video instruction standards are not well established (Mogull, 2014), and many communication strategies for print instructions have been applied to video instructions (Morain and Swarts, 2012). Few scholars discuss tech comm as a form of marcomm, with Swarts' (2012) recommendation to "seduce the viewer" being an exception (p. 204). Selber (2010) argues that the web incubates new genres. Pflugfelder (2013) similarly asserts that the genre of the instructional manual is changing: "What we are seeing in the web app video is a relatively new form, one that functions as a quick-start guide, not a complete manual, and often promotes the product while it introduces it" (p. 133).

Just as tech comm is affected by video content, marcomm is being shaped by digital video genres and platforms. Google reports (2018) that more than half of shoppers say online video has helped them decide which specific brand or product to buy, and more than 90% of people say they discover new brands or products on YouTube. Other data are quite telling: YouTube has seen a "110% year-over-growth in watch time of 'which [product] to buy' videos" (Google, 2018, n. p.). As the world's largest video hosting platform, second most-used search engine, and second most visited website (Collins & Conley, 2020), YouTube has become an essential platform for brand practitioners to leverage in-video marketing strategy. Facebook is the world's most popular social networking site; the platform's 2.7 billion users (Statista, 2020) can upload and share video content in much the same way as YouTube users.

Video content on social media has become the go-to platform that brands use to deliver information about products, and, until recently, companies typically conceived of and produced social media videos that functioned as either *presale* marketing content or *postsale* technical content. A perusal of The Home Depot's YouTube channel and Facebook page reveals that many of its videos from the past five years are either presale (marcomm) content or postsale (tech

comm) content. In both kinds of videos, however, the company tends to mix genre conventions. Videos that primarily target presale customers and sell products often integrate tech comm content. And videos that primarily serve postsale customers to provide technical/instructional content also often integrate marcomm content by highlighting company products, promoting deals, and announcing new product releases. Despite existing mashups of genre conventions in pre- and postsale video content, these practices have been seemingly random and haphazard.

Research Questions and Methods

We present our rhetorical analysis of select videos from The Home Depot's YouTube channel and Facebook page and draw on existing research regarding best practices in video content creation to suggest how such convergence can be strategically deployed in new contexts. We examine the following research questions:

- How does The Home Depot deploy tech comm in its presale marcomm videos?
- How does The Home Depot deploy marcomm in its postsale tech comm videos?
- How do The Home Depot's pre- and postsale videos converge in rhetorical form and function?
- What are patterns of marcomm-tech comm convergence in B2C social media video content?

From The Home Depot's YouTube channel video library and its Facebook page, we identified three videos: one presale video that functions primarily as a persuasive call to action, but also integrates some level of technical instruction; one postsale video that functions primarily as instructions for how to use a product, but also integrates some level of marcomm; and one convergent video that incorporates elements of both. We then draw on our analysis and current research to discuss characteristics of effective convergent videos.

Marcomm Presale Video

The Kidde Fire Safety video's primary purpose is to market Kidde Fire Safety products (extinguishers and alarms), a brand carried by The Home Depot. (See Table 1.) The video is structured in a manner typical of video marcomm on social media platforms, such as Facebook, and adheres to many best practices cited by video marketing professionals: it is relatively brief (Chi, 2018; Gillespie, 2019); adheres to the "silent movie" rule (Olenski, 2018); is mobile-friendly (AdAge, 2020); conveys a clear, customer-focused message (Gillespie, 2020); and includes a call to action while avoiding overtly sales-focused requests (Olenski, 2018). The video's title cites a specific brand product by name and simultaneously references the function of the brand's products. The title is a direct appeal to purchase Kidde products from The Home Depot and is a strength from a marcomm perspective.

In other ways, the video does not adhere to marcomm best practices. It does not present The Home Depot logo at the beginning of the video, though, to those who are familiar with the company's aesthetic, its brand is evident by the distinct orange background with complementary white lettering. In addition to the visual aesthetic, the audio includes a recognizable jingle that the company uses in most of its ads and commercials. It does not, however, use subtitles, which are essential to Facebook video content when critical information is presented in a voiceover narration that will likely be muted (Zarzycki & Cyca, 2020). At the conclusion of the video, the logo is displayed, which does well to reinforce the marcomm function. The video's full title on Facebook, though, is "Kidde Fire Safety.mp4," an oversight by The Home Depot's marketing team that demonstrates some lack of attention to detail.

Video Title	Date Posted	Location	Length	Views
Kidde Fire Safety	October 6, 2020	Facebook	0:32	>21k

Table 1. Metadata for Kidde Fire Safety video

Although selling a specific brand product is the video's main purpose and it does well to adhere to marcomm best practices, it also functions as instructional content: how to install and maintain Kidde smoke detectors. This genre convention is not uncommon, as Collins and Conley (2020) cite "educational/how-to" videos as one sub-type of social media marcomm. Because the video is presented in an educational/how-to format, it also integrates some components of tech comm. For example, steps are outlined for installing and maintaining Kidde fire alarms, but the steps are neither numbered nor clearly sequential. As marcomm content, the video deploys technical instruction to encourage new purchases.

In this case, the presale marcomm video content integrates components of tech comm. The format of the video is instructional, but it goes further than that: some of the individual tech comm components are used to make marcomm calls to action. For example, one of the video's steps is to "install an alarm in every bedroom [and] on every level." This imperative statement is instructional and directs users to consider additional purchases.

Tech Comm Postsale Videos

The How to Troubleshoot your Ceiling Fan video's purpose is to provide existing customers of The Home Depot with an audiovisual resource for troubleshooting their Hampton Bay ceiling fan(s). (See Table 2.) It is a part of The Home Depot's "How-to" YouTube series, whose primary audience is consumers who have already purchased a product and now require technical information about how to install, maintain, and/or repair it.

The characteristics of the video's structure are common to other examples of postsale, tech comm content. The video is long enough to provide detailed instruction (Pflugfelder, 2013). The Home Depot posted the video to its YouTube channel, which, although increasingly hosts marcomm content, typically serves more as an archive than does Facebook. The video mimics printed instructional documents (Swarts, 2012) in many ways: the video's title clearly indicates its instructional purpose (Markel and Selber, 2021) and includes an action and object (Van der Meij and Van der Meij, 2013); the video is introduced by an animation (Van der Meij and Van der Meij, 2013) of The Home Depot's logo and the words "How-to Series"; the video then shows human actors making the repairs, showing action rather than implying it (Eriksson and Eriksson, 2019); and the video includes links that "layer" information for the user (Farkas, 1999, p. 45). Finally, the video integrates signal words to provide users essential, additional information (Markel and Selber, 2021).

Although the video functions primarily as tech comm content, it also includes branding components, and, in that way, is indicative of genre convergence. The video markets related products, such as the "Tip" (2:43) to "Check the fan's product page" on The Home Depot website for more details on replacement parts, or the suggestion to "buy an inexpensive balancing kit" (2:03-2:07) if the fan didn't already come with one. The video's YouTube metadata, though, is the most overt form of marcomm content. It employs three hashtags (#TheHomeDepot, #HomeImprovement, and #DIY) for search engine optimization (SEO) purposes that function to drive user traffic to the video and company channel. The video description begins with "When it's warm outside, ceiling fans help keep your home comfortable by circulating the air indoors. Depending on the style you choose, they can also help you save money on cooling bills while adding an element of decor to any room." Such language is of course meant to solicit the purchase of fans.

Video Title	Date Posted	Location	Length	Views
How to Troubleshoot your Ceiling Fan	August 26, 2020	YouTube	4:58	>26k

Table 2. Metadata for How to Troubleshoot your Ceiling Fan video

Convergent Videos

The Home Depot has produced videos that are not so genre-specific. The video we analyze below, titled "TV Wall Mount Installation: A DIY Digital Workshop" on YouTube and Facebook, integrates components from both genres in ways that evidence a convergent genre. (See Table 3.)

One traditional distinction between tech comm and marcomm videos is that the former typically revolve around an action or task, whereas the latter primarily function to highlight a specific brand or product. In this instance, the video straddles both genres by demonstrating a specific task while clearly presenting the brands/products used (all available at The Home Depot), but without making the brands/products the focus of the video.

The two genres' convergence continues with the video's aesthetic. The video is branded extensively: the background music is the same that is used in most of The Home Depot's marcomm videos, the "pegboard" in the background at the beginning and the end of the video is clearly The Home Depot orange, the video is identified as part of the "DIY Digital Workshops" series, and the company's logo is watermarked in the bottom-right corner of the video. Amid this branded introduction, the in-video title card clearly signals its instructional function using the words "how to": "How to Mount a Flat Screen TV." The background then displays a wall-mounted, flatscreen TV in a living room with the words "How to Mount a Flat Screen TV" in bold, white text.

Effective technical instructions list requisite tools and conditions. Instead of listing these materials in a simple fashion, the video displays a wood tabletop with images of the tools needed overlaid with the words "What You Need to Get Started." Instead of listing generic names, the shot displays specific brands of each tool. Toward the beginning of the video, for instance, viewers are prompted to select either a regular or swivel mount, and the video employs a graphic animation and audio "ding" to encourage the latter; this materials segment, a traditional tech comm feature of instructional sets is, thus, used as a kind of in-video "up-sale."

The video presents nine sequentially ordered, unnumbered steps, with an optional final step, to complete the task. In lieu of voiceover narration—likely to serve the Facebook video genre, which starts muted automatically—the video uses human actors and text/graphics to demonstrate the task. Each step is cited in bold, white text as the actors demonstrate the actions and is shortly thereafter accompanied by less-weighted text underneath that clarifies or adds to the main text. These statements seem to play several roles when compared with the traditional instructional genre. At times, the lesser-weighted statements function as feedback statements, notes, extended command descriptions, and warnings, though none is labeled clearly with a signal word. The video layers information by linking to an instructional document on The Home Depot's website and links to the requisite tools for purchase. The video concludes with a clear signal that the task is complete by displaying the text "Now You Know" and the male actor sitting on the couch to watch his newly mounted TV, which then transitions to the company logo on the orange pegboard.

Although the video adheres to tech comm genre conventions in the aforementioned ways, the video also exemplifies structural and organizational traits of typical marcomm content. The video is less than two minutes long, which is short enough to be effective as marcomm but long enough to include all relevant steps in completing the task; conveys a clear, customer-focused message; and includes a call to action (to purchase products used in the video) while avoiding

Video Title	Date Posted	Location	Length	Views
TV Wall Mount Installation: A DIY Digital Workshop	June 12, 2017 October 18, 2018	YouTube Facebook	1:02	>90k ~17k

Table 3. Metadata for TV Wall Mount video

overtly sales-focused requests. It also adheres to the "silent movie" rule (there is no voiceover to narrate the steps). The video is mobile-friendly, too; the text it employs is larger than in the previous video and is easily read on a smartphone screen.

The video's YouTube metadata suggests marcomm purposes, as well, including hashtags (#TheHomeDepot, #HomeImprovement, and #DIY) for SEO purposes that drive user traffic to the video and company channel, as well as links to the various products' points of purchase (POP) shown in the tutorial. The Facebook metadata needs work, though. There, for instance, the video description reads, "Learn how to wall mount your TV and clear your space of clutter with help from our DIY Digital Workshop." This is a clear call to action, but there is no direct marcomm accompanying it, such as a link to products' POP. Since The Home Depot's Facebook page is frequently used to market specific products, and the video itself includes direct references to particular brands, there's no reason that the video description should not feature, link to, or at least mention them.

Taken together, the video integrates tech comm and marcomm in ways that show how convergent content can leverage the rhetorical utility of both genres to address strategic and tactical organizational needs.

Conclusions and Takeaways

Based on our observations, convergent content offers business-to-consumer marketers a unique communication strategy that accounts for product, audience, and digital contexts. Though our sample size is limited, we offer a few insights for practitioners to consider.

Presale marcomm videos often integrate postsale tech comm content. Companies have realized that videos presenting product reviews, tutorials, and DIY projects engage and retain existing customers. Because consumers are ever more discerning when it comes to their purchasing decisions, companies must adapt their presale marcomm content to provide "enough technical details so potential buyers can make an informed decision…the days of glossy but vacuous marketing content are coming to an end" (Samuels & Aschwanden, 2017, p. 3). Product marketers now must provide enough technical information so that consumers can evaluate if and how the product is the best choice. The Kidde Fire Safety video does this by using imperative, instructional statements about home fire safety as calls to action to purchase products.

Just as presale videos have evolved to include more tech comm content, postsale videos have started to integrate marcomm content. Though postsale content "has always focused on providing enough technical details to use the product, [postsale content] is now evolving to provide more useful information based on business goals, is presented in a more usable way, and made available in a helpful format" (Samuels & Aschwanden, 2017, p. 3). The How to Troubleshoot your Ceiling Fan video's structure is representative of postsale, instructional content, but The Home Depot inserts several marcomm elements for rhetorical effect, such as using metadata to improve SEO and driving additional purchases through in-video links.

Today, consumers want to know that a product is the best option on the market and why that is true, including its operation, functions, and so on. Since potential customers often research products using sites like YouTube and Facebook, and because they do not distinguish between pre- and postsale content, companies can kill two birds with one stone by producing video content that engages both marcomm and tech comm content. As Urbina (2017) states, "The customer doesn't care about your org chart" (p. 6). To that end, convergent videos fulfill multiple purposes across the customer lifecycle, showcasing both product utility and brand appeal. The TV Wall Mount video briefly but fully demonstrates for users how to install a wall mount in a home, assuring the task is easily accomplished. For users motivated by the projected simplicity of the task, the video demonstrably uses marcomm elements to call users to action. For example, the materials scene presents five products and two brands that are available at The Home Depot. These rhetorical moves make the video viable for both tech comm and marcomm purposes.

There are other reasons for the convergence of form and function in pre- and postsale video content, such as consumer demographics. Millennials want to shop brands that help them control their lives and give them worthwhile experiences (Bacon, 2015). Companies whose products offer experiential value can be an attractive draw for this group. By illustrating hands-on experiences in video content that both markets products and demonstrates product utility, companies like The Home Depot can capitalize on this demographic's preferences.

Marketers and content strategists are "facing multiple challenges: channel proliferation; global/local balancing acts and their associated costs; and of course, customers who are increasingly informed, empowered to self-serve across their lifecycle, and quick-to-switch if experiences disappoint" (Urbina, 2017, p. 4). By creating video content that can serve multiple purposes across the customer lifecycle, and doing so effectively, companies can address these challenges in a strategic and economical way. In producing and delivering video content that serves as both marcomm and tech comm, companies can "increase engagement, accelerate processes, and improve relationships that drive revenue. Simultaneously, the brand saves money and time by not re-creating or copy-pasting content that has to be laboriously kept up to date in multiple deliverables" (Urbina, 2017, p. 9). Combining the previously disparate presale and postsale genres can function to unify content strategy, reduce costs, and streamline user experiences.

References

AdAge (2020, January 30). 9 best practices for a successful video marketing campaign. https://adage.com/article/industry-insights/9-best-practices-successful-video-marketing-campaign/2228056

Bacon, J. (2015, February 18). Millennials look for experiences over possessions. *Marketing Week*. https://www.marketingweek.com/millennials-look-for-experiences-over-possessions/

Chi, C. (2018, April 18). How long should your videos be? Ideal lengths for Facebook, Instagram, Twitter, and YouTube. HubSpot. https://blog.hubspot.com/marketing/how-long-should-videos-be-on-instagram-twitter-facebook-youtube

Collins, A., & Conley, M. (2020). The ultimate guide to video marketing. Hubspot. https://blog.hubspot.com/marketing/video-marketing

Eriksson, P. E., & Eriksson, Y. (2019). Live-action communication design: A technical how-to video case study. *Technical Communication Quarterly, 28*(1), 69-91. https://doi.org/10.1080/10572252.2018.1528388

Farkas, D. K. (1999). The logical and rhetorical construction of procedural discourse. *Technical Communication, 46,* 42-54.

Gillespie, C. (2019, September 11). How long should videos be? The ultimate guide to video length. Vidyard. https://www.vidyard.com/blog/video-length/#:~:text=probably%20be%20longer.-,Shorter%20is%20(Almost)%20Always%20Better,more%20than%2020%20minutes%20long

Gillespie, C. (2020, May 28). The ultimate guide to Facebook video marketing. Vidyard. https://www.vidyard.com/blog/facebook-video-marketing/

Google. (2018). How online video empowers people to take action. *Think with Google*. https://www.thinkwithgoogle.com/feature/youtube-video-data-watching-habits/

Markel, M., & Selber, S. A. (2021). *Technical Communication* (13th ed.). Bedford/St. Martin's.

Mogull, S. A. (2014). Integrating online informative videos into technical communication service courses. *IEEE Transactions on Professional Communication, 57*(4), 340-363.

Morain, M., & Swarts, J. (2012). YouTutorial: A framework for assessing instructional online video. *Technical Communication Quarterly, 21*, 6-24. https://doi.org/10.1080/10572252.2012.626690

Olenski, S. (2018, August 7). 6 video marketing best practices for 2021. *Marketing Insider Group*. https://marketinginsidergroup.com/strategy/best-video-marketing-practices/

Pflugfelder, E. H. (2013). The minimalist approach to online instructional videos. *Technical Communication, 60*(2), 131-144.

Samuels, J., & Aschwanden, B. (2017). Content is content: The convergence of technical communication and marketing communication [White paper]. *Adobe*. https://offers.adobe.com/content/dam/offer-manager/en/na/marketing/xml-documentation-for-adobe-experience-manager/The_Convergence_of_Technical_Communication_and_Marketing_Communication.pdf

Selber, S. A. (2010). A rhetoric of electronic instruction sets. *Technical Communication Quarterly, 19*, 95-117.

Statista (2020, October). Most popular social networks worldwide as of October 2020, ranked by number of active users. https://www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users/

Swarts, J. (2012). New modes of help: Best practices for instructional video. *Technical Communication, 59*(3), 195-206.

The Home Depot. (2020). *How to troubleshoot your ceiling fan* [Video]. YouTube. https://www.youtube.com/watch?v=tlrQV9sHZTA

The Home Depot. (b) (2020). *Kidde fire safety.mp4* [Video]. Facebook. https://www.facebook.com/homedepot/videos/352909909398797

The Home Depot. (c) (2017). *TV wall mount installation: A DIY digital workshop* [Video]. Facebook. https://www.facebook.com/homedepot/videos/175 4223244701064

The Home Depot. (d) (2017). *TV wall mount installation: A DIY digital workshop* [Video]. YouTube. https://youtu.be/LBeZYCH5iwQ

Urbina, N. (2017). Strategic marcomm and techcomm integration [White paper]. *Adobe*. https://www.adobe.com/products/xml-documentation-for-experience-manager/whitepaper-strategic-integration.html

Van der Meij, H., & van der Meij, J. (2013). Eight guidelines for the design of instructional videos for software training. *Technical Communication, 60*(3), 205-228.

Zarzycki, N., & Cyca, M. (2020, April 13). The complete guide to social media video specs in 2020. HootSuite. https://blog.hootsuite.com/social-media-video-specs/

Author Contact Information

Chase Mitchell, PhD
Assistant Professor of Media and Communication
East Tennessee State University
519 Warf-Pickel
P.O. Box 70669
Johnson City, TN 37614
(423) 817-9976
mitchella@etsu.edu

Brandon C. Strubberg, PhD
Assistant Professor of Technical & Professional Communication
Sam Houston State University
1901 University Ave.
Box 2146
Huntsville, TX 77341
(936) 294-3135
strubberg@shsu.edu

Author Biographies

Dr. Chase Mitchell is Assistant Professor of Media & Communication at East Tennessee State University, where he teaches, researches, and writes about multimedia production, technical communication, and digital rhetoric. He also directs the Technical & Professional Writing Minor and coordinates the Adobe Certified Professional program, which provides training and credentialing for ETSU faculty and staff. Chase holds a PhD in Technical Communication & Rhetoric from Texas Tech University and has over a decade of experience in the U.S. and abroad. He lives in Bristol, Tennessee, with his wife Mott and their two dogs Bigfoot and Fuzzle. He enjoys coffee, books, and British humor.

Dr. Brandon Strubberg is an Assistant Professor of Technical and Professional Communication at Sam Houston State University, where he teaches undergraduate and graduate courses in writing, rhetoric, and technical communication. He directs the Iris Technical-Communication Suite, a media center and maker space that provides students in technical communication access to a variety of industry-standard tools for their projects. He recently received a letter of commendation from the Houston Police Department for facilitating a community partnership between the Geographic Information Systems Unit at HPD and students in technical writing at SHSU. Brandon has worked as a consulting technical writer in the oil-and-gas industry for the past eight years, producing technical papers, posters, magazine articles, case studies, and white papers. Brandon previously worked as a scientific editor at The University of Texas MD Anderson Cancer Center, where he edited basic science and clinical research manuscripts as well as other writing-related education and publication tasks.

Brandon also consults with small businesses on content marketing and has run social media campaigns, written copy for websites and social media posts, designed and maintained websites, and produced web videos. Brandon earned his PhD in Technical Communication and Rhetoric from Texas Tech University.

The Phases of Successful Freelance Technical Editing

Avon J. Murphy, PhD, Fellow

Freelance technical editing can prove a rewarding career choice once you understand the subtle distinctions between the various roles within the profession. Learn how to analyze an editing project according to where it fits into a typical six-phase editorial workflow, from acquisition editing to proofreading. Learn tricks of the trade that can help you make an impact in each type of editing. Use this information to decide what kind of editing to focus on in your career. The result will be clients who understand what you're doing at any point in the development of their projects, not to mention more focused and helpful editing.

Realize What You're Getting Into

As a freelance technical editor, you face two related questions: Do you want to offer your services in all phases of editing, or instead specialize in one or two? And when a client asks you to "edit this," can you analyze the current status of their project to see what type editing is required?

Your answers are important, because they will determine the focus, quality, and quantity of projects that you undertake throughout your career. I want to take you through the following sequential phases of technical editing:

- Acquisition editing
- Developmental editing
- Content editing
- Technical reviewing
- Copyediting
- Proofreading

Note: These phases are the ones I've normally encountered in my practice—other editors may have had different experiences. Two phases are often combined into one, as when you're hired to do developmental editing and content editing together. In many cases there are insufficient resources to include technical reviewing and proofreading. Also, the activity immediately following proofreading is sometimes called "production editing," which I'd label simply "production," because at this point you're not emending, but rather producing a document that reflects editorial decisions made before you began your work. Thus, I don't see this kind of "editing" as an editorial phase.

If you're new to technical editing, learn as much about the various editorial phases as possible. Beware of the instructor, course, or textbook that assumes all technical editing relates to one type of editing (usually copyediting). When you come across a job lead, make sure to analyze what kind of editing is specified or implied, and adjust the phrasing in your application materials accordingly. If you're a newly hired editor, you'll do well to do as much varied work as possible so that you can get a feel for what goes on in each phase.

Acquisition Editing—Finding Authors

What It Is

Acquisition editing is sometimes called commissioning editing, because you're commissioning prospective authors to write something. You see this in action, for example, when the editors of *Technical Communication* and *Intercom* screen Summit presenters in search of prospective contributors. Similarly, for 17 years I beat the bushes finding people to write book reviews for *Technical Communication*.

The exhilarating part of acquisition editing is that the hunt is always on! Your antennae are continually twitching as you dig for just the right talent.

How to Do It

Not every technical editor can succeed at acquisition editing. You must:

- Draw on deep experience in professional publishing, fed by your database of authors (including personalities and abilities) and publications

- Analyze market trends and competing publications
- Work aggressively to sign writers who can finish the job
- Develop a vision for a publishing program, including costs and income

The general editor of a technical magazine might contract you to put together a special issue on form design in smartphone displays. You're on this assignment because you understand the technologies involved. You also must learn exactly what kind of material will be right for this magazine. Finally, you'll use your knowledge of qualified people who know smartphone interfaces to engage them in conversation and persuade enough of them to contribute. (Of course, if you have no contacts, you're dead!) Some of these recruits may be technically sharp but unaccustomed to writing professionally. You'll have to negotiate, showing them the realities and preparing them for a developmental edit.

Developmental Editing—It's Taking Shape

What It Is

This is my favorite phase, because of the intellectual challenge. A developmental editor—also called substantive editor, content editor, or structural editor—works at a high level to make sure that the author is going in the right direction or should consider changing direction. This is not the time to point out a thousand problems of word choice or spelling. You're looking at the big picture; fixating on individual sentences would be a waste of the editor's time and the client's money.

Many self-publishers and new authors believe they can save money by skipping this phase. They likely don't realize that they're ignoring their readers' interests, omitting essential details while piling on inconsequential ones, putting things in the wrong order, and repeatedly phrasing ideas weakly. They might show their writing to friends for comment, but few of these people are professional editors.

How to Do It

You must be able to:

- See the flow of the document
- Creatively envisage needed structural changes
- Suggest types of changes in style without stopping to edit style (this is done in later phases)
- Evaluate the content, focusing on its suitability, amount, and arrangement
- Head your author off from going down a path that can't work

Because you need to see and revise the structure of the whole document and its parts, use your software to visualize that structure. Microsoft Word makes this easy. Make sure your author has used a template that includes styles for section headings. (Major publishers provide templates following acquisition of a book, and you should be able to develop one yourself if need be.) If the author hasn't inserted headings, you can usually do that yourself (this is part of the job that the author is paying you to do).

You always work starting with the largest structure. Go into Outline View and have just chapter names and headings on your screen. Does their order make the best sense for the purpose of the document?

Here's the original order of sections in a chapter on risk management in software development:

Definitions and Terminology
Takeaway
Risk Types and Options
Governance
Compliance
Risk Management Models
Review

And here's the final order:

Definitions
Risk Types
Governance, Risk, Compliance
Risk Management Models
Risk Options
Takeaways
Chapter Review

You have more than one way to explain your points. I usually do two things: (1) submit a report detailing my findings and suggestions, and (2) use Word's Track Changes feature to write comments and sample changes on the manuscript. The comments can be on the long side, because I want to leave no doubt as to what I'm recommending; I also want to help the author proceed with confidence.

Content Editing—Making Positive Strides

What It Is

Also known as "line editing" (you work line by line), content editing is the first opportunity to take a complete document and also get your hands dirty at the sentence and paragraph level. You and your client are now working in sprint mode.

How to Do It

You must be able to:

- Apply rhetorical principles to improve the pacing, flow, and navigability of pages and websites
- Increase the precision and vigor of the writing by eliminating bland or inaccurate diction and ungrammatical constructions
- Ensure that the project adheres to accepted principles of such areas as ethics, diversity, and social justice
- Educate your client in the use of a good Microsoft Word template, perhaps one of your creation or adaptation

Content editing lets you impart a positive spin to the project. You alert your client to opportunities to expand details where necessary while eliminating redundant and unnecessary details. Do whatever is appropriate to the mode of communication. When content-editing websites, for example, strive for economical phrasing, clear and responsive page design, rich and accurate content linking, and helpful graphic presentation.

In this phase of editing, you have an especially good opportunity to serve your client as a teacher on a person-to-person level. For example, they might repeat favorite rhetorical patterns or phrases ad nauseam. You might feel tempted to scream in your comments, "You idiot! I'm getting sick and tired of reading 'At the present moment in time' over and over!" Try instead a kinder, more mentoring approach:

> Bill, look at the opening sentence of this paragraph. It starts "At the present moment in time." Note that some paragraphs on pp. 7, 11, 20, 25, and 27 open with the same phrase. Two problems here: the repetition will kill readers' interest, and the idea of "now" can be expressed much more concisely or, better yet, simply implied. Be on the lookout for other kinds of repetition especially in Chapter 6, which you're sending me on Saturday.

You need to work patiently line by line, but also step out occasionally to see if you need to revise or comment on larger problems. Your object is to help your client progress beyond fragmented passages to a unified piece of communication with a sound structure, effective flow, and easy navigability.

Technical Reviewing—Is *That* Right?

What It Is

A competent content edit has ensured that the writing coherently and logically sets out details that the reader should be able to understand. If the technical details are general enough, the document can perhaps now go directly to copyediting. But if the detail is extremely technical, it should at this point go into technical review. (In some technological environments, the term *technical editor* equates to *technical reviewer*.) You might think of this work as a combination of fact-checking and usability testing.

The concern is straightforward: Is everything in this writing technically sound? It's essential that you have an excellent command of the technologies in play. If you have only a passing knowledge of the material, it's anyone's guess as to whether your feedback is technically sound, misleading, or even dangerous.

Years ago I built a reputation for quickly learning Microsoft-based computer languages in some depth. Microsoft Press then issued me freelance contracts to evaluate the accuracy of programmers' books on such topics as Visual Basic, C#, C++, and ADO.NET before they went into copyediting. Treading in perilous waters, I assessed not only hundreds of code samples but also definitions, cautions, discussions of context, and solutions to exercises. A company likes to find and

keep editors who can bring such knowledge to projects, because this is a now-or-never point: no one else farther down the line will have the responsibility to ensure deep technical accuracy. This work definitely puts the "technical" in "technical editor."

How to Do It

You must have:

- Strong command of details about a specific technology well beyond the expertise of a technical generalist
- The ability to analyze and explain where changes are needed
- The drive to test and test some more
- Access to resources beyond a general web search, including subject matter experts, technicians' documentation, special tools, and your own practice

Copyeditors depend on you to endorse the technical content. For example, does a book on a new Cascading Style Sheets (CSS) product reflect the newest recommendations from the World Wide Web Consortium? How about the formatting of code samples? Are some lines of code unnecessary?

It's best to build your own documents to use in checking manuscripts. These might include focused technical briefs and specially designed stylesheets containing definitions, examples, and links to sources that you trust.

Copyediting—No Errors Here

What It Is

This phase is what many people think of when they use the word *editing*, and most technical editing contracts are indeed in copyediting, even if employers are unaware of that point. Often what employers actually want is simultaneous content editing and copyediting. The depth of your work can vary from light comments to the client to full rewriting.

As negative as error finding may seem, copyediting can be a very positive experience for you, the editor. With the content and overall structure dependably set, you're now fine-tuning the document so that everything is as good as it can be. If you're a super-organized person with a good ear for language, this could be an excellent focus for an editing career.

How to Do It

You must be able to:

- Have a feel for things that are off or out of place
- Understand and act upon the finest points of grammar, spelling, word forms, idioms, style, ethical use of language, legalities, formats for particular disciplines, socially and ethically acceptable language, citation of sources, graphics, and much else
- Commit to making a manuscript as close to 100% error-free as possible—this is the best opportunity to make a noticeable difference
- Devour style manuals as if they were candy
- Effectively explain your recommended changes to clients who have no idea why the changes might improve their documents
- Doublecheck all technical statements to the best of your ability, especially if the project doesn't have a technical reviewer

Few clients realize the number of things copyeditors might check as they improve documents: adherence to the standards within a technical discipline, HTML/CSS coding, rhetoric and grammar in all their manifestations, spelling and discipline-specific terms, cross-references and web links, punctuation, graphics and video strategies, paragraph structure, style and tone, accuracy of names and numbers, citations and references, and much more.

You can employ all manners of sleight of hand, AKA "tricks" to the uninitiated. Unless you're a cyborg loaded with gazillion gigabytes of memory and unlimited mental storage space, you're going to prosper by use of your tools. Befriend the style manuals used in your discipline. Build a well-organized project stylesheet that records departures from your style manuals and anything else you must remember while ensuring consistency. You have no business struggling to remember from chapter to chapter how your client capitalizes the multi-word name of their main product: record the accepted form in your stylesheet to eliminate this potential error.

Consider also software tools that copyeditors use daily. Microsoft Word macros, for example, greatly reduce tedious repetitive keystrokes for such tasks as

searching for double spaces. The wise modern copyeditor takes advantage of resources like Paul Beverley's free *Macros for Editors*, which provides over 800 macros (Beverley), and the excellent editing software PerfectIt, which helps you check for such problems as inconsistent capitalization and mis-ordered tables.

Caution: An unskilled or supercilious copyeditor can destroy documents—it's happened to my writing. As a freelancer you can't afford to change the writer's intention (this isn't *your* document), insert and delete material you don't understand, leave weak sentences alone, blindly eliminate all passive constructions, or lose your way in the document's structure. Repeatedly do anything like that, and your freelance career may be finished.

Proofreading—One Last Time

What It Is

As a proofreader (sometimes spelled *proof-reader*), you come onto a project at the very end and save the day when no one else realizes that disaster is impending. Are textual and typographical errors lurking? Have copyeditors' alterations failed to make their way correctly into the revised document? You are the last chance to catch these errors before publication.

How to Do It

You must have:

- An innate sense of "This doesn't look right"
- A knack for spotting errors that no one else would even look for
- A practiced eye for differences between versions of a document, including changes called for but not made
- Expertise with and fierce devotion to tools that help you ensure that nothing amiss remains in the document
- An aptitude for absolute concentration

Your tools must include detailed checklists geared specifically to your project, computerized check routines, and, above all, your eyes. Problems can be as large as deleted sections or as small as word forms.

Here's a sentence in which three things have gone amiss at the last minute. Can you spot them?

> We agreed to the conditions of our post–2020 agreement.

Watch especially for anything that's been introduced since copyediting. If your legal or (especially) marketing team has inserted verbiage late in the timeline, proofread *very* closely, down to the color and size of the last period. Yes, I've come across copyright pages containing the wrong edition number or the names of editors who never touched the project.

By the way, forget about mastering the old paper-based proofreading symbols. Modern computing systems have rendered them obsolete in 99 per cent of today's publishing.

Time to Edit

You've seen the nature and requirements of phases within a typical editorial workflow. I hope my remarks help you get a feeling for where you want to specialize in your technical editing career. And feel free to pass this write-up to hiring managers who recruit technical editors.

Resources

Amare, N.; Nowlin, B.; & Weber, J. H. (2011). *Technical Editing in the 21st Century*. Prentice Hall.

American Psychological Association (2020). *Publication Manual of the American Psychological Association* (7th ed.). American Psychological Association.

Beverley, P. (2021). *Macros for Editors*. Archive Publications. http://www.archivepub.co.uk/book.html

Bridgeford, T. (2018). *Teaching Professional and Technical Communication: A Practicum in a Book*. Utah State University Press.

Editorial Freelancers Association. https://www.the-efa.org

Einsohn, A. (2006). *The Copyeditor's Handbook: A Guide for Book Publishing and Corporate Communications, with Exercises and Answer Keys* (2nd ed.). University of California Press.

Ginna, P. (2017). *What Editors Do: The Art, Craft, and Business of Book Editing*. University of Chicago Press.

Norton, S. (2009). *Developmental Editing: A Handbook for Freelancers, Authors, and Publishers*. University of Chicago Press.

Rew, L. J. (1999). *Editing for Writers*. Prentice Hall.

The University of Chicago Press (2017). *The Chicago Manual of Style* (17th ed.). The University of Chicago Press.

Author Contact Information

Avon J. Murphy
Murphy Editing and Writing Services
avonmu@comcast.net
(360) 485-7082

Author Biography

Avon J. Murphy is an STC Fellow and freelance technical editor in western Washington. Principal in Murphy Editing and Writing Services, he specializes in computer and Web technologies. He created and managed technical communication programs at three universities, served as the sole technical writer for the Washington State Legislature, and was a contract senior editor at Microsoft and other high-tech companies. Avon has served STC in many capacities, including 17 years as Book Review Editor for *Technical Communication*. His hundreds of writing and editing projects include his *New Perspectives on Technical Editing* (Routledge), other books and book chapters on technical communication and information technology, articles and book reviews on technologies and fiction, corporate websites, help systems, and manuals. He edits and produces the annual Summit *Proceedings*.

Technical Writing Style: A Rhetorical Perspective

Jonathan D. O'Brien, PhD

Technical writing style is often pictured as utilitarian and unadorned, shaped by the ideals of modern business communication. I examined this characterization of technical writing style in a study I conducted with twenty technical writers from diverse fields and locales. Research questions shaping the study asked whether and to what extent technical writers encode this version of writing style and what factors impact their styles. The study resulted in six findings showing audience, biography, language ideology, technology, embodiment, and exigency as impactful on technical writing style. I concluded the study by considering implications for technical writing practice, education, and training.

Session Takeaways

Attendees can expect the following three takeaways from the session:

- An awareness of current ideas about writing style and how it is constructed and received
- An understanding of how to consider production and reception of the texts under review in the session from a rhetorical perspective
- An opportunity to reflect on writing style from multiple levels, hopefully resulting in a more aware, nuanced, and richer perception of writing style and its creation and reception

Introduction

The style of American business discourse is often characterized as emotionless, purposeful, image-focused, and utilitarian—the "prose of utility" in Tebeaux' terms (2004, p. 194). This rhetorical depiction of business and technical writing style is not often discussed or examined. However, there are important benefits that can derive from reflecting on the words on the page, specifically on how writers construct style and audiences receive style. For those in professional writing practice, the benefits of considering writing style, from the levels of industry demands to genre expectations to metacognitive reflection on one's own writing practice, are compounded by a rhetorical perspective that focuses on classic rhetorical concepts such as exigency, audience, and tone. Many participants expressed this sentiment in a study I conducted for dissertation research in the field of rhetoric/composition in summer and fall 2018/spring 2019. The study yielded six main findings about technical writers and their writing style.

Important theoretical background for the study comes from rhetoric scholar Andrea Olinger's (2016) sociocultural theory of style that has impacted the fields of rhetoric and composition, seeing publication in both fields' leading journals. Olinger's theory is notable for its focus on co-construction, its discussion of the impact of language ideology on writing, its exposition of the effects of multiple sign systems such as language and visuals, and its centralization of audiences as well as writers in discussions of writing style. With a focus on technical writing style, I sought to extend this theory by identifying and prioritizing the influences or "constructs" affecting writing style in specific contexts given local exigencies with individual writers.

Though the study and the research questions it examines extend conversations around the sociocultural theory of style within rhetoric/composition, the study's findings also offer insights more relevant for professional writers. Specifically of interest to the latter group are the constructs affecting the production and reception of writing style for technical writers and their audiences. These constructs relate to six key areas: audience, personal biography, language ideology, technology, embodiment/materiality, and exigent factors. I created a visual of the process of writing style production and reception, coupling the findings of the study with classic rhetorical concepts such as *kairos*, voice, and rhetorical distance. This Construct Model of the

Sociocultural Theory of Style (see Figure 1) depicts the creation of the stylistic features of texts by writers and their reception by readers as a dynamic, shared perception of linguistic resources exercised in specific contexts among a dizzying array of options.

Study Design

Twenty technical writers from around the United States and the world participated in the study. I found these participants through a mix of convenience and snowball sampling but mainly through the Academic SIG of the Society for Technical Communication. I conducted two interviews with each participant, one a literacy history interview and the other a discourse-based interview focused on two documents, a set of instructions and a governmental report. The six findings of the study resulted from the process of transcription, first cycle coding, memo writing, second cycle coding, and thematic analysis of all forty interviews.

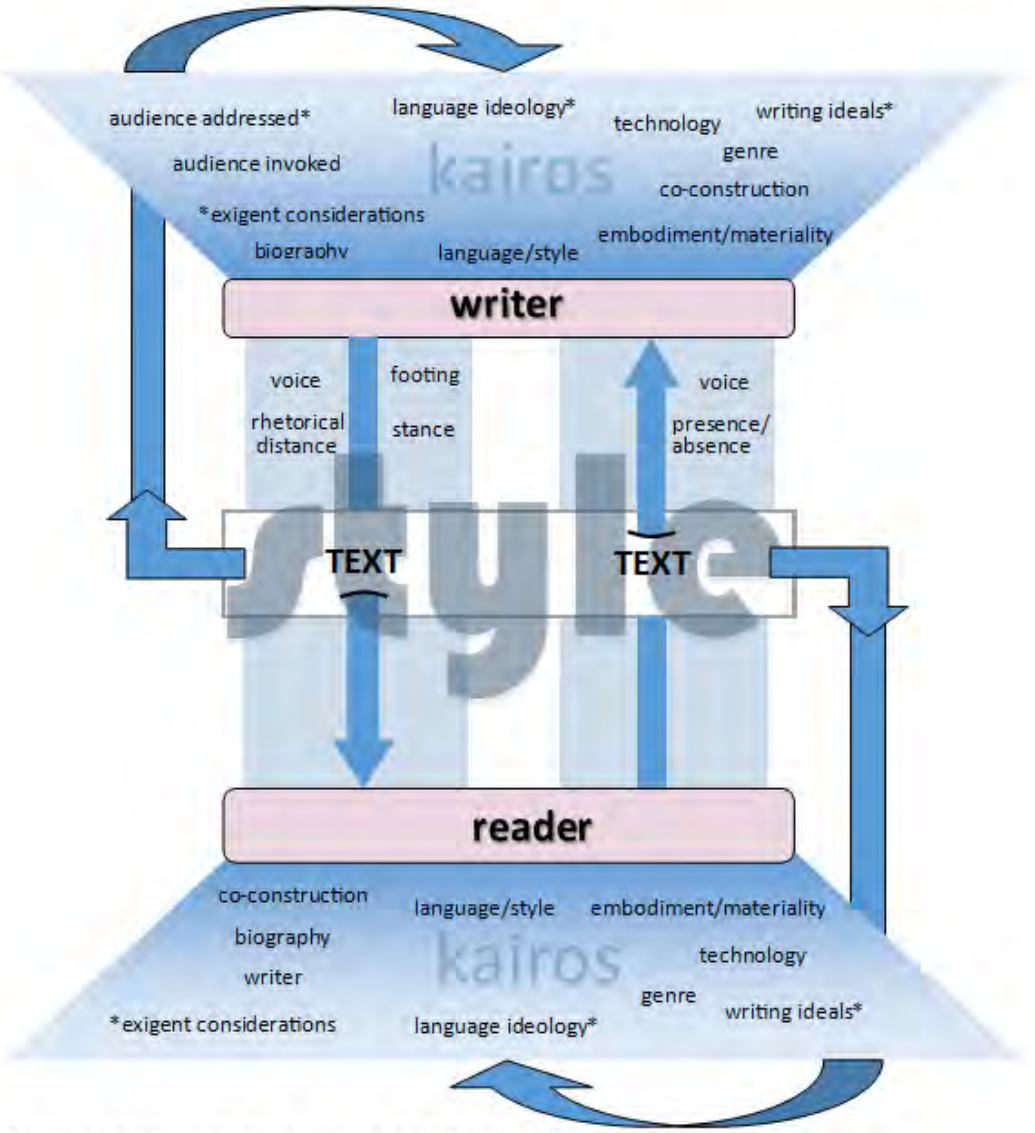


Figure 1. The Construct Model of the Sociocultural Theory of Style

Findings

The study's six findings are listed below:

1. Technical writers prioritize audience above all other constructs consciously affecting their perceptions of writing style, and they think of the audience as both addressed and invoked in subtle ways.
2. Personal biography has a powerful impact on technical writers' production and reception of writing style.
3. Language ideology shapes writing style both consciously and unconsciously, and it impacts technical writers through reflections on dominant language ideology, choices related to language/style, and decisions about language and presentation style based on writing ideals.
4. The impact of technology on technical writing style is significant, affecting style mostly in terms of language, arrangement and categorization, and delivery.
5. Technical writers consider embodied and material aspects of technology, audience interaction with texts, the impact of delivery modes on reception, and the impact of materiality on their own writing processes. In addition, they illustrate embodied cognition through metaphors for writing ideals.
6. The exigences of one's specific writing situation foreground various constructs above others in the construction and reception of writing style for technical writers.

Discussion

Each finding identifies a construct affecting technical writers and their writing style. By showing these constructs at work in review of the two main documents used in the study, the study presents an opportunity for technical writers to make connections to their writing process and stylistic choices at multiple levels. For instance, the study's strongest finding relates to how technical writers centralize audience above all other concerns as they write. That insight, basic as it is, is only a beginning. The writers in the study showed subtle and sometimes surprising insights into the needs and expectations of audiences while balancing corporate and regulatory demands and the parameters of the genres they work in. Likewise, technology places its stamp on technical writing style such as in how the multi-layer language needed when writing in semantic tagging softwares affects the range of choices for topic and diction. In addition, the impact of ideological values related to tone, clarity, concision, and fluidity, among others, prompts technical writers to choose this phrase over that one, this voice as opposed to another, this word instead of a competing word from deeper in the thesaurus. Further, exigencies of writing situations from the levels of company/organizational needs for rapid project turnover to client/customer demands to industry and governmental regulations all play into writing styles. This short overview of just a few findings from the study demonstrates the value of reflection on technical writing style from multiple levels.

Additionally, the findings of the study suggest some considerations for technical writing training and practice. Examining the often latent aspects of linguistic choice, various exigences, audience awareness, and other factors within the ecosystem of any single piece of technical documentation is an important part of education and training in part because these factors exercise wide-ranging effects on writing style. Educators and trainers might prime students to build subtle awareness of these factors through metacognitively-focused prompts and assignments. Further, building a critical awareness of genre, both in terms of a philosophical awareness of its malleability while also understanding the preferences derived from the current state of particular genres, is a valuable part of training and education. These and other pedagogical applications of the study's findings might present themselves for educators and trainers interacting with the study.

In the final analysis, since a rhetorical approach to writing style focuses not only on writing but also on writers, their contexts, purposes, and audiences, this approach can fruitfully support further research, awareness, and reflection by technical writers, educators, and trainers. Inviting writers to craft communication in nuanced ways in the cross-functional, diverse environments where technical documentation lives presents opportunities to use the rich possibilities of language to serve the needs of organizations, businesses, and audiences in ways that meet their demands and needs.

References

Olinger, A. (2016). A sociocultural approach to style. *Rhetoric Review, 35*(2), 121–134. doi:10.1080/07350198.2016.1142930

Tebeaux, E. (2004). Pillaging the tombs of noncanonical texts: Technical writing and the evolution of English style. *Journal of Business & Technical Communication, 18*(2), 165–197. doi:10.1177/1050651903260738

Resources

O'Brien, J. (2019). *Constructs of Stylistic Production and Reception: Vetting and Extending the Sociocultural Theory of Style*. (Order No. 13904982). Available from ProQuest Dissertations & Theses Global.

Author Contact Information

Dr. Jonathan D. O'Brien
Communication Skills Instructor
Northeast Wisconsin Technical College
2740 W. Mason St.
Green Bay, WI 54303
jonathan.obrien@nwtc.edu
(920) 498-6802

Author Biography

Jonathan O'Brien is a Communication Skills Instructor at Northeast Wisconsin Technical College in Green Bay, Wisconsin, teaching courses in academic, business, and technical writing. He received the PhD in Composition and TESOL from Indiana University of Pennsylvania in 2019. His dissertation on the sociocultural theory of style focused on technical writers and technical writing style. Jonathan's research interests include argumentation theory, qualitative research design and theory, the first-year college writing course sequence, autoethnography, and writing style. Jonathan, his wife Rachel, also an educator, and their five children enjoy outdoor pursuits, travel, gardening, cooking, music, woodworking, and especially books.

No Research Tool Available, Kinda No Problem: Bliss and Bootstrapping of Build-It-Yourself

Brett Oppegaard

Abstract: For more than a decade, I have been engaged in various research projects that necessitate building digital tools, platforms, and mobile apps as an integral part of the research process. Such an undertaking should not be approached lightly – especially if low-cost or open-access third-party tools already get the job done, and tenure is on the line – but in this paper, I illustrate the potential of researchers becoming digital-tool designers, too. At the crux of this conversation, I contend that some research questions cannot be answered by using available tools and conventional methods. And some insights only come from the inside.

Introduction

The enormity and the complexity of the research problem became fully realized for me with the arrival at my office of a cardboard box, about the size of a suitcase. I had been talking philosophically, conceptually, and abstractly all around the problem for months with collaborators, including brainstorming ways in which we could improve Audio Description through our research ideas. But when that box arrived, in September 2014, it was filled with hundreds of diverse brochures from precious public places all around the country designated as U.S. National Park Service sites. These were folded pieces of paper covered with photographs, illustrations, collages, maps, etc., about diverse aspects of Americana, from societal, historical, and cultural landmarks to natural wonders of the world. These brochures were silent and without texture, and we had no known ways to make them tell their stories by touch or by sound. Our primary audience—people who are blind or low-vision—could not see them. They needed to hear them, through Audio Description, as a remediation of visual media into audible media. So we either needed to quickly build infrastructure to support this type of use or give up immediately on the idea and ship the box back.

We decided to build. The Audio Description-focused project that has developed in tandem during the past seven years—called The UniDescription Project (www.unidescription.org) —simply could not have been done without our inventing those novel digital tools focused specifically on our research priorities.

When we realized that the tools we needed didn't exist and no one was magically going to make them for us, with our research purposes in mind, we had to become builders of more than just online tools, though. We also had to build scaffolding around the tools, with supporting infrastructure and a community of users, who could make all of this effort worthwhile. Every time we stopped to reflect upon where we were with these tools, we had a new vantage point that made something else possible. That's an advantage of building yourself.

None of what has been accomplished so far with this tool system—including co-creating new Audio Description for more than 130 NPS sites throughout the country, while simultaneously studying its processes and products—could have happened without these tools. This paper, in response, is intended to demystify that building process and to inspire more scholars to take this approach. I have no special programming skills. I have never worked in a technology company. But as a part of the team, I could help to bring together people around a common goal of making the world a more-accessible place. And, if we can do it, you can, too.

So think about it: Have you ever had a research question that you couldn't answer through traditional means, methods, or methodologies, because you didn't have available the necessary digital infrastructure to do that sort of a study? That is the fundamental opportunity at the heart of this type of work. By building solutions ourselves, academics can better study technological disruptions across disciplines,

gaining insider knowledge along the way, but they also could become disrupters. Instead of relying on entrepreneurs, who aim for profits, to deliver robust public-service platforms for widespread intellectual advancement, I think we are better off shouldering some of that burden as well. Or else risk never getting answers to certain types of questions and letting others, outside of academics, broadly dictate a field's research agenda.

Through this BIY approach, researchers can create a novel perspective on complex topics through combinations of research interests, expertise, motivations, activities, curiosities, and capabilities. From this inside-out perspective, researchers are not limited to profit-focused fields where tech companies clamor for quick bucks (and sometimes disappear, with all of their resources, overnight). Researchers can take control of the agenda, constrained only by what they can and cannot envision building and then by their persistence and determination to make that vision into reality.

Positionality

Positionality is the starting point for all research. From what perspective are you going to approach the problem? Most researchers strike an outsider's stance, claiming objectivity as their eye level. From this normative view, they are just a detached observer allowing raw data to tell its story. Yet others, like me, reject this pose and philosophical construct as another fantastical Platonic ideal. Objectivity is an unattainable illusion, as bright and alluring as a rainbow and just as solid. Instead of perpetuating this fallacy, I recommend an embrace of inside-out positionality, in which a researcher acknowledges their place in the situation and reflects upon what makes a unique intellectual contribution in a world overflowing with information, ideas, and interpretations.

Ruminate about what you do best as a researcher, of course. Consider constraints of your discipline and career goals (i.e., the pragmatic pursuit of tenure). Ask yourself, what resources do I have? And what can I get? Who do I know? Who can I get to know? All of that. But I think you should do this work as a builder of your research positionality, as in creating a distinct vantage point, rather than someone who does research. Other methods require similar types of creativity, rhetorical construction, and collaboration. In some respects, building a mobile app to gather research data is not much different than any other type of research design. That approach just involves bringing together less-accessible parts.

On even a simple survey, for example, isn't it the researcher who typically writes, chooses, and validates the questions through interactions with research participants? Almost every experiment or study design that I can think of requires building such intellectual structures and sharing those with others in a feedback loop. Building digital tools for research purposes is a similar type of a process. Therefore this step should be considered either an increment in the research process or a research product of its own but never an extraneous bonus step of no academic value.

When creating the title of this paper, I disregarded the "Do" of DIY (Do It Yourself) as a mostly ephemeral type of action by an individual without inherent planning (although planning can happen) or a circuit of reevaluation and more planning. When a person just does it, in DIY, it's done. By inserting "build" as the verb, I instead intended the phrase to emphasize the latent power we all have to make the world a better place. By building new platforms, and points of view, from which we can see new things, we can create novel opportunities rather than waiting for them to materialize through the benevolence of others. This approach can be a perilous perch, and even a punishable offense, in the wrong contexts. But it also can be liberating. And empowering.

Building, by the way, is a term that infers a methodical collection of materials, which then are put together by the creator in a particular way, based on that builder's perspective, skills, and design. Building, among other types of engagement, requires planning, financing, oversight, adaptation, maintenance, reflection, and more planning and more building. When something is done, in contrast, it's done. But when something is built, the intent is for this structure to stay built and useful. It is additive to a system, not just a use of it. Building also is a step that often exponentially leads to more of it, because it inspires new ideas and developments. Ideas are built like this, too, and no one does the idea-building process alone. In such ways, builders are inherently collaborators. Research is a collaborative process, and building research tools is an active way to create a reality where novel questions can be answered as they emerge, in-situ, with the help of others. With this insider positionality established and transparently acknowledged, the building can begin.

Getting Started by Getting Started: Fort Vancouver Mobile Foundations

Do you remember building anything, and the first time you did it, the product of your design—no matter how carefully planned—was perfect, and you would have no way to improve it? Not me, either. And that level of understanding and reflective humility, of learning not only about product but also process, comes from the act of making something yourself and internalizing knowledge through an epistemological absorption that would be difficult to articulate in all of its aspects. For example, a person could be building a new website and learn not so much about the programming languages during the process but how to organize content, or edit photographs, or conceptualize interactions. No matter how precisely and robustly a builder might outline intended learning objectives, that person always is learning more by doing, even if that learning is just another form of introspection.

Because The UniDescription Project was my first significant media-accessibility project, I could think of myself as a complete rookie in this field. Or I could think about all of the experiences in my life that had led up to this moment as learning steps that allowed me to build this one in the ways that I have. That's not to say someone else couldn't have done it better. And it's really not to say that I was the only one who could have built this project. What I'm trying to convey is that the building experiences I've had throughout my life prepared me to do what I could do here. Philosophically, instead of trying to argue that everything I had done in my life up to that point had led me to that point, in a grand confluence of experiences, I simply want to make the much-smaller argument that each building project leads to the next. We all start somewhere. And that's where you should begin, satisfied with where you are, as the appropriate place to create your foundation.

In my case, I think back to the first programming class I took in middle school, in the early 1980s, as the origin of my understanding of how computers work. I think about how I was hacking computer games in the mid-1980s to adapt them to my whims. I was experimenting with computer-to-computer file sharing in the early 1990s, pre-Internet, and so on, before turning my full attention to journalism studies and working as a journalist for more than a decade. In the late 1990s, inspired by a Gary Webb talk at a conference, about his Dark Alliance series, I began experimenting with new ways of creating transparency in my work through computers, posting to early websites some of the documents, audio files, photographic slideshows, etc., that I felt complemented my textual stories, as early experiments in multimedia journalism, which led to much more experimentation in media forms. My dissertation research essentially was a study in locative media, called Fort Vancouver Mobile, which appears on its surface as a single project but, in totality, was composed of hundreds of small experiments built around various concepts of interactive media, locative media, and mobile media.

In short, I was building as a learning experience then, which led the National Endowment for the Humanities to extend a second grant for that project to experiment more through building. The NEH wanted to see how the Fort Vancouver Mobile app could be transformed into a similar experience on a tablet computer, which led to Yellowstone National Park working with me on a locative-media experiment about "geyser time," which led to an even-more experimental effort to complicate the tactile and sound aspects of mobile technologies in childhood-learning contexts. Somewhere in-between, I was asked to assist with the UniDescription Project. Where did that building process really begin? I might argue back in middle school, when I wrote my first computer program, because that was the moment when I realized I could build something with computers myself. Where does your journey start? Where does it take you? I suggest you build and keep building to find out.

Key Lessons Learned from The UniDescription Project

If we put a hard boundary around just The UniDescription Project, from the day that box of brochures arrived in the mail to the day I submit this paper in its final form, here are five key lessons I have learned from perpetually building ideas out, especially in academic environments:

- **Have a clearly defined purpose.** The best research projects have clearly defined research questions, and the best digital tools similarly serve a specific purpose (or very limited purposes) that either is being insufficiently addressed or unaddressed. What I mean by that is if an existing tool can be found, and works well enough, then use that one. You might learn something interesting in duplicating the effort,

but that's a risky speculation. In the case of UniDescription, we could not find open-access or low-cost software to create and distribute Audio Description. So we focused first on those purposes, which led to others, such as training people about what Audio Description is and how it can be useful, in a "Descriptathon," which became a community-building tool as well. So if you diligently scan the field, and you cannot find exactly what you need, and you think you can improve the situation, then look in the mirror. That's the person who is going to solve this problem. You can do it.

- **Identify precisely who you are serving.** And serve them first. Who are you trying to help? If you are having trouble answering that question, I recommend going back to the purpose of your project and refining it. The most unsuccessful tool building I have done has been the speculative kind, without a clear audience in mind, without a clear purpose, just building to build. I have found some small insights in such work, but compared to the well-defined projects serving a very specific audience, the experimental playing-around projects have been much less efficient and impactful for me. So I tend to do that kind of experimentation instead as offshoots of the purposeful build. While I'm working on the well-defined project, I like to take side roads. And you should, too. A lot of innovation comes from that sort of a journey. But at the core of the project, when developing tools, I recommend to serve your audience first, and fully, and then use whatever slack is in the system to do the exploration.
- **Gather committed collaborators**. Even though you can't do this step first, for pragmatic reasons, this activity is maybe the most important lesson of all. Build a community by bringing together friends, mentors, inspirations, technical experts, proof readers, stakeholders, practitioners, colleagues, benefactors, etc., everyone who believes in you and in what you are building and can be counted on to help. They will be of enormous significance in the project. You literally cannot do it without them. They will make the project better, no matter how small or large the contribution, even if that is just with a kind word, and they will keep you going during the darkest days of project construction. Digital research tools, such as mobile apps, of any quality and complexity—meaning the ones that are designed to create new knowledge—generally are too complicated and multifaceted to create, maintain, and use at any scale on your own, while still trying to carry out a research agenda and all of the other demands of such a project. How do you build sustainable and productive collaborations like this? Put simply: Give as much as you take (or more); treat people how you want to be treated; and liberally share the glory. Find complementary talents in people and put those people together in supportive environments.
- **Create specific metrics of impact and success, even if they are just for your eyes only, and hold yourself accountable to those measures.** When building your digital tools, once you have a purpose, an audience, and a team put together, create specific metrics that you will use to gauge your successes. Those don't necessarily have to be based on numbers of users or particular production rates. They can be time-based, objective-based, or even just a tally of experimental sideroads taken. For example, completing a thorough literature review and gathering at least 50 relevant academic articles on your topic could be one success metric. Reading the first 10 of those could be another. Depending on the nature of your tool, maybe it will take at least 10 experiments to try out all available options on a particular design choice. So those completed trials can be counted, and your team meanwhile could hold the group accountable for getting those done.
- **Make sure your project works, fulfilling its purpose and promises.** Under-promise and over-deliver should be the mindset, as you develop your tools collaboratively with users and start to share them with others, outside of the development circle. But I also recommend thinking about sharing with others as a strategic unveiling. Sometimes, you only will get one chance to impress a key stakeholder, who can add significant energy to your efforts, so do not expend that opportunity on a highly technical or incremental change, which might be hard to for an outsider to distinguish. And especially do not spread around an early and unstable version of the final tool. It might not get a second chance. No one will appreciate the progress on the building of this tool as much as you, so give

> stakeholders something specific and significant to appreciate. When you plan to share, explain exactly what you are sharing and focus on that part. In other words, share but don't overshare. And share when appropriate. Share incremental successes with your development team. Celebrate those. But only bring the tool out to less-engaged and less-invested stakeholders in the stages that are designed to show off significant progress.

In short, when you design and create a useful tool, it is a perpetual building process, because a tool doesn't exist in a vacuum, without other people, or in a frozen state of time. A builder is a builder in many respects, who builds a tool but also builds an idea, a plan, and a community around an effort to make the world a better place.

Author Contact Information

Brett Oppegaard
Associate Professor
University of Hawaii at Manoa
2550 Campus Road
Crawford 310
(360) 521-8150

Author Biography

Brett Oppegaard, PhD, researches digital media at intersections of technical communication, disability studies, mobile technologies, and journalism. He teaches about news literacy, multimedia production, media accessibility, and media entrepreneurship, including scholarly areas of expertise in locative media, nonfiction narrative writing, and mobile-app development. Before academia, he worked for more than a decade as a staff newspaper writer, including as an arts critic, in the Portland, OR area. He also has worked with a variety of publications since then, primarily as a freelance writer. He has been the Undergraduate Chair of UH's Journalism Program since Fall 2019. His research has been supported by the U.S. National Park Service, the U.S. National Endowment for the Humanities, the U.S. National Endowment for the Arts, and Google, among others.

No Money, No Design Skills, No Problem

Mike Parkinson

Get the latest tools and techniques to make professional proposal graphics quickly with little to no money. No design skill needed.

When making graphics, infographics, schematics, flow charts, and any other visuals, we have two choices: Buy or Build.

Buy

When buying or acquiring visuals, focus on a few variables:

- Vector vs. raster, which includes resolution requirements
- Style (skeuomorphic, flat, material)
- Top 3 websites for free and low-cost professional visuals:
  Pexels.com
  Pixabay.com
  Build-a-Graphic.com (see Figure 1)

Build

Building your graphic requires three steps: discover, design, render.

1. Discover

- Know your audience.
- Know your message (motivator and means).
- Explain or prove your message.

2. Design

- Chunk.
- Assemble.
- Visualize (literal, quantitative, substitution methods).

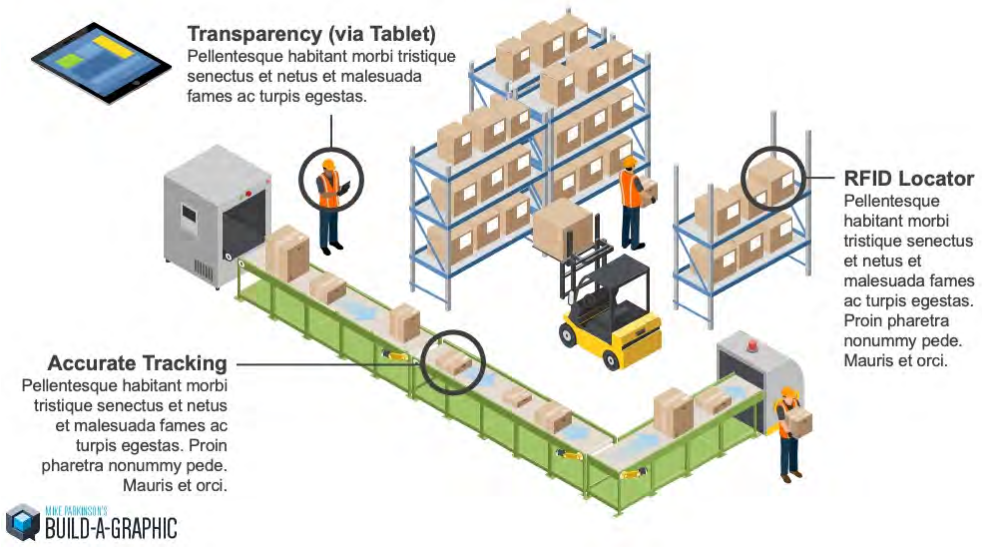


Figure 1. An example of a graphic created using Build-a-Graphic

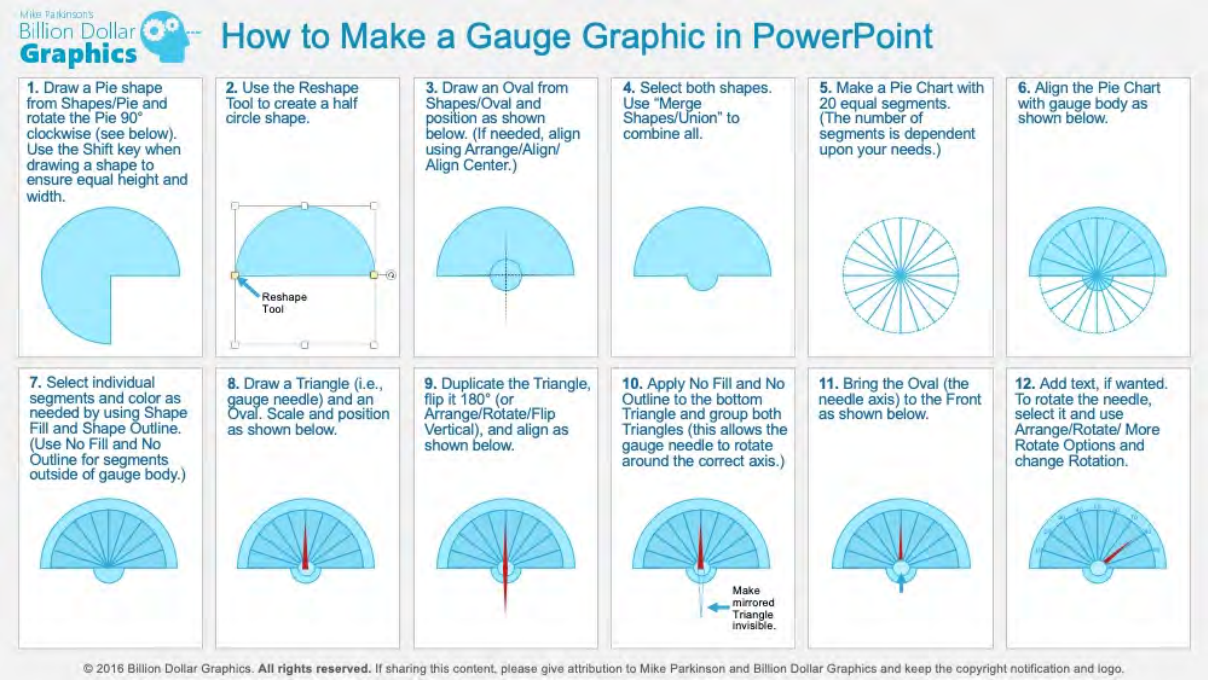


Figure 2. An example of the step-by-step instructions found in Mike Parkinson's handouts

3. Render

For step-by-step instructions, please review the handouts. See Figure 2 for an example.

Author Contact Information

Mike Parkinson
Owner
Billion Dollar Graphics
7308 Ivycrest Place
Annandale, VA 22003
(703) 608-9568

Author Biography

@Mike_Parkinson is a geek. He is 1 of 36 Microsoft PowerPoint MVPs in the world, is an internationally recognized communication and presentation expert, best-selling author, and professional trainer. Mike's keynotes, training, books (*Billion Dollar Graphics* and *A Trainer's Guide to PowerPoint: Best Practices for Master Presenters*), and tools (www.Build-a-Graphic.com) help companies succeed while saving money and time. He owns Billion Dollar Graphics (www.BillionDollarGraphics.com) and is a partner at 24 Hour Company (www.24hrco.com), a premier creative services firm.

Quick Fixes for Bad Slides

Mike Parkinson

Turn ugly, unprofessional slides into professional designs quickly. Transform those boring, "been-there-done-that" presentations into something you are proud of, using these simple, yet effective solutions. Make your job easier. Be the hero and use these best practices, tips, and techniques.

13 QUICK FIXES…

The following are the 13 quick fixes we use to fix bad slides quickly:

1. (Re)apply the layout and format.
2. Use the right (better?) font.
3. Get better pictures:
   - Pexels.com
   - Pixabay.com

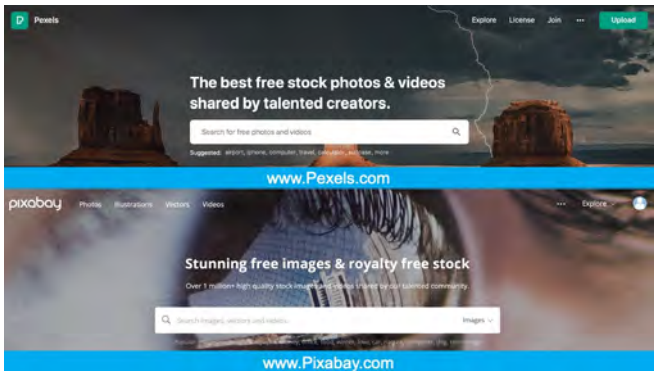


Figure 1. UI for both Pexels and Pixabay

4. Bleed your pics and/or chunk your bullets.
5. Put text inside bullets.
6. Remove bad transitions, animations and sound.
7. Realign, distribute, and fix scaling.
8. Maxi type.
9. Cut clutter (simplify).
10. Create better colors.
11. Add (consistent) supporting imagery:
    - TheNounProject.com
    - Build-a-Graphic.com
12. Show it.

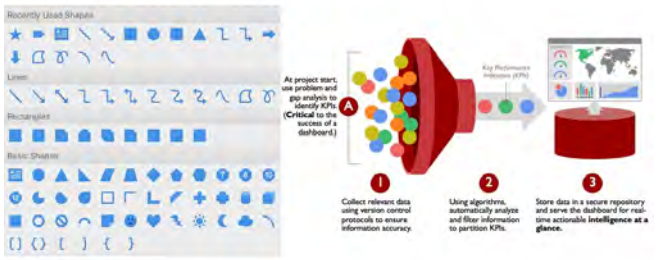


Figure 2. Graphics are made up of basic shapes.

13. Start with the end.

Figure 3. An example of starting with the end

Author Contact Information

Mike Parkinson
Owner
Billion Dollar Graphics
7308 Ivycrest Place
Annandale, VA 22003
(703) 608-9568

Author Biography

@Mike_Parkinson is a geek. He is 1 of 36 Microsoft PowerPoint MVPs in the world, is an internationally recognized communication and presentation expert, best-selling author, and professional trainer. Mike's keynotes, training, books ("Billion Dollar Graphics" and "A Trainer's Guide to PowerPoint: Best Practices for Master Presenters."), and tools (www.Build-a-Graphic.com) help companies succeed while saving money and time. He owns Billion Dollar Graphics (www.BillionDollarGraphics.com) and is a partner at 24 Hour Company (www.24hrco.com), a premier creative services firm.

Ace Your Video Documentation: A DITA-Centered Approach to Optimize Video Production

Sreeranjani K Pattabiraman

If you produce video content, you know how time-consuming it can be to film, edit, and publish videos. While there are various best practices for optimizing video documentation, it is beneficial if technical communicators can port their existing expertise. Enter Darwin Information Typing Architecture! If you are a technical communicator familiar with DITA, you can use your DITA skills to optimize video production.

In this paper, I will explore how applying various DITA principles such as content architecture, topic-based authoring, and minimalism to the video production process has helped me develop and establish standards for video production and maintenance.

Demand for Video Content in Technical Documentation

Darwin Information Typing Architecture (DITA), the Extensible Markup Language (XML)-based standard for content authoring and publishing, is widely used by almost 150,000 technical communicators according to data from LinkedIn. Over the years, apart from developing content, technical communicators have assumed the roles of information architects, editors, instructional designers, content owners, illustrators, and project managers. In 2021, Wyzowl Video Marketing Statistics found that 96% of people have watched an explainer video to learn more about a product or a service, 69% prefer to learn about a product or a service via video content in comparison 18% of people who prefer to read a text-based article, and a mere 3% would download and read an eBook or a manual.

Hierarchy of Video Creator Needs and User Needs for Video Documentation

When I started creating product videos for Extreme Networks wireless hardware networking products, it was crucial to analyze users' needs. At the same time, it was also important to understand my needs as a video producer. Therefore, I established a two-part model to determine video creator needs and user needs based on Aarron Walter's Hierarchy of User Needs. Aarron Walter's hierarchy of user needs suggests that a product must be usable for the user to derive any delight from using it.

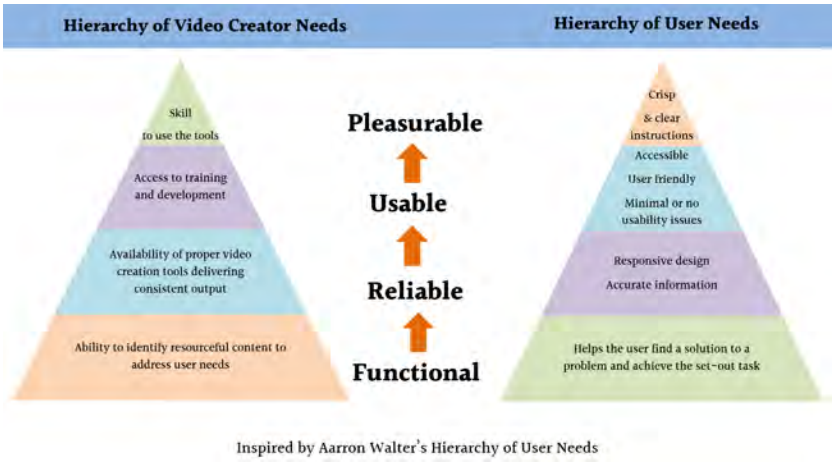


Figure 1. Hierarchy of video creator and user needs

Session Takeaways

The rise of video content and demand for explainer videos has presented a use case for technical communicators to expand their horizons to cater to video content needs of their audience. While technical communicators may be required to learn new tools to produce videos, they can port their existing DITA-skills to approach the video creation, production, and maintenance process. In my session, I will share the methods I deployed on my job to create videos using my DITA knowledge and skills, and how using DITA principles has helped me streamline the video creation process. The three main session takeaways include:

- Learning how to use DITA principles to identify appropriate content for video production. By identifying proper use cases and content for videos, you are already addressing a key audience analysis question.
- Looking at the convergence of DITA principles and video content. Learn how to apply various DITA principles for video content, be it at the video content level or at the video production process level.
- Tips to measure content and customer success.

Session Takeaway 1: Identify Video Content Using DITA Principles

The first step to successfully create video content lies in identifying a proper topic for video production. This ties closely with the technical communicators ability to conduct thorough audience analysis. By understanding and anticipating the needs of the audience, the writer can determine the type of content that warrants video documentation. In this step, I will share which DITA principle works the best for identifying content for video production.

DITA principle used: Information Typing. Information Typing in DITA encourages the writer to structure the content based on the nature of the content. The three main types of content as described by DITA are concept, task, and reference. When identifying content for video production, use information typing to determine the type of video you want to produce.

- Concept video: This type of video topic will tell your audience about a product. Examples include product introduction, new feature update, promotional and marketing videos, and unboxing videos to name a few.
- Task video: This type of video topic addresses how to use a product. Include the steps required to install or navigate the product user interface (UI). Some examples include product installation information, software registration steps, and any type of procedural information.
- Reference video: Use this type of video to state facts about a product. For instance, product specifications, software codes, command line information, safety guidelines, or product usage data make for good topics for reference videos.

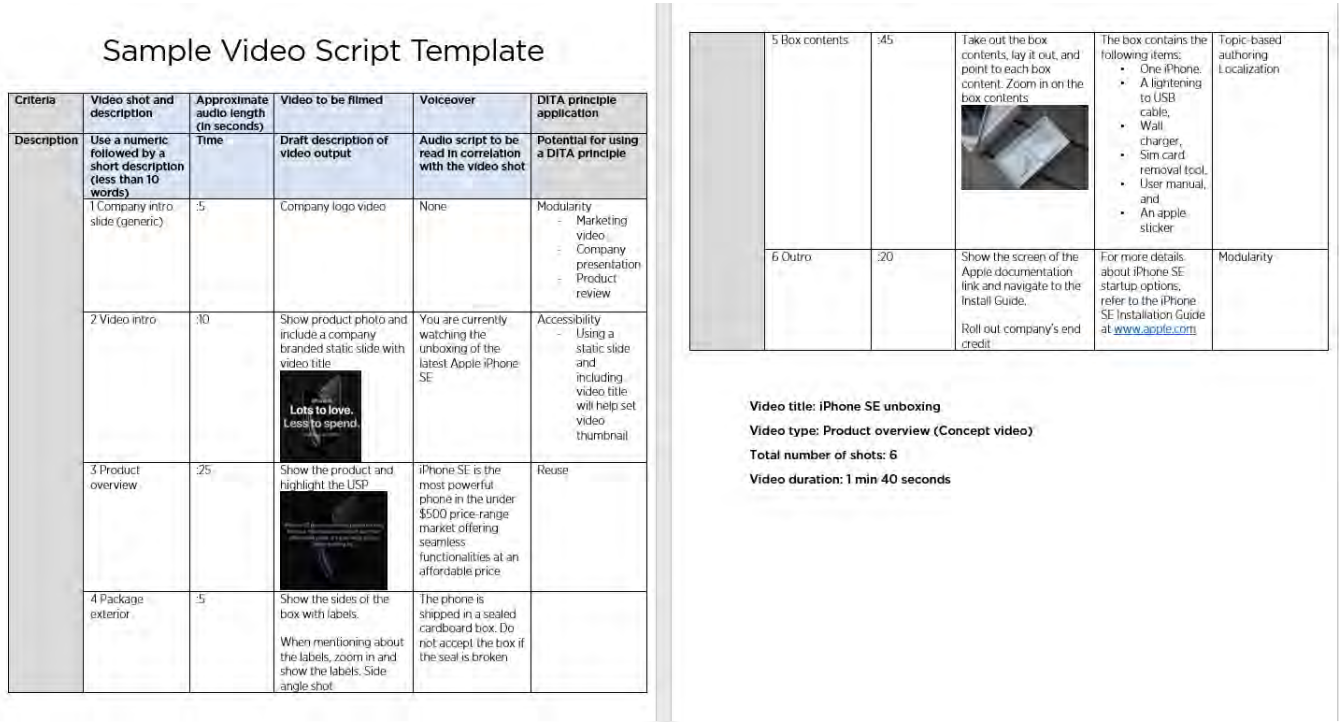
Session Takeaway 2: Convergence and Application of DITA Principles and Video Content

One of the frequently asked questions during the video production process is "What are some the best practices to follow when creating videos?" What if you can use your DITA skills to address this question?

DITA principle used: Content Architecture. After you identify appropriate content for your video, it is now time to put the "**A**" in **DITA** to use. Apply the principle of content architecture to create structure for your video content. How can you do this?

- Standardized video scripts: Before you create any video, ensure that you have a script in hand. A standardized video script will help you determine the tools required to produce the video, content architecture for the video content itself, number of shots, and video duration. Scripts will also ensure that the overall video outline remains consistent across various products handled by your organization. You can go a level more granular by creating script templates based on your video's information type that I discussed previously. (See Figure 2.)
- Brand design: Another important aspect to take into consideration is your organization's brand design. Incorporate corporate colors, logos, and blurbs within your video content to increase brand awareness and maintain consistent video design.

DITA principle used: Topic-based Authoring. One of the cardinal principles of DITA is topic-based authoring. By applying this principle during the video



Sample Video Script Template

Criteria	Video shot and description	Approximate audio length (in seconds)	Video to be filmed	Voiceover	DITA principle application
Description	Use a numeric followed by a short description (less than 10 words)	Time	Draft description of video output	Audio script to be read in correlation with the video shot	Potential for using a DITA principle
	1 Company intro slide (generic)	:5	Company logo video	None	Modularity - Marketing video - Company presentation - Product review
	2 Video intro	:10	Show product photo and include a company branded static slide with video title 	You are currently watching the unboxing of the latest Apple iPhone SE	Accessibility - Using a static slide and including video title will help set video thumbnail
	3 Product overview	:25	Show the product and highlight the USP 	iPhone SE is the most powerful phone in the under $500 price-range market offering seamless functionalities at an affordable price	Reuse
	4 Package exterior	:5	Show the sides of the box with labels. When mentioning about the labels, zoom in and show the labels. Side angle shot	The phone is shipped in a sealed cardboard box. Do not accept the box if the seal is broken	
	5 Box contents	:45	Take out the box contents, lay it out, and point to each box content. Zoom in on the box contents 	The box contains the following items: • One iPhone, • A lightening to USB cable, • Wall charger, • Sim card removal tool, • User manual, and • An apple sticker	Topic-based authoring Localization
	6 Outro	:20	Show the screen of the Apple documentation link and navigate to the Install Guide. Roll out company's end credit	For more details about iPhone SE startup options, refer to the iPhone SE Installation Guide at www.apple.com	Modularity

Video title: iPhone SE unboxing

Video type: Product overview (Concept video)

Total number of shots: 6

Video duration: 1 min 40 seconds

Figure 2. Video script sample template

creation process, you can create smaller chunks of video content that make sense individually without being a part of the larger video content. This takes us back to information typing. In a video, you can have components that form a concept, task, or reference topic. You can author these contents as part of a single large video or can create smaller videos, which ultimately leads to content re-use.

An example content re-use scenario: A common intro or outro video element that is uniform across all videos irrespective of the type of video content.

DITA principle used: Modularity. You must bear in mind that creating modular video content (see Figure 3) may not happen during the initial few months or even years of video production. However, you can consciously create content keeping this DITA principle in mind. Creating modular video content will ensure that you have different pieces of videos that are part of a concept, a task, or a reference video of a product that can be arranged and re-arranged in different ways to create an entirely different type of video content.

For instance, a product introduction video piece can be used in a company-wide video presentation, a product FAQ video, or a product review video. Therefore, my suggestion includes keeping the following things in mind when creating video content for modularity:

- Identify how a single piece of video content can be used for multiple outputs such as animations, infographics, FAQs video, product review, or company presentation.
- Look for collaborative opportunities within your organization where video content can be deployed by different departments such as corporate communications or marketing.
- Create a common video repository for videos with modular use case that can be accessed by other teams.

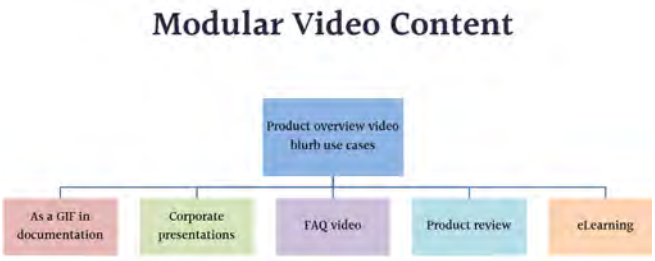


Figure 3. Modular Video Content Example

DITA principle used: Minimalism. When it comes to video content, less is more. A study by Wistia, a video marketing software firm, found that videos less than 2-minutes long had the best engagement rates. I observed this first-hand on my job when I published videos that were over 15 minutes long versus videos that were under 3 minutes long.

When I started implementing minimalism to my video content and adjusted the video duration, I observed a drastic jump in video views and positive feedback from the System Engineering team.

Other considerations: Localization. When creating videos, your content must be understandable to your audience even without the need to explain it in one specific language. Whether the video uses hardware products or is a screenshot of a software product, the video must be self-explanatory to the audience without producing a language barrier.

Suggestions to keep your video script ready for localization:

- Keep your content generic.
- Avoid pop culture references.
- Use active voice.
- Do not embed textual elements in images.
- Keep your sentence structure simple.
- Get your source content tested for localization by peers.

Other considerations: Accessibility. Videos that are accessible by a large audience always perform better. When creating a video, ensure that it is accessible and inclusive of any audience that may be consuming the video. Some things to take into consideration to make an accessible video:

- Do not use rapid-flashing content.
- Include video transcript in your description.
- Create a video table of contents with timestamps to navigate the video to a specific point.
- Include hyperlinks for related content in the video description.
- Add closed captions or subtitles during your post-production process.
- Ensure that your video is compatible for various screen resolutions.

Session Takeaway 3: Measure Content and Customer Success

After you publish your video, it is important to measure content and customer success to determine if your video production strategies worked. After publishing a video, promote it within your organization to create awareness. Here are some ways in which you can measure content and customer success:

- Number of page views
- Call for action usage or click for supported or related links
- Direct feedback from customers

Conclusion

While the video production process can be challenging by itself, looking at the overall procedure from a DITA-centric perspective can help you navigate the process with a little less intimidation. It has been a trial and error process for me to establish these standards for the videos I produce at work. However, deploying DITA principles has helped me not only streamline the video production process, but also establish consistency and quality when developing video content.

References

How long should your next video be? (2016) https://wistia.com/learn/marketing/optimal-video-length

Schengili-Roberts, K. (2018). DITA diversity in technical documentation. https://www.ixiasoft.com/dita-diversity-in-technical-documentation/#:~:text=There%20are%20approximately%20150%2C000%20technical,5%20percent%20of%20the%20whole.

Walter, A. (2011). *Designing for Emotion.* A Book Apart.

Wyzowl video marketing statistics (2021). https://www.wyzowl.com/video-marketing-statistics/

Author Contact Information

Sree Pattabiraman
Senior Technical Writer
Extreme Networks
2121 RDU Center Dr., Suite 300
Morrisville, NC 27560
srpattabiraman@extremenetworks.com

Author Biography

Sree Pattabiraman is a Senior Technical Writer at Extreme Networks, Inc., where she manages software and hardware documentation and creates videos for the wireless networking product offerings of the company. An alumna of North Carolina State University, Sree has worked on global teams and has led various initiatives to produce high-quality customer-facing documentation at her job and strives to promote technical communication in the Carolinas region.

Sree is an incoming 2021 STC board member, active STC volunteer, STC Carolina mentor, past STC Carolina president (2019–2020), and member of the Center for Information Development Management (CIDM).

Tell Your Story the Disney Way: Applying Disney Imagineering to Technical Communication

Lou Prosperi

Since the opening of Disneyland in 1955, Disney's Imagineers have been entertaining audiences of all ages at Disney parks around the world by bringing stories to life through immersive and engaging experiences. From 1955 through today, storytelling has been at the heart of everything the Imagineers do, and the key to the Imagineers' storytelling is effective communication. What does that have to do with technical communication? More than you might think!

This presentation explores a number of Imagineering Storytelling tools - practices and principles used by Walt Disney Imagineering in the design and construction of Disney parks and attractions - and how those same tools can be applied to technical communication and information development to help us effectively communicate with our audiences.

Introduction: Technical Communication and Imagineering

When you think of technical communication, where do you put the emphasis? Are we *technical* communicators, or are we *technical communicators*? I believe at times most technical communicators put too much emphasis on the technical part of our work, and not as much on the communication part.

I believe we need a balance of technical skills and communication skills, and as such, we need to have tools of both kinds in our toolbox. Unfortunately, when we think of technical communication tools, we tend to think primarily of software tools, such as Adobe FrameMaker, DITA, Oxygen, and other technical content development tools. Even the tools that relate to communication (style guides, and manuals of style) tend to focus on technical aspects of writing (grammar, punctuation, usage, etc.).

So, where can we look for new tools, including distinctions, practices, and principles, that can help us more effectively communicate with our audiences?

In a word—Imagineering.

As defined by Walt Disney, Imagineering (a portmanteau comprising imagination and engineering) is the blending of creative imagination and technical know-how. Imagineering is the term used by The Walt Disney Company for the process by which they design and build Disney theme parks, lands, attractions, and other venues such as restaurants and retail locations all around the world.

The original Imagineers were animators and art directors from the Disney studio who adopted storytelling techniques and principles from animation and film-making when they designed Disneyland. And just as the first Imagineers adopted techniques and principles from film-making when they developed the craft of Imagineering for the design of Disneyland, we can adopt the techniques and principles of Imagineering in technical communication.

But you may be asking "why is Disney Imagineering a valid and viable source for distinctions in technical communication?" That's a valid question.

My answer is that Imagineering is all about communication, and that I believe it has a lot to teach us about how we can effectively communicate with our audiences. Consider the following:

> When you look closely at what the Imagineers do, you find that the heart of Imagineering is effective communication. The Imagineers use a variety of tools, techniques, and disciplines to convey specific ideas and experiences to their audience. Whether it be the idea of "pirates of the Caribbean", or the experience of

> riding on "the wildest ride in the wilderness", or of walking down the Main Street in turn-of-the-century America, the Imagineers use their Imagineering toolbox to create environments and attractions that communicate these ideas and experiences to their audience through sight, sound, touch, and even smell, along the way bringing characters and settings to life.
>
> What's another name for the ideas and experiences the Imagineers create? Stories. Not necessarily stories in the traditional sense of a fleshed-out, linear narrative with a plot, characters, and a beginning, middle, and end, but they're stories nonetheless. For the Imagineers, "story" is just an elegant shorthand way of saying "the core idea or premise that underlies each attraction, land, or venue", so when we talk about the Imagineers "telling a story", what we really mean is that they're communicating an idea.
>
> —from TELL YOUR STORY THE WALT DISNEY WORLD WAY

Doesn't that sound familiar? Isn't our job to communicate ideas to our audiences? So, how do the Imagineers tell their stories? Through what I call Imagineering Storytelling.

Imagineering Storytelling and the Magic Kingdom

Imagineering Storytelling is the name for the tools, techniques, and disciplines the Imagineers use to tell their stories. Following are several Imagineering Storytelling techniques, principles, and practices employed by Walt Disney Imagineering in various attractions at the Magic Kingdom park at Walt Disney World. Each principle includes high level descriptions of how it's used by the Imagineers, followed by how these techniques and the principles that underlie them can be applied to technical communication and information development.

Wienies—Cinderella Castle (Figure 1). Principle: "When the Imagineers tell their stories, they attract the audience's attention and capture their interest." Wienies are visual and textual elements that draw the reader's attention to specific content and help guide them to the information they need.

It All Begins With a Story—Casey's Corner. Principle: *"When the Imagineers tell their stories, they decide on the story they're going to tell, and use it as the basis for all their decisions moving forward."* In technical communication, story equates to the subject matter at hand. All decisions about content should be based on how well they support the core subject matter.

Figure 1. Cinderella Castle beckons guests to explore the various lands of the Magic Kingdom.

Long, Medium, and Close Shots—Cinderella Castle. Principle: *"When the Imagineers tell their stories, they lead the audience from a general impression to specific scenes and details."* In technical communication, we need to organize our content to lead readers from the general to the specific.

Forced Perspective—Cinderella Castle. Principle: *"When the Imagineers tell their stories, they use the illusion of size."* In content development, any technique used to make topics/subjects seem smaller or simpler than they are can be considered forced perspective, including grouping or chunking.

Creative Intent—Bibbidi Bobbidi Boutique. Principle: *"When the Imagineers tell their stories, they stay focused on their objective and their reasons for telling the story."* Creative intent equates to our objective in developing our content, and the experience we want our reader to have.

Attention to Detail—Liberty Square. Principle: *"When the Imagineers tell their stories, they pay attention to every detail."* Correct details are vital to good technical documentation, but we must use care in selecting the right details to use.

Pre-Shows—Walt Disney's Enchanted Tiki Room (Figure 2). Principle: *"When the Imagineers tell their stories, they introduce the audience to the story before the story even starts."* Introductory content that provides context for more detailed and in depth content can help readers orient themselves.

Figure 2. The marquee for Walt Disney's Enchanted Tiki Room

"Read"-ability—Pirates of the Caribbean (Figure 3). Principle: *"When the Imagineers tell their stories, they simplify complex subjects."* As technical communicators, we need to look for ways to simplify the complex subjects and topics, including diagrams, examples, and metaphors.

Figure 3. The Pirates of the Caribbean marquee

Theming—Splash Mountain and Big Thunder Mountain Railroad. Principle: *"When the Imagineers tell their stories, they use appropriate details to strengthen their story and support their creative intent."* Appropriate details include not only details related to our subject matter, but also details related to formatting and presentation of content.

Kinetics—Nugget Way and the Rivers of America. Principle: *"When the Imagineers tell their stories, they keep the experience dynamic and active."* Using a variety of ways to display and convey information can help us avoid long and intimidating streams of text.

Transitions—Liberty Square to Fantasyland. Principle: *"When the Imagineers tell their stories, they make sure that changes in the experience serve the story they're telling."* We need to carefully consider the order in which we organize and present information to our readers.

The "it's a small world" Effect—it's a small world. Principle: *"When the Imagineers tell their stories, they use repetition and reinforcement to help make the audience's experience memorable."* Important information sometimes needs to be repeated for emphasis. Repetition does not equal redundancy.

Plussing. Principle: *"When the Imagineers tell their stories, they consistently ask themselves, 'How do we make this better?'"* We should always be looking for ways to improve what we do and how we do it.

Conclusion

We're technical **communicators**, not **technical** communicators. Our job is to convey information to our audience —to explain things to our audience—and as such we should always be looking for new tools to help us do our jobs.

Imagineering is a rich (though perhaps unexpected) source of principles, and insights that we can adopt to help us do what we do.

References

Prosperi, L. J. (2020). *Tell Your Story the Walt Disney World Way: Using Disney Imagineering to Make Your Message Heard*. Theme Park Press.

Resources

Barrett, S. M. (2009). *Hidden Mickeys: A Field Guide to Walt Disney World's Best Kept Secrets*, 4th ed. The Intrepid Traveler.

Barrett, S. M. (2010). Hidden Mickeys Guide.com: A Field Guide to Walt Disney World's Best Kept Secrets. http://www.hiddenmickeysguide.com

Hench, J., & Van Pelt, P. (1998). *Designing Disney: Imagineering and the Art of the Show*. Disney Editions, Inc.

Imagineers, The. (2003). *The Imagineering Way: Ideas to Ignite Your Creativity*. Disney Editions, Inc.

Imagineers, The, & Rafferty, K. (1996). *Walt Disney Imagineering: A Behind the Dreams Look at Making the Magic Real*. Hyperion.

Imagineers, The, & Malmberg, M. (2010). *Walt Disney Imagineering: A Behind the Dreams Look at Making More Magic Real*. Disney Editions, Inc.

Kurti, J. (2008). *Walt Disney's Imagineering Legends and the Genesis of the Disney Theme Park*. Disney Editions, Inc.

May, M. (2009). Creative elegance: The power of incomplete ideas. https://www.porchlightbooks.com/blog/changethis/2009/creative-elegance-the-power-of-incomplete-ideas

Prosperi, L. J. (2016). *The Imagineering Pyramid: Using Disney Theme Park Design Principles to Develop and Promote Your Creative Ideas*. Theme Park Press.

Prosperi, L. J. (2020). *Tell Your Story the Walt Disney World Way: Using Disney Imagineering to Make Your Message Heard*. Theme Park Press.

Surrell, J. (2007). *The Disney Mountains: Imagineering at Its Peak*. New York, New York. Disney Editions, Inc.

Surrell, J. (2003). *The Haunted Mansion: From the Magic Kingdom to the Movies*. Disney Editions, Inc.

Surrell, J. (2005). *Pirates of the Caribbean: From the Magic Kingdom to the Movies*. Disney Editions, Inc.

Wright, A. (2008). *The Imagineering Field Guide to Disneyland*. Disney Editions, Inc.

Wright, A. (2007). *The Imagineering Field Guide to Disney's Animal Kingdom Theme Park at Walt Disney World*. Disney Editions, Inc.

Wright, A. (2010). *The Imagineering Field Guide to Disney's Hollywood Studios at Walt Disney World*. Disney Editions, Inc.

Wright, A. (2006). *The Imagineering Field Guide to Epcot at Walt Disney World*. Disney Editions, Inc.

Wright, A. (2005). *The Imagineering Field Guide to the Magic Kingdom at Walt Disney World*. Disney Editions, Inc.

Author Contact Information

Louis J. Prosperi
Senior Manager, Documentation and Curriculum
Oracle Utilities
4 Van de Graaff Drive
Burlington, MA 01803
(339) 927-7309

Author Biography

Lou Prosperi is the Senior Manager of Documentation and Curriculum for Oracle's Utility Global Business Unit. Following a career in game design, Lou went to work as a technical writer and instructional designer and has been in that role for the last 22 years, providing user and technical documentation and training for enterprise applications used in the utilities industry. In his writing, Lou looks for ways to present complex technical subject matter in a manner that helps his audience learn more easily and efficiently. A self-proclaimed "Imagineering Evangelist," Lou's current area of interest is how to apply the principles and practices employed by Walt Disney Imagineering to other fields, including instructional design.

The Pains of Composition: How to Write Your Best Documentation in a Collaborative World

Matt T Reiner

We can all relate to the difficulties of writing documentation on our own. Creating something from nothing can be a difficult task. But in the pain of composition, we have the opportunity to turn our own thoughts into a valuable resource for our readers.

While we can create something unique by ourselves, it's very hard for an individual to keep up with the pace of a fast-moving team. Not only are we left with all the responsibility of documentation, but we may also be using tools or processes that actually discourage anyone else on the team from contributing. For this reason, a number of cloud-based collaborative writing tools and processes have grown in popularity. These tools have ushered in a new era of collaborative writing that has improved the way content is created:

- Teammates can contribute to documentation quickly.
- Subject matter experts can review content easily.
- Everyone has access to the content.

And while these new abilities contribute to a more powerful and inclusive workflow, we as writers can't expect everything to remain the same. With collaboration comes new challenges that will make us better writers and a stronger team.

Personalities

As we begin working with a spectrum of personalities, it can become very obvious how differently we all think about certain topics.

Rather than seeing our different perspectives as a downside, we can focus on the benefit of having a diverse set of opinions included in our content.

Promotion vs. Prevention

The people we collaborate with tend to focus on either the big picture or the small details.

Promotion-focused individuals are the "big thinkers." They work quickly, take risks, and assume all will go according to plan. Taking big risks can often yield impressive results.

In contrast, prevention-focused individuals are the "detail thinkers" who work more slowly, focus on the details, and plan for the worst. While their contribution may not seem grand, catching a small mistake can make or break the success of a team.

As we collaborate on documentation with our teammates, it's important to include insights from both focuses to ensure that our technical content contains all the necessary major themes as well as the crucial bits of information needed to make our users successful.

Introversion vs. Extroversion

We're all energized by different things. Sometimes we feed off the presence and interactions with others, while other times, we might just need some silence to focus and re-energize. This is what's known as extroversion and introversion.

An extroverted individual does their best work in the outer world of people and things. These people are often outgoing, dynamic, and thrive within a group. These team members are prone to start writing quickly, sometimes without a proper plan in place.

Those who are more introverted gravitate toward the inner world of ideas and images. Reflective and reserved, these team members are often at their best when working alone on content. They can sometimes get lost in their thoughts, forgetting to check that their ideas and assumptions align with reality.

When collaborating as a team, it's valuable to understand where each team member falls on the introversion/extroversion scale to know how they can

best contribute to documentation. For some teammates, the best way to write and review with them might be an in-person session, whereas others might benefit from an asynchronous review where they can think things through and leave comments on the content.

Leading from Within

When writing alongside different personality types, we must understand how to lead them. At first, this might seem odd since we often view management as the leaders of our teams. Instead, we must be leaders within the team to help our teammates think outside the box and collaborate well.

To understand how to collaborate with others, we must first be fully aware of our own strengths, temperament, work style, and communication style. Being self-aware enables us to focus on the strengths of others.

By understanding the team's strengths, we can write from a place of humility and the team can thrive on a reliance of each other's skills. This removes issues of envy or competition and replaces them with a dependence on each other's abilities.

Knowing our teammate's strengths also enables us to use our own curiosity to draw them into new ways of thinking. Being able to ask questions that spark our colleagues to think from a new angle enables the team to document from a user's perspective.

Feedback

While working with many different people, the ability to improve each other's writing using feedback becomes essential.

It's key to understand various types of feedback that can be used, and which types to avoid.

Open Dialog

Trust is not something that occurs right away, yet it's essential for effective collaboration. To give and receive feedback, the entire team must feel they're part of an open dialog where any idea, correction, or improvement can be brought up. This can be particularly hard to achieve if members of the team have been hurt by careless feedback in the past.

To begin a respectful dialog within the team, we must be willing to put ourselves out there. It's not the task of a manager to create healthy feedback; it's ours as a member of the team. To begin the free flow of feedback, we need to share with the team what we need feedback on and how we'd like to receive it.

Types of Feedback

With a trusting dialog in place, we're bound to encounter more feedback while collaborating. This is particularly enhanced by writing tools that streamline the ability to give feedback through commenting and @mentioning. The effectiveness of feedback given relies on the way it's given within the team.

While it can be motivating to get positive feedback like "This sentence is great!" this won't really help anyone improve in the future. To call out great work while encouraging improvements, it's best to use constructive feedback. The value in feedback like "I like the tone of this sentence, but you could consider shortening it" is evident and actionable. The person receiving this feedback can apply it immediately and in the future, too.

Avoid using negative feedback. Statements like: "I can't understand anything in this sentence" will demotivate the person receiving the feedback and won't show them how to improve, which undermines healthy collaboration.

Modeling Feedback

To show those we write how to give healthy feedback, we can model it ourselves. It's best to balance the use of positive and constructive feedback. Also, we can't just ignore negative feedback. We must call it out when we see it from members of our team. It's important to use our healthy feedback skills to show how people can improve their own.

Passion

With everyone able to share feedback and contribute, it may be obvious who is passionate about documentation and who isn't.

While not everyone we write alongside will be as passionate about content as we are, we can all share a common motivation to contribute.

Value

When the entire team works together on content, it can be easy to lose sight of the value we offer as technical communicators. With everyone contributing to content, giving feedback, and making corrections, it can make our role as technical communicators seem easy to replace.

We should keep in mind the unique skills we offer the team and share our individual successes. We can also seek out a mentor to help us focus on personal growth and to identify personal projects to help us work outside of the norm and be creative.

Understanding the abilities we bring to the team is essential as we share our passion around technical communication with others and help form a shared set of values within the team.

Increasing Awareness

It's easy for accomplishments to get lost in our day-to-day work. This is especially true given how easy modern writing tools have made it to review content, give feedback, and move on. It's common for collaborators or outsiders to never even see the final version of content.

To showcase the great work done through collaboration, we must share the outcomes within and outside the team. We can share what's gone well, what we've learned, and what we've yet to figure out. This type of valuable information can be shared in team standup meetings, as internal blog posts, email newsletters, or in whatever format is most suitable. The goal is to have a mechanism for sharing accomplishments and helping everyone collaborate better in the future.

Transparency

Having the team share their entire writing process is a big challenge.

While it's difficult to be open and honest about the content creation process, teams thrive in a transparent and collaborative environment.

The Ebbs and Flows

There are days when we can write lines and lines of high-quality content, and then there are days when we struggle to deliver even a comprehensive paragraph. This is how writing works, but it's hard to be honest about it with the rest of our team.

All members of the team create in one form or another, and each of us has varying outputs day to day. Just as with writing content, writing code, creating marketing campaigns, or planning new features, it can be a slow process one day and a boon the next. Once we've come to grips with the fact that creation is a series of drafts, revisions, and constant iteration, we can be honest and truly collaborate with our team.

Pair Writing

Sometimes it can be beneficial to write in pairs. Pair writing, like pair programming, is the process of two people writing the same piece of content at the same time. This is best done using a tool with a collaborative editor so you can both make changes at the same time. This will seem haphazard at first, like two people trying to drive a car at the same time, but it's a great way to train new writers or to bring a subject matter expert (SME) and a writer together.

Pair writing can be effective when writing about a new subject we don't have much experience with, or when revising some old content. Peer writing alongside a SME at the beginning of the writing process can help quickly assemble a first draft of the content which includes many important details that might otherwise be missed.

Another situation where pair writing is helpful is to be reactive when you see masses of feedback on the content going back and forth. This is often a sign that important content is missing, or it hasn't been explained properly. This is a good time to sit down with an SME and straighten things out in person.

While it may seem like pair reviewing with an SME will take too much of their time, it typically saves time because many important details are clarified much earlier in the writing process. This makes content review and feedback much faster.

From Pain to Passion

Collaborative content creation involves working with all sorts of people, with unique opinions and passions, with whom we have to share the writing process. It can be scary and rather painful at times. But with the challenges collaboration introduces, we can embrace

the power of diversity and comradeship in an otherwise lonely and one-sided creation process.

So the next time we're feeling the pains of composition, we should seek out the passion of collaboration.

Resources

Barlow, V. (2018). Getting started with pair writing. Medium. https://medium.com/content-design-podcast/getting-started-with-pair-writing-b1bc243b1e75

Barrett-Poindexter, J. (2017). How to encourage your employees to own rheir individual value in a teamwork environment. Glassdoor. https://www.glassdoor.com/employers/blog/how-to-encourage-your-employees-to-own-their-individual-value-in-a-teamwork-environment/

Grant, H., & Higgins, E. T. (2013). Do you play to win—or to not lose?. *Harvard Business Review*. https://hbr.org/2013/03/do-you-play-to-win-or-to-not-lose

Halford, S. 5 steps for giving productive feedback. *Entrepreneur*.
https://www.entrepreneur.com/article/219437 Martin, C. R. (1997). Extraversion or introversion. The Myers & Briggs Foundation. https://www.myersbriggs.org/my-mbti-personality-type/mbti-basics/extraversion-or-introversion.htm

Reiner, M. T. (2019). Agile documentation process. K15t. https://www.k15t.com/rock-the-docs/agile-documentation-process

Son, S. (2016). The difference between constructive and destructive feedback. TINYpulse https://www.tinypulse.com/blog/difference-between-constructive-destructive-performance-reviews

Spiker, T. (2020). The only leaders worth* following: Why some leaders succeed, others fail, and how the quality of our lives hangs in the balance. Aperio Company.

Thillainayagam, K. (2017). 5 simple ways to create transparency at work. Atlassian. https://www.atlassian.com/blog/confluence/5-ways-create-transparency-at-work

Author Contact Information

Matt T Reiner
Customer Advocate
K15t
Ostendstraße 110
70188 Stuttgart
Germany
(814) 446-2880

Author Biography

Throughout his time on multiple product teams, Matt has contributed as a scrum master, technical writer, marketer, UX writer, and speaker. Matt was a K15t app user, and now he advocates for users within the teams that make K15t apps. Matt believes good information matters to users, good tools matter to information creators, and fluid collaboration matters to leaders seeking out tools.

Wiki Wiki What? Create Powerful Technical Documentation in Confluence

Matt T Reiner

Writing documentation within an agile team is hard and using a wiki for content authoring can become a total mess. Luckily, documentation written in a wiki can be a powerhouse rather than a house fire. As with any other tool and process for creating documentation as a team, there's a right way to do it and some wrong ways you can easily avoid. We'll explore these tools and techniques together and consider how teams write documentation together.

Why Confluence Wiki?

There are tons of great tech writing tools available to teams. But where many tend toward complex and highly customized solutions, Confluence provides an accessible, team-focused alternative. This all begins with the Confluence editor, which is a simplified WYSIWYG experience. With the approachability of Microsoft Word combined with powerful wiki features, it's easy for beginners to get going and professionals to keep trying new tools and techniques.

Confluence is built for collaboration so teams can write as quickly as ideas come to them. Whereas collaboration is an afterthought and an over-complication in many other tech writing tools, it's at the forefront of content creation in Confluence. Team members can add a comment directly on a line of text or at the bottom of a page to start a discussion. Stakeholders can quickly get in, leave feedback, and move on. Authors can rapidly read, make corrections, and resolve comments. It's like tech writing, but faster.

Confluence is also a web app. It can be used anywhere, by any team member. It's hard to stress just how accessible this tool really is. Even if a teammate's cat spills water on their laptop and their home internet connection fails, they can pull out their child's school computer with a mobile hotspot and get going again. Having same, personalized setup, history, content changes, etc. immediately accessible after logging in from any computer is very powerful.

Unlike many other tech writing tools, Confluence is an app platform. So, while it provides a solid collaboration foundation, teams can add apps to provide specialized functionality within Confluence. With over 1000 apps available, there is a lot to talk about. To focus on a few capabilities teams can add, consider an embeddable diagram builder, custom workflows, version and variant control, and multi output publishing. This just scratches the surface of what teams can do with Confluence.

Creating Topics

When it comes to creating "topics" in Confluence, teams need to think a bit differently. To begin, teams can define the content that should be included in different topic types using page templates. In each, teams can add replaceable text to guide authors in creating a new page. No one likes starting on a blank page.

Confluence starts to really show its superpowers when teams begin using macros. Like small applications one can drop on a page, macros give authors the ability to format blocks of code, dynamically list links to other content, and much more. While creating detailed pages, there are many macros that will make content far more powerful and helpful than anything that could come out of a typical text editor.

Of course, it's always best to use media within documentation, and Confluence is well-equipped to handle it. Authors can drop images, video, and audio files into the editor and use formatting controls to adjust the size and display of each. And with apps, teams can add even more media options, no coding needed.

Just one of the many amazing media types that can be added is embedded diagrams. Using an app, teams can

create complex diagrams and save them right within Confluence. This completely removes the need for desktop-based diagramming tools. And because the diagrams are embedded directly in the Confluence page, the team will never have to track down and update all the pages with a new image file of the diagram.

Collaboration

With more teams focusing on agile processes and team members contributing to all manner of product creation, collaboration features have become essential. This is where Confluence really shines. With inline and page commenting, teammates can do everything from correcting a small bit of information to holding a full conversation around the page content. Because it's so easy to do this in Confluence, it's much more likely that stakeholders will share their thoughts in short order.

Writing is also a much faster process with the collaborative editor. Multiple teammates can work on a single page at the same time. This makes creating a first draft much faster and is a fantastic option for pair writing. This also makes it easier for a teammate who doesn't consider themselves a good writer to contribute thoughts to documentation as it's being written.

If a team has an extensive creation and review process, with multiple writers, reviewers, approvers, etc., there are apps to make this a smooth process for everyone involved. With these apps, teams can create extensive workflow paths with required reviewers, read receipts, and even e-signatures. So Confluence can handle any content collaboration process your team wants to take on.

Content Reuse

As an essential part of technical writing, content reuse is present and powerful in Confluence. Using "inclusion" macros, a team can write content on one page, and reuse it multiple times throughout documentation.

Reusable content can include chunks as small as a product title or short description, and as vast as paragraphs of text or media content. And when teams work with a large collection of reusable content, they can create a separate area in Confluence to act as an "inclusion library." In this library the team can find, view, update, and reuse all content chunks.

And of course, with apps, teams can extend content reuse even further to make it faster and more convenient.

Conditional Content

There are many technical writing techniques that don't have inbuilt functionality in Confluence, but teams can partially or completely achieve the same effect through base functionality or apps.

Without apps, teams can use a mix of techniques to separate and display conditional content to readers. The simplest method is to separate variants of content on different pages or sections within a page. There are also macros that can initially hide content within them, in the case that one audience is much larger than another. These approaches aren't ideal in a lot of ways, but they're great for teams starting out.

Taking this to the next level involves the use of apps that enable teammates to write multiple variants of content on a single page and allow readers to select the content they want to read. This creates a frictionless experience as users can read the exact content that applies to them.

Versioning

While Confluence keeps track of the changes to individual pages over time, it doesn't have native support for versioning an entire collection of content. So to develop a new version of documentation behind the scenes, with multiple content changes on multiple pages, teams need to use specific techniques or apps.

Common approaches to managing this include creating a new Confluence space (a collection of pages) for each version of content, writing content in one space and moving it to another, or creating new pages that are restricted from the general audience until publishing time. None of these experiences will provide teams the full tech writing experience they're used to, but each can work in limited circumstances.

For full versioning support that's managed automatically, teams can use apps. With apps, teams can author in a single Confluence space and publish the entire version all at once, when it's ready.

Multiple Languages

By default, Confluence is set up to have all content written in one language. But of course, this can be expanded upon with creative uses of standard functionality or with apps.

Some teams maintain multiple languages in Confluence by separating each in different sections in a single page or within separate spaces. This approach can work in select instances, but it puts a lot of burden on content creators and readers.

Adding apps will give teams the ability to write each page in multiple languages and enable users to quickly select which one they want to read in. This also adds the ability to translate content in an external Translation Management System (TMS) using the XLIFF format.

Publishing

Once content is ready to be shared with the world, teams have many options for how to publish their content.

To move content online, teams can simply publish a single page, a space, or use an app to publish the content from multiple spaces as a help center. Using the app-based approach, teams can also customize the help center to fit their brand, giving readers the confidence in the content they're reading.

For those teams who need to distribute documents to readers, there are a few options. They can do a simple content export to a DOCX or PDF file or use apps to create completely branded documents. With apps, teams can create unique templates that fully control the final output from Confluence. It's amazing how beautiful a document can come from a team wiki.

And to bring documentation to product users' fingertips, teams can use apps to embed specific pieces of documentation content directly in their product UI. Doing this brings helpful content to users in a new way, giving them answers directly where they have questions.

Given its powerful collaboration capabilities and the limitless customization opportunities with apps, Confluence stands apart as a uniquely powerful documentation solution for any team.

Resources

Reiner, M. T. (2019). Your Team's Guide to Documentation in Confluence. K15t https://www.k15t.com/rock-the-docs

Author Contact Information

Matt T Reiner
Customer Advocate
K15t
Ostendstraße 110
70188 Stuttgart
Germany
(814) 446-2880

Author Biography

Throughout his time on multiple product teams, Matt has contributed as a scrum master, technical writer, marketer, UX writer, and speaker. Matt was a K15t app user and now he advocates for users within the teams that make K15t apps. Matt believes good information matters to users, good tools matter to information creators, and fluid collaboration matters to leaders seeking out tools.

My Leap into Regulatory Affairs—Technical Communicators, Please Apply

Melissa H. Sanchez

Never did I think I would be working Regulatory Affairs. Accepting change and saying yes to new opportunities paved my career path. I will describe the twists and turns in my career, that led to my current role in the medical device/diagnostics industry and how I was recruited by the department head to join the team because of my tech comm experience. I will also provide resources and tips to help you learn about this constantly changing field.

My Career Timeline

My career has changed quite a bit throughout my lifetime though I have stayed within the biotech industry. Here is a summary of my career from my start on a laboratory bench to a desk in Regulatory Affairs.

- As a college student, I expected to graduate with my BS in Biomedical Science, find work in a laboratory, and one-day cure cancer.
- In my early 20s, I was tired of being a poor research assistant and moved into a Quality Control role for a biotech manufacturing company.
- In my mid-20s, I was tired of being in the laboratory. I was burnt out working to manufacturing schedules and backorder reports. During this time, a pivotal manager entered my life. She helped me transition into a technical writing role and also helped convince the company to allow me to work remotely during an extremely difficult time in my life (which was a hard sell since only sales reps worked remotely at the time).
    - As a technical writer, I moved into many different teams/departments involved with manufacturing and product transfer over three company mergers and acquisitions. I was the lone technical writer in manufacturing and there was no career growth. I stayed in this role much longer than I should have. I had young kids was able to work remotely which gave me much needed schedule flexibility.
- In my late 30s, I was laid off for the first time ever. This was the kick-in-the-pants for me to start focusing on myself and on what I wanted in my career.
    - Three months later, I was hired at a start-up pharma company as a Documentation Specialist. Initially, I was updating SOPs and managing records but my responsibilities quickly expanded. I was promoted to a project manager position and was not only involved with updating technical content related to the Quality and Regulatory department (e.g., SOPs, other records) and the drug candidates (e.g., IND, IMPD) but also working on special projects. The drug did not make it and the company closed.
    - During my time in pharma (1.5 years), I made sure to network. Networking was not always those uncomfortable evenings making forced conversation. It was meeting with old co-workers for lunch and catching up. Leveraging my network, I started a new position much quicker.
- Now in my early 40s, I currently work with a diagnostic company. Initially, I was hired to help with technical content with the R&D teams but it quickly changed into creation, revision, and management of product instructions (e.g., IFUs, Software User Guides). Again, I was the only technical writer in the department but being a part of STC helped tremendously. I attended a couple of Summits to become more productive and efficient in how I managed this type of documentation. During this time is

when I also became more involved with the Regulatory Affairs department.

- About 1.5 years of being shuffled from department-to-department (no one was quite sure where I exactly belonged), I was approached by the Head of Regulatory Affairs about joining her team. I had recently helped her with some documents for a De Novo submission to the FDA. She was searching for someone to help not only with document for submissions but to also help organize the documents in our many repositories and create processes for various submission types and document requests.
- My initial thought was, "Ick, all those rules!" After thinking about it further, I knew I was already doing a lot of work with Regulatory Affairs. I liked the hiring manager and she appreciated my work. I also watched her promote her hard working direct reports and knew she would do the same for me, so I took the leap.

Technical Communications Is an Asset in Regulatory Affairs

Technical communicators (TC) possess many skills that are key in Regulatory Affairs. I view the top three to be:

- Visualizing the big picture and knowing your audience
- Taxonomy and organization
- Research and investigation

The Big Picture and Knowing Your Audience

Understanding the ultimate end goal of a project and knowing your audience is just as important in regulatory as with any technical writing project. Understanding where a product will be marketed will determine how product submissions or registrations are put together. A product may get clearance in some markets bot not in others—the intended use of the product is a major factor. Understanding the product use will help when compiling documentation for the submission. For example, a genetic carrier screening kit may not receive market clearance in some countries due to the religious implications.

Taxonomy and Organization

The hierarchical classification and organization of documents is important to give our audience (i.e., the regulatory agencies/reviewers) what they need. How documents will be viewed and accessed is another skill TCs possess.

Many regulatory agencies have guidance documents for submissions. Finding and following these documents will help the agency navigate the submission. For example, the FDA uses an electronic submission process called the eCopy Program. They have published a guidance document (eCopy Program for Medical Device Submissions) that includes recommendations for volume and non-volume-based file structures, as well as on fonts, bookmarks, hyperlinks, etc. The FDA is telling us how to help them—let's give it to them.

My general submission recommendations:

- Provide a map; including a Table of Contents and/or document list is essential
- Be clear and consistent with terms and document formatting
- Provide the definitions of terms used
- Link anything possible (tables, figures, websites, etc.)
- Make the document searchable with standard Find features or by optical character recognition (OCR)

The organization and grouping of department-related documentation is also part of my role: I helped streamline and maintain a file storage process for submissions and created a system to manage document requests from distributors. For both projects, I took into account the requirements/needs of the company and department and the tools available to me.

For the submission file storage project, the company's requirement of maintaining paper and electronic copies of submissions, as well as the need to be able to access the documentation quickly was addressed. A process was in place for paper file storage, but the electronic copy process needed fine-tuning. SharePoint repositories for electronic copies of submissions was utilized. Information was organized by country, agency or the name of the in-country representative, and date. During the pandemic, this system was particularly useful for remote audits.

Distributor document requests were related to obtaining product registrations in various countries. OneNote was utilized for these requests. In OneNote, I organized tasks for the Regulatory Affairs and Legal teams. Both teams were able to update their tasks and would have visibility to the status of product registrations for various countries.

Research and Investigation

Channeling your inner Sherlock Holmes to find the needed information for a project is not new for TCs. This skill is valuable and used often in regulatory. Whether it is finding the correct regulation or guidance for the product or finding the correct subject matter expert to provide an answer, you are always on the hunt for information.

Currently a new regulation is coming in force in the EU for in vitro diagnostic products, the In Vitro Diagnostic Regulation (IVDR). At this point of the project, a gap assessment is being performed between the regulation and the company's Quality Management System (QMS). This is taking lots of research and interviewing of the R&D and Quality Assurance departments to determine if the QMS documents align with the regulation. Assessments like this are done often, so having research and investigation skills in your tool belt is essential.

What to Learn

This field is constantly changing. New regulations go into effect often and you must be willing to learn. To stay current with regulatory environment I suggest the following:

- Join professional organizations like the Regulatory Affairs Professional Society (RAPS) or Drug Information Association (DIA); both have very informative newsletters
- Learn and stay current on various standards or other related programs (e.g., ISO 13485, ISO 14971, or MDSAP)
- Follow or subscribe to regulatory-related blogs or newsletters or find webinars/training seminars (Note: most items listed are related to medical devices)

FDA (U.S.A):

- Newsletter: https://www.fda.gov/medical-devices/medsun-medical-product-safety-network/medsun-newsletters#subscribe
- Blog: https://www.fdalawblog.net/

TGA (Australia):

- Email Lists, Newsletter, Blog: https://www.tga.gov.au/subscribe-updates?utm_source=TGA&utm_medium=website&utm_campaign=RPECB-subscribe-sidebar

Health Canada (Canada):

- RSS Feed: https://www.canada.ca/en/health-canada/services/drugs-health-products/medical-devices/what-new.html

Medical Device Consultants:

- Emergo (https://www.emergobyul.com/blog)
- BSI (https://compliancenavigator.bsigroup.com/en/community/blog-page/)

Suggested Next Steps and Conclusion

Technical Communicators are an asset in Regulatory Affairs. Our ability to see the big picture and end goal, our use of organization and taxonomy, and investigation skills make us a great fit in this industry. If you are interested in working in this field, I suggest you chat with your Regulatory Affairs department and express your interest in working on projects with them. I also suggest networking. Attending biotech-related networking events and meeting RA professionals for coffee or lunch to discuss their projects are excellent ways to start your move. Networking is for not only career transition but also finding a new job should you need it. You never know what could happen in the job market.

In my experience, being open to new opportunities and taking this leap has helped me grow in my career. My manager not only recruited me to her department at a time of change in the company but I have also received a promotion for my work on regulator projects during the middle of the pandemic. My technical communication skills and my willingness to continually learn and say yes to new opportunities have helped me move forward in my career.

References

FDA (2020). eCopy Program for Medical Device Submissions. https://www.fda.gov/media/83522/download

Official Journal of the European Union (2017). In Vitro Diagnostic Regulation 2017/746/EC. https://eur-lex.europa.eu/eli/reg/2017/746/oj

Author Contact Information

Melissa H. Sanchez
Regulatory Affairs Manager
Asuragen, a Bio-Techne Brand
2150 Woodward Street, Suite 100
Austin, TX 78744
https://www.linkedin.com/in/melissahsanchez/

Author Biography

Melissa Sanchez is a biotechnology and technical communications professional experienced in biotech manufacturing, pharmaceutical, and diagnostic industries. Currently, she helps solve regulatory problems to ensure safe and effective medical products reach patients who need them worldwide.

Improving Tech Comm Using Everyday Experiences

Stephanie B. Saylor

Every day we communicate in dozens of different ways, this paper explains how to use those everyday experiences like driving, spending time with family and cooking to improve technical communication. It reviews principles outlined in Donald Norman's revolutionary book The Design of Everyday Things. *The author discusses how we can apply good and bad designs we observe in our everyday lives and use those observations to improve our professional writing and user experience.*

When I read *The Design of Everyday Things* for the first time, I was working full time, going to graduate school, helping my dad adjust to assisted living, and raising a toddler. Life was pretty insane; and as much as I would have loved to stay up-to-date on the latest scholarly articles and professional blogs—most of my free time was spent reading *Elephant and Piggie*, figuring out meals, or shuttling my dad to specialists.

Norman's book helped me realize that the best thing I could do for myself professionally was to observe my surroundings and apply those observations to my work. To use his words, "Two of the most important characteristics of good design are *discoverability* and *understanding*," (Norman, p. 3). I made a conscious effort to look for good design in my everyday life from the checkout line at the grocery store to my son's preschool assignments. When I started consciously focusing on design in the real world, my professional work improved.

Review of *The Design of Everyday Things*

Many of you have probably read *The Design of Everyday Things*. If for some reason you missed it, read it right now. When Donald Norman wrote his now hallowed book in 1988—a whole decade before he was the second N in Nielson/Norman—he was at the forefront of the usability profession. The topics he explained have held up and still apply to the screens technical communicators work on today even though the world and technology have changed exponentially. Well-designed things that had not yet been imagined in 1988 exhibit the ideas Norman discussed thirty years ago. Even Norman critics cannot argue about his contribution to the field.

Now, a review of what Norman (1988) called the principles of his book (p. 193):

- **Affordance** is the relationship between a physical object and a person. It is a personal relationship, not a property (p. 11). Think "needs to" or "is for" when you are defining an affordance.
- **Signifiers** communicate where an action should take place.
- **Mapping** is the relationship between the elements of two sets of things. Norman uses light switches and lights as an example.
- **Constraints** guide actions and ease interpretation. Learn the following four constraints:
  - *Physical*—actual barriers
  - *Logical*—spatial layouts that guide behavior
  - *Cultural*—culturally allowable actions
  - *Semantic*—actions that rely on the meaning of the situation and the world
- **Force functions**—situations in which the actions are constrained so that failure at one stage prevents the next stage from happening.

Appreciating Your Surroundings and Applying Life Experiences to Your Work

Notice things all the time. I don't mean for this to sound obnoxious. As technical communicators, observing details most people overlook makes us good at our jobs. To hone what you are already doing—paying attention, not just to words but the whole world around you—start to consciously think through your

observations. For example, Target remembers that the last boys' shoes that I bought were size 6. When I thought through this helpful API call, I started thinking about some fields on a form that I designed at work. On that form, users must choose from several different types of workflows, but most of them use only one or two. After buying shoes at Target, I added a "most used workflows" section for my users at work.

Figure 1. This snack food box uses principles of good design to display their ingredients.

When you start looking, you see design patterns everywhere. Figure 1 is the back of a taquitos box. My kids have food allergies, so, I read tons of labels. The company that I buy taquitos from goes above and beyond to help me understand what is in each processed ingredient they use. They thought about things that we think about every day in our work like transitions, bullets, and lists as well as using heading to break information into digestible chunks.

Some cookbooks follow Norman's principles too. Harry Wright's *Student Cookbook* is a favorite of mine (probably because it started as a design project). (See Figure 2.) Wright wrote it concisely and the sections are clearly defined. He uses ample space as to not overwhelm the eye. The illustrations guide understanding. Wright tucked additional information neatly on the page without jumbling or weighing down the main instructions to complete the task.

These are all things we should be asking ourselves as we write and design. Are we using plain language and varied sentence lengths that are simple enough to consume quickly? Are our instructions ambiguous? Do they depend on cultural knowledge of your product or are they detailed to the point of insulting your users? How is your spacing? Are you leaving enough room between topics, or is everything smashed together? Is the information chunked in a way that your readers can consume it? When you add a new feature or section, are you using logical constraints like putting cups beside a coffeemaker? Or will someone have to do one action at the top-left of a screen and then do their next action at the bottom-right?

Florence Nightingale knew the importance of visualizing to communicate important information. She, like me, had an unapologetic love for infographics. These visual representations of information have helped people get their ideas across for hundreds of years. Nightingale made the graphic shown in Figure 2 in the 1800s, using the rose diagram to persuade the British government to improve sanitation for the military in efforts to reduce the number of soldiers who were dying from disease during the Crimean War.

Throwing information on posterboard does not make it a useful infographic. Good infographics follow Norman's principles. Like flags, they communicate simple messages that are easy to absorb and recall later. When you design infographics, figure out what point you need to make and do not overwhelm the reader with anything unnecessary. You want to make something that a person can look at for a couple seconds and recall the general idea and maybe a fact or two later that day. Infographics are meant to help people understand basic ideas about a topic and get them thinking, like I hope this paper helped you think about the ways everything around us can apply to our work.

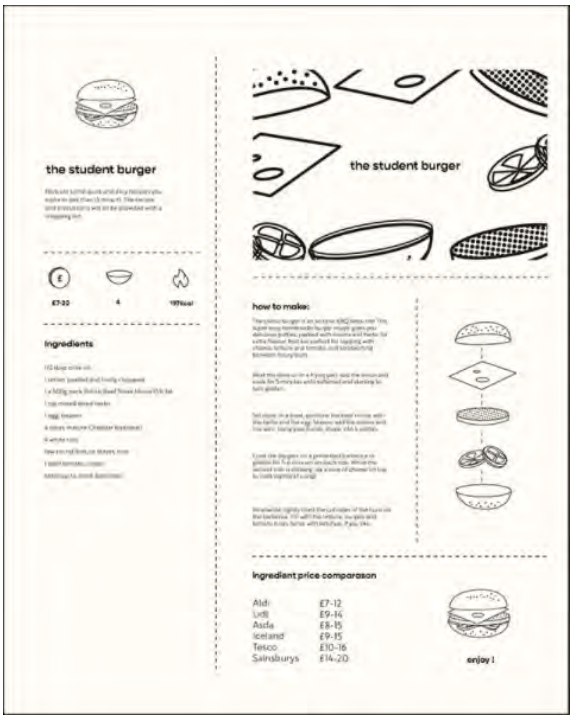


Figure 2. *The Student Cookbook* displays the elements of clean design and plain language.

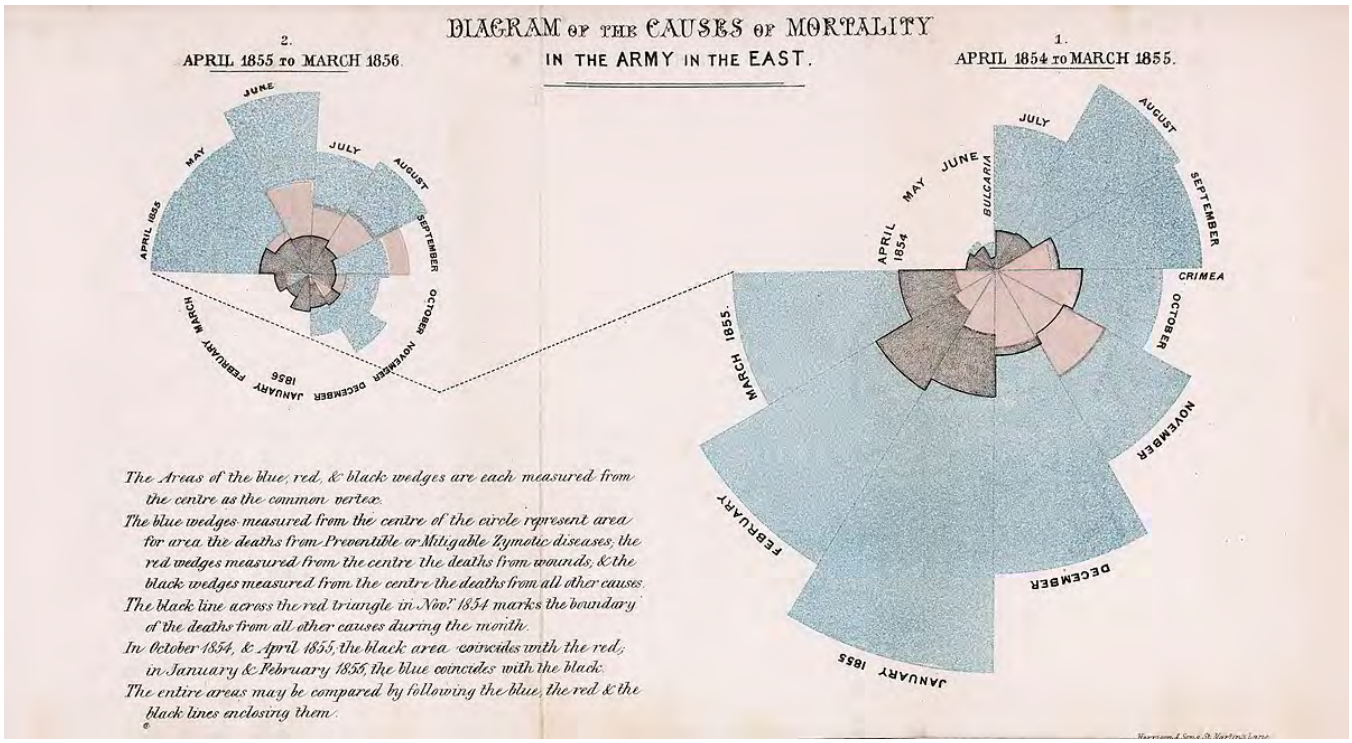


Figure 3. Florence Nightingale's "Diagram of the Causes of Mortality in the Army in the East"

Conclusion

There are times in our life when professional development will not be our priority. When my dad was sick and my son little, I wasted too much energy feeling guilty that I was not bettering myself professionally. First off, I hope you know how silly that was on my part. I am so fortunate that I had that time with both of them. Secondly, when you get to one of those points in your life and we all have those times when we feel like you cannot do anything extra, think of Don Norman's sage advice: "Enjoy yourself. Walk

around the world examining the details of design. Learn how to observe. Take pride in the little things that help: think kindly of the person who so thoughtfully put them in" (Norman, p. 295).

References

[99percentinvisible] Mars, R. Episode 433: Florence Nighingale Data Viz Pioneer. https://99percentinvisible.org/episode/florence-nightingale-data-viz-pioneer/

Norman, D. (1988). *The Design of Everyday Things.* Basic Books: A Member of the Perseus Book Group.

Wright, H. (2019). [*The Student Cookbook*] *https://www.behance.net/gallery/60804241/The-student-cookbook*

Author Contact Information

Stephanie B. Saylor
Technical Writer/Usability Engineer
Yellow Duck Technologies, Inc.
ssaylor@yellowducktechnologies.com
@plainlang on Twitter

Author Biography

Stephanie Saylor morphs between a technical writer and usability engineer at Yellow Duck Technologies, Inc., a software company in Central Maryland. With more than 18 years professional writing experience, she has worked as a reporter, technical writer/editor, usability writer, and outreach coordinator for various government customers. She holds a master's degree in Digital Communication from Johns Hopkins University. Stephanie enjoys reviewing books for *Technical Communication*, reading/watching/playing all things Star Wars with her three young sons, and advocating for food allergy awareness. Find her on LinkedIn (https://www.linkedin.com/in/stephanie-saylor-13a98a14/) or on Twitter (@plainlang).

Low-Cost and Low-Effort Ways to Create Infographics and Visually Appealing Slides

Kelly A Schrank, Associate Fellow

Clients and employers are asking for infographics and visually appealing slides because they see infographics everywhere, and slides at conferences and meetings are looking different than in years past. They want graphical elements, short phrases, connections between ideas to be made clear, and to get to the point right away. Putting together these new deliverables means incorporating a few key elements and thinking differently about how data is presented. The elements needed are visual (color coding, graphics, and icons); content (frames and timelines, statistics, and references), and knowledge (facts and deductions). Infographics come in different sizes: they can be an image of any size or shape, one- or two-page 8.5x11 sizes, or rolling infographics that are a standard screen width but any length (meant to be scrolled on a website). When creating visually appealing slides, use templates, icons, colors, and images to bring visual interest; put words into boxes, SmartArt, circles, shapes, charts, and graphics; and pare down the words—no full sentences, no paragraphs—and showcase certain words (often numbers or shorter phrases) with color, size, or space. Use applications to create infographics and visually appealing slides or the templates available from these sites and from PowerPoint O365 to make this process easier. Getting comfortable with these new visual formats might take some time, research, and exposure, but what's popular can be found by searching using the Images tab in Google.

What Is an Infographic?

There are many different types of infographics, but they tend to have some common characteristics.

Infographics can be broken down into three easily digestible ideas as presented in Figure 1: visual, content, and knowledge. The visual comes up again and again: color coding, graphics, and icons. Essential to any infographic is the content, which includes time frames and timelines, statistics, and references. And lastly are the facts and deductions that make up the knowledge. In theory, technical communicators should be comfortable with the content and knowledge part of this perspective, but putting them into a new visual format may be more of a challenge.

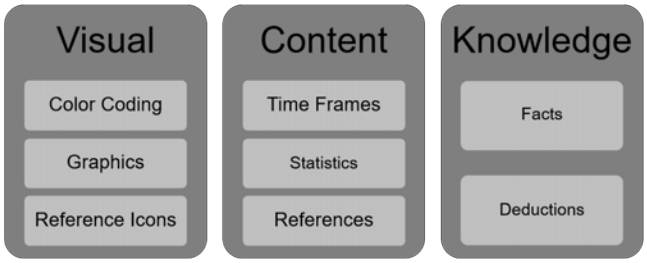


Figure 1 Elements of infographics (adapted from Clua [2017])

What is a Visually Appealing Slide?

A visually appealing slide covers only one idea, and it does so in an interesting way.

According to Nancy Duarte's book *Slide:ology*, "Effective slide design hinges on mastery of 3 things: arrangement, visual elements, and movement." Each of these 3 things has many elements within it.

Under *Arrangement*, the author lists contrast, flow, hierarchy, unity, proximity, and whitespace. She feels creators of slides must use each of these to tell the audience what has priority; the worst thing is to "put everything on one slide and assign them equal value."

Under *Visual Elements*, the author lists background, color, text, and images. She believes that each of these "determines how your slide elements will look" and that people must be consistent in their use.

Under *Movement*, the author lists timing, pace, distance, direction, and eye flow, but much of this discussion centered around animation, and it was discouraged except for those who really know what they are doing.

If technical communicators can manage to use one or more of these elements in their slides, they will be ahead of many peers. If they continue to master new elements, their slides will improve with each iteration.

How to Create Infographics and Visually Appealing Slides

There are many sites with infographic and slide templates—such as Canva, Piktochart, Visme—but a current version of PowerPoint may be a solid choice. There are many templates available within PowerPoint and from other companies. PowerPoint continues to add stock photos, icons, better SmartArt, and its feature "Design Ideas," all of which can be used to make infographics and visually appealing slides.

Other Places to Get Ideas

Where can technical communicators get inspiration, see what's in fashion (yes, it's constantly evolving), and see what good design looks like? Certainly check out sites like Canva, Piktochart, and Visme, who all offer presentation templates. Explore the PowerPoint options, especially the "Design Ideas" function.

But the best way to spark inspiration is to go to a search engine and search for infographics. Search for images by choosing the Images tab in Google, for instance, instead of the standard All tab, which shows *all* of the search engine results.

Infographics are not going away anytime soon, so it's good to get familiar with the elements of infographics and how to use them. When creating or updating slides, incorporating elements of infographics will make technical communicators stand out.

References

Clua A. (2017). The anatomy of an infographic: 6 essential elements. https://teamthunderfoot.com/ideas/the-anatomy-of-an-infographic/

Duarte, N. (2018) *Slide:ology: The Art and Science of Creating Great Presentations*. O'Reilly Media.

Resources

Canva https://www.canva.com/

Piktochart https://piktochart.com/

Visme https://www.visme.co/

Author Contact Information

Kelly Schrank
Head Bookworm
Bookworm Editing Services LLC
https://headbookworm.com/
https://www.linkedin.com/in/kellyschrank/
(662) 420-0169

Author Biography

Kelly Schrank, MA, ELS, has been in technical and medical communication for over 20 years. Through her business, Bookworm Editing Services, she brings consistency, structure, and clarity to her clients' content regardless of whether she is writing content like blog posts, style guides, and standard operating procedures or editing formulary dossiers, manuscripts, proposals, slide decks, and training materials.

Kelly is an Associate Fellow and a BELS-certified Editor in the Life Sciences. Kelly has presented on checklists, Microsoft Word and PowerPoint, editing, side gigs, and networking in webinars and conferences.

So You Think You Know What Your Readers Want?

Yoel Strimling, Associate Fellow

Do you know what your readers really want? It's not always easy to get direct feedback, so we often rely on our "gut instincts" and assume that readers define high-quality documentation the same way that we do. But is this a safe assumption? This paper presents data from a comprehensive, empirically based study that measured and compared how readers define documentation quality and how writers assume readers define it. The results might surprise you—and they will definitely help you bridge the gaps and keep your readers happy.

As technical communicators, we put a lot of time and effort into creating the highest quality documentation we can. We write because we want to help our readers to do the tasks they need to do or to understand the concepts they need to know.

Because we are professionals, we take pride in our work and want it to be the best it can be. But how do we know if what we are writing is what our readers want? How do we know that the information that we are sharing with our audience is helping them do or know what they need to do or know? We might be writing documentation with one standard in mind, and be satisfied with it, yet our readers might look at the same documentation and be very unsatisfied. A disconnect like this between what we are producing and what our readers actually want makes it very difficult to justify writing documentation at all—why should we write things nobody wants?

The best way to align ourselves with our audience's needs is to get direct, meaningful, and actionable feedback from them. But this is not always possible, for one reason or another. Instead, we often end up relying on our "gut instincts" and assume that readers define high-quality documentation in the same way that we do. In lieu of feedback, what we need is a proven model of how readers actually define *documentation quality* (DQ), which we can then use to ensure that what we produce meets this definition.

Defining DQ

To properly define DQ, we must meet the following criteria:

- **The definition must be from the reader's point of view:** Because it is the readers alone who determine if the document we give them is high quality or not, any definition of DQ must come from the readers' perspective. We as writers can come up with any number of quality attributes that we think are important, but at the end of the day, what we think is not as important as what our readers think.
- **The definition must be clear and unequivocal:** Both readers and writers have to "be on the same page" when it comes to what makes a document high quality. Misunderstandings of what readers actually want from the documentation are a recipe for unhappy readers.
- **The definition must cover all possible aspects of "quality":** "Quality" is a multidimensional concept, and we must be sure that any attempt to define it is as comprehensive as possible. A definition that emphasizes one dimension over another, or leaves one out altogether, cannot be considered to be a usable definition.
- **The definition must have solid empirical backing:** To be considered a valid definition of DQ, serious research must be done to give it the proper theoretical underpinnings. Years of experience or anecdotal evidence can act as a starting point, but if we are serious about our professionalism and our documentation, we need more.

Building a Comprehensive Definition of DQ

To meet all of these criteria, I turned to a fascinating study done in 1996 by Drs. Richard Wang (co-director of the MIT Total Data Quality Management Program) and Diane Strong (director of the Management Information Systems Program at the Worcester Polytechnic Institute).

They developed a comprehensive, hierarchical framework of information quality (IQ) attributes that were important to information consumers. Their underlying assumption was that, to improve IQ, they needed to understand what it meant to information consumers—IQ cannot be approached intuitively or theoretically because these do not truly capture the voice of the information consumer.

Their framework was made up of 15 quality **dimensions**, grouped into four quality **categories—Intrinsic, Representational, Contextual, and Accessibility**. Based on this framework, Wang and Strong concluded that high-quality information must be:

- Intrinsically good
- Clearly represented
- Contextually appropriate for the task
- Accessible to the consumer

Wang and Strong claim that their proposed IQ framework can be used as a basis for further studies that measure perceived IQ in specific work contexts. They state that the framework is methodologically sound, complete from the information consumers' perspective, and is useful for measuring, analyzing, and improving IQ. Subsequent research on this framework has found that it works very well in identifying and solving IQ issues, and that its underlying methodology (information categories and dimensions) is robust and applicable to real-life IQ situations.

Can we apply Wang and Strong's IQ framework to DQ as well?

On the surface, it seems that Wang and Strong's IQ framework is a good fit for our purposes. Like IQ, to understand DQ, we cannot rely on an intuitive or theoretical approach; we must get to the data consumers—that is, our readers. Like IQ, to improve DQ, we must understand what DQ really means to our readers. And, like IQ, high-quality documentation must be:

- Intrinsically good
- Clearly represented
- Contextually appropriate for the task
- Accessible to the reader

Documentation is information—information that is intended to be used by readers in a particular context for a particular reason.

Wang and Strong's assumptions about the need for an empirical approach to determine what information consumers want, and what high-quality information must be, are parallel to those we are making about DQ. Because their framework is for measuring information quality, and the documentation we send to our readers is used as information, there is a strong basis for attempting to use this framework to create a model for accurately measuring what our readers consider to be high-quality documentation.

Applying Wang and Strong's IQ categories and dimensions to DQ, we get the following definitions (for more details, see Strimling, 2019):

- **Intrinsic DQ (IDQ)**: The information in the documentation must have quality in its own right. This category is made up of the following dimensions:
  - **Accurate**: The information in the documentation is correct, reliable, and certified free of error.
  - **Believable**: The information in the documentation is true, real, and credible.
  - **Objective**: The information in the documentation is unbiased (unprejudiced) and impartial.
  - **Reputable**: The information in the documentation is trusted or highly regarded in terms of its source or content.
- **Representational DQ (RDQ)**: The information in the documentation must be well represented. This category is made up of the following dimensions:
  - **Concise**: The information in the documentation is compactly represented without being overwhelming (that is, it is brief in presentation, yet complete and to the point).
  - **Consistent**: The information in the documentation is always presented in the

same format and is compatible with previous data.
    - **Easy to Understand**: The information in the documentation is clear, without ambiguity, and easily comprehended.
    - **Interpretable**: The information in the documentation is in an appropriate language and units, and the definitions are clear.
- **Contextual DQ (CDQ)**: The information in the documentation must be considered within the context of the task at hand. This category is made up of the following dimensions:
    - **The Appropriate Amount**: The quantity or volume of the available information in the documentation is appropriate.
    - **Complete**: The information in the documentation is of sufficient breadth, depth, and scope for the task at hand.
    - **Relevant**: The information in the documentation is applicable and helpful for the task at hand.
    - **Timely**: The age of the information in the documentation is appropriate for the task at hand.
    - **Valuable**: The information in the documentation is beneficial and provides advantages from its use.
- **Accessibility DQ (ADQ)**: The information in the documentation must be easy to retrieve. This category is made up of the following dimensions:
    - **Accessible**: The information in the documentation is available or easily and quickly retrievable.
    - **Secure**: Access to the information in the documentation can be restricted and, hence, kept secure.

Methods

Questionnaires

For this study, I developed two questionnaires. The questionnaire for **writers** asked them to rate the 15 dimensions from a **reader's assumed point of view** (called the Writers' Assumptions of Readers' Ratings [**WARR**] group); the questionnaire for **readers** asked them to rate the dimensions from **their own point of view** (called the Readers' Ratings [**RR**] group).

I posted the link to the writer questionnaire on numerous online technical communication forums and social media pages, and I sent the link to the reader questionnaire to several technical communicators and customer service personnel from various companies to send to their readers. I did this because I wanted to ensure that a broad, worldwide range of writers and readers from different fields answered the questionnaires, and that the people answering the questions were the people who actually created, read, and used the documentation.

Rating and Data Analysis

As in the Wang and Strong study, rating was done on a nine-point Likert scale, with **1** being "extremely important" and **9** being "not important at all." Even though this range is cumbersome, I used it to get a finer gradation between the weights. Fewer points on a scale can lead to a broader weight range; more points can show differences better, especially in a study like this one with a small sample size.

The mean weights of the responses were calculated, and the lower the weight, the more important the dimension. To decide which dimensions were to be considered the most important, I used a cutoff of < 2. This value was based on the ratings of the most important information quality attributes found by Wang and Strong in their own study.

Finally, I compared the mean weights and standard deviations per dimension of the WARR and RR groups via a one-way ANOVA (run at http://statpages.org/anova1sm.html). This was done to determine if the differences in mean weights between the selected groups were significant or not.

Results

RR Mean Weight Rating Results

A total of 81 readers responded to the questionnaire, but only 80 of them rated all of the dimensions. Using a mean weight cutoff of < 2, the following dimensions were determined to be the most important for readers:

- **Accurate** (1.80), from the **Intrinsic** quality category

- **Easy to Understand** (1.91), from the **Representational** quality category
- **Relevant** (1.96), from the **Contextual** quality category

The full range of dimension mean weights for the RR group is shown in Figure 1.

WARR Mean Weight Rating Results

A total of 66 writers responded to the questionnaire, and all of them rated all of the dimensions. Using a mean weight cutoff of < 2, the following dimensions were assumed by writers to be the most important for readers:

- **Relevant** (1.65), from the **Contextual** quality category
- **Accurate** (1.77), from the **Intrinsic** quality category

The full range of dimension mean weights for the WARR group is shown in Figure 2.

Comparing the RR/WARR Groups

Comparing the differences between the mean weights for each dimension between groups enables us to determine if the differences between them are statistically significant. If the mean weights of a dimension are significantly different (in this study, $p < 0.05$) between two groups, then we can state with some certainty that the two groups consider the importance of that particular dimension differently.

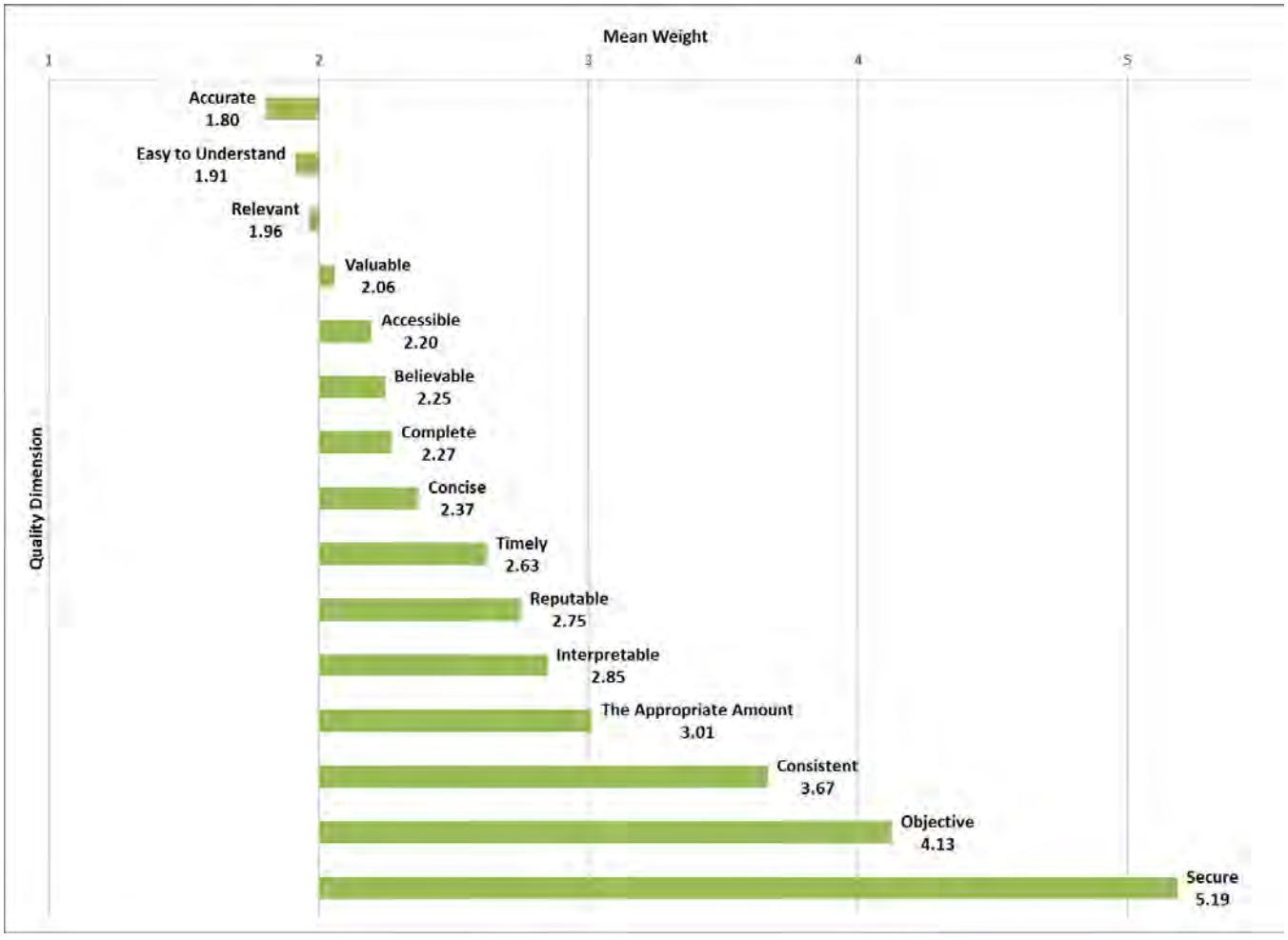


Figure 1. RR Mean Weight Rating Results

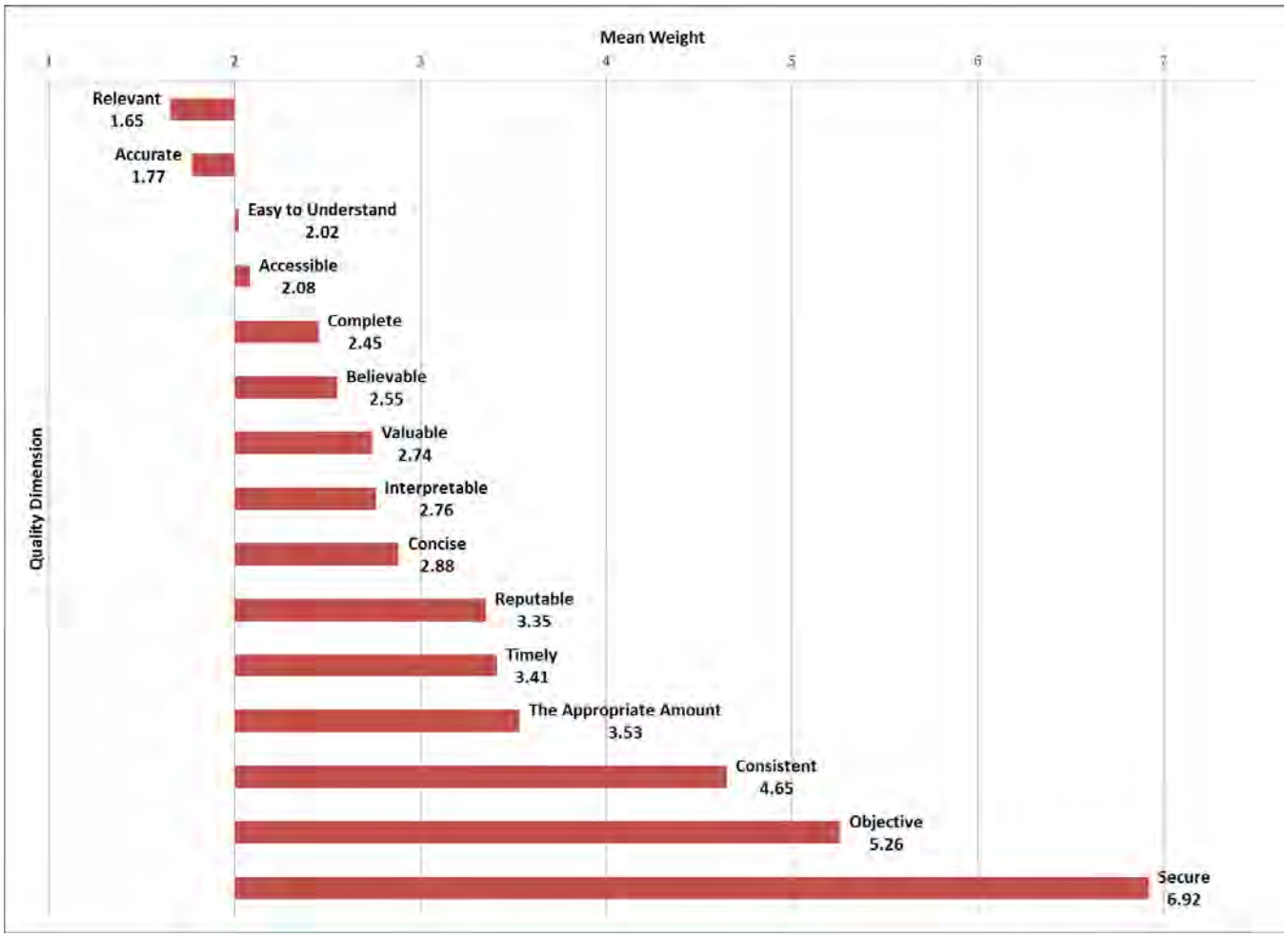


Figure 2. WARR Mean Weight Rating Results

Analyzing the comparison statistically, I found that there were some significant differences between how writers **assumed** readers would rate the IQ dimensions and how readers **actually** rated them:

- Writers think that the **Secure** IQ dimension is significantly less important to readers than it really is ($F = 19.9577$, $p < 0.0000$).
- Writers think that the **Objective** IQ dimension is significantly less important to readers than it really is ($F = 9.5802$, $p = 0.0024$).
- Writers think that the **Consistent** IQ dimension is significantly less important to readers than it really is ($F = 6.8994$, $p = 0.0095$).
- Writers think that the **Valuable** IQ dimension is significantly less important to readers than it really is ($F = 6.2277$, $p = 0.0137$).
- Writers thought that the **Timely** IQ dimension is significantly less important to readers than it really is ($F = 4.9567$, $p = 0.0275$).

Figure 3 shows a comparison of the mean weights between the RR and WARR groups; statistically significant differences are marked with a box.

Analysis

How Do Readers Define DQ?

The results of the RR group show that, above all, readers expect the documentation they get to be **accurate**, **easy to understand**, and **relevant**. Each of these dimensions represents one of the quality categories (**Intrinsic**, **Representational**, and **Contextual**, respectively). While this result might seem self-evident, it provides a strong empirical underpinning for the claim that DQ can be defined using a small yet comprehensive set of clear and unambiguous information quality dimensions.

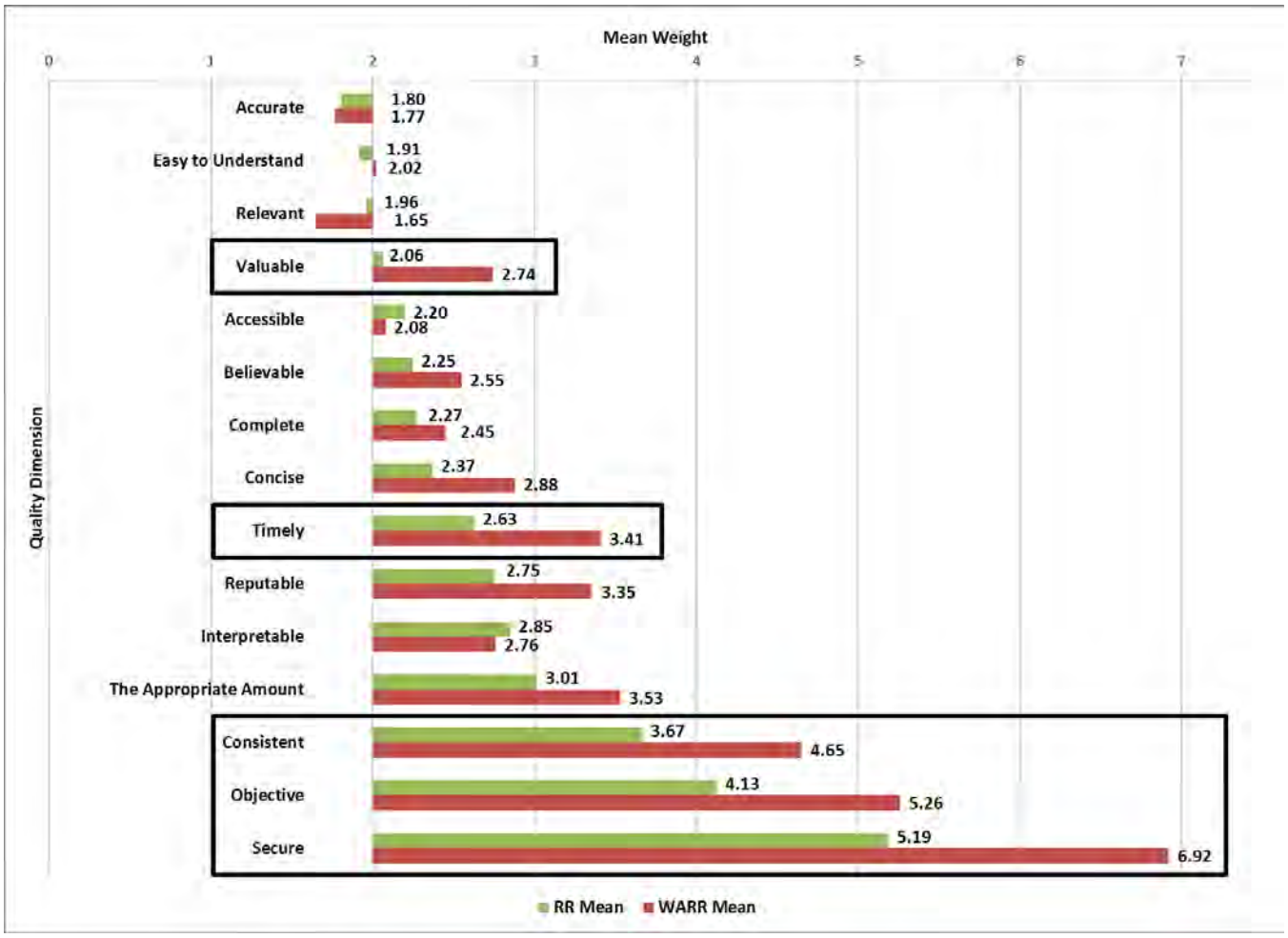


Figure 3. RR/WARR Mean Weight Comparison

How Do Writers Assume Readers Define DQ?

The results of the WARR group show that writers think that readers define DQ using only the **Relevant** and **Accurate** dimensions (from the **Contextual** and **Intrinsic** categories respectively). The **Easy to Understand** dimension (from the **Representational** quality category) barely misses the < 2 cutoff, but it is clear that it would have been counted had the sample size been larger.

This order is interesting, and might reflect writers' beliefs that readers do not consider the grammar, style, and clarity of the documentation to be that important. In truth, though, readers do understand the importance of these, and rate the **Easy to Understand** dimension second (after **Accuracy**). However, the differences between the groups for these three dimensions were not statistically significant.

Where Writers Get It Wrong

Of the five dimensions that had significant differences between their perceived importance by writers and their actual importance to readers (**Secure**, **Objective**, **Consistent**, **Valuable**, and **Timely**), only the **Valuable** dimension was rated highly by readers. Indeed, this dimension might have even made the < 2 cutoff had the sample size been larger.

It is important for us to look more carefully at this result. What are readers telling us when they say that they want the documentation to be "valuable"? Why are we significantly underestimating the importance of this to readers? And what can we do to address it?

Making Our Documentation Valuable

The wording of the **Valuable** dimension's definition gives us a clue: "The information in the documentation

is **beneficial and provides advantages from its use**." Compare this to the definition of the **Relevant** dimension: "The information in the documentation is **applicable and helpful for the task at hand**." (Note that both of these dimensions are in the **Contextual** quality category.)

Readers want the documentation we send them to be more than simply "applicable" and "helpful"—they want it to be "beneficial" and "provide advantages". They want to look at the information and understand that if they use it, it will improve their situation in some way.

If the information in the document is "applicable and helpful for the task at hand", it means that it helped readers do what they needed to do or know what they needed to know—no more, and no less. For example, the documented procedure helped them set up a complicated system, told them how to manage network clusters, or explained the hardware architecture.

On the other hand, if the information in the document is "beneficial and provides advantages from its use", then it means it was more than just relevant—it gave the readers something extra. Using the previous examples, the documented procedure helped them set up a complicated system in the most efficient way, told them how to manage network clusters more effectively, explained the advantages of the hardware architecture.

A document can be "helpful" but not "beneficial" or "advantageous"—sure, the reader set up the system, but it took three hours, when it could've taken two; sure, the reader can manage the network clusters, but it's more complicated than it needs to be; sure, the reader understands the hardware architecture, but doesn't understand why it is this way.

Readers look at the documentation and say "What's in it for me? Why should I care about this? What value will this information add to my work? How will this make my life easier?" They feel that there must be an additional, emotional level to the documentation. Readers are busy people, and are often under a great deal of pressure to get their tasks done—reading documentation is not usually high on their list of priorities, and is often a last resort. If they feel that they are not wasting their time with the documentation, and that the writer truly wants to make life easier for them, then they will consider the document to be high quality. Accuracy, clarity, and relevance are critical—but for readers, there also needs to be an extra dimension of value.

It is no surprise that the **Contextual** quality category is represented twice (**Valuable** and **Relevant**) in the readers' ratings of DQ. Documentation is never read in a vacuum, and is only used in context. Writers, who are not the intended audience of the documentation, can easily lose sight of this and create content devoid of all connection to the context in which the documentation is to be used. But readers cannot use this kind of content.

How do we as writers add value to our documentation? We must understand who our audience is, what they want from the documentation, and in what context they will be using the information we give them. This can be done via user stories, use cases, personas, journey maps, and similar tools that put the writer in the reader's place. We must also ask ourselves "if I were the reader, would this information help me do my job **better**?" We must understand that readers look to documentation not only for conceptual and procedural information, but also for ways to make their workload easier.

Good News and Bad News

The good news is that both readers and writers define high-quality documentation using a small yet comprehensive set of clear and unambiguous information quality dimensions—**Accurate**, **Easy to Understand**, and **Relevant**. Each of these three dimensions (together with the **Accessible** dimension) represents one of the **Intrinsic**, **Representational**, **Contextual**, and **Accessibility** information quality categories.

We can use these dimensions to classify and sort existing internal or external feedback, which can then be presented to management as clear metrics about the documentation and to determine where more emphasis might need to be invested. We can also use them as unambiguous terminology for discussing and analyzing documentation needs with SMEs and other writers. This will ensure that everyone involved understands what readers want and how to get there—which should be the goal of all people involved in creating documentation.

The bad news, however, is that we significantly underestimate the importance of documentation **value** to our readers. But this can be solved by considering

strategies that put us more directly "in the readers' shoes"—by thinking about how readers use documentation to make their lives easier, by realizing that there is an underlying emotional component to using documentation, and by carefully considering the context in which the documentation is used. This "feel-good, make it worth my while" factor in documentation cannot be ignored. It is not enough for us to give our readers accurate, clear, and relevant information—we must also ensure that the information we give them enables them to feel that it was worth it for them to read what we have written.

References

Strimling, Y. (2019). Beyond accuracy: What documentation quality means to readers. *Technical Communication*, *66*(1), 7-29. https://www.researchgate.net/publication/331088095_Beyond_Accuracy_What_Documentation_Quality_Means_to_Readers

Wang, R., & Strong, D. (1996). Beyond accuracy: What data quality means to data consumers. *Journal of Management Information Systems, 12*(4), 5–34.

Author Contact Information

Yoel A. Strimling
Senior Technical Editor/
Documentation Quality SME
CEVA Inc.
2 Maskit Street.
P.O. Box 4047
Herzliya, 4612001
Israel
yoel.strimling@ceva-dsp.com

Author Biography

Yoel Strimling has been spinning straw into gold for over 20 years, and currently works as the Senior Technical Editor/Documentation Quality SME for CEVA Inc. in Herzelia Pituach, Israel. Over the course of his career, he has successfully improved the content, writing style, and look and feel of his employers' most important and most used customer-facing documentation by researching and applying the principles of documentation quality and survey design.

Yoel is an Associate Fellow of STC, a member of tekom Israel, and the editor of *Corrigo*, the official publication of the STC Technical Editing SIG.

The Personalization Paradox: How to Succeed at Delivering Personalized Experiences at Scale

Valerie Swisher and Regina Lynn Preciado

"And herein lies the Personalization Paradox.... In order to create nimble, reusable pieces of content that can be combined in different ways for different people and different devices, you must standardize everything about the content." (Swisher & Preciado, 2021)

Content personalization has become the aspiration of modern communications. Companies large and small are on a quest to deliver the content a customer needs—and only that content—at the current part of the customer's journey. Nothing more and nothing less.

Marketing communications, human resources, training, technical documentation, and customer support are all looking to deliver content that is relevant, usable, and timely. They want to deliver:

- The right content
- To the right person
- At the right time
- On the right device
- In the language of their choosing

Our industry has been trying to achieve this goal for a long time. So why isn't it happening, successfully, at scale?

Two Ways to Provide Personalization

There are two ways to go about delivering personalized content.

The first way is manual. This method means that you create, manage, store, update, and retire different content for each person, persona, or customer type. Many companies have tried, and failed, to deliver personalized content in this way. The entire concept of creating personas and then writing content for each person represents an often-failed attempt at personalized content. It simply doesn't scale.

The second way is automated. This method emphasizes sophisticated tools that attempt to match the content to the consumer.

Some companies have tried this method. They've deployed expensive new software. They may have worked hard to deliver a proof of concept with a limited set of content and customer data. The problem is they didn't first optimize the content for reuse, automation, or personalization. They took existing content and put it into new tools and hoped that would be enough.

But it's not.

Personalization at Scale

The only way to deliver personalized content at scale is to automate the process at the point of delivery. And for that to work, you've got to change how you "do" content.

Instead of creating (storing, managing, retiring) an entire information asset for a particular person or persona, you need to reuse components from a comprehensive library of chunked information. The content must be written, stored, managed, and retired using small, format-free components that can be dynamically assembled, published, and delivered on the fly.

And herein lies the Personalization Paradox. To provide personalized experiences at scale, the content must be standardized.

In order to create nimble, reusable pieces of content that can be combined, on the fly, in different ways for different people and different devices, you must standardize everything about the content.

This includes the words and images you use, the ways in which you combine them, the tone and voice, and ultimately the paragraphs and sets of paragraphs that you deliver. If you do not standardize your content,

you will not be successful combining various components in different ways.

Sure, you can deliver words, sentences, and paragraphs. But that doesn't mean they will fit together seamlessly to create a customer experience that reflects your brand.

Words

At the very heart of successful content combination and reuse is standardized terminology. Standardize your terminology so that every piece of content you create uses the same term to mean the same thing. Standardizing terminology also means controlling which terms are allowed and which terms are prohibited.

Sentences

Standardizing sentences means creating and following both grammar rules and style rules. The rules govern how you put words together to form sentences.

In content, for one reusable component to flow into the next, your sentence must follow the same rules of grammar and style. If you do not standardize your sentence structures, you risk mismatch and confusion when combining components to create a personalized experience.

Paragraphs

A paragraph is a collection of sentences that build on each other to convey information and to express the author's voice. Readers may not be conscious of it, but they have certain expectations about paragraphs. Here are a few:

- Each sentence in a paragraph should build on the previous sentence.
- A paragraph has a beginning, a middle, and an end.
- There should be some variety of sentence composition to prevent monotony.

The words you use, the length and styles of your sentences, and how you combine them all come together to put your voice into the content. And your voice is what turns reading into an experience, rather than just a list of sentences.

Paragraphs also provide a visual indicator to readers for where a piece of information begins and ends. The space between paragraphs helps readers skim through a block of content to find the information they want. If you've standardized your components well, your readers will know exactly which paragraph to skip down to if they are looking for something really specific.

Components

Components are the building blocks of personalized content. Words, sentences, and paragraphs all roll up into content components. Several components assemble to form a personalized experience. Each component is matched to the customer at the right time, on the right device, in their preferred language.

Like words and sentences, components must be standardized to flow together seamlessly in whatever order the customer encounters them.

A well-written, reusable component contains exactly the right amount of information, nothing more and nothing less. It makes sense all by itself, yet also fits seamlessly with other components. That's a lot for one little chunk of content to do.

To be effective, a component must have all the following qualities:

- Focus on a single subject
- Ability to stand alone
- Minimal or no formatting
- A business purpose
- Company-wide, rather than siloed, application

Output Types

An "output type" is the assembly of content that you deliver to customers. In the olden days, output types included books, pamphlets, and scrolls. Today, we have all kinds of print and digital output types to share with our customers—solution briefs, product web pages, equipment manuals, user help, eLearning modules, and knowledgebase articles are just a few.

Standardizing output types means that every deliverable of the same output type includes the same type of content in the same order. The content itself will be different. An equipment manual for a dishwasher won't have the exact same content as an equipment manual for a refrigerator. But both equipment manuals will still include all of their required pieces, such as safety warnings, installation instructions, and customer service contact info.

In the case of personalized content, an output type is how you define the content that your content delivery system can choose from when matching the content to the customer.

Standardization Enables Personalization

Standardization enables personalization.

Without standards, any attempt to deliver personalized experience is hampered by content that does not flow when the consumer encounters it. It sends mixed messages. It creates confusion instead of providing clarity.

By using standards, your content can mix-and-match seamlessly. It is uniform in terminology, tone, grammar, and style. Components are tagged with rich metadata, so that systems and people can find them. Components are stored in a content management system where content is easy to find, assemble, and release to the personalization engine and delivery platforms.

The Personalization Paradox seems to elude many organizations. They do not understand that even the latest, most sophisticated technology is not enough to produce a professional, personalized experience. They must also change the way they envision, create, manage, store, and retire the requisite components.

Standardizing content to create a personalized experience might seem counterintuitive at first. After all, when we think of a personalized experience, we think of unique content that is created and delivered for a unique individual. As we have seen, creating unique content this way simply cannot scale.

Reference

Swisher, V., & R. L. Preciado (2021). *The Personalization Paradox*. XML Press. Get the book at contentrules.com/tpp.

Author Biographies

Val Swisher is the Founder and CEO of Content Rules, Inc. Val enjoys helping companies solve complex content problems. She is a well-known expert in content strategy, structured authoring, global content, content development, and terminology management. Val believes content should be easy to read, cost-effective to create and translate, and efficient to manage. Her customers include industry giants such as Google, Cisco, Visa, Facebook, Roche, and IBM. Her fourth book, *The Personalization Paradox: Why Companies Fail (and How to Succeed) at Creating Personalized Experiences at Scale*, was published in 2021 by XML Press. Val is on the Advisory Board for the Technical Communications Program at the University of North Texas. When not working with customers or students, Val can be found sitting behind her sewing machine working on her latest quilt. She also makes a mean hummus.

Regina Lynn Preciado is a senior content strategist with Content Rules. She helps companies transform how they organize, manage, and leverage content. Regina has helped organizations of all sizes make content work for people (instead of the other way around). Regina works with communicators in marketing, documentation, support, and training—sometimes all at once! Her clients include tier 1 companies in high-tech, life sciences, manufacturing, and financial services. She lives a dogspotting lifestyle. Her professional goal is to work a picture of her dog into every presentation, in a seamless and logical way.

A New Hope in Scope

Ralitsa Tsoneva and Vladimir Petrov

With ever-changing product and project scope in product releases, setting the scope grows beyond the effort to define and control what's in or out of a project. Scoping is now the means of prioritizing and negotiating your deliverables and keeping transparency to all stakeholders. The Information Experience department at VMware has developed a tool in Confluence that provides end-to-end estimates of the workload for documentation projects. The Confluence plug-in that we use for the tool allows custom designs, based on the logic you need to apply for your scoping needs. We use parametric estimates in hours that factor in the quantity of tasks, a weight based on the complexity of the feature or technology, and the number of review rounds. You get an estimate by writer, number of tasks, and business days that you need to complete the work. Data collected by the tool can be used for reporting, historical analysis, and team load calibration. "Just-in-time" parametric estimating solves common problems with estimates being frontloaded for the entire project, such as buffering, hidden risks, and a schedule in which no one really believes. The tool in Confluence is as easy to use as the usual tool of choice, Excel, but enables integration with Jira and transparency. You can export data in Excel if needed. This presentation is equally useful to writers whose day-to-day job requires scoping documentation work, documentation managers who need a tool to plan their schedule and resources, and anyone interested in the customization of Confluence and Jira.

Why Scoping Is Important for Documentation Projects

In classical project management, the formal definition of scoping is "to guarantee that the project includes all the work required, and only the work required, to complete a project successfully." However, with ever-changing product scope (that is features of the planned product) and project scope (that is work due to complete the product scope), scoping becomes more than defining and controlling what's in or out of a project. In Agile environments, it becomes means of backlog prioritization, negotiating definition of done and keeping transparency. In waterfall, scoping creates the work breakdown structure, which lays the foundation of any project schedule. However, in many cases we need to have something in place for doing a quick and dirty estimate and get to detail later, when we know more for the project, even in waterfall.

At VMware, we work mostly in Agile, and unlike waterfall development, agile projects have a fixed schedule and resources while the scope varies. Therefore, it was so important for us to have means of quickly estimating the impact of engineering features to our work.

Scoping also helps for measuring the time a documentation task takes, which allows you to find out team signature and velocity. Scoping data also allows to track performance over time and contemplate on historic data to enhance estimating and performance. Documentation work is hard to measure and predict - on this we all agree. Yet, organizations require metrics. Metrics allow to estimate the dollar-worth of a team contribution to an organization, serve as viable budgeting arguments, and allow for data-driven decisions.

We will add three more reasons why scoping is important for managers and employees alike. These you know and you can easily recall.

The first one is Parkinson's law. Cyril Parkinson was a British naval historian who observed the numerous inefficiencies caused by a large bureaucracy. His punchline is that "work expands so as to fill the time available for its completion." In other words, a simple task for a couple of minutes might take a couple of hours. If you allow it. Scoping helps to set an estimate of how much time approximately you must spend on a task and stick to it. You would normally want to be a bit right from an aggressive estimate, but still not allow time waste beyond the safe estimate.

Next is the student syndrome, also known as "planned procrastination." We all know that we tend to delay starting work on an assignment to the last possible moment, regardless of our awareness that we break safety margins and put ourselves and the project under stress and pressure. A side effect of procrastination, but a very important one, is that it affects quality. It is safe to assume that when you invest less time in a task than it requires, the quality of the output is poor.

If you are a writer, having your scope right before you makes you realize that you cannot do a months' work within a week and helps you get started in time. And adhere to quality standards. Unlike Parkinson's law, where you might have two simple tasks for the day and they might take the whole day, procrastination is delaying one of the tasks for tomorrow. Not that you don't have the time. You just don't start with it. Does scoping really helps with procrastination—most likely no. But do we have to consider procrastination as a factor—certainly yes.

Finally, Brooks's law, or the baby delivery rule. Brooks's law is way complicated, but to simplify it, people have come up with the baby delivery rule. Or the fact that if one woman carries a baby for nine months, nine women cannot deliver a baby in one month. Because it only takes one for the job. In other words, adding resources to highly specialized tasks such as writing documentation usually has negative correlation to efficiency. This means that you only have the staff you have, and they can only do the work they can do. And scoping helps you justify this with numbers to your seniors.

To summarize, scoping helps you prioritize your work, while keeping transparency, find your team velocity in Agile environments, or generally better plan your team capacity, track performance over time and calibrate your team.

What Our Scoping Tool Is and What It Is Not

Our scoping tool is a model that you can adjust to your needs for scoping documentation work, but not a comprehensive tool; you must tune it to your needs and processes.

Our parameters are based on historical data and experience relevant to the software industry and VMware in particular. We do not provide universal measures for documentation projects.

Our tool provides some sense of time and schedule in a hectic software development world but does not adhere to a particular project management methodology or use any specific project management instrumentation.

Business Requirements

Starting with the end product in mind, we started our journey to a scoping tool with a list of the business requirements for the ideal tool. On the surface, scoping might seem like an effort to estimate only time to complete a task. However, the time estimate is only a byproduct of our scoping tool because it is focused more on end-to-end planning of content on features rather than on a time schedule. You must know what you plan to write before you start estimating time and ordering in priority. Otherwise, you stick a finger into the air to decide if it is going to rain in Africa. Other business requirements designed in the tool are a real-time, multi-user tool that is easy to use, and provides personalized views for writers and management views, such as graphics and metrics.

Project Management Considerations

For years, our documentation team stuck only to first-draft estimates to scope work. This in project management is known as a single-point estimate, also called a guesstimate.

However, the new continuous feature delivery model that VMware's engineering teams introduced in recent years forced us to develop an end-to-end feature-scoping method to allow applying consistent scoping criteria across the writing group.

From a standard project management perspective, we used a parametric approach to define estimates. Parametric estimating seemed like a solution to the problems we faced with guesstimates, such as buffering, hidden risks, and a schedule in which no one really believes.

We cannot use top-down (or analogous) estimates, or heuristics, because although the software industry provides a lot of common metrics for projects, they do not necessarily apply to documentation. We also cannot use the variations of the three-point estimate, because this would require a lot of time and effort from writers.

Some would argue that any estimate is a guesstimate, and we cannot deny that. With our tool estimates are always work in progress because the scope of our releases changes. What we are essentially doing is moving the estimation work from being frontloaded for the entire project to being "just in time" for each feature or functionality that we develop. This way, our estimates are always valid for the time-being and can be enhanced as more details come, or the scope changes. The huge benefit of our approach though is that it is completely transparent, and a manager can easily see if a writer's scoping is done based on the right considerations.

Parametric estimating for documentation work in our tool provides a relatively easy and automated creation of a work-breakdown structure. Estimates in our tool are done by the person executing the work, with the potential benefit of estimates being as close to real and the person as much engaged in the work as possible. Ultimately, the tool provides a comprehensive deliverable-oriented breakdown of the project.

Parameters

Topic Difficulty = (Easy/Medium/Hard in hours). Topic difficulty is an hourly estimate of how long new or modified topics take to write. These parameters are based on observations over more than a decade.

Redesign/Research Cost = S/M/L, 30, 50 or 100% added to the original Topic Difficulty estimate. Selecting a redesign or research weight requires a subjective call on the writer but helps to weigh in factors such as team chaos and responsiveness, plus additional weight for re-work and research on features as they change during a release. We use T-shirt sizes to put this weight, depending on the scale of rework required.

Weighted Feature Cost = (Topic Difficulty * #Topics)* Redesign/Research Cost). Based on the topic difficulty, the number of topics and the redesign/research cost, we calculated a weighted Feature Cost.

Documentation Review = (Peer Review + Tech Review)*(Topic Difficulty*0.2). The documentation review estimate includes reviews by peers and by engineers, or technical reviews. Reviews are usually no more than one of each kind, but sometimes might be two, even three. Our assumption is that more difficult topics require more time for review, and we use a coefficient of 20% from the weighted topic difficulty to reflect that. For instance, if the topic difficulty estimate is hard, and the estimate is X hours, we put 20% more to the overall review estimate.

Edit Feedback Incorporation = (Peer Review + Tech Review)*0.5. Our consideration is that incorporating feedback takes at least half the time of review for the entire feature, not per topic.

Feature Total (Weighted Feature Cost + Review + Feedback = 3 workdays). Weighted topic subtotal + documentation review feedback + feedback incorporation gives as the overall estimate for a feature. It is measured in workdays, considering utilization of 80%.

Out of scope: features that have tiny touches to many topics (such as versioning, product name changes). Features that have tiny touches to many topics (such as versioning and product name changes) are not included in the estimates, as we could not find an appropriate weight to represent them in the scoping tool.

Technical Considerations

As we are telling you a story, in each story telling there is a conflict that emerges from the clash of the desire for change and reality. Apart from the awareness what we were changing, we had to consider also how to. The scoping tool started with a prototype in Excel, which we later tried to bind with SharePoint to achieve online real-time multi-user access, but ended up with a solution in Confluence, because of the obvious benefit that Confluence is integrated with Jira. This allows engineering epics with documentation impact to be reviewed in the same context and screen. Of course, you navigate to Jira and back, but the link to the Jira issue is established and refreshed automatically.

A downside of the tool is that we cannot automatically create what we call documentation operational stories in Jira, which are our doc tasks listings in Jira. Fortunately, there are workarounds for automatic loading and mass editing of issues in Jira from the scoping tool, so it is not a real problem. All data resides in a native database, but you can use an external one as well.

A prerequisite to justify the existence of our scoping tool is the ability to track, report and analyze data. You can see aggregations of the workload per writer, team, or feature in the tool page. Also, you can export the

estimates in a tabular format, even a big table weighs just a few hundred kilobytes. We can track and report progress due to the integration with Jira, collect historic data to allow trending and comparisons, and finally this allows us to do data-driven decisions.

Success Stories

Creating the scoping tool made it possible to create 1,000+ stories and related subtasks in Jira with just one step. Writers only cared to think about what they were going to write. Schedule and planning were all automated using the tool.

Running three releases in a row, we finally had some metrics. Using metrics is not for the sake of micro-management and tracking utilization; we are well aware that writing documentation is a creative task that cannot easily fit into metrics. Yet, being able to track time against estimates is of huge advantage if used properly.

The tool helps you calibrate your team. We could see how less senior people estimate tasks compared to senior people.

The tool also increases transparency, because when a writer changes an estimate, this is immediately available to their manager as the tool sends email notifications and the effect of the change can be seen in personal and general scope.

Resources

ConfiForms: https://wiki.vertuna.com/display/CONFIFORMS/Documentation

Confluence: https://www.atlassian.com/software/confluence

Jira: https://www.atlassian.com/software/jira

Author Contact Information

Ralitsa Tsoneva
Manager Information Experience
VMware
rtsoneva@vmware.com
+359 888 236 666

Vladimir Petrov
Project Manager
VMware
petrovv@vmware.com
+359 887 001 591

Author Biographies

Ralitsa Tsoneva is Manager of Information Experience at VMware. Ralitsa started her technical writing career in 2010, inspired by the first local to Bulgaria professional conference, Evolution of Technical Communication (ETC), which is now part of the tcworld events network. After 9 years in information development, for the past 2.5 years Rali has taken on the task of managing a local team of 10 technical writers through complex doc projects in VMware vSphere in an agile pace of our software development process.

Vladimir Petrov is Project Manager, Content Curation, at VMware. As a Project Manager at VMware, Vladimir brought about a process to improve the visibility of code enhancement in the flagman product of VMware, vSphere. Vladimir works with engineering and writing teams to manage, track, and drive projects that require quick turnaround on delivering fixes on vSphere to customers. He is a certified PMP with a decade of experience in creating tools, automation, and synergy of processes to improve work efficiency. Vladimir has also led a team of technical writers, covering products across the business units of VMware.

mHealth Apps and Usability: Using User-Generated Content to Explore Users' Experiences

Candice A. Welhausen, PhD, and Kristin Marie Bivens, PhD

User-generated content (UGC) such as online product reviews can be used to help technical communication (TC) practitioners learn more about their audience. In this session, we present the results of a study in which we analyzed review comments for a civilian first responder mobile (mHealth) app, PulsePoint Respond. We found that ensuring the app works as it was designed remained important to users, but that users also wanted to perform tasks that were not or were no longer supported by the app, which points to the need to better understand the audiences of these tools. Our presentation addresses the latter by drawing from our analysis to propose a commenting framework that TC practitioners can use to prompt users to leave more actionable and valuable information in their online reviews about their experiences with mHealth apps.

Session Takeaways

- mHealth apps working as intended remains important to users. However, our findings suggest that users also want to perform tasks that are not always supported, emphasizing the need to better understand their experiences and expectations with these apps.
- Online review comments—a form of user-generated content (UGC)—can provide a rich source of untapped data in facilitating this effort.
- Practitioners can use the commenting framework we present in this session to prompt users to provide more actionable and valuable content in their online reviews.

Session Details

We will begin the session by briefly providing background information about mHealth apps and previous research in TC on user-generated content (UGC). We will then turn to the study we conducted and explain our data gathering method and analytical process for understanding the UGC. More specifically, we gathered and analyzed 599 review comments posted on the iOS platform between September 2016 and November 2019. In compiling our dataset, we first used open card sorting to eliminate comments that did not provide specific, substantive, or actionable detail(s) about the user's experience (i.e., the comment was unusable). Then we created preliminary codes for the remaining comments (a total of 292) and used affinity diagramming to create categories to sort these comments. In total, we created 14 categories, which are outlined in Table 1.

Our findings confirm that whether the PulsePoint mobile app works as it was designed remains important to users. However, many users also commented on the limitations of particular functionalities and/or described actions they sought to perform that were not or were no longer supported by the app. For instance, some users wanted more timely information related to accidents and integration of the app with other devices like the Apple Watch.

Drawing from this analysis and the content of the comments in our dataset, we conclude the session by proposing a commenting framework that we suggest can help practitioners more effectively evoke, identify, and work with users' usability concerns. We then provide examples to illustrate how this commenting framework might be used to elicit more valuable and actionable feedback. For instance, content managers might include commenting framework elements in a drop-down menu, or an app's feedback form might include predetermined categories with an optional "other" or a dialogue box reminder to include specific examples, which we illustrate.

Category	**Count**
Accurate Notifications	28
Audio	49
Compatibility & Integrations	8
Currency	58
Improvements	49
Location	27
More Agencies	50
Naming and Descriptions	41
Operating System/Battery/Memory	6
Privacy	4
Updates	8
Usability/Interface	23
Unusable or Unactionable	307
Multiple Categories	45

Table 1. Categories from affinity diagramming and the number of responses for each

We conclude by explaining how our findings contribute to and enrich existing UGC analysis in TC, as well as the push toward integrating users "as collaborators," as Getto and Labriola (2019, p. 386) put it, in the creation of technical information.

References

Getto, G., & Labriola, J. T. (2019). "Hey, such-and-such on the Internet has suggested…": How to create content models that invite user participation. *IEEE Transactions on Professional Communication*, *62*(4), 385–397.

Author Contact Info

Candice A. Welhausen
Assistant Professor
Department of English
Auburn University
Auburn, AL 36849
candicewelhausen.com
caw0103@auburn.edu

Kristin Marie Bivens
Associate Professor
Department of English
Harold Washington College—
One of the City Colleges of Chicago
Chicago, IL 60601
kristinbivens.com
kbivens@ccc.edu

Author Biographies

Candice A. Welhausen is an assistant professor of English at Auburn University with expertise in technical and professional communication. Her scholarship encompasses technical communication, visual communication and information design, and the rhetoric of health and medicine. Before becoming an academic, she was a technical writer/editor at the University of New Mexico Health Sciences Center. Her workplace experience directly informs her research and her overall approach to the theory and practice of technical communication.

Kristin Marie Bivens is an associate professor of English at Harold Washington College—One of the City Colleges of Chicago. She is also a scholar of technical communication and the rhetoric of health and medicine. Her research is generally concerned with the circulation of information from expert to non-expert audiences in critical care contexts (e.g., intensive care units, sudden cardiac arrests, and opioid overdose) and how communication in these contexts can be enhanced, improved, and ameliorated through the interplay of technical communication and rhetoric.

From Contributor to Manager: What Got Me Here Won't Get Me There

Roberta (Bobbi) Werner, Fellow

Success as an individual contributor does not promise success as a manager. A distinct skillset and approach are required to succeed in the manager role, often making the transition difficult. This article analyzes the contrasting demands of the individual contributor and manager roles and the significant lessons new managers can expect to learn on the job. Specific illustrations and anecdotes from my first two years as manager will drive home the contrasts and lessons learned.

Introduction

It's not uncommon for a "rock star" individual contributor to be promoted to manager, but the skills, performance, and mindset that make the contributor stand out and earn a promotion in the first place can actually hinder success in the manager role.

Currently in my third year as manager, I confront this reality daily. Always the overachiever, I strive now to be a "rock star" manager, but that designation doesn't flow naturally from the success I knew as Lead Writer. It comes only after considerable time, study, and effort.

This article includes an analysis of my experience working through this transition. Topics to be addressed include the following:

- Discovering and filling in knowledge gaps to manage a team
- Becoming the official voice of Tech Comm in the organization
- Defining success for a team (collaboratively) and promoting the career development of each team member
- Managing workload in an under-resourced environment/ Navigating contingent labor versus full-time hire options
- Securing tools and facilities to streamline our work
- Managing the crush of new Regulatory standards and corporate initiatives
- Confronting team members' personal issues and learning how to respond as a manager
- Promoting professional development when resources and time are limited
- Assessing the performance of direct reports who once were peers
- Adjusting to impacts of the pandemic and other crises in the organization and the team
- Recalibrating my personal definition of success

Discovering and Filling In Knowledge Gaps to Manage a Team

When I became a manager, I knew almost immediately that my knowledge of the business and rationale for corporate decisions was sorely lacking. To establish my credibility as a manager, I needed to learn quickly and prove I had the right stuff for the role. When I was an individual contributor, my lack of business savvy never interfered with my performance. As manager, however, I became a conduit. My leaders and my team expected me to present project roadmaps, to explain the variable support for tools and professional development based on budget, and to grapple with the overall conservatism regarding headcount and its impact on my team. Two mentors helped me throughout this process to develop a critical understanding of these and other aspects of the business, and both enhanced my ability to manage effectively.

Becoming the Official Voice of Tech Comm in the Organization

I didn't realize until a few months into the job how much I loved being spokesperson for my team or the authority for all things Tech Comm where I work. That's not to say that I know everything or that my knowledge exceeds that of my team. Far from it! It's the being on point, being the "go to person," that brings me unanticipated pleasure. Of course, it helps to know what I'm talking about when I use that official voice, so the quest to be informed and fill in knowledge gaps continues.

Defining Success for a Team (Collaboratively) and Promoting the Career Development of Each Team Member

Tech Comm at Hillrom Skaneateles has always been a high-performing team with a reputation for quality and reliability. This reputation attaches to both the team as a whole and to the individuals who constitute the team. As manager, I need to ensure individuals are undertaking specialized projects or roles that support their career path and develop them professionally. I also reinforce with them that team member success translates to team success. We don't compete with one another or gains at the expense of others. Rather, we collaborate intensely and raise the bar for the entire team. Without exception, team members understand and appreciate the attention given to them and their individual goals, and this individual focus recharges their commitment to the team.

Managing Workload in an Under-resourced Environment/ Navigating Contingent Labor Versus Full-time Hire Options

My company experienced numerous changes over the past few years, including the closing of a site that was home base for 40 percent of my team. Add to that one team member undergoing cancer treatments and another going out on maternity leave. More recently, Hillrom offered a voluntary early retirement program to reduce its workforce, which caused the loss of yet another team member. To say the company is slow to backfill these positions or add to headcount is an understatement, so we need to engage contract labor to have any hope of meeting the demand for Tech Comm services and not put undue burden on my team. I don't want them to jump ship, after all! At this writing, I have a full-time staff of 8, one half-time writer, and 7 contractor/consultants. Managing this many people can be challenging, but the alternative of having too few team members to cover projects is even more daunting. Success here involves better distribution of work to promote retention and positive morale.

Securing Tools and Resources to Streamline Our Work

As manager, optimizing our effort and streamlining our work is key to success, so I purpose to stay current with the latest innovations and technologies and to also tap my team regularly for recommendations to achieve these goals. It has been exciting to observe the team embrace opportunities to eliminate manual work, to set up automatic processes, and to share their discoveries and inventiveness with the team. If new tools or specialty software support these efforts, we make a business case to justify the expense. We prove that the investment was worthwhile by delivering on the objectives we cited in our proposals. Success is even more sweet when it extends to other departments and business units.

Managing the Crush of New Regulatory Standards and Corporate Initiatives

Over the last two years, we have completed over 70 projects at my local site to achieve compliance with the European Union Medical Device Regulation (EU MDR). We hired four contractors to tackle these projects alone, but we witness a steady stream of Regulatory changes we are compelled to address in our user documentation to sell our products both domestically and internationally. When our business partners change their notified bodies, as was the case with Brexit, we also update regulatory information in our documents.

Corporate initiatives include rebranding our products and user documents to clearly mark them as Hillrom rather than Welch Allyn. As Hillrom acquires more companies, the scope of our work increases as well.

In all of these examples, success is keeping pace with the work or staying ahead of it whenever possible.

Confronting Team Members' Personal Issues and Learning How to Respond as a Manager

My team is not immune to interpersonal issues that bubble up and challenge relationships. Fortunately, these incidents are rare—we typically get along famously. When new people join the team, especially when they bring the baggage of unpleasant past work experiences, however, sometimes they jump to conclusions and level unfair accusations against their new colleagues. One person claimed a colleague "mansplained" some details about clinical studies, discounting what she already knew. Another felt she was being publicly corrected in an email exchange, wondering why her word wasn't enough. As manager, I step in immediately and insist the parties talk to one another. I do not tolerate backbiting or disrespectful behavior, so resolving these issues quickly and clearing the air is critical to the success of the team.

Promoting Professional Development When Resources and Time Are Limited

I'm grateful that my management has supported my involvement in STC and Corporate Value Program memberships for my writers and illustrators. Hillrom also allows us to use office space and tools to host STC and other professional development events. I have been successful getting funding to attend conferences that provide extended access to recordings I can share with my team. I have no problem scheduling professional development events during the workday to facilitate attendance and provide access to new and interesting ideas that inform our practice. Success here is promoting the development of my team in the most cost-effective way possible.

Assessing the Performance of Direct Reports Who Once Were Peers

Evaluating my former peers concerned me the first year I completed performance reviews. I wasn't sure what to expect, and I wanted to be fair above all else. My manager helped me to develop a healthy perspective about these assessments and to ensure they were appropriately complimentary, helpful, and challenging. My own history of disappointment with how little feedback I received in performance reviews prompted more detailed commentary in my assessments, and my team seemed to welcome the detail and thoughtfulness of my comments. Success here is paying attention to the individuals on my team and providing feedback they value.

Adjusting to Impacts of the Pandemic and Other Crises in the Organization and the Team

The pandemic has been a challenge for everyone, but my team was able to take the move offsite in stride and maintain a high level of productivity. Hillrom set us up with the remote communication tools we needed to interact one-on-one and as a group. I hold two weekly meetings with the entire team and bi-weekly one-on-ones with individual team members. We also use informal chat to stay in touch, and I make it clear that the team can reach out to me as needed to address emergencies or quick questions. In many respects, the pandemic actually enhanced our communication.

The pandemic also proved that remote work is an acceptable labor model, and this new way of thinking enabled me to hire staff outside our immediate area. In addition to our full-time Upstate New York staff, I now have a full-time writer from Texas and contractor/consultants from Ohio, Minnesota, South Carolina, Oregon, and New York. I love that geography no longer constrains who can join my team, and success comes with the deeper and broader skillsets new team members bring with them.

What no one anticipated was my own bout with COVID-19. I was hospitalized for 18 days in December and then was on disability until the end of January. During this two-month hiatus, my manager stepped in to provide guidance and direction, but the team also rallied and stood in the gap. I couldn't have been prouder of them and how they toughed out this really trying time for all of us. Many commented that their resilience and resourcefulness reflected how well they were managed. Perhaps, but our shared commitments to quality also promoted success through this trial.

Perhaps the biggest trial any of us faced, even more trying than my bout with COVID, was the sudden passing of my manager, Kimberly Coon, in March 2021. Though more than 15 years my junior, she was my mentor and my biggest champion in the entire

company. My entire team feels her absence daily, but we care for one another and hold each other up as we struggle to recover from this tragic loss. Our greatest success is our culture of caring in the midst of crisis.

Recalibrating My Personal Definition of Success

As an individual contributor, I measured success by the quality of my deliverables, my consistency meeting deadlines, and the number of times project managers requested me as lead writer. As manager, my "deliverables," if you want to call them that, are entirely different. I contribute to budget negotiations with detailed cost estimates and justifications for expenses. I write annual performance appraisals for members of my team. I write Statements of Work and chase down division directors to provide detailed financial commitments to support contract labor. I compose best practices documents that define for my team and other audiences how to improve and streamline processes. I write dozens of emails each day answering queries, troubleshooting problems, assigning resources, and running interference in various ways for my team. These "deliverables" yield a different kind of joy when they benefit my team, improve our process, or simply get a job done.

I also experience success just by being decisive. That doesn't mean that my decisions are the best 100 percent of the time, but I so dislike being held back by inertia (indecision) and strive instead to move in a productive direction. I especially enjoy it when my most senior team members can be decisive and not rely on me to approve their choices. I want them to trust me when I say they should lead and act confidently.

Conclusion

After almost three years in this role, I can say with confidence that I am catching my stride; being a manager suits me. Even more gratifying is that others have taken notice. For the first time in my Welch Allyn/Hillrom career, I earned an Exceptional performance appraisal and was promoted to Senior Manager this February. Have I become that "rock star" manager? Perhaps, but my success as a manager requires a deliberate and consistent focus on the team. A familiar adage says, "There's no 'I' in TEAM." I contend that the adage applies to managers of teams as well. A manager striving for personal success or accolades could compromise her success as a manager. Her success depends on the success of the team, and her mission is to promote team success. My amazing team makes my job so much easier and more fulfilling than it might otherwise be. I'm grateful to them and to all who have inspired and supported my work as a manager.

Dedication

I dedicate this article to the memory of Kimberly Coon—my manager, my mentor, my friend.

Author Contact Information

Roberta (Bobbi) J. Werner
Senior Manager, Technical Communication
Hillrom Skaneateles (formerly Welch Allyn)
4341 State Street Road, PO Box 220
Skaneateles Falls, NY 13153
(315) 685-2945

Author Biography

Roberta (Bobbi) Werner, Senior Manager, Hillrom Skaneateles (formerly Welch Allyn). Bobbi holds a BA in English and TV/Radio and an MA in English. She taught writing at Syracuse University for almost 20 years, during which time she also developed a corporate training and technical writing business serving Niagara Mohawk, Lockheed Martin, New Venture Gear, United Healthcare, Philips Broadband, and several other corporations in Upstate New York. In 2000, these contract opportunities opened the door to full-time work as a writer. After two full-time technical writer positions at different companies, Bobbi joined Welch Allyn (now Hillrom Skaneateles) in 2008, moved up the ranks from Senior to Lead Writer, and was promoted to Manager in March 2019. In February 2021, she was promoted to Senior Manager. Bobbi has earned Regional Technical Communication, STC Alliance, and International Summit Competition awards. She holds multiple leadership roles in both STC CNY and STC Rochester, and she mentors several STC members through the Mentor Board. Bobbi earned the rank of Associate

Fellow in 2017 and the rank of Fellow in 2021. She served as a Track Manager on the 2018 STC Summit Committee, is a member of the STC Alliance Competition Council, serves on two STC committees, and was just elected to the STC Board where she will serve as Treasurer.

XML Documentation for Adobe Experience Manager

Structured content management for experience-driven documentation.

Get maximum returns on enterprise content with a component content management system (CCMS) built for technical documentation, IT, and marketing teams.

Know more at **bit.ly/DITA-CCMS**

Experience-driven product documentation.

Risk-free standards and policy content management.

Personalized long-form marketing content.

Adobe RoboHelp

Next-generation software for authoring and publishing Help, policy, and knowledge base content. For Windows and Mac.

Know more at **adobe.com/robohelp**

Author faster

Import Word, HTML and Markdown

Publish to multiple channels

Create Microcontent

Collaborate seamlessly

For any queries, please write to us at techcomm@adobe.com

Table of Contents

2022 Summit and Expo

15–18 May 2022

HYATT REGENCY O'HARE
ROSEMONT (CHICAGO), IL

TECHNICAL COMMUNICATION
2022 SUMMIT
CONFERENCE & EXPO